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EVALUATING FOUNDATIONAL COMPONENTS OF RESEARCH  
CONSULTATIONS IN AN ACADEMIC LIBRARY RESEARCH CENTER

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A Dissertation in Practice

Presented to

the Faculty of the Morgridge College of Education

University of Denver

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

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by

Ryan F. Buller

June 2021

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## ABSTRACT

As our society continues to evolve at an ever-increasing rate, our higher education institutions, and the services they provide, must keep pace with societal changes in order to ensure that those services stay current and relevant. This program evaluation examines one such service, the research consultation model in University Libraries at the University of Denver. This evaluation was situated within the Human Ecological Theory Framework, to help understand how different environments can impact the recognition and value placed upon the foundational components of the service. An exploratory sequential mixed methods approach was used to determine what the foundational components of the research consultation were through an interactive focus group activity with faculty librarians and relevant stakeholders. A survey was then sent to patrons who used the service during the Fall 2020 academic quarter. The results of the survey highlight that the foundational components are recognized and valued by the research consultation patrons, that there are certain environments which can impact the value and recognition of certain foundational components, and that patrons recognize and value other aspects of the service that they deem important to the consultation.

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## **CHAPTER ONE: INTRODUCTION**

The higher education landscape is facing significant changes such as increased access to information, the expansion of online and remote degree programs, and transitioning student demographics. These changes impact the expectations and needs of students regarding services offered through the institution. Therefore, it is important to periodically reevaluate the foundational cornerstones of services offered in order to ensure the service remains relevant, effective, and useful for participants. Libraries traditionally offer a variety of public facing services including circulation, resource sharing and interlibrary loan, course reserves, as well as reference and research services. As libraries have transitioned to the academic commons model, additional academic services like the writing center, language and course tutoring, and technology assistance have become common place. The Research Center in University Libraries provides comprehensive research support to faculty, staff, and students at the University of Denver. The research consultation is a defining service of the research center model. This consultation consists of an hour-long session where a faculty librarian assists the program participant in meeting their needs, whether that be finding sources, constructing appropriate search parameters across the variety of available resources, constructing

bibliographies, and many other steps of the research process. This consultation may be directed to an individual, or to a group working on a project together.

This program evaluation interrogates the foundational components that underlie the consultation service provided in the Research Center in University Libraries at the University of Denver. Evaluation questions were designed to determine if program participants are receiving the expected benefits of that foundation and to ensure that these foundational components are still relevant with program participants. The foundational components as identified through this evaluation are the needs of the patron, a focus on lifelong learning and teaching, the service model as deployed, and how the librarian connects resources and expertise to the expectations of the patron. It is important to evaluate these foundational components against the ongoing societal changes related to digital and information literacy, the changing demographics of higher education students, and the expansion of online and remote degree programs. I draw upon Rossi's Theory Driven Evaluation as the evaluation model with an exploratory sequential mixed methods design. The first phase of the evaluation was a qualitative exploration of the foundational components of the research consultation in which a focus group of faculty librarians at University Libraries participated in an interactive focus group activity that allowed the group to come to a consensus on those foundational components. A survey was developed from the qualitative findings that was tested with a sample consisting of research center patrons. The sample was limited to patrons who had taken part in a research consultation during this time, as I wanted to examine the extent to which the foundational components were recognized in the delivery of the consultation, as opposed

to understanding what people would theoretically want to see in the evaluation. This did limit the potential size of the sample, but it provided a population that could speak more to their actual experience. The surveys were administered and distributed through Qualtrics.

### **Statement of the Research Problem**

At the heart of this evaluation, is the question about whether the expectations and needs of program participants are being met. Different analyses of reference and research services have looked at the effectiveness of reference and research services on student retention and student GPA (Thorpe et al., 2016; Greater Western Library Association, 2017; Crawford, 2015; Soria et al., 2013). While it is important to understand the effectiveness of services offered, these assessments miss a key component; the expectations of program participants in the research process and whether the service provided is keeping current with the changing needs of patrons in the higher education landscape.

This missing component is important for understanding the overall effectiveness of the services provided by the program. The program is based around best practices and emerging trends in the field of Library and Information Science. However, the increasingly internet savvy students that continue to enroll in our institution each year may not necessarily need the same services and resources of students only a few years prior (Lukasiewicz, 2007; McLean & Dew, 2006; Popp, 2012). The lack of understanding as it relates to the expectations of program participants compared to those values that

librarians expect program participants to want, could be a potential source of new views regarding the services and values of the program.

A proactive approach to assessing and evaluating a congruence between the expected and actual expectations of program participants ensures that the service stays relevant and useful for participants. Failure to identify the changing expectations of patrons and to adapt the service to these changes will result in fewer participants using the service, and a declining rate of satisfaction with the service. This evaluation used a program evaluation theory to evaluate the stated values, purpose, and aims of the program compared to the changing needs and expectations of the program participants.

### **Program Evaluation Theory**

I used Peter Rossi's Theory Driven Evaluation (TDE) as my program evaluation theory (1972, 1982, 1993). TDE seeks to utilize the most appropriate methods to answer the research question at hand. It does this to evaluate the performance or merit of the program and to understand how and why it achieves those results ("Theory-Driven Evaluation," n.d.). This is a pertinent evaluative approach as it allows for collaboration with the stakeholders to understand how the program should operate in an ideal implementation, while also enabling the evaluator to interrogate the foundations that underlie the program to help stakeholders better understand what parts of the program work well, which parts do not, and why.

TDE is being used to understand the program theory that drives the research consultation. The program theory for the research consultation examines why the service provides the result that it does. This helps program stakeholders better understand what

parts of the program work well, and why they work well. TDE informed this evaluation through the use of the process evaluation approach. Instead of evaluating the end result of the consultation, I evaluated what underlies the process and frameworks of the consultation to determine its impact on the output and outcomes of the program.

The exploratory sequential design allowed for qualitative findings to inform the design and analysis of survey data that will impact the foundational components of the program moving forward. This creates an iterative process of evaluation and implementation to ensure that the research consultation model continues to remain relevant and useful to program participants.

### **Purpose of Evaluation**

The purpose of this evaluation was to interrogate the foundational components of the service offered to better understand if those foundational components are keeping up with the changing needs of patrons within the institution. This was done by examining the views placed on the importance of the foundational components of the program by two different groups, library faculty and program participants.

The perspective of faculty librarians is based upon their academic and professional background within the field of Library and Information Science. This field focuses on specific foundational beliefs such as access to information, curation of collections, intellectual freedom, and confidentiality (Carroll, 2016; Focke, 1968). These topics inform the views of faculty librarians on the foundational components of the program.

Conversely, program participants may come from a variety of backgrounds. Program participants may be experienced faculty researchers, graduate students with a firm understanding of their subject, or undergraduate students engaging in serious research for the first time. They may also be from different socio-economic, racial, political, and religious backgrounds that can impact their views and experience with academic research. Finally, incoming students were born into a world in which the internet has existed and has been available from the time they were born. They have grown up being able to search for anything through a variety of search engines that have gained insight on them through the use of data collection methods. The needs and values of these students will continue to rapidly evolve, and libraries need to be adaptive to this (Gibbons, 2013; Hill, 2014).

Another component to consider regarding the differences of program participants is the changing nature of higher education. As universities look to expand the size of their student bodies while facing space constraints, they need to expand how their services are offered. The University of Denver has looked to meet this challenge by creating a number of online graduate degree programs (*University of Denver Partners With 2U Inc.*, 2017). This has created an entire population of University of Denver students that may need library services that are not located on campus, or even near the city of Denver.

By examining the different perspectives of the foundational components regarding the intended use of the program, I offer a more comprehensive understanding of the views held by library faculty stakeholders, the expectations of program participants, and if they diverge, how to bring these views into alignment. By

understanding where and how these views differ I offer recommendations to program administrators that to improve services by meeting the needs of program participants that may have previously gone unrecognized.

### **Significance of Study**

This study interrogates the foundations of the research consultation at the University of Denver. By evaluating how the foundational components of the program are viewed by the program participants, we better understand if the program is keeping pace with the changing demographics, needs, and expectations of higher education students. In addition to the program itself, this evaluation is significant to the field of Library and Information Science as it relates to the provision of services within the research consultation model, as well as to how higher education institutions think about and evaluate the services they offer to students.

### **Framework**

The framework used in this evaluation is the Human Ecological Framework. This framework, developed by Urie Bronfenbrenner (1994), looks at how different environments in an individual's life shapes that person's psychological development. These environments can include family, economic, political, cultural, and social structures. I am using this conceptual framework to understand how people can bring different expectations and needs to a program. This framework also helps to clarify how the expectations of program participants can differ from the anticipations of program administrators and stakeholders. The framework was used a few different ways in this study. First, it was used to examine if the differing environments of the research center

stakeholders and the research consultation patrons (specifically the environment related to a background in the academic field of library and information science) impacted the expected and identified foundational components of the program. Second, the Human Ecological Framework was used to determine if different environments for research consultation patrons impacted their recognition, and the importance of, the foundational components.

### **Research Questions**

This program evaluation identified the underlying foundational components of the research consultation model in University Libraries at the University of Denver and examined their relevance to program participants to determine how applicable they were to the changing needs of those in the higher education setting. The following research questions were used to fulfill the program evaluation.

1. What are the foundational components of the research consultations as identified by faculty librarians?
2. To what extent do program participants recognize the value of the foundational components to the services they receive? How do differences in environments between patrons account for different expectations regarding the foundational components?
3. What are potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?



## **Professional Contributions**

The results of this evaluation serve three specific purposes at the programmatic level. First, program stakeholders identified and articulated the foundational components of the program. Second, program participants had the opportunity to provide feedback regarding the extent to which they agree with the foundational components and whether they saw the value of them in the service provided through the program. Finally, program participants had the opportunity to provide feedback regarding other foundational components they believed would be beneficial to meet their individual expectations and needs as users of the program.

When the Research Center model was deployed at the University of Denver it was an innovative approach to providing reference and research services. As this service model has now been implemented for over 13 years, it is natural to evaluate the service model when compared to the expectations of program participants. Ongoing assessment efforts continue to evaluate patron satisfaction with the services provided during the research consultation. However, this satisfaction is based upon the perceived values of the library faculty. By evaluating the expected values of program participants and comparing them to the values and needs anticipated by the librarians, we can begin to understand if there is a discrepancy between the views of each group. By identifying and addressing possible discrepancies in expected values, library personnel can better meet the needs of program participants.

Often in higher education settings, attempts are made to tie the success of a program or service to student outcomes. While it is possible to compare students who

have used library research services and look at their GPA compared to students that do not utilize research services, it is difficult to prove a causal effect. There are variables in the life of a typical student that could be responsible for the increase in GPA.

Additionally, students who seek out additional help in their classes are more likely to be proactive and engaged in their learning environment (Soria et al., 2017). This disposition means that these students may already be higher performing students than their counterparts who do not utilize the student support services that are offered by the university. Rather than trying to evaluate the success of the Research Center directly on student outcomes, this evaluation worked to understand the Research Center based on the foundational components of the service and compare that to the expected values and benefits of the program from the participants themselves.

At the macro level, this evaluation has an impact on the field of librarianship, as well as how services are thought of in the field of Higher Education when considering the changing demographics of students and the move to online class spaces. A Master's Degree in Library and Information Science is required to work as a professional librarian in most libraries. This means that a great deal of the foundational components that librarians bring to their services are forged in their degree programs. While this ensures a level of competency in the services rendered, if the library schools are not keeping up with the changing demographics in higher education, then the services that students are learning about will no longer be as relevant as they had previously been. This evaluation illustrates how these services can be evaluated in a meaningful way to account for these changes.

This evaluation also contributes to how we think about student support services in the rapidly evolving higher education landscape. As higher education continues to evolve, assessment of services on a more frequent schedule will take on increasing importance. The foundational components of those services will need to be evaluated in addition to the more traditional metrics. This evaluation provides an example that other higher education services can follow in evaluating their foundational components.

The move to online class spaces has taken on a more important role during this evaluation as COVID-19 forced most learning environments into a virtual, online space. Many departments and services had to rethink how they connected with their patrons during this challenging time. Even as things hopefully return to normal, it will be important for programs to think about how they can transition their services to a different format due to future unforeseen events.

This research project examined the impact of environments on the extent to which patrons recognizing the foundational components of the research consultation service provided through University Libraries at the University of Denver. A literature review of relevant topics will be provided in Chapter Two. Chapter Three presents the methodology being used, including reviews of Theory Driven Evaluation, Human Ecological Theory, the site and participants of the study, and the methods used for each section of this evaluation. The data and analysis are shared in Chapter Four for each of the research questions asked. Finally, Chapter Five presents the practical implications for this evaluation and examines the specific recommendations for the research consultation program.

## **CHAPTER 2: LITERATURE REVIEW**

Higher education in the United States has seen substantial changes in the demographics of individuals who make up an institution. Morrison (2003) highlighted the following demographic transitions; ethnic identification mix of the general population, demand for access to postsecondary education, age demographic within the US, and within the next decade more than 20% of faculty members in higher education will retire. Regarding specific demographics, there has been an increase in low-income and minoritized students enrolling in higher education institutions (Osei, 2019). The populations of older and returning students is increasing and these populations have different needs than traditionally aged undergraduate students (Caruth, 2014). One particular demographic of older students that are being targeted by higher education institutions are military veterans (Anft, 2019). As factors alter the demographics of higher education institutions, libraries must figure out how to adjust services to meet the changing needs of their patrons. “A change in the demographic profile of a libraries' stakeholders - along age, education, ethnic and other characteristics, often requires a shift in programs or services to reflect this change” (Castiglione, 2008, p. 532). As our communities change it is imperative for services offered to keep pace with the changing needs and expectations of the users of our programs.

In this literature review I place the topics of the evaluation in the context of conversations and research taking place within the library and higher education literature realms. First, I offer a discussion on the changes in higher education and the impact on how services are offered to students. Given the importance of this topic as it relates to the timeliness of the evaluation, I have examined this body of literature first. Next, I offer a historical context on the different topics related to this evaluation. I then look at how evaluation has been approached in reference services, the research center model, and in research consultations. I then take a brief look at the identified foundational components and related concepts. Theory Driven Evaluation is then discussed. Finally, the conceptual framework of Human Ecology is examined within the context of this evaluation. Overall, the literature review highlights the need for this evaluation at the current time and how previous evaluation efforts have focused on student outcomes while assuming the foundations of the service are supported, thereby creating a gap in the literature this evaluation addresses.

### **Changes in Higher Education**

**Increased access to information.** The proliferation of internet access, and the change this has had on higher education has been broad. Students have access to more information now than at any point in human history. This topic has been considered in a few different ways within the literature on higher education institutions and library and information science. The expansion of Web 2.0 resulted in researchers discussing how to adopt pedagogy and promote scholarly inquiry in this arena while being mindful of the benefits and shortfalls of the medium (Ebner et al., 2008; Grosseck, 2009). While

information is more readily available than ever before, researchers also examined the barriers to access that still exist for historically marginalized communities (including of the socio-economic disadvantaged, Black, Latinx, and/or immigrant communities), both within libraries and higher education institutions (Brimhall-Vargas, 2015; Ebo, 1998; Ocholla, 2006). During his introductory comments to the Symposium on Diversity and Library and Information Science Education at the University of Maryland, Brimhall-Vargas (2015) explained the importance of heterogeneous groups at solving complex problems due to their different perspectives, vantage points, and worldviews. Brimhall-Vargas argued to the importance of libraries in providing access to information when he said, “public library services and information distribution are among the most important ‘sites of resistance’ available to increasingly disenfranchised populations” (Brimhall-Vargas, 2015, p. 195). This concept of operating as a site of resistance reinforces the importance of libraries to providing access to information, especially to historically disadvantaged communities. While access to information has increased, equitable access to that information for marginalized communities continues to be a concern.

An additional concern under the topic of increased access to information is the proliferation of misinformation and disinformation. The significant increase in misinformation has had a profound impact on our society and raises concerns about how information is evaluated and scrutinized. While not a new issue as Fox (1983) demonstrated when classifying misinformation as being different from information, the topic has taken on an increased importance over the last few years. This has occurred in fields such a politics (Freelon & Wells, 2020) and public health (Jaiswal et al., 2020;

Pereira et al., 2020). A number of researchers have been actively examining how to address and combat the topics of misinformation and disinformation (Hassan et al., 2019; Rubin, 2019).

In the article, “Disinformation and Misinformation Triangle,” Rubin (2019) likens the spread of dis- and misinformation to the spread of a disease. The disease triangle shows how the environment, the host, and the infectious pathogen allow the disease to spread. She uses this as a model to demonstrate the spread of disinformation and misinformation. The environments are the toxic and complicit platforms for user-generated content, news, and social media. The hosts are the information overloaded, time-sensitive, and/or gullible readers and social media users. The pathogens are the unintentional and intentional false types of information. One of the means of combatting the disinformation and misinformation triangle is through education (Rubin, 2019). In addition to information guides around how to spot fake information, the information literacy work of librarians will be critical in educating our patrons and enabling them to evaluate information in their everyday lives.

**Expansion of online and remote degree programs.** The higher education space has expanded from the traditional on-campus space to an increasingly virtual space. While this creates access opportunities for students who may be otherwise unable to attend an on-campus program, it does create difficulties in providing services to these students. The library literature has examined this expansion as it relates to providing services to students (Slavin, 2015) and how libraries and community partners can work together to increase the quality of library services through service learning opportunities

(Angel, 2016). Lockerby and Stillwell (2010) examined how services can be adjusted for online students in difficult economic situations. The authors examined how the library restructured services in order to meet the changing needs and demographics of students at National University. Enrollment was steady overall, but the number of students taking classes on campus was decreasing (Lockerby & Stillwell, 2010). Campus Administrators challenged the library to meet the needs of students in the online space. This resulted in the creation of a Multimedia Services Department that created online instruction sessions for each of the academic programs, thereby meeting the students in their online space (Lockerby & Stillwell, 2010). Given the changes in higher education it is important to examine how these changes influence the services that are offered to students. To understand this, I next discuss the historical context of reference services and the research consultation as it relates to this evaluation.

### **Historical Context**

Reference as a service entered the professional literature in 1876. In his paper “Personal Relations Between Librarians and Readers,” Samuel Green (1993) showed that due to the lack of resources, many individuals needed help finding the proper sources for their information needs. This was a very time intensive endeavor, requiring significant effort and expertise. Resources available were generally limited to the physical journals and monographs located on-site. The focus of reference services through much of the 20<sup>th</sup> century was on finding sources that would meet the information needs of patrons.

A number of comprehensive monographs on reference services came out over the following century addressing topics such as ready-reference questions, bibliographic



verification, information and referral services, research questions, reader's advisory services, and instruction, amongst a variety of topics (Bopp & Smith, 1995; Katz, 1969; Wyr, 1930). By the 1960s and 1970s, a number of journals had been established around the topic of reference services providing a forum for scholarly discussions from philosophical, theoretical, and descriptive frames (Bopp & Smith, 1995, p. 5).

The research center model developed as a combination of reference services and library instruction, with the research consultation as a cornerstone component. The research consultation uses the reference interview as a starting point but expands to incorporate program participant directed and initiated learning outcomes based upon the needs of the participant. The differences between patrons and their skill level with research drive the consultations, and can greatly impact how the information needs are identified and discussed (Lee, 2004). While many public services librarians have experience conducting reference interviews and navigating the abundance of available resources, Saylor (2018) highlighted how librarians could transition their skills from reference interviews to a research consultation.

The literature presented in this section highlights how information services in libraries have transitioned from librarians needing to find specific information for patrons when there were extreme limits to the discoverability of sources to a more educational approach teaching patrons how to find resources themselves when the world of information is at the patron's fingertips.

## **Evaluation of Library Services**

Evaluation of library services has been a popular topic in Library and Information Sciences literature. Some of the important research on topics related to this evaluation follow.

**Reference services.** The topic of evaluation in reference services has been approached in a variety of ways throughout library literature. By looking at how the topics of assessment and evaluation in reference services have changed over the last three decades, we can have a better understanding of how the topic has informed the Research Consultation model, which is a newer approach within the reference services landscape.

Literature on evaluation of reference service in the 1990s focused on evaluation as a process in a very broad sense. Evaluation as a topic had gained traction during this time and librarians were quick to enter the discussion (Altman & Pratt, 1996; Bunge, 1994; Stalker & Murfin, 1996). Powell (1992) examined different methodologies for measuring the impact of academic libraries on the academic performance of students. Powell focused on a panel-based methodology while looking at library use, the purpose of library use, and indicators of library impact on the lives of students (Powell, 1992). Similarly, Murfin (1995) examined different types of user evaluations, including librarian self-reporting of success, behavioral guidelines, and unobtrusive observation. This article highlighted that reference could not be explained by any one group of factors, and that the best evaluations would need to utilize many methods (Murfin, 1995). During this time some authors approached the topic of evaluation in a course-survey style manner by attempting to give practicing professionals a good overview of the topic. Bunge (1994)

wrote about the proliferation of evaluation literature within the field of library and information science which helped to organize the literature and make it useful for specific situations.

In the early 2000s, library literature on the topic of reference evaluation became more nuanced and focused in approach. When looking at how to conduct an evaluation of reference services, Miller (2008) focused on a quick and easy approach to enable greater user participation. The findings highlight how users were generally satisfied with the service they received while librarians often judged themselves more harshly on those same interactions (J. Miller, 2008). Novotny and Rimland (2007) examined how the Wisconsin-Ohio Reference Evaluation Program survey was deployed at Pennsylvania State University. By conducting this evaluation twice, and implementing changes after the first evaluation, the authors demonstrated how focusing on the behavioral aspects of reference lead to an improvement of service quality ratings from users (Novotny & Rimland, 2007).

Recent approaches have increased in scope, both related to the number of institutions and with respect to how they view the program participant (library patron). One recent large-scale library reference evaluation at an individual institution evaluated reference services from the user perspective, focusing on how users use and perceive the service. This study utilized a self-administered survey as the data collection instrument. The authors determined that non-use of reference service was 42.6% (Luo & Buer, 2015). The non-use was attributed to library users' self-sufficiency and lack of awareness of the service. The authors also determined the top three motivations to use reference service

were class assignments, personal interests and using library facilities. Users reported that the reference librarians were more successful at exhibiting customer service qualities than performing tasks related to identifying users' information needs and searching/locating relevant information to fulfill needs (Luo & Buer, 2015). Another usability study examined virtual reference services at two different universities. They found that user preference and satisfaction was correlated with the service's overall usability in terms of effectiveness and efficiency (Chow & Croxton, 2014). As reference services have been established within the profession of librarianship and the academic literature in the field, it is important to understand how the topic has been approached broadly in order to interrogate it within the narrower context of the research consultation within the Research Center.

**Research center model.** The University of Denver implemented a new Research Center in 2008. The Research Center is situated to handle shorter reference-based questions at a public service desk staffed by a Research Center Assistant. Students and faculty that need more in-depth help schedule an hour-long consultation with a librarian to work directly on their needs. "The creation of this dedicated space for research help enhances the quality of reference service, allowing for longer, uninterrupted sessions at comfortable, side-by-side workstations" (Forbes et al., 2010, p. 58). The academic literature on the service model employed by the Research Center is significantly smaller than that on reference services due to the relative age of the service implementation. One of the early looks at this service model and an evaluation of the service was conducted at the University of Denver. Forbes, Bowers, and Meyer (2010) discussed the formation of

the Research Center based upon the writing center consultation model. Their article provided an evaluation of the success of the implementation by examining the overall number of questions, the follow-through rate on appointments, the types of questions being asked, and anecdotal evidence from students and faculty (Forbes et al., 2010). This study is important in this evaluation as it provides a direct assessment of the services provided by the program in this evaluation. The evaluation presented in this article provided a starting point of consideration around what the Research Center was collecting for data, and how that data had been previously considered.

**Research consultations.** Evaluation in research consultations has taken a more prominent role in the academic literature over the past decade. Fournier and Sikora (2015) examined what assessment and evaluation methods were being utilized to examine the impact of the individualized research consultation. The authors conducted a comprehensive view of the academic literature and concluded that the assessment methods being used were 1) usage statistics, 2) survey, and 3) objective quantitative methods (Fournier & Sikora, 2015). They concluded that more research was needed in the field of assessment of individual research consultations that utilize objective quantitative methods (Fournier & Sikora, 2015). This study highlighted the need to move beyond qualitative analysis in the field of Library and Information Science. Another study focused on evaluating the usefulness of surveys after the completion of research consultations (Butler & Byrd, 2016). This study helped demonstrate why it is important to gather student feedback when analyzing quality of service. In the case of this study, program participants were more likely to find the consultation as very useful when

compared to the view of the librarian after the study. Another study examined testing pre and post consultation to determine effectiveness (Sikora et al., 2019). Others evaluated effectiveness by comparing different groups of students based on how far along in their academic program they were (Faix et al., 2014). This study highlighted the different needs of students due to their level of academic progress. These studies all demonstrate the different needs of students, and that the perception of the quality of service can vary greatly when it is centered on the part of the patron compared to the person providing the service.

Whether looking at evaluation in reference services, the research center model, or research consultations, we see an emphasis on student outcomes, satisfaction, or retention and persistence. While these concepts are important, none of them address whether the field of librarianship is keeping up with the ever-increasing changes in both higher education and society as a whole. By focusing on tying the values and effectiveness of these services to student outcomes, the library literature neglects to interrogate the effectiveness as it relates to student needs and expectations. By assuming that the learning outcomes that foundationally support these services are appropriate, the library community misses an opportunity to examine a fundamental service at its core. This evaluation provides that opportunity and reinforces the importance of interrogating core foundational beliefs within the library profession, thereby addressing a gap in the library literature.

## **Foundational Components**

This section of the literature review will examine the specific foundational components determined by the librarians in the Research Center, as well as related topics that impact those foundational components.

**Consultation driven by needs of the patron.** Librarians adapt the delivery of the consultations to the specific needs the patron brings forward during their meeting. Some of the areas within this topic include library anxiety and supporting the whole student. Libraries have long sought to understand the needs of students and to adjust their services to meet those needs. A recent qualitative study examined why students sought librarian assistance when they have a do-it-yourself mentality related to research. This study determined that the ease of Google searches imparted an expectation on students regarding how to use library databases that was not in-line with the more refined approach required (Vinyard et al., 2017). Similarly, LIS literature has looked at services that meet the more complex needs of patrons. When looking at Long Island University's Book-a-Librarian service, the authors note that the service "offers individualized, assignment-specific and/or skill-building assistance to student, faculty and staff. This service is directed toward users whose research needs are more complex and may go beyond the usual walk-in help" (Bandyopadhyay & Boyd-Byrnes, 2016, p. 604).

One of the specific patron needs to be addressed through this foundational component was the idea of library anxiety. The concept of library anxiety, and the need for librarians to help ease this anxiety, was first introduced in 1876 by Samuel Green (Nolen, 2010, p. 1). More recent examples of library anxiety look at different approaches

on how to make the library and library resources more accessible by overcoming library anxiety. Some of these approaches include taking the librarian out of the library and embedding them in dorms (Strothmann & Antell, 2010) and implementing a roaming information service in the library to address questions on the spot away from a physical desk (Ott & Chhiu, 2007). One particular study looked at the role of the research consultation in addressing library anxiety and the value regarding the commitment of personnel time to this endeavor. The authors wrote,

Research consultations are one way to create a learning experience in which student gain research confidence and acclimation to their institution's library resources...research consultations may ease overall library anxiety and subtly correct any misconceptions students have about the roles of academic library personnel (Reiter & Cole, 2019, p. 29).

Another key feature of this foundational component was the idea of providing support for the whole student. This means recognizing them as an individual outside of their research needs and providing service that is supportive of that whole person. This has become an increasingly important concept in LIS literature. Some approaches to this literature include helping students identify and determine their passions and talents (Miller, 2014) while others have considered multiple understandings of student success and how that impacts how they approach their work helping student to succeed (Deeken et al., 2019).

**Focus on lifelong learning and teaching.** The idea of lifelong learning and teaching takes the research consultation from a service that is provided to a teaching moment for library faculty to our patrons. The goal is to not just give the information required, but rather to empower the patron to find the necessary resources on their own in



the future. Libraries have been focused on providing instruction leading toward lifelong learning for a long time as it is considered an essential ability (Sidorko & Yang, 2009).

One way that lifelong learning has been implemented in libraries is through information literacy. Information literacy is the “ability to access, evaluate, organize and use information in order to learn, problem-solve, make decisions -in formal and informal learning contexts, at work, at home and in educational settings” (Bruce, 1997, p. np). The topic has been covered extensively in library literature. It has been covered as an instruction method (Elmborg, 2006; Noe, 2013; Ragains & Wood, 2016; Vanderpol & Taranto, 2002) and as an important skill in the information age (Janke et al., 2012; Lloyd, 2010; Spitzer et al., 1998). The concept of information literacy as an instruction method moves the librarian away from their service as information retrieval. Instead it centers the idea of the librarian as an educator that “requires extensive knowledge of pedagogies and of the cultures and discourse of communities of higher education” (Elmborg, 2006, p. 198). The idea of information literacy as an essential skill is related to the proliferation of readily available information. Information literacy as a skill prepares individuals to “identify information sources, access information, evaluate it, and use it effectively, efficiently, and ethically” (Julien & Barker, 2009, p. 12). Both approaches highlight the importance of lifelong learning and teaching to the research consultation model.

**Model of how the service is deployed.** The physical layout of the space is an important component to how the service is considered and administered to patrons. Choy and Goh (2016) pointed out that “Physical space plays an important role in helping the library to achieve user centric missions” (14). This topic has been explored a number of

different ways within LIS literature in general. Some approaches have included space planning with program driven intention (Somerville & Brown-Sica, 2011) and the impact of space planning on service desk mergers (Keisling & Sproles, 2017). The topic has not been explicitly examined as it relates to the Research Center Model with exception of the Forbes et al. article discussing the implementation of the Research Center at the University of Denver (Forbes et al., 2010). As was previously discussed, this study examines the number of research consultations provided in the new setting to the number of quick reference questions at the desk. This was looked at for each week during the academic quarter (10-week long academic session) for an academic year. Comments from patrons regarding the effectiveness of the service were also considered in this evaluation. The service saw good usage based on the metrics, and the comments from patrons were positive and appreciative of the service.

**Connecting resources and expertise to patron expectations.** Different types of patrons have differing expectations and needs from librarians in the research consultation. For example, patrons who are faculty members are more apt to rely on the expertise of librarians when looking for information and resources in related fields as opposed to their primary field (Brown & Tucker, 2013). Finnell (2014) looked at the level of expertise within the context of faculty support when writing, “A closer examination of acknowledgements would demonstrate that librarians are trusted assessors across intellectual networks, worthy of recognition...” (n.p.). The impact of expertise on student research consultations has also been examined within the research literature. These articles have examined the expertise of librarians in the research consultation as it relates

to need for skilled, knowledgeable librarians (Bandyopadhyay & Boyd-Byrnes, 2016) as well as how the librarian's expertise contributed to the information literacy efforts of the institution (Hua, 2003). One particular study examined the attributes patrons of the research consultation placed the most value on. One of the four attributes was, "A librarian's expertise or subject-specialist knowledge in the area addressed by a patron's reference questions" (Rogers & Carrier, 2017, p. 34). The other attributes included the individual attention of the librarian, meeting in a conducive environment with the librarian, and a high level of engagement (Rogers & Carrier, 2017, p. 34). This study highlighted the value of the research consultation to students and demonstrated how moving this transaction away from a public reference desk could help the patron allowing them to engage with the librarian and benefit from the expertise provided by a subject specialist.

**Professional standards.** The American Library Association (ALA) is the largest professional organization representing libraries and librarians in the world. This organization has produced a number of standards and guidelines resources that have been approved by ALA and its sub-organizations (*ALA Standards & Guidelines*, 2007). These publications cover a number of different topics related to this evaluation.

The guide, *Guidelines on Library Services to Undergraduate Students*, cover a number of different aspects related to the usage of the academic library by undergraduate students. The guide provides recommendations for assessment, services, and about the needs of undergraduate students in general. When discussing the needs of undergraduate students related to research, the guide states that the students may need "personalized

instruction in the methods of identifying and locating research materials” (*Guidelines for University Library Services to Undergraduate Students*, 2006, p. n.p.). The guide, *Standards for Academic Libraries*, provides a number of key principles and performance indicators, as well as assessment metrics for each one. The principles and performance indicators listed are; Institutional Effectiveness, Professional Values, Educational Role, Discovery, Collections, Space, Management/Administration/Leadership, Personnel, and External Relations (*Standards for Libraries in Higher Education*, 2006). The guide also provides benchmarking recommendations to peer institutions across these indicators.

The guide, *Characteristics of Programs of Information Literacy that Illustrate Best Practices*, articulates the components of good information literacy programs. The characteristics identified in the guide include; Mission, Goals and Objectives, Planning, Administrative and Institutional Support, Program Sequencing, Pedagogy, Communication and Advocacy, and Assessment and Evaluation (*Characteristics of Programs of Information Literacy That Illustrate Best Practices*, 2006). Finally, the guide, *Guidelines for Implementing Virtual Reference Services*, examines the parameters and expectations for creating a virtual reference service. The guide covers planning for the service, providing the service, training staff and librarians on how to provide the service, and how to manage the service over time (*Guidelines for Implementing and Maintaining Virtual Reference Services*, 2010).

**Learning outcomes.** Learning outcomes are a fundamental component of higher education. The establishment of learning outcomes underlies course planning (Nemeth & Long, 2012), how topics are presented (Pan et al., 2014), and how services support the

pedagogical approach of faculty members (Matthews & Mercer-Mapstone, 2018). The same importance of learning outcomes may be applied to cultural institutions. Early efforts looked at generalizing learning outcomes across cultural institutions, of which libraries was a key type of institution (Hooper-Greenhill, 2004). Quickly, other researchers recognized problems with generalizable outcomes and emphasized unique learning outcomes based upon the institution (Brown, 2007).

The evaluation of learning outcomes has been explicitly examined in library literature. Phipps and Merisotis (1999) examined evaluation of learning outcomes for distance students and the shortcomings presented in the literature. Later, Powell and Case-Smith (2003) evaluated the application of information literacy skills learned during an undergraduate program after students graduated and were working in a professional setting. Oakleaf (2011) examined how to advance evaluation of learning outcomes by identifying what librarians want students to learn. For this, she recommended that librarians consider two main questions regarding learning outcomes for the session, “(1)What do institutions want students to learn? and (2)What do future employers and graduate/professional programs want students to learn?” (Oakleaf, 2011, p. 63). This approach emphasizes the need of the librarian to fully consider the current situation of the student, and the future professional environment the student would find themselves in when considering how the learning outcomes of the consultation session would be structured. This approach would provide a thoughtful approach to the learning outcomes and provide immediate value to the student while preparing them for future success.

This literature review began by examining the changes in higher education that help demonstrate the need to evaluate existing services in the higher education setting; increased access to information and the expansion of online and remote degree programs. Then, the historical context of reference services was provided to better understand evaluation within library services pertinent to this evaluation. Finally, topics related to the foundational components were examined to better understand conversations happening in the academic literature in those areas. I will now look at the evaluation theory being used and the literature around it.

### **Theory Driven Evaluation**

Theory Driven Evaluation (TDE) was developed by Peter H. Rossi (Rossi, 1972, 1982, 1993) and Huey-Tsyh Chen (Chen, 1990). The underlying concept of TDE is to not only evaluate the performance or merit of the program, but to understand how and why it achieves those results (“Theory-Driven Evaluation,” n.d.). By collaborating with stakeholders to understand how a program should be operating within an ideal implementation, evaluators are able to interrogate the processes that underlie the program to help stakeholders better understand what parts of the program work well and which parts do not.

TDE is a valuable theory to use when trying to understand how a program works and why/what works well. Coryn (2011) wrote when considering TDE, “the perceived value of theory-driven evaluation is, in part, generating knowledge such as not only knowing whether a program is effective or efficacious...but also explaining a program’s underlying causal mechanisms” (p. 203). The benefit of this approach is that it “can lead

to better information about a program that is important for replication or for improvement” (Rogers, 2000, p. 232). Using TDE as an evaluation theory allows a level of understanding about how the program works, and why it is successful or not. This level of understanding allows for replication of the program, as the foundation of the program is understood. This approach drove my consideration in using TDE as the evaluation theory. Next, I will look at the framework used in this evaluation, Human Ecological Theory.

### **Theoretical Framework**

This evaluation rests upon the Human Ecological Framework. This framework is based on the Human Ecology Theory, or Ecological Systems Theory developed by Urie Bronfenbrenner (Bronfenbrenner, 1994). This approach has been used to explain how we experience different environments throughout our lives, and how those environments impact our psychological development. This psychological development helps us understand how and why people bring different expectations to the research consultation.

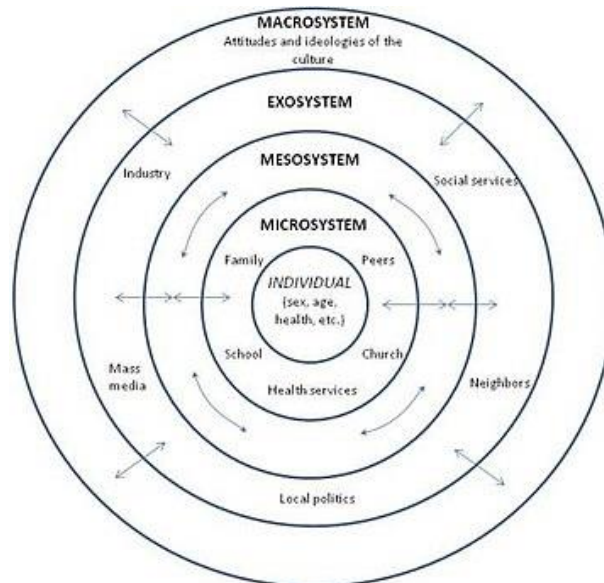
Human Ecological Theory considers how five different levels of environments impact an individual’s development. The levels of environments are; microsystems, mesosystems, exosystems, macrosystems, and chronosystems (Bronfenbrenner, 1994). The microsystem is a person’s immediate environment. The mesosystem is the connections between microsystems. The exosystem is the indirect environment. The macrosystem is comprised of the social and cultural values. The chronosystem is the changes in these environments over time (Bronfenbrenner, 1994, pp. 5–6). Considering

the different types of environments helps to group and make sense of the impact different types of environments have on our development.

The model is considered as a set of concentric circles, starting with the individual at the center of the system. The microsystem contains the environments that the individual directly participates in. These environments may include family, school, community, etc. As you move out to the other circles, the environments become more complex. This theory recognizes that, “individuals do not develop in isolation; interactions with families and social groups influence individual development across the lifespan and across generations” (*Human Ecology*, 2018, p. n.p.).

Figure 1

*Human Ecological Theory Model*



Note. Graphical representation of the Bronfenbrenner’s Human Ecological Theory. This figure displays the different environments and the interactions between those environments within the framework. Recovered from Ecological Systems Theory- Wikipedia. (“Ecological Systems Theory,” 2020)



This framework has been used in a number of different disciplines but comes up rarely in the fields of higher education and library and information sciences. I was unable to locate the framework used in the field of library and information science. The only application found firmly within the field of higher education looked at interior design education within the context of the framework (Kaup et al., 2007).

The Human Ecological Framework has been used more broadly in the K-12 literature, than in the Higher Education or Library Science Literature. The K-12 literature highlights that this framework is quite flexible and can take on a variety of applications. In a qualitative study examining the perception of facility managers' impact on the classroom learning environment, Human Ecological Theory was used to show the different environments inspiration may be drawn from by facility managers when considering classroom aesthetics (Parr, 2017). Another study examined different environments and interactions with gangs, the military, and colleges to understand the pathways for Latino male high school students. This study positioned the Latino male students and placed importance on recognizing their goals, or else the student may self-limit their options due to a variety of internal and external factors (Huerta, 2015).

While the Human Ecological Framework has been used sparingly within the fields of higher education and library and information science, the methodology section will provide an explanation as to why it is an appropriate framework for this evaluation and how it works with my paradigm and evaluation theory.

## **Gaps in Literature**

As has been demonstrated in this literature review, there exists specific gaps in the literature that this evaluation should help to address. The first gap is with respect to the research center model. While the one-on-one research consultation has been thoroughly covered in library literature, and it is a cornerstone of the services offered through the research center, the lack of attention and consideration given to the overall research center model within library literature presents concerns. As more comprehensive research objectives become more important in library public services, more attention will need to be given to the research center model. The other literature gap relates to the previous evaluative approaches of reference and research center services. By focusing on tying the values and effectiveness of these services to student outcomes, the library literature neglects to interrogate the effectiveness as it relates to student needs and expectations. By assuming that the learning outcomes that foundationally support these services are appropriate, the library community misses an opportunity to examine a fundamental service at its core. This evaluation offers that opportunity and reinforces the importance of interrogating core foundational beliefs within the library profession.

## **Summary**

This literature review has highlighted the timeliness for this evaluation by examining the changing nature of higher education. After looking at the historical context of fields related to the topic, I explained the evaluative efforts that have been taken in each area and highlighted the gap in this literature that this evaluation will fill. I touched on the foundational components that were identified through the library faculty focus

group activity. Finally, I touch on Theory Driven Evaluation within the field of Library and Information Science and touched on the lack of the Human Ecological Framework in that field and in Higher Education. The next chapter will examine the methodology for the program evaluation.

### **CHAPTER 3: METHODOLOGY**

This program evaluation examined the foundational components of the research consultation model offered in the Research Center of University Libraries at the University of Denver. While patron satisfaction is important it does not account for whether a service continues to meet the changing needs of research consultation patrons. This evaluation examined the extent to which program participants recognize and agree with the benefits of the foundational components upon which the service is built. With that in mind, the research questions for the evaluation were:

1. What are the foundational components of the research consultations as identified by faculty librarians?
2. To what extent do program participants recognize the value of the foundational components to the services they receive? Do differences in environments between patrons account for different expectations regarding the foundational components?
3. What are the potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?

The purpose of this evaluation was to interrogate the foundational components of the service offered to better understand if those foundational components are keeping up with

the changing needs of patrons within the institution. This evaluation is important within the fields of Library and Information Science and Higher Education.

### **Evaluation Theory**

I utilized Theory Driven Evaluation (TDE) as my program evaluation theory. TDE was developed by Peter H. Rossi (Rossi, 1972, 1982, 1993) and Huey-Tsyh Chen (Chen, 1990). The underlying concept of TDE is to not only evaluate the performance or merit of the program, but to understand how and why it achieves those results (“Theory-Driven Evaluation | Encyclopedia of Evaluation - Credo Reference,” n.d.). By collaborating with stakeholders to understand how a program should be operating within an ideal implementation, evaluators are able to interrogate the processes that underlie the program to help stakeholders better understand what parts of the program work well and which parts do not.

When using TDE, we begin with a theory regarding that the program works and is effective. The structure of this theory is that there are specific inputs into the intervention which produces the desired output. In the case of this evaluation, the intervention is the research consultation between the librarian and the patron(s). To understand this, we must investigate the program theory. “Program theory is defined as a set of explicit or implicit assumptions by stakeholders about what action is required to solve a social, education or health problem and why the problem will respond to this action” (Chen, 2012, p. 17). In the case of this evaluation, the problem is the patron’s information needs.

For the research consultation, the program theory focuses on the process of providing research help to patrons. Within the context of the program theory, the research

consultation begins when the patron has an information need that they are unable to meet themselves. The actions taken during the research consultation are based on best practices outlined through the American Library Association's published standards and guidelines as well as the various published books on standards and expectations in reference services. The outputs of the evaluation are that the patron finds the information resources that meet their needs, and they learn how to search for library resources using the online catalog and databases. The overall outcome is that the patron moves towards a place of self-sufficiency when conducting academic research in the future. Please refer to Appendix I for a logic mode of the research consultation.

There are different types of evaluation in TDE. The approach used for this evaluation is process evaluation. The process evaluation approach focuses on the resources/inputs and activities of the program, and how they impact the output and outcomes of the service. For this evaluation, I examine the foundational components that underlie the resources and activities to understand how patrons of the research consultation identify and find value in the theoretical foundation upon which the program is built. By examining this, I can understand how and why the foundational components impact the outputs and outcomes of the research consultation.

The application of TDE to this program evaluation as the evaluation theory was based on the desire to have the process and the result be iterative. The act of having the faculty librarians and relevant stakeholders define the foundational components themselves achieved the goal of explaining what is behind the assumptions of how the program works in its ideal implementation. The survey instrument that was sent to

program participants acted as a gauge to determine the extent to which those foundational components were recognized in the service being provided, and the extent to which they are important to the participants. The analysis of the survey responses allows for continued improvement of the program and refinement of the foundational components behind its implementation. This creates “an improved programme theory and as such incorporated into the existing body of theoretical and programme knowledge.” (Van Belle et al., 2010, p. 2) Once this new knowledge becomes part of the existing body of program knowledge, the library stakeholders may conduct additional program evaluations to further refine and define the program, as well as keep pace with the anticipated and unanticipated changing expectations that program participants bring to the provided service.

I further determined TDE was best suited to meet the needs of this evaluation based on its flexibility that allows for the most appropriate methods for answering the research questions. This flexibility allowed me to apply an exploratory sequential mixed methods approach to the evaluation. This was necessary to first explore the foundational components as identified by those who administer the program. Once those foundational components were identified and agreed upon, an instrument was developed to survey the program participants on their views of the applicability and usefulness of the foundational components in the provision of the service provided.

### **Paradigm**

The paradigm used in this evaluation is based on a constructivist approach. Constructivist researchers believe that “people in different geographic, cultural, or social

locations construe knowledge in different ways, each of them legitimate and worthy” (Weiss, 1997, p. 328). The constructivist view understands that an person’s reality is shaped based upon the perspectives of the individual. In this, people may understand the same situation differently based upon their background, personal history, or biases. This worldview is important to this evaluation, as it acknowledges that the program participants may be bringing specific experiences and expectations into the program that differ from those espoused through the academic literature and library programs whose fundamental values underlie the services offered based upon the environments the program participants have experienced. It is important to evaluate the validity of the core components of a service before that service is too far removed from the needs and expectations of the program participants. By examining the applicability of the foundational components of the service to the changing wants and needs of program participants before the program loses its appeal, the program can be adjusted to meet those changing needs and expectations. While a constructivist approach recognizes that reality for an individual is shaped based upon their perspective, I needed a framework that would articulate this in a practical way, allowing for the different perspectives to come forward.

There are different types of environments in our lives that interact at different levels. This helps explain why and how we bring different expectations into different settings and how two people can bring different expectations to the same setting. These different environments may shape the needs and expectations that program participants bring to their research center consultations. Human Ecological Theory was used as the



conceptual framework this evaluation took place in, as it acknowledges that different environments may impact the expectations of program participants compared to those program administrators. Draeknberg and Malmgren (2013) highlight this difference when looking at the expectations of parents compared to that of teachers employing a democratic role in the classroom.

**Framework.** The Human Ecological Framework has been applied in a number of academic fields. This framework looks at the environment as the context for the development of an individual. There are five levels of environments that are considered; microsystems, mesosystems, exosystems, macrosystems, and chronosystems (Bronfenbrenner, 1994). The microsystem is a person's immediate environment. The mesosystem is the connections between microsystems. The exosystem is the indirect environment. The macrosystem is comprised of the social and cultural values. The chronosystem is the changes in these environments over time (Bronfenbrenner, 1994, pp. 5–6).

This framework looks at how the different environments of an individual's life shapes the views and knowledge that the individual brings to their interactions and expectations, and how those environments interact with each other. I applied this to the research consultation for this program evaluation. The framework considers the background and experiences that the patron brings to the program, which helped to determine whether the foundational components of the research consultation are still relevant and appropriate. The framework was applied multiple ways in this evaluation. First, Human Ecological Framework was considered in the data collection process during

the initial part of the evaluation. Consideration was given to the different environments the librarians and stakeholders move through on campus when assigning people to the different sub-focus groups. The framework was also applied to this evaluation in the survey instrument that was distributed to research consultation patrons. This was done by asking demographic questions of the program participants that acknowledge the different environments that they move through. Some questions ask about overall library usage. Another question asks about the frequency of library usage as a child. Other questions ask about comfort levels with technology. Please refer to Appendix A to see the specific system that each question in the survey was tied to. The final way the framework was applied in this evaluation was through the analysis of the data. The responses of the patrons were evaluated against the responses about their environments, allowing for an examination of the impact of environment on the expectation and recognition of the foundational components on the service received.

A significant benefit of using TDE allowed me to identify and use the most appropriate methods when evaluating the program within the Human Ecological Framework. The exploratory sequential mixed methods model allowed for an evaluation that first determined what the foundational components were, and then interrogated those components with program participants. This overall approach, and the decision to use TDE as the evaluation theory, is in line with Human Ecological Framework and the constructivist paradigm for this evaluation.

The exploratory sequential mixed methods model worked well for this evaluation, and for TDE overall. The functionality and usefulness of exploratory sequential mixed

methods model has been well established in methodology literature (Cabrera, 2011; Cameron, 2009; Fetters et al., 2013; Kumar et al., 2019). The first stage of this model is exploratory in nature. For this evaluation, an interactive focus group activity was used to identify the foundational components of the research consultation. This exploratory feature reinforced the aspect of identifying the ideal implementation that is expected under TDE. This model was also appropriate to use with the Human Ecological Theory that was used as the framework for this evaluation. By using the exploratory sequential mixed methods approach, I was able to ensure that my own personal biases were not brought into the evaluation. This was done by basing the foundational components on those who carry out the work, instead of using my preconceived notions about how the service works as an outsider. This ensured that the examination on impact of environments on the recognition and value placed on the foundational components were applied to the correct components, and not to my assumptions of what I thought they should be.

### **Site and Participants**

**Site.** The Research Center in the Anderson Academic Commons at the University of Denver offers expert guidance for university faculty, staff, and students through the research process. This guidance includes refining the research topic, finding and evaluating relevant sources, and creating a bibliography. The program meets these stated objectives in a variety of ways. Chat, email, and phone reference services are offered to patrons who are unable to come into the library. In FY 2019 there were 958 chat reference transactions, 1,565 email transactions, and 603 phone transactions. Drop-in

reference sessions are offered to individuals who have a specific question that may be answered by staff at the desk. In FY 2019 there were 3,187 drop-in reference transactions. These services are available to current faculty, staff, and students at the University of Denver. Finally, scheduled, hour-long research consultations are offered where students, staff, and faculty are able to work directly with a librarian on strategies throughout the research process (*Research Center | University of Denver*, n.d.). These consultations are often structured in a one-on-one format, but can also be held with a group of individuals. During FY 2019 there were 850 research consultations. While the research consultations have lower numbers than some of the other services, it is a more time-intensive service due to the length of the consultations.

The program is staffed through a combination of faculty librarians and part-time Reference Assistants. The desk is primarily staffed by the Reference Assistants. These individuals handle walk up reference questions and answer questions that come through the 'Chat' functionality of the library website. The Consultation Room is staffed by faculty librarians. There is one person on staff in the consultation room during the hours of operation to take walk-in consultations. Reference librarians who have scheduled a consultation during this time also use the room. There are 6 consultation work stations with dual monitors to allow session participants to follow along with librarian instruction. There is a separate, enclosed room in the back to allow for consultations with research groups.

**Participants.** There are two stages in this evaluation, each with a different sample of participants. The first sample consists of faculty librarians in the Research Center at

University Libraries. This program was developed by the faculty librarians at the time and is administered by the current faculty librarians. There is some overlap between these two groups. This participant group provided context for how and why the program was structured the way it was. Additionally, the participants offered relevant insight on how the program is currently being run and why it is being run in the manner it is. There were a total of 10 participants in the interactive focus group activity. There were 8 librarians, with lengths of tenure ranging from 2 years to 30+ years. The members of this demographic all have an expertise in general reference-related activities, as well as subject level expertise in the colleges they liaise for at the University of Denver. There were also two stakeholders who participated at this stage. Their expertise included reference services, subject level expertise, and program administration.

I used an interactive focus group activity with faculty librarians and relevant stakeholders to identify the foundational components of the research consultation. I anticipated 100% participation based upon availability of the 9 reference center librarians, and relevant stakeholders such as the Associate Dean for Student and Scholar Services who helped create the Research Center and still actively participates in the research consultations, as well as program specialists in the Research Center. One librarian who worked in the research center was unable to participate in the focus group activity due to being out sick that day.

The second sample consists of program participants during the Fall 2020 academic quarter. Based upon usage statistics from the 2019 academic year, I originally anticipated 225-250 participants would receive research consultations during the

academic quarter. These participants were to receive a follow-up survey in which, I further anticipated receiving a 10%-15% response rate of the survey. This means I should have received 22 to 37 responses. While this does result in a smaller *N* than desired, there is still value in the information and experiences that program participants share.

The COVID-19 pandemic altered many aspects of life this year, including how support services were offered at the University of Denver. The Main Library in the Anderson Academic Commons shut down in March 2020, when the rest of the University of Denver campus moved to remote learning. The building was re-opened to the University of Denver community in August 2020. While community members were welcomed back, the full suite of support services did not return in an in-person capacity. The research consultation model was transitioned completely online. This was a smooth transition due to the existing infrastructure for offering remote consultations.

The actual number of research consultations and the response figures are further detailed in the Methods section below. Program participants included faculty, staff, and students from the University of Denver. Program participants received an invitation to participate in a survey that examined the extent to which they agreed with the foundational components as identified by the focus groups. Program participants were able to provide feedback regarding other components that they believed were important or missing from the consultation model.

## **Methods**

The methods used in this evaluation aligned with the exploratory sequential mixed methods approach. There were two specific methods used at the different stages of

the evaluation. How the research questions fit into the data collection and analysis stages is presented in Appendix B.

**Date Collection Stage One.** The first stage of the evaluation used a facilitated, interactive group activity with a focus group of faculty librarians and relevant stakeholders. The interactive activity was conducted on Wednesday, January 8, 2020. There was a total of ten participants in first stage of data collection. This group included 8 faculty librarians, an Associate Dean who helped to create the program as a faculty member, and a program support specialist.

Focus group participants were informed of their ability to remove themselves from the focus group at any time. While the program evaluation did not require an Institutional Review Board (IRB) approval, the requirements and expectations that an IRB would traditionally place on a focus group were followed. The focus group was informed of the IRB waiver and the understanding that we would still follow ethical research practices for the interactive focus group. Two handouts were distributed to focus group participants. The first handout provided definitions for the different environments within the framework of Human Ecological Theory. That handout also included a working definition for how the term ‘foundational components’ would be used in the evaluation. The second handout contained spaces for the participants to write down their own ideas for different environments within each system in the framework, as well as an area to write down their ideas for foundational components before breaking into their respective breakout groups. This handout is available in Appendix C.

The focus group began with a discussion on Human Ecological Theory and how environments impact a person's psychological development. This presentation focused on the five levels of Bronfenbrenner's theory, microsystems, mesosystems, exosystems, macrosystems, and chronosystems. Time was given after the conversation on Human Ecological Theory for session participants to write down different environments in each level of the theory that they believed would help shape the expectations that program participants would bring to the research consultation. Next, we spent time talking about what was meant by foundational components, and how it was being used in this evaluation. Time was then given for participants to write down some of their own ideas for what components they thought were essential to how they conceptualized and delivered the research consultation.

The focus group then split into smaller, sub-focus groups that discussed the components of the research consultations within the framework of moving and becoming through different environments. There were two focus groups of three members and one focus group of four members. The sub-focus groups took place on the same day as the opening session and the final session to decide the foundational components. They occurred between the two sessions.

The first stage of this evaluation used the Human Ecological Framework in the data collection stage, as opposed to the data analysis stage. The environments of the interactive focus group participants were used to think through the membership of the groups. The sub-focus groups were decided beforehand between myself and the head of the Research Center to determine the pairings that would yield the best results. More



reserved individuals were paired with people who were good at asking follow-up questions or ensuring that all voices at a table were heard. Those who were better at self-advocating were grouped together so that they were not in a group that they could inadvertently dominate. The composition of each focus group was done to produce the best environments for open and honest conversations to occur.

Instructions were provided to the sub-focus groups beforehand, as I did not directly facilitate their sessions. Rather, broad instructions were provided and I stopped by each group to answer any questions that they had. The sub-focus groups were recorded and transcribed for analysis. At the conclusion of the sub-focus group breakout time, the groups came back together and presented the foundational components they had identified in their breakout sessions to the larger group. Once all groups presented their foundational components, the overall group worked together to reach consensus on which foundational components they believed were most important to the service provided in the research consultation. The first and final session were approximately one hour each. The sub-focus group sessions were approximately 45 minutes each. In total, the participants provided close to three hours of their time for this stage of the program evaluation.

**Data Analysis Stage One.** In the first stage of data analysis I evaluated the data collected through the focus groups of faculty librarians and relevant stakeholders in the Research Center at the University of Denver. While the group was tasked with coming to a consensus on their own of the foundational components to include in the survey instrument to be sent to program participants, the sub-focus groups were transcribed and

analyzed to ensure that relevant themes were brought forward in the larger group exercise. If relevant themes had been brought forward in multiple sub-focus groups but not brought forward in the larger group setting, I would need to consider including those as possible foundational components in the survey instrument. The foundational components that were identified through the focus groups (the consultation being driven by the needs of the patron, the focus on lifelong learning and teaching, the service model as deployed, and that the consultation focuses on connecting resources and expertise to patron expectations) aligned with the transcript data. A thematic analysis allowed me to ensure that the consensus reached by the group was in line with the conversations that were held, and that important and relevant components were not silenced by more assertive focus group participants. For the a priori analysis, I used the identified foundational components as codes. A priori coding has an established history of use with Theory Driven Evaluation (Bickman, 1987; Chen, 1990). Statements that were directly relevant to the codes, or within one of the defined themes under the codes, were identified.

In order to assess this, I transcribed the three breakout groups using the Nvivo software. I then performed a thematic analysis to verify the validity of the foundational components compared to what was discussed during each of the breakout sessions. This was done using a priori codes. A Priori codes are “codes that were developed before examining the current data”(Johnson & Christensen, 2008, p. 539). I also used this process to identify other themes that did not come forward during the larger group conversation but were discussed within the breakout sessions using inductive coding.

Inductive codes are those ‘codes that are generated by a researcher by directly examining the data’ (Johnson & Christensen, 2008, p. 539).

While the librarians and relevant stakeholders decided the foundational components amongst themselves, it is important to ensure that the agreed upon components are in-line with the conversations and ideas that came forward during the breakout sessions. After the identified foundational components are presented, I examined any additional relevant components detected through inductive coding. Inductive coding is a process for coding qualitative data to identify themes and to analyze that data. This process helped me determine if there were any other potential foundational components that were discussed during the breakout sessions but did not make the final list agreed upon by the research consultation stakeholders. The transcripts and audio files were stored in a secure folder on a University of Denver server, only accessible by myself. The identified and mutually agreed to foundational components were used to create themes for a survey instrument that was later distributed to all program participants during an academic quarter. The survey asked program participants the extent to which they agreed with the foundational components, the extent to which they recognize the foundational components in the service they receive, and the extent to which they believe the foundational components are important to the service.

**Data Collection Stage 2.** The second stage of the evaluation consisted of a survey instrument informed by the analysis of the focus groups. The themes of the foundational components were based on the findings in the first data collection stage. Those themes were the consultation being driven by the needs of the patron, a focus on lifelong learning

and teaching, the service model as deployed, and how the librarian connects resources and expertise to the needs of the patron. The themes were defined, and those definitions were sent back to the head of the Research Center for feedback. We worked together to fine tune the definitions before distributing to all the focus group participants for their feedback. Their feedback was incorporated into the definitions presented as part of the survey instrument. These definitions may be found in Appendix D.

This level of background is provided, as one of the themes determined by the Research Center librarians and stakeholders was tied directly to the physical layout of the room and how the services were offered in person. The move to remote services did not lend itself well to adjusting this particular theme for inclusion on the survey. I worked with the head of the Research Center to adjust the definitions of the themes to include components that were not tied directly to the physical space. Working together, we felt that this was a more accurate representation of the themes identified by the focus group. Due to time constraints, the revised themes were unable to be sent to the Research Center librarians and stakeholders for feedback. However, they were informed that these changes had taken place, and no concerns were brought forward on the decision, or the decision-making process.

The survey was sent to all faculty, staff, and students who participated in the program during the Fall 2020 academic quarter. A total of 193 patrons used the research consultation service during the quarter. The survey was sent in a follow-up email to the research consultation. The email invitations were distributed to program participants on September 29, October 9, October 26, November 9, and November 20. The surveys sent

on each date only covered the program participants who participated in a research consultation from the date of the previous email invitation to the day before the invitation being sent out. For example, the emails on October 9, 2020 covered the research consultation from September 30, 2020 through October 8, 2020. This meant that program participants only received one email inviting them to participate in the survey. As the survey was completely anonymous, there were no connections between the distribution of the survey instrument and the responses of individuals. This meant there was no way to identify which program participants responded and which did not. This was intentional to further protect the anonymity of survey respondents. This did prevent follow-up survey invitations to those who did not respond to the initial invitation. A follow-up invitation likely would have resulted in a higher degree of participation in the survey. In total, 193 email invitations were sent, with 34 program participants opting into the survey instrument. While there were fewer overall consultations provided than expected in this evaluation, the response rate was high enough to still meet the expected value of  $N$  for the second stage of the program evaluation.

Upon accessing the survey program participants were informed of their right to withdraw their participation at any time during the survey. They were also informed that while the survey did not require IRB approval, that IRB best-practices would be maintained and followed. The IRB Waiver may be found in Appendix E. Program participants were also informed that their responses would be kept anonymous.

The survey contained both quantitative and qualitative components. As the survey interrogated the extent to which program participants agree with the foundational

components of the program identified in the focus groups, it was an appropriate instrument to use at this point in the exploratory sequential mixed methods process. The survey also had open ended questions allowing program participants to highlight foundational components they would expect to be in the consultation model based on their changing needs.

The surveys were constructed, distributed, and collected through the Qualtrics platform. The Qualtrics platform allowed for a seamless collection of data in this stage of the program evaluation. The survey questions and response options are available in Appendix F. How the demographic questions relate back to the Human Ecological Framework is presented in Appendix A.

**Data Analysis Stage 2.** There are three distinct part of the analysis for stage two of this evaluation. The first part of the analysis examined the measures of central tendency to assess the extent to which patrons agree with, recognize, find value in, and influence the likelihood of using the service again in the future of the foundational components. The second part of the analysis used  $\chi^2$  tests to determine if environments can impact how patrons feel about the foundational components of the service they received. The third part of the analysis used an inductive analysis to open ended questions in the survey to determine if patrons believe other components outside of those identified by the librarians and research center stakeholders are important enough to be considered foundational as well.

*Measures of Central Tendency.* The first part of the second stage of the analysis used measures of central tendency to determine the extent to which patrons recognize the foundational components in the service they receive.

There are a few different measures for determining central tendency. The most widely used measure of central tendency is the mean. The mean is “a measure of central tendency that is obtained by adding up all the scores and dividing by the total number of scores. It is the arithmetic average” (Frankfort-Nachmias & Leon-Guerroero, 2018, p. 71). The formula for determining the mean is:

$$\bar{Y} = \frac{\Sigma Y}{N}$$

The median is the “response associated with the middle case” (Frankfort-Nachmias & Leon-Guerroero, 2018, p. 67). The median may be found by identifying the middle result when the results are sorted numerically. Finally, the mode is “the category with the highest frequency (or percentage) in the distribution” (Frankfort-Nachmias & Leon-Guerroero, 2018, p. 63).

The first step was to determine the mean, median, and mode and view the data in a distribution table. The table allows us to see the number and distribution of responses for each question. This provides a general sense of the feeling of the research consultation participants regarding the extent to which they recognize the foundational component in the service they received, how important that foundational component was, if the foundational component improved the quality of the service, and the likelihood that the patron will use the service again due to the inclusion of the foundational component

to the service. I received survey responses from 34 of the 193 research consultation appointments for a response rate of 17.6%.

Table 1

*Distribution Table of Survey Questions Regarding Foundational Components*

<b>Question</b>	<b>Significantly</b>	<b>Somewhat</b>	<b>A Little</b>	<b>Not at all</b>	<b>No Answer</b>
<i>To what extent did you recognize that the research consultation was driven by your specific needs?</i>	30	3	0	0	1
<i>How important is it to you that the research consultation was driven by your specific needs?</i>	28	5	0	0	1
<i>Did the focus of the consultation driven by your needs improve the quality of the service you received?</i>	26	5	1	0	2
<i>Will the focus of the consultation on your individual needs impact the likelihood that you use this service again in the future?</i>	26	7	0	0	1
<i>To what extent did you recognize that the research consultation was driven by a focus on lifelong learning and teaching?</i>	22	9	2	0	1
<i>How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?</i>	16	16	1	0	1
<i>Did the focus of the consultation on lifelong learning and teaching improve the quality of the service you received?</i>	20	12	1	0	1
<i>Will the focus of the consultation on lifelong learning and teaching impact the likelihood that you use this service again in the future?</i>	19	10	3	1	1
<i>To what extent did you recognize that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	31	2	0	0	1
<i>How important is it to you that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	28	5	0	0	1
<i>Did the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improve the quality of service you received?</i>	28	4	1	0	1
<i>Will the focus of the librarian connecting library resources and their expertise to your expectations during the consultation impact the likelihood that you will use this service again in the future?</i>	26	7	0	0	1



The distribution table highlights the frequency to which patrons significantly or somewhat agreed that the foundational component was important to the service received through the research consultation.

To find the mean, median, and mode of each question, the responses are transferred to a numerical value. The values for each response follow below.

- Significantly = 1
- Somewhat = 2
- A little = 3
- Not at all = 4

The conversion to a numerical value allows for the use of central tendency measures for each question. A table of those central tendency measures follows below.

Table 2

*Central Tendency Measures for Questions Regarding Foundational Components*

<i>Question</i>	<i>Mean</i>	<i>Median</i>	<i>Mode</i>
<i>To what extent did you recognize that the research consultation was driven by your specific needs?</i>	1.09	1	1
<i>How important is it to you that the research consultation was driven by your specific needs?</i>	1.15	1	1
<i>Did the focus of the consultation driven by your needs improve the quality of the service you received?</i>	1.22	1	1
<i>Will the focus of the consultation on your individual needs impact the likelihood that you use this service again in the future?</i>	1.21	1	1
<i>To what extent did you recognize that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.39	1	1
<i>How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.55	2	1
<i>Did the focus of the consultation on lifelong learning and teaching improve the quality of the service you received?</i>	1.42	1	1
<i>Will the focus of the consultation on lifelong learning and teaching impact the likelihood that you use this service again in the future?</i>	1.58	1	1
<i>To what extent did you recognize that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.06	1	1
<i>How important is it to you that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.15	1	1
<i>Did the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improve the quality of service you received?</i>	1.18	1	1
<i>Will the focus of the librarian connecting library resources and their expertise to your expectations during the consultation impact the likelihood that you will use this service again in the future?</i>	1.21	1	1

The implications of the measures of central tendency will be discussed in Chapter 4.

*Chi-Squared Analysis.* The next part of the second stage of the analysis uses the  $\chi^2$  analysis to determine if the recognition or value placed on the foundational components is influenced by any of the environments that the patrons have been a part of.

The first part of the second stage of the analysis used measures of central tendency to determine the extent to which patrons recognize the foundational components in the service they receive.

The  $\chi^2$  analysis is “an inferential statistical technique designed to test for significant relationships between two nominal or ordinal variables organized in a bivariate table” (Frankfort-Nachmias & Leon-Guerroero, 2018, p. 271). This means that the  $\chi^2$  analysis test the statistical independence of one variable to another variable. This is accomplished by presenting the data in a bivariate table and comparing the actual frequency of outcomes to the anticipated frequency of outcomes. Given the number of analyses run in this program evaluation, I present a hypothesis test of one pair of variables as an example. A table showing the values for all 108  $\chi^2$  analyses, and the acceptance or rejection of the null hypothesis, may be found in Appendix G.

One important item to note in this analysis are the expectation of the  $\chi^2$  analysis based on minimal values in the bivariate table. Given the relatively small value of  $N$  in this analysis, the bivariate tables and resulting  $\chi^2$  values cannot be considered a reliable reflection on the level of significance between the variables. I present this analysis to demonstrate how it could proceed with a large enough  $N$ . Time constraints required that I

move forward on this analysis with the data at hand. I present the  $\chi^2$  analysis as is, as well as the recommendations in the following chapter, with the understanding that no action should be taken due to the size of the  $N$ , but rather to demonstrate what type of conclusions could be drawn given this type of analysis.

The first step for the  $\chi^2$  analysis is to lay out the hypothesis test. For this hypothesis test I use the variable 'Affiliation' for the environmental variable and 'Recognizing consultation is driven by your specific needs' for the foundational component variable. I use the critical value method of the  $\chi^2$  test. The critical value method requires that a critical value table be used to determine the level at which the  $\chi^2$  value would need to fall under for the hypothesis to be true. We find the critical value by determining the degrees of freedom, what we would like the value of  $\alpha$  to be, and then looking up the corresponding value on the chart. I first present the steps of the hypothesis test. The steps of the hypothesis test are as follows:

1. Make assumptions
2. Stating the research and null hypotheses and selecting  $\alpha$
3. Selecting the sampling distribution and specifying the test statistic
4. Computing the test statistic
5. Making a decision and interpreting the results

Going through these steps in order allow us to test our hypothesis and determine if there is a relationship between Affiliation and Recognizing consultation is driven by specific needs. Step 5 of the hypothesis test will be covered in Chapter 4.

The first step of the hypothesis test is to make assumptions. In this hypothesis test, the value of  $N$  is 33. Traditionally, the  $\chi^2$  test uses a random sample. Due to the small size of  $N$  in this evaluation, I used the entire population. The next part of the assumptions is to identify what type of variables will be used in this evaluation. The level of measurement for the variable Affiliation is nominal. The level of measurement for the variable Recognizing Consultation is Driven by your Specific Needs is also nominal.

The next step of the hypothesis test is to state what the null and alternative hypotheses are. In the  $\chi^2$  analysis, the null hypothesis is always that there is no relationship between the variables. As such, the null and alternative hypothesis follow below:

- $H_0$ : There is no relationship between the patron's affiliation on campus and the extent to which they recognize that the consultation is driven by their specific needs.
- $H_1$ : There is a relationship between the patron's affiliation on campus and the extent to which they recognize that the consultation is driven by their specific needs. (Patron's campus affiliation and the extent to which they recognize that the consultation is driven by their specific needs is statistically dependent.)

The final part of this step of the hypothesis test is to determine the value of alpha ( $\alpha$ ). The value of  $\alpha$  is "the level of probability at which the null hypothesis is rejected" (Frankfort-Nachmias & Leon-Guerroero, 2018, p. 435). I use an  $\alpha$  value of .01 for this evaluation.

The third step of the hypothesis test is to select the sampling distribution and to specify the test statistic. The sampling distribution is  $\chi^2$ ; and the test statistic is also  $\chi^2$ .

The fourth step of the hypothesis test is to compute the test statistic. This step has two different processes that must be undertaken. The first step is to determine the value of the limit for  $\chi^2$ . The second step is to determine the value of  $\chi^2$  for the test.

To determine the value of the  $\chi^2$  limit I first calculate the degrees of freedom ( $df$ ). The  $df$  value is determined by taking the product of one less the number of rows and one less the number of columns. The formula for this example follows below:

$$df=(r-1)(c-)= (3-1)(2-1)= (2)(1)= 2$$

The  $\alpha$  value identified in step two of the hypothesis test was .01. To find the value of the  $\chi^2$  limit I referred to a Distribution of Chi-Square table. The value of the intersection between the  $df$  row and the  $\alpha$  column is a  $\chi^2$  limit of 9.21.

The next step is to determine the  $\chi^2$  value. The first step to determine the value of  $\chi^2$  is to determine the observed and expected frequencies. The observed frequency table is constructed by plotting the frequency of each occurrence in the appropriate place on the table. Variables that did not contain any responses were removed from the frequency tables.

Table 3

*Observed Frequencies for  $\chi^2$  Analysis*

<b>What is your affiliation with the University of Denver</b>	<b>To what extent did you recognize that the research consultation was driven by your specific needs?</b>		
	<i>Significantly</i>	<i>Somewhat</i>	<i>Total</i>
Faculty	1	0	1
Graduate Student	22	3	25
Undergraduate Student	7	0	7
Total	30	3	33

The expected frequency table shows what the expected frequency would be for each cell if the variables were statistically independent. The expected frequency table may be determined by multiplying the total value of each of the variables that intersect in a square together and dividing by the value of  $N$ .

Table 4

*Expected Frequencies for  $\chi^2$  Analysis*

What is your affiliation with the University of Denver	To what extent did you recognize that the research consultation was driven by your specific needs?		
	<i>Significantly</i>	<i>Somewhat</i>	<i>Total</i>
Faculty	0.909090909	0.090909091	1
Graduate Student	22.72727273	2.272727273	25
Undergraduate Student	6.363636364	0.636363636	7
Total	30	3	33

Now that these tables have been constructed, the value of  $\chi^2$  can be calculated for this example. The formula for calculating  $\chi^2$  follows below:

$$\chi^2 = \Sigma((f_o - f_e)^2 / f_e)$$

The table below has been constructed to show the square of the difference between the observed frequency, minus the expected frequency, which is then divided by the expected frequency.



Table 5

*Calculating Chi-Square for Affiliation and Extent to which Patron Recognized the Consultation is Driven by their Specific Needs*

<b>Affiliation/Extent Recognizing Consultation Driven by Needs</b>	<b>fo</b>	<b>fe</b>	<b>fo-fe</b>	<b>(fo-fe)<sup>2</sup></b>	<b>(fo-fe)<sup>2</sup>/fe</b>
<i>Faculty/Significantly</i>	1	0.909	0.091	0.008281	0.00911
<i>Graduate Student/Significantly</i>	22	22.727	-0.727	0.528529	0.0232556
<i>Undergraduate Student/Significantly</i>	7	6.364	0.636	0.404496	0.06356
<i>Faculty/Somewhat</i>	0	0.09	-0.09	0.0081	0.09
<i>Graduate Student/Somewhat</i>	3	2.272	0.728	0.529984	0.2332676
<i>Undergraduate Student/Somewhat</i>	0	0.636	-0.636	0.404496	0.636

When the values of the far-right column are summed, a value of 1.056 is received. This provides our  $\chi^2$  value for this test.

The findings of the  $\chi^2$  analyses and the identification of the affiliation and foundational components pairings that may be rejected by the null hypothesis will be discussed in Chapter 4.

***Patron Comments.*** The final part of the second stage of the analysis used an inductive analysis to determine if there were other components that patrons felt were important enough that the librarians and stakeholders should potentially consider as foundational. Inductive analysis is a process for identifying codes based on themes to make sense of qualitative data. This process was defined well by David Thomas who wrote, “The primary purpose of the inductive approach is to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data, without the restraints imposed by structured methodologies” (Thomas, 2006, p. 238). Inductive analysis is one of the more popular approaches for qualitative data analysis and is an appropriate choice for how to evaluate the open responses by patrons in the survey.

First, I read the responses to each question multiple times to identify themes around which the coding could be constructed. The identification of the dominant themes allowed a coding frame to be developed. I then went through each of the questions and applied the appropriate code to the patron response. Generally, a researcher would go through this process multiple times, refining the coding each time. The data set for this is small enough based on the number of responses and the length of response, that one time applying the coding was all that was necessary. The responses for each question fit under common themes, and so one set of codes was developed to be used across all the questions. Those codes were foundational component, demeanor, ease of use, and extending consultations.

I examine the results of the inductive analysis in Chapter 4 to determine if any themes are important enough to be considered as a foundational component of the research consultation service.

### **Positionality**

As a white, cis-gender male in a higher education setting, I am afforded specific privilege and power dynamics that I needed to be aware of navigating the deployment of this evaluation. There was no way for me to understand the experiences of all program participants. Their view of the program was highly influenced by their background, education level, and history of library usage. Given my own privilege of proactive usage and understanding of library resources, I needed to remember that program participants do not have the same expectations or understanding of library resource and industry specific terminology, nor of how those resources may be best utilized. They may also

understand ways to utilize those resources that I had not previously thought of, or ways to search for materials that are outside of those approaches I learned through my library school education.

Another aspect of my positionality that I needed to consider was the impact of the COVID-19 pandemic on myself and on the research consultation participants. The pandemic altered the ability for students, faculty, and staff to be on campus during the evaluation period. It was important to me to make the process of participating in the survey as easy as possible for the consultation patrons. One of the foundational components was removed from the survey, as patrons were unable to be in the physical space and could not comment on the service as deployed. This resulted in a shorter survey, which was respectful of the time of the consultation patrons. I also decided to only send the invitation to participate one time to the consultation patrons. Receiving multiple invitations could provoke anxiety, and I felt there was enough uncertainty and stress in the lives of patrons at that time. I did not want the evaluation to add to that. This likely resulted in a smaller  $N$ , but that was a tradeoff I was willing to make.

The other component of my positionality that was important for me to contend with was my place of privilege as a faculty member at the University of Denver. This role placed me in a hierarchical relationship with program participants who had student or staff status. While I have had these roles at previous higher education institutions, I primarily identify as a faculty member at the University of Denver. It was important for me to remember that my experiences as a faculty member at this institution allow me privileges and a position of power that are not open to other people. I had to consider this

within the context of how questions are crafted for the survey. Great care was given to ensure this power dynamic did not influence responses, nor how I interpreted those responses.

### **Validity/Trustworthiness**

Trustworthiness in this evaluation was established through a combination of credibility, confirmability, and dependability. Credibility was established by using multiple methods to gather data in this evaluation. Confirmability was achieved with the focus groups to ensure that the responses from library faculty members were accurately captured and not influenced by any my own biases. This was accomplished by conducting member-checking with the focus group participants. Dependability was established by my position (processes and phases of the inquiry), triangulation (collecting data through multiple methods), and audit trail (describing how data are collected and analyzed) (Zohrabi, 2013).

Another component to consider with trustworthiness is that the foundational components were identified and articulated by the faculty librarians themselves. As a professional academic librarian, I have my own thoughts and ideas about the foundational components that underlie the structure of the research consultation. However, as I do not have an active role within the Research Center, or in the consultations, I sought to remove any personal biases or over-reliance on the theoretical underpinnings that I learned through my education. Instead, I chose to focus on the views and expertise of those who created the service and support its operations day in and day out. This ensured that the foundational components identified are true to the program and verified as

credible from the faculty librarians in the Research Center. Additionally, the definitions of the foundational components were provided back to the participants of the interactive focus group activity as a form of self-checking to ensure reliability.

### **Limitations**

There are limitations that influenced the scope of this evaluation that need consideration. While there are other individuals that could provide incredible insight, such as program participants that have used other services at the Research Center or individuals who have used research consultations at other institutions, it is important that only the individuals who have participated in a research consultation were eligible to participate in this evaluation. While this did limit the potential pool of responses, it ensured that respondents were able to give responses relevant to the stated purpose of the evaluation.

Another potential limitation that needed to be considered was how willing faculty librarians were to participate if they felt their service to students was being judged. I tempered this limitation by not focusing on how the service was administered, but rather on the foundations that underlie the service. This created a distance between the librarian and the responses of the participants. Additionally, program participants did not identify the librarian they received the service from. These approaches helped to allay fears that may have limited participation of faculty librarians but may still have impacted their overall participation during the first stage of data gathering.

An unforeseen limitation for this program evaluation occurred due to the spread of COVID-19 and the impact that had on services offered in the higher education

landscape. Like most higher education institutions not only in Colorado, but across the country, the COVID-19 pandemic shifted most courses and services into an online, virtual space. The research consultations were no exception to this reality. This move fundamentally changed a key component of service, by taking away the physical space that most consultations were conducted in. This change needed to be accounted for in the survey that was distributed to program participants. It also resulted in an important foundational component being removed from those components that were distributed to the program participants. Finally, this move also prevented a deeper examination of the differences in expectations brought to the in-person service compared to the online, virtual service.

## CHAPTER 4: DATA ANALYSIS

In this chapter I share the data and analysis used to answer each of the research questions below:

1. What are the foundational components of the research consultations as identified by faculty librarians?
2. To what extent do program participants recognize the value of the foundational components to the services they receive? Do differences in environments between patrons account for different expectations regarding the foundational components?
3. What are potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?

There are four distinct sections in this chapter of the program evaluation. In the first section I share the thematic analysis of the small group sessions for the librarian interactive focus group activity. In the second section of data analysis I examine the extent to which research center consultation patrons recognize the impact of the foundational components on the services they receive. Next, a series of  $\chi^2$  analyses were performed to determine if the environmental variables and the recognition of foundational components by research center consultation patrons were statistically dependent. Finally, I share an inductive thematic analysis that examines the views of

program participants to determine if there is a consensus regarding foundational components that participants believe should be included in how the service is deployed.

### **Interactive Focus Group Activity**

In this first section of the findings I share the foundational components as identified by the faculty librarians through the interactive focus group activity. This analysis answers the first research question, “What are the foundational components of the research consultations as identified by faculty librarians and how do they inform the service offered through the Research Center?”

The focus group interactive activity was comprised of three separate stages. The first stage was a presentation to the group where I shared an explanation of Human Ecological Theory and how the idea of foundational components were being approached for this evaluation. After the first stage of the focus group activity, the librarians and relevant stakeholders participated in breakout sessions where they brainstormed foundational components through conversation and discussed environments they believed would be an impact to students. Once the groups came back to the larger focus group, they presented their ideas to each other and negotiated the overall foundational components and assigned related components under the overall ones. The following overall foundational components were identified through the interactive focus group activity: that the consultations are driven by the needs of the patron, the focus on lifelong learning and teaching, the service model as deployed, and that the consultation focuses on connecting resources and expertise to patron expectations.



I present the four foundational components as identified through the interactive focus group activity. I then present the definitions for each foundational component and the sub-components within each overarching component. The definitions presented for each foundational component and sub-component were developed through a collaborative exercise between myself and the head of the Research Center. We then presented the definitions to the participants of the interactive focus group activity as a form of self-checking to ensure reliability. Feedback was taken and the definitions were refined based on that feedback. These definitions were also provided to research consultation patrons on the survey to ensure they knew what was meant by each foundational component in the survey. I also provide examples from the transcripts of the breakout groups to verify that the librarians and stakeholders achieved consensus on the foundational components that were most relevant during the breakout sessions.

**Consultation Driven by the Needs of the Patron.** The first foundational component to explore in depth is that the consultation is driven by the needs of the patron. This foundational component focuses on the specific needs of the patron in the application of the research consultation. Librarians do not bring a prescriptive approach to the consultation. Instead, they adapt the approach used, the tools that they review, and the search techniques used based upon the needs that the patron brings to the consultation. The focus group activity identified four sub-components to this foundational component

- Not one size fits all- There is not a prescriptive approach to the consultation. The librarian and patron co-construct knowledge in a unique way during the consultation.
- Focused, individualized service based on that patron- The consultation is focused on the specific needs of the patron at that time.
- Takes potential library anxiety into consideration- Librarians consider library anxiety as they construct the consultation and seek to alleviate anxiety that may be holding the patron back.
- Supports the whole student- The librarians are concerned beyond the current intellectual pursuit and have the patron's physical and emotional needs in mind as well. The librarians try to offer support where they are able and address non-intellectual needs and adapt the consultation as needed.

When considering the enumeration, this was one the most referenced of the foundational components in the three breakout sessions. The foundational component of the consultation being driven by the needs of the patron was mentioned a total of 22 times. This frequency refers to both the primary foundational component and the sub-components.

There was agreement between all the breakout sessions regarding the foundational component of the consultation being driven by the needs of the patron. Comments from the breakout focus group activity consistently supported this foundational component in a very broad sense. This took the shape of asking about need, "Do we think we're meeting what they need?" to statements about meeting need, "We're trying to meet the patron's

needs to the best of our ability.” While meeting patron needs is an overriding concern and expectation of the library stakeholders, there is a recognition that the foundational component can only be met within the ability of the librarian and within the scope of the resources that the library has access to. Ultimately, the goal of the librarians is that they are “meeting patron expectations and patron needs to the very best of our ability.” While this is the overall goal, a librarian acknowledged that they “want to be mindful of what we can do and what we have the expertise to do.”

*Identifying Patron Expectations and Needs.* The process of thinking about and identifying patron expectations and needs was identified as an important aspect of this foundational component. Getting to the core of what a patron needs is a process that takes time and requires patience and understanding on the part of the librarian. This sentiment came through multiple times in the focus group sessions. Getting to the core of patron needs can be time intensive pursuit that a librarian described as requiring “time to focus on the individual... having the time to think through what the person was really asking, what they were really after.” In many cases, the patron has very specific needs and expectations during the consultation. This can differ drastically from patron to patron.

So, what does the patron expect from this one-hour consultation? Do they expect to have a comprehensive view of what their dissertation is going to be? And they're just trying to get one, you know, trying to find three resources and they're trying to write a paper. What are, what are the expectations?

In some cases, the need of the patron is to actually ensure that they have already done the search correctly, or that a person with subject expertise could not find something as well. One librarian described the process of identifying this need as,

But I've had students come in. They wanted the validation that I couldn't find anything either. And so that, you know, using that brainstorming to try to figure out, OK. So, there's nothing. How do we get at this? Where do we find the intersection? What are the components that we need? So, I think all that time, the ability to discuss, to understand, to see where they've been, see where they're going, seeing that they progressed over the course of the forty-five minutes. So, I think times that these are vital to the success of that.

In cases such as this, it is important for the librarian to understand the specific need of the patron. The lack of success may seem like a failure to the librarian, when in reality, it verifies to the patron that their process was correct and that there truly is no information on the particular subject or topic under question. Not properly identifying the need would prevent this understanding and growth for both librarian and patron.

*Supporting the Whole Student.* Another aspect of this foundational component that was shared frequently during the focus groups is the idea of supporting the whole student. The idea of supporting the whole student means recognizing the person beyond the consultation, and that they have needs that extend beyond just their research needs. This was discussed most succinctly when a focus group participant shared “establishing a connection; human and emotional.” For some librarians this begins from the very onset of

the research consultation. “I always try to just start off consultations with just asking how the person is and try to make some connection first before you kind of dive in. And I always try to find out what they've done so far and where they are and what they would like to accomplish.” In some cases, supporting the whole student is more akin to reassuring the patron, as opposed to providing them resources. One librarian commented,

So sometimes I have consultations where they don't need help searching.

They need like validation that what they're doing is on the right track or maybe they're not on the right track and they need help figuring out how to get back on. So it's not necessarily always about the research or the resources. Sometimes they want me to walk them through how do I write a lit review, or what is a thesis, stuff like that.

Overall, there was agreement around the need to support the patron beyond just their research needs. Another librarian noted that to “support the whole student in terms of individual support...that’s foundation and how we are doing it.” The idea that meeting the needs of the patron extends beyond their research needs and seeing them as a whole person was a core aspect of this foundational component to the focus groups.

*Library Anxiety.* Likewise, a related aspect to supporting the whole student was the idea of helping to alleviate library anxiety. The concept of library anxiety has been documented in the research literature within the field of library and information science (Bostick, 1992; Green, 1993; Mellon, 1986; Reiter & Cole, 2019; Strothmann & Antell, 2010). After she coined the phrase library anxiety, Constance Mellon described it as, “Students become so anxious about having to gather information in a library for their

research paper that they are unable to approach the problem logically or effectively” (Mellon, 1988, p. 138). Patrons often report stress around the research process. One librarian noted an “anxious anxiety...especially around the research process.” This anxiety becomes much more pronounced toward the end of the academic session. When discussing how a colleague in the research center helps patrons as the academic quarter draws to a close a newer librarian said, “And sometimes, especially during the last couple of weeks, it's like ‘I'm just really, I'm really nervous (referring to the patron).’ And she's (an experienced librarian colleague) like, ‘OK, well, I'm here to help you with that,’ to try and alleviate some of that. And I like that recognition of like, I can understand where you're coming from. Let me help you. This is how I'm going to help you kind of thing.” In some cases, librarians report that it is better to meet immediate needs, and then schedule a follow up appointment to go more in-depth when the patron has less stress and anxiety. “So those students may want to try you know, they come in at the end of the quarter. They're very, very stressed out. And at that point, if they're so stressed out, I say this is. ‘You come back later, when you're not stressed. And we'll sit down. We'll go through this more slowly. But let's just find what you need.’” The concept of library anxiety is a true struggle for some patrons, and the focus on it by the focus groups highlight it as an important concept of the overall foundational component of meeting patron needs.

**Focus on Lifelong Learning and Teaching.** The second foundational component is the focus on lifelong learning and teaching. This foundational component of the research consultation focuses on the long-term benefit of the research consultation

outside of the immediate stated needs. This helps drive the approach of teaching the patron how to research broadly, as opposed to just finding resources to meet the immediate need. It reframes the context of the consultation from a service to an educational experience for both the patron and the librarian.

The idea of lifelong learning and teaching came up during the three focus groups a total of 15 times. The main idea of the focus on lifelong teaching and learning according to one of the librarians in the focus group was, “Empowering students or patrons to learn how to do the research themselves.” The overarching idea on this foundational component is to put the patron in a position to be self-sufficient as it relates to their research. One librarian described this by saying, “Essentially we don't want to do it for them... We want them to learn how to do it for themselves.” Another librarian commented that, “For me one of the main things is our teaching mission. So really empowering students or patrons to learn how to do the research so they're independent and feel confident in what they're doing.”

The process of how to implement the teaching and learning component into the research consultation was important and discussed multiple times. One librarian framed this idea as, “It's not us telling them what they need to be learning. They come to us with a question. And then I also put this idea of like we're helping people with a process and not necessarily a product.” For some librarians, it was important to talk about how the process went beyond just showing resources. One librarian stated,

It's not so much just focused on like demoing and showing these resources and how to search, but definitely those other frames of the framework that might come

into place, like talking about how you design a research project and order things that you might need to keep in mind.

This emphasis of talking about the whole research process beyond the search for information also enables librarians to understand where there may be gaps in patron understanding and competency. Another librarian commented that they use the teaching mission to,

Suss [sic] out where the gaps might be and their information literacy. So even if that wasn't necessarily a part of their primary question, those things ... can be worked into that consultation. So that... they can be independent and they can empower them to take that information and use it to their advantage in the future.

This concept of patron empowerment is built upon a concept of mutual respect, and an understanding that the patron brings a set of knowledge to the consultation that is valuable. When discussing this, a librarian discussed the, “mutual respect and strategic exploration part. Because when I talk to students... they, you know, just want help navigating... So, I put strategic exploration in it.” The goal of incorporating the foundational component of lifelong learning and teaching into the research consultation is to encourage a self-sufficiency for the patron moving forward in future research endeavors.

**How the Service is Deployed.** The third foundational component focuses on how the service of the research consultation is deployed. The service model as deployed takes into account the layout of the physical room where the consultations take place, the ability to schedule appointments with librarians of your choice, and the ability to walk in



and work with a librarian on demand. The service model was based upon the Writing Center service model and was a break from the traditional reference model employed by many libraries at the time of implementation. The traditional reference model was situated with a readily available walk-up desk where patrons could ask specific questions. By contrast, the research consultation provided a longer period of time for a more in-depth service. The consultation wasn't necessarily about getting the answer to a question but learning how to do the research so that the patron could become self-sufficient. The sub-components of service model as deployed follow below.

- Point of need/ Just in time- The service is there when the patron needs it at their current stage in the research process.
- Generalist versus expertise- Everyone that works at the Research Center is able to serve as a generalist and can get patrons started on their research, but librarians also hold and develop disciplinary expertise to help advanced researchers.
- Time constraints versus complexity of question- The model is able to be adaptive and balance the time constraints of the class (and therefore patron) with the complexity of the research questions.

The foundational component of the service as deployed was discussed frequently during the focus group sessions, with an enumeration value of 20. The discussion on this foundational component started with a conversation around the topic of the structure as a whole. When discussing the overall structure, there was broad support to include it as a foundational component. One librarian commented, "in terms of foundational components... I was thinking like the structure of the service itself." Another librarian

said, “Like the structure of the consultation. So... I was thinking that was what he meant by foundational ... how the service is set up.” Other librarians spoke about the service as deployed with respect to how the service was conceptualized.

When implementing the research consultation model, the library transitioned from a reference-based service to a model that mimicked the structure of the Writing Center. One librarian who helped create the service commented, “It was very hard to do this at the reference desk and we had the writing center model there. So, we actually copy them. I mean, we use them as the model for what we did when we started.” Other librarians focused on the layout of the room, and the ability to have the space and support to create the research consultation model in its own designated space. One librarian recalling that time stated,

But I'll tell you what was foundational is that this whole idea was the support that we were given... But that the foundation of the support that we got to have the space to do, we had it as a pilot. We had the space. And then we actually built the space. And I think that that helped us to make a success.

Another librarian commented on the layout of the room and the impact that had on the service. “Which was that we actually wanted that two monitors and ... one computer.” This setup allowed research consultation patrons to work along with the librarian and actively learn how to navigate through library resources.

*Point of Need/Just in Time.* One of the important sub-components of this foundational component is the point of need/just in time structure. This structure ensures that the service is available to the patron at their current stage of the research process.

The consultation hours and the ability to make reservations for the service ensures this availability. One librarian noted, “But I do feel like that's why we have the hours that we have set aside a week to be there, even if we don't have an appointment. We're there because their specific point of need.” When discussing hours and the ability to schedule an appointment, another librarian said,

I think things that we are doing already are tied into like having those set consultation hours and being in the consultation room even if we don't have an appointment. And then also having Lib-Cal [a library scheduling software solution], which allows students to see there are other options for meeting even if the one that there's no time of day. They have other options kind of flex and see around.

These set times, even when unscheduled, and creating additional opportunities and ease of access for scheduling consultations, was an important part of this foundational component.

*Librarian as Generalist vs. Expert.* Another important part of this foundational component is the idea of the librarian as a generalist versus the idea of the librarian as an expert. Each of these views is important and informs the structure of the service as it is deployed. When talking about the idea in general, one librarian noted, “And I think that another foundational thing was ... the general versus the expertise, and that's where we support the general undergraduate with those assignments and the graduate and faculty.” This supports the infrastructure for a tiered service approach where someone can receive general instruction and support when necessary, or they can elect to receive expert level

assistance for more extensive research projects. This tiered support is highlighted when a librarian stated, “And even if it's not the expert at that time, they can get a generalist that can get them started. Right. So I do think like underlying idea of Lib-Cal where students can pick their own times, they can browse different librarians.” This approach is also of comfort to librarians. They are not expected to act as experts in all fields. One librarian summarized this by stating they could stay, “within our own expertise area and not like the ones... [where] we don't feel we have an expertise.” In this, patrons who need expert support can receive it from librarians in the fields in which they have expertise, and librarians don't feel the need to provide that level of research support in areas they are unfamiliar with.

*Time Constraints vs. Complexity of Problem.* The final aspect of this foundational component is related to time constraints of the research needs versus the complexity of the problem. This aspect represents two competing sides of the information needs of patrons that helped inform the scope of the research consultation model. Previous efforts at a reference desk resulted in difficulty responding to questions that were more complex. Referring to that time, one librarian stated, “Time and the complexity I think that those are some of the reasons why we started it was that we couldn't address a lot of the questions we were getting in the time that we were on the references because we were getting interrupted.” This situation resulted in the adoption of a system that would handle shorter, less complex questions at the desk staffed by trained graduate students, while more complex inquiries are referred to a research consultation. One librarian described this setup as, “the triage system... was critical to time and it was

related to complexity. And it was related to, OK, we can spend 15 minutes to help them with the question. And then if it takes more, you have to move it to that consultation.” This move to a consultation provides more time for the patron to work with a librarian. This can come in handy as the quarter progresses and patrons, especially those who are students, feel the crunch of the quarter ending. “We include something in here about one of our values was trying to get people in here before their projects are due. Giving them enough time? But then, you know, the quarter system kind of impacts that.” While the end of the quarter may provide an additional time constraint, “people can come in as many times as they need, like we've set it up in a way that there's no restrictions on that.” This allows patron to schedule research consultations multiple times, even on the same topic. This helps to address the time constraint of the research needs and allow for more thorough research for the patron.

**Librarian Connecting Resources and Expertise.** The final foundational component that emerged was how the librarian connects resources and expertise to the expectations that the patron brings into the consultation. This foundational component focuses on the process of the librarian connecting the resources that have been built over time in the library to the needs and the expectations that each individual patron brings into the research consultation. This encompasses helping the patron locate appropriate resources, as well as enabling the patron to appropriately search through the variety of library resources in the future. The librarians and stakeholders identified three additional sub-components of this foundational component.

- Expertise of librarian- Acknowledges the expertise that the individual librarian brings into the research consultation, including, but not limited to subject expertise, research expertise, and development of the collection in the subject area.
- Expertise of student- Acknowledges the expertise that the student brings to the research consultation.
- Co-constructing knowledge- Utilizes constructivist pedagogy where the librarian and the patron work together to open and uncover new information and ways of making meaning. The hands-on approach makes abstract research principles more tangible for the patron.

This foundational component was discussed a total of 22 times during the focus group breakout activities.

*Expertise of Librarian.* The first topic under this component is the expertise of the librarian. The librarians bring an academic background in librarianship, as well as significant experience in their liaison fields of study. From the academic perspective, the role of the librarian as articulated by one experienced librarian is to be “the facilitators of bringing the patron’s question with the resources available. We bring those two together.” Another librarian described this process as, “And our skill, the foundational skill of a research librarian is to introduce, to hear that subject and then bring the resources to bear on that subject.” In some cases, it is helping the patron understand what type of sources they need based on their information needs. Helping patrons identify the different types of information and make informed decisions is an important part of the process. A long-

serving librarian noted, “Connecting the person to the resource, because we are the experts at knowing whether... they need scholarly articles, popular magazine articles, you know, statistical sources. And they just know they need some kind of help. They don't know the shape and format of those resources. And we do.” The overriding emphasis and goal for librarians is to “have the expertise to offer and then connecting the person to the resource.” This expertise, and the recognition that librarians have a specific set of skills that are beneficial to the patrons of the research consultation are an important part of this foundational component.

*Expertise of the Student.* The next topic of this foundational component is the expertise that the patron brings to the research consultation. While librarians bring a level of expertise to the research consultation, the contributions of the patron's expertise should not be overlooked. Librarians in the focus group believed it is important for them to be “recognizing and valuing the knowledge and experience that students or patrons bring to the consultation... in order to equalize the power dynamics.” Another librarian commented, “For me it's kind of recognizing and valuing the knowledge and experience that students bring to the consultation and trying to equalize that power dynamic that can happen. And listening carefully.” Equalizing the power dynamic takes the consultation out of a top down approach and makes the process a more collaborative effort focused on co-constructing knowledge.

*Co-constructing knowledge.* The final topic of this foundational component is the process of co-constructing knowledge. This approach uses a constructivist pedagogy to help the patron make new ways of meaning in their research approach. This is a

collaborative effort brought together by both the expertise of the librarian and the expertise of the patron. One librarian commented, “I find it really has to be a collaboration because you're bringing your knowledge about databases or disciplinary things and they're being bringing their knowledge from whether you learn something in class, or others familiar with the discipline, or their personal experience.” Sometimes, patrons may feel like they do not know enough about the topic to search in a thorough or appropriate manner. In these cases, it is up to the librarian to encourage the patron and bring their knowledge and experience to the forefront. A newer librarian commented, “Sometimes I feel like students, they devalue the sense that they know... And I'm like, no, you do know this. Like, let's work on this together. I just know a little bit extra. So, it's also kind of, again, with valuing their own knowledge.” The collaborative effort at co-constructing knowledge takes the patron from an observer of the research process to an active participant.

**Emergent Themes.** Now that the a priori codes have been defined and justified through examples from the transcripts, I will examine additional components that came through based upon inductive coding. Overall, the stakeholders did a good job identifying and defining themes that encompassed most of the components discussed by the breakout groups. There were two themes that emerged during the breakout sessions that bear consideration: resources and the reference interview.

**Resources.** This finding covers the type of resource and the overall availability of library resources to patrons. When considering resources, librarians like to talk explicitly to the patron about what types of resources they are looking for. One librarian



commented, “I approach it, like understanding the kinds of resources the patron wants.” When referring to types of resources another librarian noted that, “I always cover them, whether it’s a book...or an article...that’s the first place I go.” Another librarian commented that “we know the resources that we can direct them to or at least give them something that can help them.” Considering the different types of resources that would be useful for a patron given their need is an important part of the research consultation.

The other aspect of this finding to consider is the availability of resources. While the library does have access to an impressive scope of resources, it doesn’t have access to everything. One librarian discussed it as ‘scope and resource availability,’ while another stated, “there are limits on that for a variety of reasons. Whether it’s the availability of resources...” Many patrons have become accustomed to the ability to access information immediately. The information landscape does not always make that possible. When discussing this lack of availability, one librarian said,

And then finally, understanding the availability of information that everything is going to be available in the way they want it... We have to go over those kind of thing. Some things take travel. [Driving to another institution or having something sent through Interlibrary Loan.] Some things we can get immediately. Some things take, you know, going into another place. So I don't know, expectations or availability of information.

The availability of information, and the inability to access some information is an aspect of the research center consultation that librarians need to take into account.

*Reference Interview.* The other inductive finding that emerged was the reference interview. The reference interview is “a conversation between a reference staff member and a user, the goal of which is to ascertain the user’s information need and take appropriate action to satisfy that need through skillful use of available information sources” (Bopp & Smith, 2001, p. 47). The research consultation is a more thorough extension of the reference interview. As such, it did come up in the breakout groups. When discussing the structure of the consultation, one librarian noted, “We’re using the reference interview framework.” Another noted the role of the patron in the process when they said, “The reference interview consultation process is impacted greatly by the person interviewed.” This acknowledges the role of the patron in the process, and how much they can impact the consultation. The aspect of the reference interview also addresses how to get more information from the patron. “In terms of thinking about the reference interview is like knowing how to coax out what they really want/need versus what they asked for.” While this is an important part of the process, another librarian noted the difference between research consultation and reference interview when they said, “you’re better able to ensure that there’s a mutual understanding of what the topic is, what their questions is... there’s not as much room for misinterpretation that the reference interview has.” The idea and practice of the reference interview has informed the research consultation model and was acknowledged in the breakout sessions.

While both of these emergent findings did come up in the breakout groups, they were not included as foundational components in the survey sent to students. There are two main reasons for this. First, both could be considered at least partially addressed by

some of the codes that were incorporated into the foundational components. For example, types of resources and understanding availability of those resources are part of the expertise that the librarian brings to the research consultation. The second reason is that the research consultation stakeholders did not include these specific areas as foundational components after their group discussion. Both of these emergent findings were brought up but did not come forward as final foundational components. I feel there is value to the discussions had by the stakeholders and how they chose to identify and define the foundational components. Part of this project was the importance in how the research consultation stakeholders viewed the foundational components, and I believed it was important to honor that conversation. If another component had emerged that was discussed as frequently and as in-depth as the other foundational components had been, I would have taken it back to the stakeholders for inclusion. However, another component did not emerge at this level, and I decided to maintain the foundational components as they were.

Now that the foundational components have been discussed I move to a conversation around the recognition of those components to the research consultation patrons. I examine the extent to which patrons recognize the components in the service they receive and whether those components are important to the patron. I examine the impact of environment on how different groups (library stakeholders versus research center patrons) view the foundational components of the research consultation. In doing so, I offer clarity on whether environment impacts the expectations of the service overall.

## **Recognition of Foundational Components**

The second section of findings relate to the extent to which Research Consultation participants recognized the foundational components in the service they received.

Findings in this section address the first part of the second research questions, “To what extent do program participants recognize the value of the foundational components to the services they receive?” This was determined by finding the central tendencies for each of the questions that was asked of research consultation patrons.

As discussed in chapter three, a survey instrument was sent to research consultation patrons. This survey was administered through the Qualtrics platform. There was one significant event that happened between the interactive focus group activity and the distribution of the survey to research consultation patrons. The COVID-19 pandemic moved the research consultation from an in-person service to a completely virtual service. The virtual service component continued through the Fall 2020 academic quarter. This change impacted the foundational components as identified through the interactive focus group. I worked with the Head of the Research Center on how to handle the foundational component of the service model as deployed. So much of that foundational component was tied to the physical layout of the consultation room and the workstations that allowed for librarians and research consultation patrons to work together. During discussion, we did not believe that patrons could reliably answer questions related to this foundational component in a meaningful way. As such, the decision was made to eliminate that foundational component from the survey questions.

The Measures of Central Tendency were explained and presented in Chapter 3. I have provided the table with the each of the measures for central tendency for all the foundational component questions from the survey below, to provide context for the analysis provided below.

Table 6

*Central Tendency Measures for Questions Regarding Foundational Components*

<b>Question</b>	<b>Mean</b>	<b>Median</b>	<b>Mode</b>
<i>To what extent did you recognize that the research consultation was driven by your specific needs?</i>	1.09	1	1
<i>How important is it to you that the research consultation was driven by your specific needs?</i>	1.15	1	1
<i>Did the focus of the consultation driven by your needs improve the quality of the service you received?</i>	1.22	1	1
<i>Will the focus of the consultation on your individual needs impact the likelihood that you use this service again in the future?</i>	1.21	1	1
<i>To what extent did you recognize that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.39	1	1
<i>How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.55	2	1
<i>Did the focus of the consultation on lifelong learning and teaching improve the quality of the service you received?</i>	1.42	1	1
<i>Will the focus of the consultation on lifelong learning and teaching impact the likelihood that you use this service again in the future?</i>	1.58	1	1
<i>To what extent did you recognize that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.06	1	1
<i>How important is it to you that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.15	1	1
<i>Did the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improve the quality of service you received?</i>	1.18	1	1
<i>Will the focus of the librarian connecting library resources and their expertise to your expectations during the consultation impact the likelihood that you will use this service again in the future?</i>	1.21	1	1

When examining the central tendencies, it is clear based on the mean that there is a high level of agreement for research consultation patrons with recognizing and finding value in the foundational components determined by the librarians and research consultation stakeholders. The mean for responses range from a high of 1.06 to a low of 1.58. All of these values fall in the range of significantly to significantly/somewhat. I'll now go through each of the foundational components.

The first foundational component to examine is that the consultation was driven by the specific needs of the patron. Patrons reported a significant recognition that the consultation was driven by their specific needs (1.09) and that it was an important component of the research consultation (1.15). There was also significant agreement that the focus of the consultation being driven by their specific needs improved the quality of the service (1.22) and will impact the likelihood of them using the services again in the future (1.21). Each of the questions around the foundational component of the consultation being driven by the specific needs of the patron is a positively skewed distribution as the values of the median and mode are less than the value of the mean.

The second foundational component was the focus on lifelong learning and teaching. While the responses for this foundational component were still very positive, this component does contain the lowest mean values of the three components. Patrons reported a mixture of significant and somewhat recognition that the consultation was driven by a focus on lifelong learning and teaching (1.39) and that the component was important to them in the service (1.55). There was also a mixture of significant and somewhat agreement on whether the focus on lifelong learning and teaching improved

the service that was received (1.42) and whether it will impact the likelihood that they use the service again (1.58). All of the questions have a positively skewed distribution with the exception of ‘How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?’ This question has a mean value of 1.55, a median value of 2, and an equal frequency between 1 and 2 for the mode. As such, I would classify this as a slightly negative skewed distribution.

The final foundational component was the focus of the librarian connecting library resources and their expertise to patron expectations. Patrons again reported significant agreement that they recognized that the librarian was connecting library resources and expertise to their expectations during the consultation (1.06) and that it was important to in the service (1.15). There was also a significant agreement that the focus of the librarian on connecting library resources and their expertise to your expectations during the consultation improved the quality of the service (1.18) and that it will impact the likelihood that they use the service again (1.21). All of the questions in this component had a positively skewed distribution.

Based on the responses of patrons in the survey, the foundational components identified by the librarians and research center stakeholders were well placed. Patrons overwhelmingly reported recognizing the foundational components in the service that they received, that the foundational components were an important part of the service as delivered, that the components improved the service that they received, and that they were more likely to use the service again based upon the foundational components.



These results offer insight on the impact of environment to the expected foundational components of library stakeholders to the recognition of foundational components by research consultation patrons. In this case, we are looking at the presence of the Library and Information Science academic background for the library stakeholders, and the absence of that specific academic background for patrons. By analyzing the measures of central tendency we observe a significant agreement between the foundational components by the library stakeholders and the research consultation patrons. This significant agreement indicates that the environment of the Library and Information Science background does not have a significant impact on the expected and recognized foundational components of the research consultation. From this we may surmise that the core theories and competencies being taught and discussed in Library and Information Science academic programs continues to keep pace with the evolving expectations of the research consultation model patrons.

### **Relationship between Environment and Foundational Components**

The third section of the findings examine if the environments that a patron participates in (either currently or historically) impact the value of the foundational components to the service they receive. This part of the analysis addresses the second part of the second research questions, “Do differences in environments between patrons account for different expectations regarding the foundational components?” To accomplish this, I have run a series of  $\chi^2$  analyses to determine the overall impact of environment on how patrons respond to the foundational component questions. This

allows for an understanding if the environment influences how patrons view the value of the foundational component to the service they received.

The first four steps of the hypothesis test were covered in-depth during Chapter 3. I will briefly review steps one through four before providing a longer discussion on step 5 of the hypothesis test.

Step one of the hypothesis establishes that the entire population will be used due to the lower overall value of the  $N$ . This step also identifies the variables to be used and the level of measurement. The level of measurement for the variable Affiliation is nominal. The level of measurement for the variable “recognizing consultation is driven by your specific needs” is also nominal.

The second step of the hypothesis test establishes the null and alternative hypothesis.  $H_0$  is the null hypothesis.  $H_1$  is the alternative hypothesis.

- $H_0$ : There is no relationship between the patron’s affiliation on campus and the extent to which they recognize that the consultation is driven by their specific needs.
- $H_1$ : There is a relationship between the patron’s affiliation on campus and the extent to which they recognize that the consultation is driven by their specific needs. (Patron’s campus affiliation and the extent to which they recognize that the consultation is driven by their specific needs is statistically dependent.)

The value of  $\alpha$  is also established in this step. I use an  $\alpha$  value of .01 for this evaluation.

The third step of the hypothesis test is to select the sampling distribution and to specify the test statistic. The sampling distribution is  $\chi^2$ ; and the test statistic is also  $\chi^2$ .

The fourth step of the hypothesis test is to compute the test statistic. This step has two different processes that must be undertaken. The first step is to determine the value of the limit for  $\chi^2$ . The second step is to determine the value of  $\chi^2$  for the test.

To determine the value of the  $\chi^2$  limit I first calculated the degrees of freedom (*df*). The *df* value is determined by taking the product of one less the number of columns. The *df* value for this example is 2. The *a* value identified in step two of the hypothesis test was .01. To find the value of the  $\chi^2$  limit I referred to a Distribution of Chi-Square table. The value of  $\chi^2$  limit in the Distribution of Chi-Square table is 9.21.

The next step is to determine the value of  $\chi^2$  value. The first step to determine the value of  $\chi^2$  is to determine the observed and expected frequencies. The observed frequency table is constructed by plotting the frequency of each occurrence in the appropriate place on the table. The table below shows the values of the observed frequency (*f<sub>o</sub>*) and expected frequency (*f<sub>e</sub>*) for each variable pair. The value of  $\chi^2$  is calculated through the following equation.

$$\chi^2 = \Sigma((f_o - f_e)^2 / f_e)$$

Table 7

*Calculating Chi-Square for Affiliation and Extent to which Patron Recognized the Consultation is Driven by their Specific Needs*

<b>Affiliation/Extent Recognizing Consultation Driven by Needs</b>	<b>fo</b>	<b>fe</b>	<b>fo-fe</b>	<b>(fo-fe)<sup>2</sup></b>	<b>(fo-fe)<sup>2</sup>/fe</b>
<i>Faculty/Significantly</i>	1	0.909	0.091	0.008281	0.00911
<i>Graduate Student/Significantly</i>	22	22.727	-0.727	0.528529	0.0232556
<i>Undergraduate Student/Significantly</i>	7	6.364	0.636	0.404496	0.06356
<i>Faculty/Somewhat</i>	0	0.09	-0.09	0.0081	0.09
<i>Graduate Student/Somewhat</i>	3	2.272	0.728	0.529984	0.2332676
<i>Undergraduate Student/Somewhat</i>	0	0.636	-0.636	0.404496	0.636

When the values of the far-right column are summed, a value of 1.056 is received. This provides our  $\chi^2$  value for this test.

The final step of the hypothesis test is to make a decision and interpret the results. To do this, a comparison must be made between the  $\chi^2$  limit from the Distribution of Chi-Square table and the  $\chi^2$  value received from the test. The value of the  $\chi^2$  limit from the Distribution of Chi-Square table for a *df* of 2 and an *a* of .01 is 9.21. Since the  $\chi^2$  value obtained through our test of 1.056 is less than the value of the  $\chi^2$  limit, we accept the null hypothesis that there is no relationship between the patron’s affiliation on campus and the extent to which they recognize that the consultation is driven by their specific needs.

The example hypothesis test above is provided to highlight how each set of variables is to be evaluated in this evaluation. A complete table of all 108 variable combinations may be found in Appendix G. By reviewing Appendix G, we may see that there are a total of five variable combinations in which the null hypothesis may be rejected. The table below lists the variables for each hypothesis test, the *df*, the  $\chi^2$  value,

and the  $\chi^2$  limit. Following the table is a list of the variable groupings and the result of the hypothesis test.

Table 8

*Rejected Variable Groups for Hypothesis Tests*

<b>Environmental Factor</b>	<b>Foundational Component</b>	<b>df</b>	<b>Chi-Square Value</b>	<b>Chi-Square Limit</b>	<b>Accept or Reject Null Hypothesis</b>
<i>Immediate internet access</i>	<i>Expertise- Recognize consultation driven</i>	3	21.29	11.341	<i>Reject</i>
<i>Immediate internet access</i>	<i>Expertise- improved quality of service</i>	6	21.443	16.812	<i>Reject</i>
<i>Comfort level with technology</i>	<i>Lifelong Learning- how important</i>	6	34.257	16.812	<i>Reject</i>
<i>Comfort level with technology</i>	<i>Expertise- Recognize consultation driven</i>	3	16.606	11.341	<i>Reject</i>
<i>Comfort level with technology</i>	<i>Expertise- improved quality of service</i>	6	34.616	16.812	<i>Reject</i>

- There is a relationship between if the patron grew up with immediate access to the internet and the extent to which they recognized the librarian was connecting library resources and their expertise to their expectations. (Patron’s access to internet while growing up and the extent to which they recognize that the librarian was connecting library resources and their expertise to their expectations is statistically dependent.)
- There is a relationship between if the patron grew up with immediate access to the internet and whether the librarian connecting library resources and their expertise

to their expectations improved the quality of service they received. (Patron's access to internet while growing up and whether they agreed that the librarian connecting library resources and their expertise to their expectations improved the quality of service is statistically dependent.)

- There is a relationship between the patron's comfort level with technology and how important it was that the research consultation was driven by a focus on lifelong learning and teaching. (Patron's comfort level with technology and how important it was that the research consultation was driven by a focus on lifelong learning and teaching is statistically dependent.)
- There is a relationship between the patron's comfort level with technology and the extent to which the patron recognizes that the librarian was connecting library resources and their expertise to your expectations. (Patron's comfort level with technology and the extent to which the patron recognizes that the librarian was connecting library resources and their expertise to your expectations is statistically dependent.)
- There is a relationship between the patron's comfort level with technology and whether the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improved the quality of service. (Patron's comfort level with technology and whether the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improved the quality of service is statistically dependent.)

As was previously mentioned, a limitation of this analysis is the number of cells in each bivariate table that fall under the threshold of a value of 5. This means that the data set is not large enough and does not have enough responses over the possible response outcomes to be statistically relevant. However, there is value in the responses that were gathered, and we can use this information to inform some decision making.

Bringing this analysis back to the Human Ecological Theory Framework, there are two different environments that may impact the responses of patrons to their recognition and quality of the service to patrons through the research consultation. Those two environments are whether or not the patron grew up with immediate access to the internet, and the patron's own feeling regarding their comfort level with technology. These environments represent two different demographics that could be considered when thinking about how the research consultation is provided. Administrators would want to consider how potential changes to the service in the future would impact patrons based upon these environments.

### **Patron Comments**

The final section of findings examine whether patrons believe that other foundational components outside of those identified by the librarians and research center stakeholders carry importance at a level that should be considered foundational. This analysis answers the third research question, "What are potential expectations that are not being met for program participants in the research Center that could help redefine the identified foundations?" To answer this question I conducted an inductive analysis on the free response questions that research center patrons provided in the survey.

There were three questions asked in the survey that patrons could respond to.

Those questions were:

- Were there other aspects of the research consultation were important to you during this service? If so, what were they?
- What other aspects of the research consultation improved the quality of the service you received?
- What other aspects of the research consultation will impact your decision to use this service again in the future?

The themes and supporting comments will be analyzed for each question in turn. I first review the process undertaken for coding the responses in each of the three questions.

The process of coding the patron responses was the same for each of the questions. The final themes were: Foundational Component, Demeanor, Ease of Use, and Extending Consultation. The definitions for each theme follow below.

- Foundational Component- this theme refers to responses from patrons that were already covered under the foundational components that were defined and asked about through the survey instrument.
- Demeanor- this theme refers to the behavior of the librarian during the research consultation. This code covers different aspects of behavior such as disposition, approachability, and empathy.
- Ease of Use- this theme refers to the ease in which research consultation patrons were able to set up their consultation.



- Extending Consultation- this theme refers to the extension of the service beyond the research consultation. This covers both follow-up from the librarian and how patrons learn about the service.

**Question One.** The first question to look at was, “Were there other aspects of the research consultation that were important to you during this service? If so, what were they?” There was a total of 13 responses to this question through the survey instrument. All the responses from the research consultation patrons were coded as either Foundational Component or Demeanor.

The Foundational Component theme was the most used for this question. While the concept of expertise was discussed through the survey questions, it came up frequently as a topic in what other aspect of the research consultation was important during this service. One patron responded that they appreciated ‘having access to someone that knows research from the perspective of my program and academic background.’ Another patron stated that they appreciated how the librarian “always includes some resources that I wouldn’t think to look at.” Another showed appreciation for navigating the library resources when they praised the learning about the “many online systems & best strategies.” Other responses that were coded with Foundational Component focused on lifelong learning and teaching (“talked me through the process of everything that she was doing, so I could learn what she was thinking”), the idea of receiving both generalist and expertise assistance (“The ability to bridge general and specific learning was a fantastic aspect”), and the remote meeting options helping to address library anxiety (“Having the meeting over zoom kind of relieved my anxiety of

going into the research center”). Overall, the level of response that referenced back to the foundational components defined by the librarians helps reinforce the importance of those components to the service that is offered through the research consultation.

The other theme present in the response for this question was Demeanor. Patrons responded that the “friendliness and acceptance” of the librarians was important, as was that they “were accommodating and helped me.” Patrons responded well to good communication skills, “[She] was very good and talking to your level.” Overall, “The demeanor of the librarian assisting me,” was an important component of the research consultation service to patrons.

**Question Two.** The second question considered for this analysis was, “What other aspects of the research consultation improved the quality of the service you received?” There were a total of 14 responses to this question. The most common theme used for the question about what improved the quality of service received was Demeanor. Multiple patrons address the ease with which they were able to talk to the librarian who was conducting the research consultation. This went from a general, “he was very easy to talk to and communicate,” to a more detailed, “The human touch- we chatted about our personal lives, our backgrounds, grad school, and made everything a little more relevant for each of us.” This level of discussion allowed “the research consultant to make me feel comfortable asking questions.” Another patron responded, “She was so friendly, and so willing to listen to any questions that I had.” Some felt a personal connection, “[She] knew my name, encouraged my ideas, and kind of ‘knew’ me.” Another commented that “[She] was very kind and understanding.” While Demeanor is clearly an important code

for this question, it is made clear by the patron responses that it results in a willingness to engage more in the consultation. Patrons being willing to ask more questions and be a more active part of the research process with the librarian improves that consultation and allows the patron to get more from the process.

Similar to the first question, the Foundational Component theme continued to be present in this question. Expertise continued to be important to research consultation patrons as one commented, “The consultant reviewed a lot of best practices in research which were both academically helpful and also provided an ethical level of advice.” Another patron commented that the ‘librarian was extremely knowledgeable and quick to provide further insights.” Another patron responded that they appreciated learning about how to request material through another service offered by the library (interlibrary loan). The concept of lifelong learning and teaching came up in this question as well when a patron responded, “I appreciate being taught research skills that I can apply in any context.”

The final theme used in this question was Extending Consultation. Two patrons responded that they appreciated how they were sent follow-up communication from the librarian after the consultation. One patron said, “The librarian/consultant emailed me after the session to summarize the queries we tried and queries I should try next to continue my own research.” Another patron commented that, “The person I had my research consultation with took notes on a document of what he was searching and pasted links there and sent it to me afterwards so I was able to easily access everything we had found.” This extension of the service to a follow-up afterwards clearly held value to the

patrons. This information would help in the patron retaining the identified resources and learned skills beyond the meeting.

**Question Three.** The final question for this analysis was, “What other aspects of the research consultation will impact your decision to use this service again in the future?” This question had 14 responses. The most common theme used for this question continued to be Demeanor. Patrons continued to place a high value on soft-skills when considering what would impact them to use the research consultation service again. Patrons continued to comment on friendliness from, “the research consulate [sic] was very friendly and understanding,” to, “very friendly and helpful demeanor.” Another patron responded, “I would be more inclined to use this service again if the librarian is kind and understanding.” Overall, patrons continue to place a high value on the way the librarian welcomes, encourages, and engages with the patron, when deciding whether they will use the service again.

As with the previous two questions, patrons also continue to place a high value on the Foundational Components identified by the research consultation stakeholders. The expertise of the librarian continues to influence the value patrons see in the service. One patron commented the “knowledge of the research expert,” would impact their decision to use the research consultation service again. Another patron commented that they “trust the research folks to keep me focused and give me valuable knowledge I exchange for the time I spend with them.”

The final theme discussed in this question was Ease of Use. Patrons responded that the ease with which they could schedule a research consultation appointment would

impact the likelihood that they would use the service again in the future. Patrons stated that the “Ease of scheduling a time,” and the “ease of appointments,” would impact their decision.

**Themes of Responses.** Overall, we see two main themes develop over the patron responses to additional aspects of the research consultations that were important to them. The first theme is that there was consensus with the foundational components as identified by library stakeholders, especially on the importance patrons place on the expertise of the consultant helping them. Patrons stated that this was an important aspect of the consultation overall, that it improved the quality of the service, and that it would impact the likelihood that they would use the service again in the future.

The second theme is how important soft skills are to research consultation patrons. The patrons who responded to this survey put a high emphasis on the demeanor, approachability, and empathy of the librarian they are working with. The ability to make a patron feel welcome, encouraged, and engaged is an important component to the research consultation. Patrons overwhelming focus on these soft skills as an important overall aspect of the consultation, as something that improved the quality of the service, and as a something that would impact the likelihood that they would use the service again.

A few things become clear when these responses are considered within the context of the Human Ecological Theory framework. The first is that the technical expertise learned by the librarians is an important aspect of the service to the patrons of the research center. The difference in environment experienced between each group (an

academic background in librarianship) is not influencing the impact of the librarian's expertise on how each group views the foundational component. The other point that becomes clear is the importance of the disposition, demeanor, and empathy displayed by the librarian during the consultation. This point is interesting when considered within the context of the framework. On one hand, this point was not discussed by the librarians and stakeholders during the focus group activity. On the other hand, the patrons who discussed this explained that they saw these qualities displayed by the librarians they worked with. So while the environments may have resulted in a difference in articulating these values as being important in the provision of the research consultation, the values are being applied and recognized within the service itself.

### **Overall Findings**

This evaluation highlighted some interesting findings when looking across all the data. The first finding to note is the overall quality of the research consultation. The librarians and stakeholders thought out and designed a well-rounded service that provides a quality service for patrons. This was clear from the way the service was described during the focus groups and in the recognized values by the patrons. Additionally, the service received these high marks from patrons even having to shift to an online only format during the COVID-19 pandemic. That the service was already offered in a virtual format certainly helped ease that transition, but the adaptability of the service providers was clear when patrons continued to give high marks and praise for a service that was largely considered in an in-person format.

Another finding was that the overall expectations for the foundational components of the program, and their benefits to program patrons, are largely in-line between the research consultation librarians and stakeholders, and the patron who receive the service. The agreement with the foundational components and the reiteration of those components to the free response questions, helps highlight the appropriateness of the foundational components as identified and the importance of them to the patrons who receive the service. This level of alignment helps reinforce that the service is deployed in a useful and meaningful way that continues to keep pace with the changing needs and expectations of patrons.

Now that the data has been analyzed and the findings discussed, I transition to a discussion on the implications of the study and my recommendations to the Research Center in the next chapter. These recommendations will help inform future directions for the service, while considering the limitations of the evaluation. The recommendations will also consider the impact of environments on the expectations as part of the Human Ecological Theory framework.

## **CHAPTER 5: IMPLICATIONS AND RECOMMENDATIONS**

This program evaluation used a Theory Driven Evaluation to identify the foundational components that underlie the research consultation service provided through the Research Center in University Libraries at the University of Denver. Once the foundational components were identified, a survey instrument was designed and distributed to research consultation patrons using Human Ecological Theory to determine if different environments impacted the recognition and expectations of the foundational components in the delivery of the service. This was done to answer the following research questions:

1. What are the foundational components of the research consultations as identified by faculty librarians?
2. To what extent do program participants recognize the value of the foundational components to the services they receive? Do differences in environments between patrons account for different expectations regarding the foundational components?
3. What are potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?



The data analysis and findings presented in Chapter 4 answered these research questions. The a priori coding analysis of the focus group transcripts verified that the foundational components were appropriately identified. Those foundational components were the consultation being driven by the needs of the patron, a focus on lifelong learning and teaching, the service model as deployed, and how the librarian connects resources and expertise to the needs of the patron. The analysis of the survey instrument highlighted a high level of agreement between the research consultation patrons and the research center stakeholders regarding the value and recognition of the foundational components in the delivery of the research consultation. The  $\chi^2$  analysis identified five possible scenarios where environmental differences for patrons may impact the recognition and value placed on the foundational components by consultation patrons. Finally, an inductive analysis of the open ended questions posed to research consultation patrons highlighted how important the foundational components were to the service, and an emphasis on the librarian displaying soft skills such as empathy and their demeanor/disposition.

In this chapter I provide the final culmination to the data that answered these research questions in the previous chapter. To do this, I connect the program evaluation back to the literature presented in Chapter 2. Then, I share the practical implications of the program evaluation to the fields of Library and Information Science and Higher Education. Finally, I review my specific recommendations on the research consultation to the Research Center in University Libraries resulting from this evaluation.

## **Tying Back to the Literature**

Before moving onto the practical implications of this evaluation, and the recommendations to the research consultation stakeholders, I review key components of the literature review that help frame this evaluation and provide the context of why it was important at this time. I briefly touch on the changes (both in higher education and in society) that make this a timely evaluation. I also share the historical context of reference based services and on evaluation in library services to highlight how this evaluation contributes to the scholarly conversation.

**Human Ecological Theory.** The Human Ecological Theory was developed by Human Ecology Theory (Bronfenbrenner, 1994). This theory highlights how the environments that individuals move through impact their psychological development. This helps explain how different people may bring different needs and expectations to the same service. While this approach has not been used often in the fields of higher education or library and information science, this evaluation demonstrates that it is a valuable framework to use in these fields.

The measures of central tendency demonstrate a high level of agreement between the foundational components identified by the librarians and research center stakeholders and the patrons who received the service. Additionally, the  $\chi^2$  analysis highlights a potential dependence between two different environments and some of the environmental variables from the patron's lives. These findings help highlight that this framework is a valuable tool for understanding the different expectations that patrons can bring to a service in either a higher education or academic library setting.

**Changes.** When considering the timeliness of this evaluation, it is important to examine the changes occurring both in higher education and more broadly in society. Higher education has seen significant changes regarding the demographics of individuals who are enrolled in an institution. Some of these demographic transitions have included ethnic identification for the general public paired with an increase in demand for post-secondary education and more low-income and minoritized students enrolling in higher education institutions (Morrison, 2003; Osei, 2019). Higher education has also seen an increase in older and returning students, as well as an increase in military veterans (Anft, 2019; Caruth, 2014). It is important for libraries to keep pace with the shifting changes within our communities. The needs and expectations of patrons from different backgrounds may be different due to the different environments they have moved through. It is imperative that libraries proactively monitor the changing wants and needs of their patrons in order to continue providing the necessary services that our patrons have come to expect. This evaluation helped highlight how those environments could impact the recognition of the foundational components of a service across different patrons.

Another change that needs to be acknowledged here is the shifting digital literacy of our patrons. The proliferation and increased access to information has created a society with higher expectations regarding information retrieval. Educators have considered how to incorporate Web 2.0 technologies into their pedagogical approach, while also acknowledging the shortcomings of this medium (Ebner et al., 2008; Grosbeck, 2009). However, even though there is more information available to our patrons, there are still

barriers to access, especially for historically marginalized communities (Brimhall-Vargas, 2015; Ebo, 1998). This means that we cannot assume a certain level of digital and information literacy, given how the experiences and environments of our patrons differ. As such, we must be able to evaluate the effectiveness of services, both in libraries and across higher education institutions, with different expectations and needs for our patrons in mind.

This evaluation fits into the body of literature regarding changes to both higher education and libraries. This evaluation takes change as a given, and looks to see if the service is maintaining its importance to patrons within that context. By evaluating the responses of patrons to the survey, we are able to see that foundational components that underlie the service continue to remain relevant and important to patrons.

**Historical Context.** The research consultation model at the University of Denver grew out of the broader reference services field. In 1876, Green (1993) demonstrated that many individuals need help finding proper sources due to a lack of resources. A number of journals around the topic of reference services emerged in the 1960s and 1970s, creating a forum in the scholarly literature for philosophical, theoretical, and descriptive frames (Bopp et al., 1995, p. 5). The research consultation, and the broader research center model, used the reference interview as a starting point, but incorporated a broader view of learning outcomes into the process. This enabled a more thorough review of the information needs of patrons (Lee, 2004). This evaluation extends the historical research on reference and research services in academic libraries, by providing a different lens through which to view the evaluation.

**Evaluation in Library Services.** Evaluation has been considered extensively within the scholarly literature in the field of Library and Information Science. Reference services have broadly been examined, looking at topics such as appropriate methodologies for measuring the impact of academic libraries on the performance of students and the need for multiple types of methods to evaluate reference (Murfin, 1995; Powell, 1992). Another study examined how librarians tended to judge the quality of service they provided more harshly than did patrons (Miller, 2008). This study helped highlight the importance of patron evaluation as a method of feedback on the quality of services in an academic library. An evaluation on the success of the implementation of the research consultation model at the University of Denver was published in 2010. This evaluation focused on a number of metrics including the number and types of questions being asked and presented anecdotal evidence from faculty and students (Forbes et al., 2010). This evaluation extends the research in the previous study by examining how and why the research consultation is structured the way it is.

### **Practical Implications**

While the program evaluation was specific to the Research Center in University Libraries at the University of Denver, there are practical implications for the fields of Library and Information Science and Higher Education that extend beyond the specific program. These implications cover things that each field should know about and may help inform research moving forward. The practical implications I cover in this section are the necessity of proactively analyzing programs to ensure they are keeping pace with the changing needs of patrons and students and the appearance that the foundational

components being stressed in the Library and Information Science curricula are in-line with the information seeking needs of patrons.

**Proactively Analyzing Services.** This first practical implication is that this program evaluation has helped to reinforce the necessity of proactively analyzing services to ensure they are keeping up with the changing needs and expectations of those we serve. This practical implication has come forward in a few different ways, both in general, and within the same frame that was used for this evaluation.

When considering this in a general manner, it is important to proactively analyze services to ensure they are keeping pace with the changing expectations of patrons. Technological innovation will continue evolving at an ever-increasing pace. The needs of patrons in libraries, and students in higher education settings, will continue to change. As innovation encompasses more and more areas of our daily lives, it will be important to reevaluate the effectiveness and efficacy of our services. Conducting ongoing, intentional analysis of the service ensures that stakeholders and administrators may stay abreast of changing expectations and adjust service expectations to meet those changes.

Waiting until a service sees a decline in usage may create a scenario in which recognizing the cause of the decline and implementing the appropriate programmatic response may be too late. If a program were to wait until this point to begin an examination of why their service levels have declined, it would be difficult to recover. It takes a considerable amount of time and effort to frame the evaluation, to create the survey instrument, to distribute to program patrons, to await responses, to analyze the data, determine the corrective course of action, and to implement that course of action.

By waiting until the service has already experienced the decline, program administrators have a difficult path towards reinvigorating the program. Declines in service can still occur when a program is already evaluating itself. However, this provides a much better starting point for the program to address the issues, as there is already a sense from the ongoing evaluation regarding the service. While the previous evaluations may not have uncovered the underlying issue, it does allow program administrators the ability to eliminate some areas of concern so that the forthcoming evaluation is more directed towards possible issues.

This evaluation has also shown that there is value in applying Theory Driven Evaluation to interrogate the foundational components on which the service is structured. Theory Driven Evaluation evaluates against the ideal implementation of the service. By looking at the foundational components upon which the service is built, an evaluation may be conducted against both that ideal implementation and against the assumptions that underlie that service. This is valuable to the program, as it does not make assumptions about the ongoing applicability of the foundational components of the program. Rather, it interrogates those foundational components against the changing expectations of program patrons.

Anecdotally, there was appreciation for approaching the evaluation in this manner by research consultation stakeholders. The provided examples were conveyed after the conclusion of the interactive focus group activity. Multiple participants stated that they appreciated hearing how others viewed the research consultation model as it is deployed. Newer librarians to the University of Denver also commented that they liked hearing

from those librarians who helped create the service, and the specific issues that the service was trying to address through its implementation. Another librarian noted that she felt they should do this type of activity more often as a group, and that it could be applied to other services in the library as well. While these comments were provided in-person after the focus group activity, they are mentioned here to provide insight as to the feelings of the research consultation stakeholders, and to highlight the value of evaluating a service in both higher education and in libraries through this frame.

**Field of Library and Information Science Keeping Pace with Changing Needs.** The next practical implication resulting from the program evaluation is the appearance that the foundational components that are informed by the Library and Information Science curricula are in line with patron expectations as it relates to the information seeking needs of patrons. The ideals and standards discussed by the research center stakeholders came from two places, their academic background and professional experience. It is valid to question whether academic programs are keeping pace with changing patron expectations given the nature of Library and Information Science programs, and the perception of the degree.

The field of librarianship is considered to have a terminal degree, whether it is a Master's Degree in Library Science (MLS), a Master's Degree in Library and Information Science (MLIS), or a Master's of Science in Library and Information Science (M.S.). Most libraries require one of these types of degrees to work as a librarian. Staff members without the designation of librarian do not generally have the same requirements regarding degrees through accredited academic programs. Some libraries do



not have this requirement, and the concept of requiring the terminal degree for librarian positions has been questioned. However, this is the current expectations for most libraries, so I will be continuing forward with this conversation framed in this context.

When looking at the faculty members in library degree programs, there are two different primary types of faculty to consider. Full-time, tenure-track faculty have doctoral degrees in the discipline of Library and Information Science, or in a field related to their specialty. The other type of faculty members are contingent faculty with a status of adjunct professor or lecturer. These individuals may have a doctoral degree, but more often have a master's degree and actively work and participate in the library profession. The question arises when a degree program is meant to bestow a practice-based degree, but the individuals who administer the program are likely removed from the practical realities of running and offering services in a library. There are certainly steps that can be taken to mitigate this potential distance, such as relying on adjunct faculty members to inform those conversations and decisions. However, it is fair to question whether those who are removed from working in a library are keeping pace with the changing needs and expectations of our patrons.

Based on the results of the survey, it does appear that academic programs in the space of Library and Information Science are keeping pace with the changing needs and expectations of our patrons. As was demonstrated in Chapter 4, the results of the survey show that patrons significantly recognize and value the foundational components as identified and defined by the research consultation stakeholders. This significant level of agreement was present for the 'consultation driven by the needs of the client' (1.09 to

1.22 range for responses) and the ‘librarian was connecting library resources and expertise to your expectations’ (1.06 to 1.21 range for responses) foundational components. While the ‘consultation being driven by a focus on lifelong learning and teaching’ scored slightly lower (1.39 to 1.58 range for responses), there is still significant evidence that the foundational component is recognized and valued by patrons of the research consultation.

For this practical implication, I assert there is an appearance that Library and Information Science is keeping pace with the changing needs and expectations of patrons, as opposed to a whole-hearted endorsement of it, as the participants in the focus group activity did not disclose what environments the specific foundational components were derived from. I believe there is ample evidence to suggest that it appears that Library and Information Science curriculum is keeping pace with the changing needs of patrons, and that researchers in this field could further pursue this line of inquiry. While there is this evidence to support this, I would recommend future evaluations in this area expand the survey to further examine the environmental questions. This will allow the researcher to more fully understand the impact of the environment on the recognition of the foundational components.

In addition to the practical implications for this evaluation, there were a number of specific recommendations for the research consultation model. Those recommendations follow in the next section of this chapter.

## **Recommendations to Program**

In this section I offer my specific recommendations to the Research Center regarding the research consultation service. These recommendations are framed within the context of the data analysis and findings presented in Chapter 4. The specific recommendations that I am making to the Research Center with regards to the research consultation service are:

1. To frame the service in the foundational components for new employees and student workers.
2. To further examine the environments in which there appears to be a statistical dependence on the recognition or importance placed on the foundational component.
3. To invest on training and development of soft skills focused on demeanor and empathy.

**Frame the Service in the Foundational Components.** The first recommendation is to frame the service in the foundational components for new employees and student workers at the Reference Desk, which is a first point of contact for many research consultation patrons. The survey demonstrated a very strong level of agreement between the patrons and the different foundational components as identified by the research consultation stakeholders. This was demonstrated through the measures of central tendency presented in Chapter 4. The range of means for the questions posed to patrons around the recognition, importance, impact on quality, and the likelihood of using the service again, were between 1.06 and 1.58. This means that the responses ranged from

primarily ‘significantly’ to an even distribution between ‘significantly’ and ‘somewhat’. Additionally, when prompted to answer what additional components would be important to the patron, many referred back to the foundational components identified by the research consultation stakeholders and identified during the survey. This reinforced the Likert Scale questions asked about the foundational components on the survey.

The idea of reinforcing the foundational components that underlie the deployment of the service is key. Contextualizing the foundational components of the service from the onset will allow new employees to identify at the theoretical level why the service is set up and administered the way it is. This is important as it directly ties the reason for the service to the practical application of the service. This understanding can be important to employees, especially new employees or those who do not have an academic background in the subject, in a few different ways.

One way this is important is that it provides an opportunity for recently hired librarians to understand the reason for the deployment of the research consultation model. This will provide more than a general introduction to the service. It helps the newly hired librarian understand why the service is set up the way it is. This will increase the shared sense of purpose for research center stakeholders. It also provides the opportunity for the newly hired librarian to interrogate those foundational components. Bringing in new perspectives to the foundational components can help them develop over time. Newly hired librarians can bring forward new approaches and considerations being discussed in Library and Information Science curricula, or approaches to reference and research consultations being done at other institutions. Intentionally talking about and explaining

the foundational components of the research consultation model will foster conversation and allow the foundational components to adapt and evolve over time, furthering the likelihood that they will continue to keep pace with the changing expectations and needs of patrons.

Another avenue through which this recommendation is important is as it relates to the student workers stationed at the Research Center Desk. These students are often the first line of contact for research consultation patrons. While some students do have a background in Library and Information Science, not all do. Having open conversations around the foundational components can help provide a greater sense of understanding around the service for those students who provide general reference assistance. This would help students better identify when to refer patrons to the research consultation, and how to frame the conversation around the reference consultation so new patrons will know what to expect and how the service will be beneficial for them.

Having demonstrated why this recommendation is important, I touch briefly on implementation. It will be important to incorporate intentional conversations around this topic in multiple ways. First, for new librarians that will have a role in the Research Center, conversations around the foundational components should be incorporated into the onboarding process. This will provide an adequate opportunity for conversation and will help the new employee adapt to their new position. For student workers, I recommend incorporating conversations around the foundational components of the research consultation into meetings. This will provide the opportunity for the foundational components to be discussed in-depth, and they can be separated into

multiple conversations where only one foundational component is discussed at a time. This will help with understanding and retention of the concepts being discussed, and of their important to the overall service.

**Examine Environments with Statistical Dependence.** The second recommendation that I made to the Research Center is to further examine the environments in which there appears to be a statistical dependence on the recognition or importance placed on the foundational component. As I discussed in Chapter 4, there were limitations in the analysis due to lower levels of occurrence in the bivariate tables than were acceptable. This means that I am unable to verify that there is a dependence of the environment on the recognition and value of the foundational components. However, there is still value in the responses and experiences of the patrons, and those can inform future efforts of the research consultation.

The first option for the research center is to rerun the survey. The survey could be run for a longer period of time, thereby increasing the likelihood of receiving enough responses to negate the limitation faced during this evaluation. This could be a valuable option. It allows for a more thorough collection of data when looking at all of the foundational components to be examined across the environments experienced by the research consultation patrons. Additionally, one of the foundational components identified by the research consultation stakeholders was removed from the survey due to the transition of the research consultation service to a virtual format as a result of COVID-19. If the survey is rerun, I would recommend inserting this foundational component back into the survey.

The second option is to take the results of the  $\chi^2$  analysis and look into the environments that indicated they impacted the recognition and importance placed on specific foundational components. Instead of redoing the entire survey, the focus could be placed on doing a more in-depth examination of the impact of those environments on how patrons recognize and value the foundational components. This would allow research consultation librarians to add questions to their process that would help identify whether the patron had a background in different environments that would impact their expectations coming into the consultation. Librarians would be able to focus some additional time on the specific values that are most beneficial and important to those individuals.

While both are valid options, my recommendation would be to run the survey again in its entirety, including the addition of the removed foundational component of the service model as deployed, once in-person services are able to resume at the University of Denver. This approach has multiple benefits to consider. First, running the survey for a longer period of time would allow more responses. These additional responses would enable a more statistically significant analysis of the relationship between the environments and the foundational components. This would allow research consultation stakeholders to identify more appropriate steps to take based on a more accurate understanding of how environments impact the importance of the foundational components to the delivery of the service.

Another benefit is that the service model as deployed could be considered as a foundational component if the survey is rerun in its entirety. This was an important aspect

of the breakout sessions, and should be considered as it relates to the environments that patrons participate in. Also, the new survey would allow for a comparison between in-person and virtual research consultations as it relates to the impact environment has on the recognition and importance of foundational components to patrons. As such, I believe that rerunning the survey for a longer period of time to identify a more informed and nuanced understanding of the impact of environment on the foundational components is the appropriate course of action.

Rerunning the survey in its entirety would also allow for a more nuanced approach to the environmental factors of the evaluation as it applies to the Human Ecological Framework. While this evaluation did help identify the environments that could potentially impact the recognition and value placed upon foundational components, it did not address how or why the environment had this potential impact. This component of the survey can be thought through in a more intentional way to understand the impact of environment on the foundational components. This will benefit the research consultation service as it will provide insights and help inform Reference Librarians how to adjust services to help patrons whose environments show need extra attention or explanation on different aspects of the foundational components.

Finally, rerunning the survey helps reinforce and active and iterative assessment process in the Research Center. This evaluation has helped highlight the need for ongoing, proactive assessment of services in higher education and academic libraries. By rerunning the survey, while paying mind to the recommendations on how to update it for additional benefits to the program, the librarians and additional stakeholders in the



Research Center reinforce their commitment to a long-term assessment program that will ensure the research consultation remains a valuable service for students, faculty, and staff at the University of Denver.

**Demeanor, Disposition, and Empathy.** My final recommendation to the research consultation stakeholders is to pay heed to the responses of the consultation patrons regarding what other components they found important in the research consultation. The open ended responses from patrons indicated a significant importance on how they were made to feel during the research consultation. The disposition and demeanor of the librarian working with the patron was highlighted and discussed in many of the responses. Additionally, patrons responded that the librarian displaying empathy was important to them and increased the quality of the service they received through the consultation. As such, I recommend the Research Center librarians and stakeholders consider framing the ideas of demeanor, disposition, and empathy as a foundational component within the research consultation. To support this, I recommend identifying and supporting time for training with these types of skills.

These types of skills are often thought of as soft skills. They are not covered or considered in professional learning opportunities traditionally used by librarians. The ability to develop these skills are not readily available to the research center stakeholders. It will be important to identify potential training opportunities that will help research consultation librarians to develop these types of skills. There are a few different options for how this could be accomplished.

One way these training opportunities could be offered to the librarians and stakeholders in the Research Center is through contracting out with professional trainers. This approach would have a high likelihood of quality training, as it would be conducted by a professional trainer who is well versed on the topic. There is the potential for this to be a costly option. A one-time training would likely be a reasonable cost for the organization to assume. One can question whether a one-time training would foster a long-term commitment to this component, and whether the lessons learned would maintain and continue over time.

Another approach would be to have different librarians in the Research Center take responsibility for learning one of the components of the soft skills that were discussed in Chapter 4 and then teaching on that topic to their colleagues in the department. This creates a sustainable learning opportunity for the librarians in the Research Center. The ability to focus on one topic will allow the librarian to gain expertise within that topic, and they could then teach about that topic to others within the Research Center. This creates an environment that could result in a long-lasting culture focused on the benefits of the soft skills valued by patrons. While there are benefits to this approach, it could also create unrealistic expectations for the librarians in the Research Center. Taking on the responsibility to learn one of the topics in-depth enough to teach to your colleagues in this type of setting would take a significant amount of time and effort. This could place an undue burden on Research Center Librarians as an additional, and unexpected, job duty.

A final option to consider is looking for expertise within the University of Denver infrastructure that could help meet the need for training. The University of Denver has a robust offering of trainings through the Shared Services Department. Some of the current trainings touch on some of the different topics that would be covered under the soft skills umbrella. The Effective Communication course covers tone and body language. The Introduction to Emotional Intelligence covers topics such as self-awareness and social awareness. Both of these courses would go a certain amount of the way towards helping the Research Center librarians learn more about the soft skills that would support their development in these areas.

Another possibility within this option is that the research consultation stakeholders could work with the Shared Services Department to develop a training session that would cover the desired topics related to demeanor, disposition, and emotional intelligence. This would allow the library to work with Shared Services on a training session that would truly meet their needs. This scenario would allow research consultation stakeholders to engage in this training over a long period of time, thereby establishing a culture around these soft skills. New employees and student workers would be able to take the training as well, when they join the department. Additionally, this training could be offered beyond just the scope of the research consultation stakeholders, as the skills learned in this training would benefit other public service points at the University of Denver.

While both of these are valid options, I recommend that the research consultations stakeholders work with the Shared Services Department to develop a training around the

soft skills discussed here. This would provide a more sustainable approach to the training that could be offered on an ongoing basis. It would also benefit the broader University of Denver community. If the Shared Services Department would be unable to provide this training opportunity, I would recommend that the library contract the training out to professionals for the first year. This would enable the research consultations stakeholders to receive a high-quality training from a professional. This would also provide the opportunity for the stakeholders to receive the training in a timely manner until they may develop their own training that would create the long-term training opportunities. Reframing this topic as a foundational component will provide a greater emphasis on these types of skills, and will help reinforce the cultural shift of focus and intentionality around the themes of demeanor, disposition, and empathy within the research consultation model.

## **Conclusion**

This program evaluation interrogated the foundational components that underlie the consultation service provided in the Research Center in University Libraries at the University of Denver. To accomplish this, an interactive focus group activity was conducted to allow the research consultation librarians and stakeholders to identify and mutually agree to what the foundational components that underlie the service are. Once this was done, a survey instrument was created and distributed to the research consultation patrons during the Fall 2020 academic quarter. The results of the survey highlighted a significant level of agreement for the patrons to recognize the foundational components, value them, believe that they improved the quality of the service, and that

they would influence the likelihood that the patron would use the service again in the future. A  $\chi^2$  analysis showed there were five potential scenarios where the recognition or importance of variables in the research consultation was statistically dependent on the environment. Finally, patrons responded to open ended questions about what other foundational components they found value in by reiterating the importance of the foundational components identified by the research consultation stakeholders and highlighting the value they place on soft skills such as empathy, demeanor, and disposition.

The analysis of the data sets from this evaluation lead to three specific recommendations made to the research consultation stakeholders in the Research Center at the University of Denver. The first recommendation was to frame the service through the context of the foundational components for new employees who will be working in the Research Center. The second recommendation was for the Research Center is to further examine the environments in which there appears to be a statistical dependence on the recognition or importance placed on the foundational component. The final recommendation was to offer training on the soft skills identified as important by the research consultation patrons.

The implementation of these recommendations, and the continued analysis of the foundational components and the research consultation model will foster a cyclical culture of assessment for the Research Center. It will ensure that the service continues to keep pace with the changing needs and expectations of the patrons. The ongoing

commitment to evaluation and assessment will shepherd the Resource Center well into the future.

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**APPENDIX A- MAPPING DEMOGRAPHIC QUESTIONS TO ENVIRONMENTS  
FOR HUMAN ECOLOGICAL THEORY FRAMEWORK**

<b>Potential Demographic Questions</b>	<b>Ecological Level</b>
What is your affiliation with the University of Denver?	Microsystem
How frequently do you use the physical library at the University of Denver?	Microsystem
How frequently do you use the online resources at the University of Denver?	Microsystem
How frequently did you use a public library in your youth?	Macrosystem
Do you use the library as frequently as you did during your youth?	Chronosystem
Did your high school have a librarian that provided reference/research/instruction services?	Microsystem
Did you grow up with immediate access to the internet?	Microsystem
What level do you feel your research skills are at?	Mesosystem
What did you have the Research Center help you with during your consultation?	N/A
How would you rate your comfort level with technology?	Macrosystem



**APPENDIX B- MAPPING RESEARC QUESTIONS TO DATA COLLECTION  
STAGES**

<b>Research Question</b>	<b>Data Collection Step</b>	<b>Data Collected</b>	<b>Data Analysis Step</b>	<b>Data Analysis Method</b>
What are the foundational components of the research consultations as identified by faculty librarians?	Step 1	Foucs Group Interviews	Step 1	A Priori Thematic Analysis
To what extent do program participants recognize the value of the foundational components to the services they receive?	Step 2	Survey questions using Likert Scale	Step 2	Measurements of Central Tendencies
Do differences in environments between patrons account for different expectations regarding the foundational components?	Step 2	Survey questions using Likert Scale	Step 2	$\chi^2$ Analysis
What are potential expectations that are not being met for program participants in the research center that could help redefine the identified foundations?	Step 2	Open ended survey questions	Step 2	Inductive Thematic Analysis

## APPENDIX C- HANDOUTS FOR INTERACTIVE FOCUS GROUP SESSIONS

### Definitions

#### Framework- **Human Ecological Theory**

- **Microsystem**
  - A microsystem is a pattern of activities, social roles, and interpersonal relations experienced by the developing person in a given face-to-face setting with particular physical, social, and symbolic features that invite, permit, or inhibit engagement in sustained progressively more complex interaction with, and activity in, the immediate environment. Examples include such settings as family, school peer group, and workplace.
- **Mesosystem**
  - The mesosystem comprises the linkages and processes taking place between two or more settings containing the developing person. In other words, a mesosystem is a system of microsystems.
- **Exosystem**
  - The exosystem comprises the linkages and processes taking place between two or more settings, at least one of which does not contain the developing person, but in which events occur that indirectly influence processes within the immediate setting in which the developing person lives. For example, for a child, the relation between the home and the parent's workplace; for a parent, the relation between the school and the neighborhood peer group.
- **Macrosystem**
  - The macrosystem consists of the overarching pattern of micro-, meso-, and exosystems characteristic of a given culture or subculture, with particular reference to the belief systems, bodies of knowledge, material resources, customs, life-styles, opportunity structures, hazards, and life course options that are embedded in each of these broader systems. The macrosystem may be thought of as a societal blueprint for a particular culture or subculture.
- **Chronosystem**
  - A chronosystem encompasses change or consistency over time not only in the characteristics of the person but also of the environment in which that person lives.

Bronfenbrenner, U. (1994). Ecological models of human development. *Readings on the development of children*, 2(1), 37-43.

**Foundational Components-** Refers to the important aspects that underlie the service offered in the research consultation. The values, standards, and best practices that are considered when thinking about the program, and the delivery of service through the program.

## **APPENDIX D- DEFINITIONS OF FOUNDATIONAL COMPONENTS**

Consultation driven by the needs of the patron

- This foundational component focuses on the specific needs of the patron in the application of the research consultation. Librarians do not bring a prescriptive approach to the consultation. Instead, they adapt the approach used, the tools that they review, and the search techniques used based upon the needs that the patron brings to the consultation. Specific areas of this foundational component that will be questioned include:
  - Not one size fits all- There is not a prescriptive approach to the consultation. The librarian and patron co-construct knowledge in a unique way during the consultation.
  - Focused, individualized service based on that patron- The consultation is focused on the specific needs of the patron at that time.
  - Takes potential library anxiety into consideration- Librarians consider library anxiety as they construct the consultation and seek to alleviate anxiety that may be holding the patron back.
  - Supports the whole student- The librarians are concerned beyond the current intellectual pursuit and have the patrons physical and emotional needs in mind as well. The librarians try to offer support where they are able and address non-intellectual needs and adapt the consultation as needed.

## Lifelong learning and teaching

- This foundational component of the research consultation focuses on the long-term benefit of the research consultation outside of the immediate stated needs. This shifts the focus of the consultation from just finding information to a teaching/learning experience. It reframes the context of the consultation from a service to an educational experience that the patron may apply in other intellectual pursuits.

## Service model as deployed

- This foundational component focuses on how the service of the research consultation is deployed. The service model as deployed takes into account the layout of the physical room where the consultations take place, the ability to schedule appointments with librarians of your choice, and the ability to walk in and work with a librarian on demand. The service model was based upon the Writing Center service model and was a break from the traditional reference model employed by many libraries at the time of implementation.
  - Point of need/ Just in time- The service is there when the patron needs it at their current stage in the research process.
  - Generalist vs. expertise- Everyone that works at the Research Center is able to serve as a generalist and can get folks started on their research, but librarians also hold and develop disciplinary expertise to help advanced researchers.

- Time constraints vs complexity of question- The model is able to be adaptive and balance the time constraints of the class (and therefore patron) with the complexity of the research questions.

#### Connecting resources and expertise to patron expectations

- This foundational component focuses on the process of the librarian connecting the resources that have been built over time in the library to the needs and the expectations that each individual patron brings into the research consultation. This encompasses helping the patron locate appropriate resources, as well as enabling the patron to appropriately search through the variety of library resources in the future
  - Expertise of librarian- Acknowledges the expertise that the individual librarian brings into the research consultation, including, but not limited to: subject expertise, research expertise, development of the collection in the subject area.
  - Expertise of student- Acknowledges the expertise that the student brings to the research consultation.
  - Co-constructing knowledge- Utilizes constructivist pedagogy where the librarian and the patron work together to open and uncover new information and ways of making meaning. The hands-on approach makes abstract research principles more tangible for the patron.

## APPENDIX E- IRB WAIVER FORM



November 7, 2019

Ryan Buller

Higher Education Administration, Morgridge College of Education

University of Denver

RE: Determination of Proposed Project

Project Title: **Evaluating Foundational Components of the One-On-One Research Consultation in an Academic Library Research Center**

Dear Ryan,

Thank you for submitting the Human Subjects Research Determination Form to the University of Denver Institutional Review Board for evaluation to determine if the above-referenced project qualifies as human subject research. Based on the information provided, it has been determined that the proposed project does not require IRB review. This determination is based on whether this proposed project is research with human subjects defined by the federal regulations.

The IRB Determination Form was evaluated, and it was assessed that the proposed program evaluation project does not qualify as human subject research. This project will involve evaluating the one-on-one research consultation model in University Libraries at the University of Denver through the use of focus groups and surveys. This proposed project does not meet the regulatory definition of research with human subjects.

### The Regulatory Definition of Research and Human Subject

Federal research regulations define **research** as “*a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge.*”

During the review of this proposed project, it was noted that the primary intent is to evaluate the one-on-one research consultation model in University Libraries at the

University of Denver and develop recommendations for the program. This project does include a systematic investigation, yet is not intended to develop or contribute to generalizable knowledge; therefore it does not qualify as research.

Per the regulations, **Human subject** means a living individual about whom an investigator (whether professional or student) conducting research obtains 1) data through intervention or interaction with the individual, or 2) identifiable private information. This project does involve interactions with human subjects, therefore, it does qualify as "human subject" per the regulatory definition.

In order for a project to require IRB review, the proposed research must qualify under **both** definitions of being research and involving human subjects. This research project DOES NOT fulfill the regulatory definition of research, and DOES involve human subjects per the federal regulation definition.

My evaluation, based only on the information provided, determined that the proposed project does not require IRB review.

If you have questions regarding this determination or believe that this proposed project does qualify as human subject research, please feel free to contact me directly at 303-871-4051 or via e-mail at: [Ashleigh.Ruehrdanz@du.edu](mailto:Ashleigh.Ruehrdanz@du.edu).

Sincerely,



Ashleigh Ruehrdanz  
Research Compliance Monitor  
Office of Research and Sponsored Programs  
University of Denver



# Research Consultation Model in an Academic Library Survey

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Start of Block: Informed Consent

Q4 University of Denver

## **Informed Consent to Participate in Research**

**Study Title:** Evaluating Foundational Components of the Research Consultation Model in an Academic Library Research Center

**Researcher:** Ryan Buller, EdD Candidate in Higher Education Administration, Morgridge College of Education, University of Denver

I'm inviting you to take a survey for research. This survey is completely voluntary. There are no negative consequences if you do not wish to participate. If you start the survey, you may always change your mind and stop at any time.

This study will identify the foundational components of the research consultation model in University Libraries at the University of Denver. The purpose of the evaluation is to

determine how effective the Research Center Consultation is at meeting the needs of participants. This will be done by examining the views placed on the importance of the foundational components of the program by two different groups; library faculty and program participants. This survey asks program participants about the importance of the foundational components that were considered when creating this service, the extent to which those components were recognized in the delivery of the service, and the extent to which those foundational components are important to library patrons. Survey respondents will also have an opportunity to identify other aspects of the service that are important to them.

While this project underwent an IRB review process, it was deemed exempt due to its nature as a program evaluation.

It is anticipated that this survey should take between 5 and 10 minutes. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue your participation at any time. The researcher respects your right to choose not to answer any questions that may make you feel uncomfortable. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be anonymous. That means that no one will be able to connect your identity with the information you give and in no way will you be identifiable in any

future publications of survey results. Your completion of the online survey will signify your consent to participate in this project.

Continue (1)

End Survey (2)

End of Block: Informed Consent

---

Start of Block: Demographic Questions

Q5 What is your affiliation with the University of Denver

Faculty (1)

Staff (2)

Graduate Student (3)

Undergraduate Student (4)

---

Q6 How frequently do you use the physical library at the University of Denver?

- Very frequently (Every month) (1)
  - Somewhat frequently (Some months of the year) (2)
  - Rarely (More than once, but less than 4 times per year) (3)
  - Never (4)
- 

Q7 How frequently do you use the online resources at the University of Denver?

- Very frequently (Every month) (1)
  - Somewhat frequently (Some months of the year) (2)
  - Rarely (More than once, but less than 4 times per year) (3)
  - Never (4)
-

Q8 How frequently did you use a public library in your youth?

- Very frequently (Every month) (1)
  - Somewhat frequently (Some months of the year) (2)
  - Rarely (More than once, but less than 4 times per year) (3)
  - Never (4)
- 

Q9 How frequently do you use the library now as compared to usage during your youth?

- More frequently (1)
  - As frequently (2)
  - Less frequently (3)
-

Q10 Did your high school have a librarian that provided reference/research/instruction services?

- Yes (1)
  - No (2)
  - I don't know (3)
- 

Q11 Did you grow up with immediate access to the internet?

- Yes, all my life (1)
  - Yes, since high school (2)
  - No, even though internet access was available to others at that time (3)
  - No, internet access was not readily available at that time (4)
-

Q9 What level do you feel your research skills are at?

- Expert (1)
  - Advanced (2)
  - Average (3)
  - New Researcher (4)
- 

Q10 What did you have the Research Center help you with during your consultation?

(Select all that apply)

- Finding sources (1)
  - Bibliography (2)
  - Finding data (3)
  - Other (4) \_\_\_\_\_
-

Q11 How would you rate your comfort level with technology?

- Very comfortable (1)
- Somewhat comfortable (2)
- Neither comfortable nor uncomfortable (3)
- Somewhat uncomfortable (4)
- Very uncomfortable (5)

End of Block: Demographic Questions

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Start of Block: Consultation driven by needs of the patron

Q12 The first foundational component as defined by the Research librarians is that the consultation is driven by the needs of the patron. They have defined this to mean:

This foundational component focuses on the specific needs of the patron in the application of the research consultation. Librarians do not bring a prescriptive approach to the consultation. Instead, they adapt the approach used, the tools that they review, and the search techniques used based upon the needs that the patron brings to the



consultation. Specific areas of this foundational component that will be questioned include:

- Not one size fits all- There is not a prescriptive approach to the consultation. The librarian and patron co-construct knowledge in a unique way during the consultation. Focused, individualized service based on that patron- The consultation is focused on the specific needs of the patron at that time.
- Takes potential library anxiety into consideration- Librarians consider library anxiety as they construct the consultation and seek to alleviate anxiety that may be holding the patron back.
- Supports the whole student- The librarians are concerned beyond the current intellectual pursuit and have the patrons physical, emotional, and social needs in mind as well. The librarians try to offer support where they are able and address non-intellectual needs and adapt the consultation as needed.

Please answer the following questions with this definition in mind.

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Q13 To what extent did you recognize that the research consultation was driven by your specific needs?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
- 

Q14 How important is it to you that the research consultation was driven by your specific needs?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
-

Q15 Did the focus of the consultation driven by your needs improve the quality of the service you received?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
- 

Q16 Will the focus of the consultation on your individual needs impact the likelihood that you use this service again in the future?

- Significantly (1)
- Somewhat (2)
- A little (3)
- Not at all (4)

End of Block: Consultation driven by needs of the patron

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Start of Block: Lifelong Learning and Teaching

Q20 The second foundational component as defined by the Research librarians is a focus on lifelong learning and teaching. They have defined this to mean:

This foundational component of the research consultation focuses on the long-term benefit of the research consultation outside of the immediate stated needs. This shifts the focus of the consultation from just finding information to a teaching/learning experience. It reframes the context of the consultation from a service to an educational experience that the patron may apply in other intellectual pursuits.

Please answer the following questions with this definition in mind.

---

Q21 To what extent did you recognize that the research consultation was driven by a focus on lifelong learning and teaching?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
-

Q22 How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?

Significantly (1)

Somewhat (2)

A little (3)

Not at all (4)

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Q23 Did the focus of the consultation on lifelong learning and teaching improve the quality of the service you received?

Significantly (1)

Somewhat (2)

A little (3)

Not at all (4)

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Q24 Will the focus of the consultation on lifelong learning and teaching impact the likelihood that you use this service again in the future?

Significantly (1)

Somewhat (2)

A little (3)

Not at all (4)

End of Block: Lifelong Learning and Teaching

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Start of Block: Block

Q32 The final foundational component as defined by the Research librarians is based connecting resources and expertise to patron expectations. They have defined this to mean:

This foundational component focuses on the process of the librarian connecting the resources that have been built over time in the library to the needs and the expectations that each individual patron brings into the research consultation. This encompasses

helping the patron locate and evaluate appropriate resources, as well as enabling the patron to appropriately search through the variety of library resources in the future.

- Expertise of librarian- Acknowledges the expertise that the individual librarian brings into the research consultation, including, but not limited to: subject expertise, research expertise, development of the collection in the subject area.
- Expertise of student- Acknowledges the expertise that the student brings to the research consultation.
- Co-constructing knowledge- Utilizes collaborative learning focused on dialogue through which both the librarian and patron learn together. This hands-on approach makes abstract research principles more tangible for the patron.

Please answer the following questions with this definition in mind.

---

Q31 To what extent did you recognize that the librarian was connecting library resources and their expertise to your expectations during the consultation?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
- 

Q32 How important is it to you that the librarian was connecting library resources and their expertise to your expectations during the consultation?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
-



Q33 Did the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improve the quality of service you received?

- Significantly (1)
  - Somewhat (2)
  - A little (3)
  - Not at all (4)
- 

Q34 Will the focus of the librarian connecting library resources and their expertise to your expectations during the consultation impact the likelihood that you will use this service again in the future?

- Significantly (1)
- Somewhat (2)
- A little (3)
- Not at all (4)

End of Block: Block

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Start of Block: Open Feedback

Q33 Were there other aspects of the research consultation were important to you during this service? If so, what were they?

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Q34 What other aspects of the research consultation improved the quality of the service you received?

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Q35 What other aspects of the research consultation will impact your decision to use this service again in the future?

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End of Block: Open Feedback

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### APPENDIX G- $\chi^2$ ANALYSIS RESULTS

<b>Environment</b>	<b>Foundational Component</b>	<b><i>df</i></b>	<b>Chi-Square Value</b>	<b>Chi-Square Limit</b>	<b>Accept or Reject Null Hypothesis</b>
Affiliation	Your specific needs- Recognize consultation driven	2	1.056	9.21	Accept
Affiliation	Your specific needs- how important	2	0.197	9.21	Accept
Affiliation	You specific needs- improved quality of service	4	5.89	13.277	Accept
Affiliation	Your specific needs- likelihood of using service again	2	0.518	9.21	Accept
Affiliation	Lifelong learning- Recognize consultation driven	4	3.379	13.277	Accept
Affiliation	Lifelong Learning- how important	4	1.674	13.277	Accept
Affiliation	Lifelong Learning- improved quality of service	4	3.885	13.277	Accept
Affiliation	Lifelong Learning- likelihood of using service again	6	6.93	16.812	Accept
Affiliation	Expertise- Recognize consultation driven	2	0.681	9.21	Accept
Affiliation	Expertise- how important	2	1.886	9.21	Accept
Affiliation	Expertise- improved quality of service	4	1.886	13.277	Accept
Affiliation	Expertise- likelihood of using service again	2	0.518	9.21	Accept
Frequency of physical library usage	Your specific needs- Recognize consultation driven	3	1.655	11.341	Accept

Frequency of physical library usage	Your specific needs- how important	3	1.83	11.341	Accept
Frequency of physical library usage	You specific needs- improved quality of service	6	9.354	16.812	Accept
Frequency of physical library usage	Your specific needs- likelihood of using service again	3	2.413	11.341	Accept
Frequency of physical library usage	Lifelong learning- Recognize consultation driven	6	5.002	16.812	Accept
Frequency of physical library usage	Lifelong Learning- how important	6	7.111	16.812	Accept
Frequency of physical library usage	Lifelong Learning- improved quality of service	6	2.965	16.812	Accept
Frequency of physical library usage	Lifelong Learning- likelihood of using service again	9	14.131	21.666	Accept
Frequency of physical library usage	Expertise- Recognize consultation driven	3	1.551	11.341	Accept
Frequency of physical library usage	Expertise- how important	3	3.516	11.341	Accept
Frequency of physical library usage	Expertise- improved quality of service	6	3.906	16.812	Accept
Frequency of physical library usage	Expertise- likelihood of using service again	3	4.108	11.341	Accept
Frequency of online resources	Your specific needs- Recognize consultation driven	2	0.913	9.21	Accept
Frequency of online resources	Your specific needs- how important	2	1.31	9.21	Accept
Frequency of online resources	You specific needs- improved quality of service	4	5.976	13.277	Accept
Frequency of online resources	Your specific needs- likelihood of using service again	2	5.077	9.21	Accept

Frequency of online resources	Lifelong learning- Recognize consultation driven	4	4.267	13.277	Accept
Frequency of online resources	Lifelong Learning- how important	4	6.844	13.277	Accept
Frequency of online resources	Lifelong Learning- improved quality of service	4	6.616	13.277	Accept
Frequency of online resources	Lifelong Learning- likelihood of using service again	6	4.177	16.812	Accept
Frequency of online resources	Expertise- Recognize consultation driven	2	2.034	9.21	Accept
Frequency of online resources	Expertise- how important	2	1.31	9.21	Accept
Frequency of online resources	Expertise- improved quality of service	4	6.53	13.277	Accept
Frequency of online resources	Expertise- likelihood of using service again	2	0.29	9.21	Accept
frequency of using public library in youth	Your specific needs- Recognize consultation driven	2	1.137	9.21	Accept
frequency of using public library in youth	Your specific needs- how important	2	2.664	9.21	Accept
frequency of using public library in youth	You specific needs- improved quality of service	4	1.527	13.277	Accept
frequency of using public library in youth	Your specific needs- likelihood of using service again	2	1.088	9.21	Accept
frequency of using public library in youth	Lifelong learning- Recognize consultation driven	4	6.24	13.277	Accept
frequency of using public library in youth	Lifelong Learning- how important	4	3.919	13.277	Accept
frequency of using public library in youth	Lifelong Learning- improved quality of service	4	3.135	13.277	Accept

frequency of using public library in youth	Lifelong Learning-likelihood of using service again	6	3.378	16.812	Accept
frequency of using public library in youth	Expertise- Recognize consultation driven	2	0.798	9.21	Accept
frequency of using public library in youth	Expertise- how important	2	3.377	9.21	Accept
frequency of using public library in youth	Expertise- improved quality of service	4	2.936	13.277	Accept
frequency of using public library in youth	Expertise- likelihood of using service again	2	2.035	9.21	Accept
Frequency now compared to youth	Your specific needs- Recognize consultation driven	2	2.145	9.21	Accept
Frequency now compared to youth	Your specific needs- how important	2	2.381	9.21	Accept
Frequency now compared to youth	You specific needs- improved quality of service	4	2.658	13.277	Accept
Frequency now compared to youth	Your specific needs- likelihood of using service again	2	4.007	9.21	Accept
Frequency now compared to youth	Lifelong learning- Recognize consultation driven	4	2.573	13.277	Accept
Frequency now compared to youth	Lifelong Learning- how important	4	1.978	13.277	Accept
Frequency now compared to youth	Lifelong Learning- improved quality of service	4	0.817	13.277	Accept
Frequency now compared to youth	Lifelong Learning- likelihood of using service again	6	2.548	16.812	Accept
Frequency now compared to youth	Expertise- Recognize consultation driven	2	1.384	9.21	Accept
Frequency now compared to youth	Expertise- how important	2	4.75	9.21	Accept

Frequency now compared to youth	Expertise- improved quality of service	4	3.509	13.277	Accept
Frequency now compared to youth	Expertise- likelihood of using service again	2	1.07	9.21	Accept
High school with librarian	Your specific needs- Recognize consultation driven	2	1.06	9.21	Accept
High school with librarian	Your specific needs- how important	2	2.4	9.21	Accept
High school with librarian	You specific needs- improved quality of service	4	3.262	13.277	Accept
High school with librarian	Your specific needs- likelihood of using service again	2	1.763	9.21	Accept
High school with librarian	Lifelong learning- Recognize consultation driven	4	3.154	13.277	Accept
High school with librarian	Lifelong Learning- how important	4	4.959	13.277	Accept
High school with librarian	Lifelong Learning- improved quality of service	4	0.971	13.277	Accept
High school with librarian	Lifelong Learning- likelihood of using service again	6	8.355	16.812	Accept
High school with librarian	Expertise- Recognize consultation driven	2	1.1	9.21	Accept
High school with librarian	Expertise- how important	2	0.799	9.21	Accept
High school with librarian	Expertise- improved quality of service	4	3.25	13.277	Accept
High school with librarian	Expertise- likelihood of using service again	2	2.246	9.21	Accept
Immediate internet access	Your specific needs- Recognize consultation driven	3	5.573	11.341	Accept



Immediate internet access	Your specific needs- how important	3	1.171	11.341	Accept
Immediate internet access	You specific needs- improved quality of service	6	13.335	16.812	Accept
Immediate internet access	Your specific needs- likelihood of using service again	3	2.061	11.341	Accept
Immediate internet access	Lifelong learning- Recognize consultation driven	6	3.389	16.812	Accept
Immediate internet access	Lifelong Learning- how important	6	10.933	16.812	Accept
Immediate internet access	Lifelong Learning- improved quality of service	6	4.597	16.812	Accept
Immediate internet access	Lifelong Learning- likelihood of using service again	9	7.669	21.666	Accept
Immediate internet access	Expertise- Recognize consultation driven	3	21.29	11.341	Reject
Immediate internet access	Expertise- how important	3	0.911	11.341	Accept
Immediate internet access	Expertise- improved quality of service	6	21.443	16.812	Reject
Immediate internet access	Expertise- likelihood of using service again	3	0.338	11.341	Accept
Level of research skills	Your specific needs- Recognize consultation driven	3	5.775	11.341	Accept
Level of research skills	Your specific needs- how important	3	0.219	11.341	Accept
Level of research skills	You specific needs- improved quality of service	6	4.013	16.812	Accept
Level of research skills	Your specific needs- likelihood of using service again	3	0.945	11.341	Accept

Level of research skills	Lifelong learning- Recognize consultation driven	6	2.867	16.812	Accept
Level of research skills	Lifelong Learning- how important	6	5.844	16.812	Accept
Level of research skills	Lifelong Learning- improved quality of service	6	14.104	16.812	Accept
Level of research skills	Lifelong Learning- likelihood of using service again	9	8.56	21.666	Accept
Level of research skills	Expertise- Recognize consultation driven	3	2.262	11.341	Accept
Level of research skills	Expertise- how important	3	0.219	11.341	Accept
Level of research skills	Expertise- improved quality of service	6	8.839	16.812	Accept
Level of research skills	Expertise- likelihood of using service again	3	0.945	11.341	Accept
Comfort level with technology	Your specific needs- Recognize consultation driven	3	3.516	11.341	Accept
Comfort level with technology	Your specific needs- how important	3	3.516	11.341	Accept
Comfort level with technology	You specific needs- improved quality of service	6	2.245	16.812	Accept
Comfort level with technology	Your specific needs- likelihood of using service again	3	1.544	11.341	Accept
Comfort level with technology	Lifelong learning- Recognize consultation driven	6	10.593	16.812	Accept
Comfort level with technology	Lifelong Learning- how important	6	34.257	16.812	Reject
Comfort level with technology	Lifelong Learning- improved quality of service	6	15.117	16.812	Accept

Comfort level with technology	Lifelong Learning-likelihood of using service again	9	14.09	21.666	Accept
Comfort level with technology	Expertise- Recognize consultation driven	3	16.606	11.341	Reject
Comfort level with technology	Expertise- how important	3	1.182	11.341	Accept
Comfort level with technology	Expertise- improved quality of service	6	34.616	16.812	Reject
Comfort level with technology	Expertise- likelihood of using service again	3	4.536	11.341	Accept

## **APPENDIX H- EXECUTIVE SUMMARY**

### **Executive Summary for University Libraries Research Center**

The Research Center in University Libraries at the University of Denver provides research consultations to patrons in an online and in-person format. The current model was deployed in 2008. As student needs and expectations continue to evolve, it is important to ensure that our services are keeping up with these changes. This evaluation was conducted to determine the extent to which the foundational components of the research consultation were in-line with patron expectations. With that in mind, the following research questions were developed for this evaluation.

1. What are the foundational components of the research consultations as identified by faculty librarians?
2. To what extent do program participants recognize the value of the foundational components to the services they receive? Do differences in environments between patrons account for different expectations regarding the foundational components?
3. What are potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?

The overall recommendations of this evaluation are:

- To frame the service in the foundational components for new employees and student workers.
- To further examine the environments in which there appears to be a statistical dependence on the recognition or importance placed on the foundational component.
- To invest in training and development of soft skills focused on demeanor and empathy.

This evaluation used an exploratory mixed methods research design to first determine the foundational components of the research consultation model used in the research center, and then to evaluate the extent to which those foundational components were recognized and valued in the provision of the service. The first stage of the exploratory mixed methods design was an interactive focus group activity attended by faculty librarians and relevant stakeholders of the Research Center. The second stage was a survey instrument that was sent to research consultation patrons who used the service during the Fall 2020 academic quarter. I will look at the findings and recommendations of the research questions as appropriate.

#### **Question 1: What are the foundational components of the research consultation as identified by faculty librarians?**

#### **Findings:**

On January 8, 2020, the librarians and relevant stakeholders of the Research Center participated in an interactive focus group activity. The results of this activity identified four foundational components for the research consultation service:

- Consultation driven by the needs of the patron
- Focus on lifelong learning and teaching
- Service model as deployed
- Consultation focuses on connecting resources and expertise to patron expectations

An a priori analysis of transcripts of the individual focus groups confirmed the appropriate foundational components were identified when the faculty librarians and stakeholders reconvened and negotiated the components amongst themselves.

**Question 2a: To what extent do program participants recognize the value of the foundational components to the services they receive?**

**Findings:**

The evaluation used patron responses to the survey to determine the extent to which patrons recognized the value of the foundational components to the service they received. Due to building restrictions for the COVID-19 pandemic, all consultations were conducted in an online, virtual format. I met with the head of the Research Consultation service, and we decided to eliminate the foundational component of the service as deployed from the survey, as it was tied to closely to the physical layout of the room. The other components of that foundational component were able to be absorbed into the definitions of the other components. Surveys were collected from patrons throughout the Fall 2020 academic quarter. There were a total 34 responses from the 193 invitations, for a response rate of 17.6%

Overall, patrons either significantly or somewhat recognized the value of each foundational component, that the consultation was driven by the foundational component, and that the presence of the foundational component in the service would impact the likelihood of the patron using the service again. The values for each response were transferred to a numerical value (Significantly =1, Somewhat =2, A little =3, Not at all= 4). The table below provides the measures of central tendency for each foundational component question.

*Central Tendency Measures for Questions Regarding Foundational Components*

<i>Question</i>	<i>Mean</i>	<i>Median</i>	<i>Mode</i>
<i>To what extent did you recognize that the research consultation was driven by your specific needs?</i>	1.09	1	1
<i>How important is it to you that the research consultation was driven by your specific needs?</i>	1.15	1	1
<i>Did the focus of the consultation driven by your needs improve the quality of the service you received?</i>	1.22	1	1

<i>Will the focus of the consultation on your individual needs impact the likelihood that you use this service again in the future?</i>	1.21	1	1
<i>To what extent did you recognize that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.39	1	1
<i>How important is it to you that the research consultation was driven by a focus on lifelong learning and teaching?</i>	1.55	2	1
<i>Did the focus of the consultation on lifelong learning and teaching improve the quality of the service you received?</i>	1.42	1	1
<i>Will the focus of the consultation on lifelong learning and teaching impact the likelihood that you use this service again in the future?</i>	1.58	1	1
<i>To what extent did you recognize that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.06	1	1
<i>How important is it to you that the librarian was connecting library resources and their expertise to your expectations during the consultation?</i>	1.15	1	1
<i>Did the focus of the librarian connecting library resources and their expertise to your expectations during the consultation improve the quality of service you received?</i>	1.18	1	1
<i>Will the focus of the librarian connecting library resources and their expertise to your expectations during the consultation impact the likelihood that you will use this service again in the future?</i>	1.21	1	1

### **Recommendations:**

The first recommendation is to frame the service in the foundational components for new employees and student workers at the Reference Desk, which is a first point of contact for many research consultation patrons. The survey demonstrated a very strong level of agreement between the patrons and the different foundational components as identified by the research consultation stakeholders. The range of means for the questions posed to patrons around the recognition, importance, impact on quality, and the likelihood of using the service again, were between 1.06 and 1.58. This means that the responses ranged from primarily ‘significantly’ to an even distribution between ‘significantly’ and ‘somewhat’. Additionally, when prompted to answer what additional components would be important to the patron, many referred back to the foundational components identified by the research consultation stakeholders and identified

during the survey. This reinforced the Likert Scale questions asked about the foundational components on the survey.

The idea of reinforcing the foundational components that underlie the deployment of the service is key. Contextualizing the foundational components of the service from the onset will allow new employees to identify at the theoretical level why the service is set up and administered the way it is. This is important as it directly ties the reason for the service to the practical application of the service. This understanding can be important to employees, especially new employees or those who do not have an academic background in the subject, in a few different ways.

One way this is important is that it provides an opportunity for recently hired librarians to understand the reason for the deployment of the research consultation model. This will provide more than a general introduction to the service. It helps the newly hired librarian understand why the service is set up the way it is. This will increase the shared sense of purpose for research center stakeholders. It also provides the opportunity for the newly hired librarian to interrogate those foundational components. Bringing in new perspectives to the foundational components can help them develop over time. Newly hired librarians can bring forward new approaches and considerations being discussed in Library and Information Science curricula, or approaches to reference and research consultations being done at other institutions. Intentionally talking about and explaining the foundational components of the research consultation model will foster conversation and allow the foundational components to adapt and evolve over time, furthering the likelihood that they will continue to keep pace with the changing expectations and needs of patrons.

Another avenue through which this recommendation is important is as it relates to the student workers stationed at the Research Center Desk. These students are often the first line of contact for research consultation patrons. While some students do have a background in Library and Information Science, not all do. Having open conversations around the foundational components can help provide a greater sense of understanding around the service for those students who provide general reference assistance. This would help students better identify when to refer patrons to the research consultation, and how to frame the conversation around the reference consultation so new patrons will know what to expect and how the service will be beneficial for them.

Having demonstrated why this recommendation is important, I touch briefly on implementation. It will be important to incorporate intentional conversations around this topic in multiple ways. First, for new librarians that will have a role in the Research Center, conversations around the foundational components should be incorporated into the onboarding process. This will provide an adequate opportunity for conversation and will help the new employee adapt to their new position. For student workers, I recommend incorporating conversations around the foundational components of the research consultation into meetings. This will provide the opportunity for the foundational components to be discussed in-depth, and they can be separated into multiple conversations where only one foundational component is discussed at a time. This will help with understanding and retention of the concepts being discussed, and of their important to the overall service.

**Question 2b: Do differences in environments between patrons account for different expectations regarding the foundational components?**

**Findings:**

The second part of question two sought to understand if the different environments a person moves through during their life could impact the recognition and expectation of the foundational components as identified during the interactive focus group activity. A  $\chi^2$  analysis was done to determine if there was a relationship between the environment and the foundational component. A limitation of this evaluation was the number of cells in each bivariate table with a value under 5 was too low for the outcomes of this portion of the evaluation to be statistically relevant. However, we may view the results of the  $\chi^2$  analysis to see areas in which additional analysis may be valuable. The table below provides the specific pairings in which the null hypothesis may be rejected.

<b>Environmental Factor</b>	<b>Foundational Component</b>	<b>df</b>	<b>Chi-Square Value</b>	<b>Chi-Square Limit</b>	<b>Accept or Reject Null Hypothesis</b>
<i>Immediate internet access</i>	<i>Expertise- Recognize consultation driven</i>	3	21.29	11.341	Reject
<i>Immediate internet access</i>	<i>Expertise- improved quality of service</i>	6	21.443	16.812	Reject
<i>Comfort level with technology</i>	<i>Lifelong Learning- how important</i>	6	34.257	16.812	Reject
<i>Comfort level with technology</i>	<i>Expertise- Recognize consultation driven</i>	3	16.606	11.341	Reject
<i>Comfort level with technology</i>	<i>Expertise- improved quality of service</i>	6	34.616	16.812	Reject

**Recommendation:**

The second recommendation that I made to the Research Center is to further examine the environments in which there appears to be a statistical dependence on the recognition or importance placed on the foundational component. While I am unable to verify that there is a dependence of the environment on the recognition and value of the foundational components, there is still value in the responses and experiences of the patrons, and those can inform future efforts of the research consultation.

The first option for the research center is to rerun the survey. The survey could be run for a longer period of time, thereby increasing the likelihood of receiving enough responses to negate the limitation faced during this evaluation. This could be a valuable option. It allows for a more



thorough collection of data when looking at all of the foundational components to be examined across the environments experienced by the research consultation patrons. Additionally, one of the foundational components identified by the research consultation stakeholders was removed from the survey due to the transition of the research consultation service to a virtual format as a result of COVID-19. If the survey is rerun, I would recommend inserting this foundational component back into the survey.

The second option is to take the results of the  $\chi^2$  analysis and look into the environments that indicated they impacted the recognition and importance placed on specific foundational components. Instead of redoing the entire survey, the focus could be placed on doing a more in-depth examination of the impact of those environments on how patrons recognize and value the foundational components. This would allow research consultation librarians to add questions to their process that would help identify whether the patron had a background in different environments that would impact their expectations coming into the consultation. Librarians would be able to focus some additional time on the specific values that are most beneficial and important to those individuals.

While both are valid options, my recommendation would be to run the survey again in its entirety, including the addition of the removed foundational component of the service model as deployed, once in-person services are able to resume at the University of Denver. This approach has multiple benefits to consider. First, running the survey for a longer period of time would allow more responses. These additional responses would enable a more statistically significant analysis of the relationship between the environments and the foundational components. This would allow research consultation stakeholders to identify more appropriate steps to take based on a more accurate understanding of how environments impact the importance of the foundational components to the delivery of the service. Another benefit is that the service model as deployed could be considered as a foundational component if the survey is rerun in its entirety. This was an important aspect of the breakout sessions, and should be considered as it relates to the environments that patrons participate in. Also, the new survey would allow for a comparison between in-person and virtual research consultations as it relates to the impact environment has on the recognition and importance of foundational components to patrons. As such, I believe that rerunning the survey for a longer period of time to identify a more informed and nuanced understanding of the impact of environment on the foundational components is the appropriate course of action.

**Question 3: What are potential expectations that are not being met for program participants in the Research Center that could help redefine the identified foundations?**

**Findings:**

The final research question of this evaluation sought to understand if there were other aspects of the consultation that were important enough to be considered an important part of the foundation of the service. I used an inductive thematic analysis to the open ended questions asked during the survey to determine this. This analysis revealed that patrons continued to refer to the foundational components that were presented through the interactive focus group activity

(thereby reinforcing the importance of the identified foundational components to patrons), the demeanor of the librarian during the consultation, how easy it was for patrons to set up their consultation, and the way in which librarians extended the consultation beyond the initial timeframe with additional communication.

**Recommendation:**

My final recommendation to the research consultation stakeholders is to pay heed to the responses of the consultation patrons regarding what other components they found important in the research consultation. The open ended responses from patrons indicated a significant importance on how they were made to feel during the research consultation. The disposition and demeanor of the librarian working with the patron was highlighted and discussed in many of the responses. Additionally, patrons responded that the librarian displaying empathy was important to them and increased the quality of the service they received through the consultation. I recommend the research center focus on these types of skills and consider adding demeanor as a potential foundational component to the research consultation.

These types of skills are often thought of as soft skills. They are not covered or considered in professional learning opportunities traditionally used by librarians. The ability to develop these skills are not readily available to the research center stakeholders. It will be important to identify potential training opportunities that will help research consultation librarians to develop these types of skills. There are a few different options for how this could be accomplished.

One way these training opportunities could be offered to the librarians and stakeholders in the Research Center is through contracting out with professional trainers. This approach would have a high likelihood of quality training, as it would be conducted by a professional trainer who is well versed on the topic. There is the potential for this to be a costly option. A one-time training would likely be a reasonable cost for the organization to assume. One can question whether a one-time training would foster a long-term commitment to this component, and whether the lessons learned would maintain and continue over time.

Another approach would be to have different librarians in the Research Center take responsibility for learning one of the components of the soft skills and then teaching on that topic to their colleagues in the department. This creates a sustainable learning opportunity for the librarians in the Research Center. The ability to focus on one topic will allow the librarian to gain expertise within that topic, and they could then teach about that topic to others within the Research Center. This creates an environment that could result in a long-lasting culture focused on the benefits of the soft skills valued by patrons. While there are benefits to this approach, it could also create unrealistic expectations for the librarians in the Research Center. Taking on the responsibility to learn one of the topics in-depth enough to teach to your colleagues in this type of setting would take a significant amount of time and effort. This could place an undue burden on Research Center Librarians as an additional, and unexpected, job duty.

A final option to consider is looking for expertise within the University of Denver infrastructure that could help meet the need for training. The University of Denver has a robust offering of trainings through the Shared Services Department. Some of the current trainings touch

on some of the different topics that would be covered under the soft skills umbrella. The Effective Communication course covers tone and body language. The Introduction to Emotional Intelligence covers topics such as self-awareness and social awareness. Both of these courses would go a certain amount of the way towards helping the Research Center librarians learn more about the soft skills that would support their development in these areas.

Another possibility within this option is that the research consultation stakeholders could work with the Shared Services Department to develop a training session that would cover the desired topics related to demeanor, disposition, and emotional intelligence. This would allow the library to work with Shared Services on a training session that would truly meet their needs. This scenario would allow research consultation stakeholders to engage in this training over a long period of time, thereby establishing a culture around these soft skills. New employees and student workers would be able to take the training as well, when they join the department. Additionally, this training could be offered beyond just the scope of the research consultation stakeholders, as the skills learned in this training would benefit other public service points at the University of Denver.

While both of these are valid options, I recommend that the research consultations stakeholders work with the Shared Services Department to develop a training around the soft skills discussed here. This would provide a more sustainable approach to the training that could be offered on an ongoing basis. It would also benefit the broader University of Denver community. If the Shared Services Department would be unable to provide this training opportunity, I would recommend that the library contract the training out to professionals for the first year. This would enable the research consultations stakeholders to receive a high-quality training from a professional. This would also provide the opportunity for the stakeholders to receive the training in a timely manner until they may develop their own training that would create the long-term training opportunities.

## **Conclusion**

This evaluation highlights the extent to which the research consultation service is keeping pace with the changing nature of patron expectations since its implementation. The high level of agreement between the foundational components identified by the faculty librarians and research center stakeholders demonstrate how the foundational components are recognized and valued by patrons of the service. Implementing the recommendations in this executive summary can help ensure that the research consultation service continues to evolve with the changing needs of its patrons.

# APPENDIX I- THEORY DRIVEN EVALUATION LOGIC MODEL

<u>Resources/Inputs</u>	<u>Activities</u>	<u>Outputs</u>	<u>Outcomes</u>	<u>Impact</u>
<p>Faculty Librarians (Stakeholders)</p> <p>Library Reference Assistants</p> <p>Program Participants</p> <ul style="list-style-type: none"> <li>• Students</li> <li>• Faculty</li> <li>• Staff</li> </ul> <p>Consultation Room</p> <p>Research Desk</p> <p>Library Resources</p> <ul style="list-style-type: none"> <li>• Books</li> <li>• Databases</li> <li>• Services</li> <li>• Library Website</li> </ul> <p>Library Funding</p>	<p>In-person Research Consultations</p> <p>Online Research Consultations</p> <p>Group Research Consultations</p> <p>Libguides and FAQs available through library website</p>	<p>Program participant finds sources for their work</p> <p>Program participant has their information needs met</p> <p>Program participants learn how to use the library website</p>	<p>Short- term</p> <ul style="list-style-type: none"> <li>• Program participants are able to conduct basic searches for resources through the library website</li> <li>• Program participants learn about different resources available to them</li> </ul> <p>Medium-term</p> <ul style="list-style-type: none"> <li>• Program participants are able to identify appropriate resources for their research needs without prompt</li> <li>• Program participants are able to use advanced search techniques to find resources</li> </ul> <p>Long- term</p> <ul style="list-style-type: none"> <li>• Program participants are able to determine the validity of information resources found during the research process</li> <li>• Program participants no longer require the use of the program to aid in their information seeking needs</li> </ul>	<p>An information literate University of Denver community</p> <p>Well sourced research and assignments at the University of Denver</p>