User Experience and the Online Academic Library

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Assessment and Evaluation—EDTC 809

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Chapter 1

Introduction and Statement of the Problem

The academic library in the higher education ecosystem is losing its identity and presence both physically and virtually (Croxton, 2016). The goal of this study is to explore the placement of the academic library within the academic institution's online Learning Management System (LMS). This descriptive exploratory qualitative study (Salkind, 2012) will incorporate elements of human-computer interaction (HCI) design as it relates to information seeking behavior, and user experience. At the core of this study is the significance of the online visibility of the academic library and community college students' awareness of the variety of library resources. Today and in the future, students will have more choices to retrieve information for their classes, and unless instructed by the professor to use library resources, students will opt for more attractive, easily retrievable resources via the Internet (Bandyopadhyay & Boyd-Byrnes, 2016).

Need and Value

The findings of the study aim to benefit the student experience as librarians gain further insight into the mindset of a student. The goal of the study is to explore how libraries can design and manage access to one of the highest priced budget items—electronic resources and database subscriptions (Library Operating Expenditures, 2015). Academic librarians devote hours creating content such as research guides and tutorials to facilitate access to library resources. Research is a process with different approaches, questions with varying degrees of breadth and depth in the quest for discovery and to make connections (Salkind, 2012). Librarians must continue to learn and understand how all users, more specifically in this study, community college students, seek information. Users have several options to find the same information either via different access points and devices such as a phone, laptop or an iPad. The exploratory, qualitative study will

entail information collection via focus group interviews, surveys, and task completion to answer the research questions**.**

Research questions

1. How do community college students navigate the institutional LMS to access the library website?

    a. Is the placement of the library information visible and visually appealing to students?

    b. Is the placement such that students will visit regardless of need? Is the link to the site attractive and does it pique the curiosity of users?

    c. Will the library need to make changes to the library website placement within the institution's LMS?

2. How well do the college library websites market their resources and services?

    a. How well does the library website meet student expectations?

    b. What offerings are students looking for in a library website?

    c. What improvements can be made to meet user expectations?

3. What role does the library play in the student's journey on the college website?

    a. Once at the library website, are the students able to locate and identify the purpose of the library catalog, the databases, and research guides?

Theoretical Framework

To apply one distinct theoretical framework to this study that blends the elements of human-computer interaction (HCI) design as it relates to information seeking behavior, and user experience is a challenge. During a study about student use of mobile devices, Al-Faresi (2014) applies the theoretical framework using the Technology Acceptance Model (TAM). TAM combines the variables of perceived ease of use and perceived usefulness. Computer experience

and library experience influence ease of use, while factors such as English literacy influence both ease of use and perceived usefulness. Social influence affects perceived value. TAM and Kuhlthau's (1985) model of the Information Search Process (ISP) which includes elements of Kelly's Personal Construct Theory as referenced in Kuhlthau (1985) will guide this study. Though created several years ago, the ISP model is one of the most cited and still highly relevant to the field when studying the reason and stages of search behaviors. The ISP model combines six elements of seeking information to accomplish a goal. The ISP process has six stages, initiation, selection, exploration, formulation, collection, and presentation. Guiding the information search process is the Personal Construct Theory, which is as described by Kelly as the "emotional experience of constructing meaning from new information."

Personal construct theory does not mean learning happens alone but as also referenced in Kuhlthau is Vygotsky and his proximity theory of how learning will be more beneficial with a guide or personal assistance.

Chapter 2

Literature Review

Library and Information Science Literature has a long history of various studies covering usability studies, information search, and retrieval. One common theme is libraries have the resources and have challenges to get their constituency to locate sources and to navigate once users are at the site. Also, the desire or motivation to use the resource. The literature review will explore studies about the specific population for this study, community college students as well as present information about the usability of the online academic library.

Community College Students

Community colleges are two-year colleges that offer programs to the residents in the county, region or community (Campbell, 2016). Community colleges provide a variety of options including two-year associate degrees, certification, and skills training such as English as a second language and even be pursuing a dual degree program with local four-year colleges and universities. According to a 2012 American Association of Community Colleges report, approximately 50 percent of undergraduate students are attending any of the 1,167 community colleges in the United States (Campbell, 2016). There are 19 community colleges in New Jersey, and according to the New Jersey Council of County Colleges, there are over 2,000 programs (NJCCC, 2018).

Community college students are as diverse in their demographics as they are in the areas of study. The students are at different stages in their lives and their differences in comfort levels with using technology and the library. There are limited studies throughout the literature that focus on the information literacy skills of community college students and how the academic library plays a significant role in supporting students during their time as a community college student. (Nelson, 2017). The federally funded, Institute of Museum of Library Services (IMLS) awarded a $449,000 grant to the Northern Virginia Community College Annandale Campus of six partner community colleges a $449K to research and develop plans on how to improve library support for community college students (IMLS, 2017). Coates (2013) ran a pre and posttest to gauge the student's perceived and actual information skills and found there is a difference and there is a need to complete future studies about community college students and their information literacy skills

Swanson, Hayes, Kolan, Hand and Miller's (2017) usability study about community college students concludes students are not prepared or do not have the "mental models" about

the research process, and that is imperative at this stage to provide information literacy

instruction. The students had to answer questions by locating items on the website. The students

moved quickly through the text and web pages and did not read deeply.

Usability

Pruett & Choi (2013) discuss how to measure the usability of library websites and include

details covering the principles of effectiveness, efficiency, and as referenced in Pruett & Choi

(2013) cite Quesenbery's (2011) additional measures known as the "5Es": effectiveness,

efficiency, ease of learning, error tolerance, and engagement. The U.S. Department of Health and

Human Services also the recognizes the significance of efficiency and ease of use

(Usability,2018). Effectiveness refers to completing task and efficiency refers to how a user can

navigate the website and satisfaction in if users are happy with the website.

Rutgers University Libraries created a library research guide commonly known as a

LibGuide which focuses on where to add or embed library resources to a course using various

LMSs such as Blackboard, Canvas, Moodle and Sakai (Rutgers, 2018).

Another aspect of usability is the user's motivation—who is using the website and why?

Gottfried (2011) research identifies how business students are the most frequent users of library

resources. Gottfried also mentions distance learners because they may never see or use the

physical library. The usefulness of all the elements of the library website come to question as to

the effectiveness of tools such as tutorials and research guides. His research uncovers the users

need for advanced personalized or customized tools along with popular search engine

integration. Though Gottfried only focuses on business students for this study, the findings

would apply to all researchers. One of his main results was few libraries (21.6%) of those

included in the study offered tutorials of instruction directly from the list of database links— "it

is a lost" opportunity to provide instruction when a student may need it at the time. Libraries provide some of the best resources, but students struggle in finding them and once they find them not knowing how to use them for one because there is a lack of consistency in the terminology librarians use to describe various resources.

Aharony (2012) performed a content analysis of academic library websites which he refers to as the "virtual public face" and cites several studies that conclude library websites serve four core purposes: information, reference, research, and instruction. Aharony also mentions another aspect of how the library can use their website as a marketing tool to communicate library services and events.

Findability and Accessibility

Librarians, web designers, instructional designers can spend plenty of time and money to design a perfect site but ultimately it is the users who are the foremost evaluators of the website and findability is the main component of a successful academic library website. Mvungi, de Jager and Underwood (2008) study the organization or the information architecture of the academic library website. The authors also discuss the Information Architecture Institute definition that information architecture or IA is the art and science of organizing and classifying information to increase findability while balancing user need content and context.

Dermody and Majekodunmi (2011) study how students find it difficult to search the databases in general, there is a need for more studies and attention to students with reading print disabilities to incorporate the database design and print readers to ensure technology is not a barrier to students with print disabilities.

Marketing

For quite some time the academic library website is not the go-to source for information. Libraries and the institution make a significant investment in library resources and must compete and market their services. Anwarul and Jaber (2014) find academic libraries do not promote their websites well and must use the website as a marketing tool and ensure a prominent place in the institution's website. Bomhold (2014) also recommends that libraries must incorporate mobile "on the go" users in their website design and need to change to become the "go-to source" for quick, mobile information. Again, understanding the user is key to strategies to improve the website as well as to market the website. Pant (2015) discusses how the website architecture should facilitate easy access to resources and to be more "user-centered" by including the six elements of usefulness, efficiency, effectiveness, learnability, satisfaction, and accessibility.

Wilson (2015) discusses Bao's (2000) research which studies college and university library home pages to study the placement or the linking of the library website about the institution's website. In this study, Bao concludes the placement of the library website depends on the academic disciplines of the institution rather than the placement of the library link. Librarians and their institutions need to explore more website design strategies. Bao concludes the direct link to the institution's website will naturally increase visibility and position libraries in a better spot to market their services.

The Need for the Study

Though the goal of library services is to guide users to the resources they need, the modalities have changed—technology has popularized remote services such as chat, texting, and use of librarian content creations such as tutorials and research guides (Bandyopadhyay &Boyd-Byrnes,2016). Libraries continue to subscribe to high-cost database research products.

Interoperability is a consideration when working within the confines of an LMS—just as physical spaces, real estate on the institutional website may not be an element under control by the library. If getting to the library website is difficult and once there, if the users cannot match the resources with their needs, then the students may use the freely available resources via the Internet. The goal is to provide the best possible user experience by understanding how users interact with the institutional and library website.

Chapter 3

Methodology

The purpose of this descriptive exploratory qualitative study is to discover how community college students locate and navigate the library website to improve the user experience and to support the use of library services. The participants will be students from the community colleges which agreed to be part of the study. User experience research usually involves action research, task completion, observation or a form of usability testing and that is determining the research design of this study.

Participants

The population for the study is the purposeful random sampling of community college students in any of the 19 community colleges in New Jersey. Patton (2016) states a purposeful random sample applies when there is a possibility to collect more cases or people during the study but also adds credibility to the study if there is a small sample from a large selection. With approximately 217,050 community college students (the State of NJ, 2017), using a 95% confidence interval and 5% margin of error, the recommended sample size is 384 using the Qualtrics Sample Size Calculator (Qualtrics, 2018). The community college administrators will also need to consent to the study. The reason for this selection is the participants are starting their

academic careers and are new to the college experience. As referenced in Croxton (2016) according to a National Center for Education Statistics (NCES) 2014 report, undergraduates from 18 to 24 get their information via Google and are satisfied with mediocre, easily accessible sources which are less credible than the data from library databases.

Procedures

The first phase of the study will involve an email to the New Jersey Council of County Colleges requesting participation and support of the study. If email is the best method of communication, then the next step is to contact the academic library deans and directors of the 19 community colleges via email which will be a request for participation and to ask permission to recruit students for the study using library marketing methods. Additional data collection for this study will include focus groups at each institution, where students will then complete than complete information seeking task and an online survey, then discuss their experience. Following approval from the dean, students will receive an invitation to sit for a 60-minute session to answer brief questions, complete a task, and complete an online survey. The focus group is the most effective method of reaching the recommended sample size. Also, one purpose of the focus group is to collect shared understanding from a purposeful sample (Creswell, 2015). Duncan and Durant (2015) completed a usability study of the library website using a focus group of a maximum of five students per session. The participants will consent to be recorded during the session.

The final phase of the study will be an evaluative study of the participating academic library websites within the LMS. Evaluation of the websites will involve both the public view and the authentification view. The goal is to view the placement of the library website access

points and marketing of its services about the LMS in addition to evaluating the availability of

online support and tutorials.

Note: All the questions are not directly from any survey. Unless cited the survey, questions are

adapted and modified from the researcher's experience in the field and place of employment.

The Focus Group Session

The students will be seated in a computer lab and plan to have a maximum of eight

students per focus group session (Guest, Namey and McKenna, 2017). The session will begin

with the following statement (adapted from a work-related study):

> *"Thank you for volunteering to participate in this study. The purpose of the study is to test*
> *the placement and basic functionality of the library website. There are no incorrect*
> *answers or mistakes you can make during the session. We will request you to complete a*
> *survey on your own, then to proceed to complete a task, then we will conclude with the*
> *focus group discussion. Your participation in this study is completely voluntary. We*
> *request you sign a consent form which allows us to record and use the data from today's*
> *session."*

Please complete the following survey on the computer- the link is already on the screen:

https://njcu.co1.qualtrics.com/jfe/form/SV_bqtiXf6bYcOlGQd

Students will then be asked to complete the following task:

Go to the LMS, locate and access the library website, then locate and review any Research Guide

- Describe each step of the process.
- Rate your success in completing each step on a scale of 1–5:

1 = unsuccessful
2 = not very successful
3 = somewhat successful
4 = almost successful
5 = successful

 (Clunie, & Parrish, 2018; Samson, Granath, & Alger, 2017)

Limitations and Potential Problems

There are many phases to the study and time may be a constraint. The data relies upon participation from the community colleges. The institutions will be allowing recording of the focus group sessions and allowing observation of the institutional LMS. One of the major problems is by the time of completion of the study there is the probability of changes to the LMS and library website—this is an expectation. However, learning about the user experience and navigation is still relevant to determining user behavior and preferences. The goal is to meet the objectives of the study which is to learn more from the user, the especially with this student population which may not have experience with college-level research.

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APPENDIX A

IRB Form

NJCU Institutional Review Board Application for
Review of Research Proposal

Email: IRB@njcu.edu

FOR OFFICE USE ONLY			
File Number			
Review Type	Exempt ☐	Expedited ☐	Full☐
PI			

Date of Submission   December 2, 2018

Proposal type:
■ Original   ☐ Revised*

*If this is a revised application, there is no need to complete the remainder of this form. However, please describe in detail the changes that you have made in response to the IRB's concerns. _____

Principal Investigator	Dr. Christopher Carnahan
Proposal title	User Experience and the Online Academic Library
Proposed start date	July 15, 2019
Anticipated duration of research	12 Months

Type of Research

☒ Student/Classroom project
☐ Faculty project
☐ Staff project
☐ External researcher project (All external researchers must have an NJCU sponsor.)

NJCU Investigators (Please list additional investigators as necessary.)

Principal Investigator (For all student research, the faculty advisor is the PI.)

Name   Dr. Christooher Carnahan
Department   Educational Technology
Telephone   201-200-3078
Email   ccarnahan@njcu.edu

Co-Investigator (including student researchers)
Name   Susan Van Alstyne
Department   Educational Technology

Telephone 2019938451

Email sgadallah@njcu.edu

Co-Investigator(including student researchers)

Name _____

Department _____

Telephone _____

Email _____

Co-Investigator(including student researchers)

Name _____

Department

Telephone _____

Email _____

*Any NJCU investigator who plans to work on this project either with or for a Principal Investigator or a Co-Investigator at another institution must identify those investigators and their institutions.

External Investigators

Name _____

Title _____

Institution _____

Name _____

Title _____

Institution _____

Name _____

Title _____

Institution _____

Name _____

Title _____

Institution _____

NJCU Sponsor (if the researcher is not affiliated with NJCU)

Name _____

Department _____

Telephone _____

Email _____

Data Sources

Number of participants 384

How was this number determined (e.g., power analysis) 95% Confidence Interval; 5% Margin of Error

Does this project require the collection of new data?   ■ Yes   ☐ No

If Yes: How will participants be selected or recruited?   Via email invitations from institution in add

Will subjects participate on a fully voluntary basis?   ■ Yes   ☐ No

Will subjects be compensated for their participation?   ☐ Yes   ■ No
If yes: Please briefly describe the compensation.

Does this project make use of human tissue or cell lines?   ☐ Yes   ■ No

Briefly describe the research methodology(ies) to be used in this study (e.g., focus group, participant observation, survey, experiment).

This is a decriptive exploratory qualitative study. Subjects on each campus will participate in focus

Does this project use data that have already been collected for a non-research purpose or by another researcher?

☐ Yes   ■ No

If yes: What is the source of the data?

Are the data accessible in the public domain?   ☐ Yes   ☐ No

If no: Are fields included that would allow identification of individuals, either directly or indirectly?
☐ Yes   ☐ No

If yes: Please explain briefly how participant confidentially will be safeguarded

Participant Risks

Will participants be exposed to any stresses (e.g., anxiety, pain, etc.) or physical harm (e.g., injury, infection, etc.) in connection with this research?   ☐ Yes   ■ No

If yes: Please briefly explain what risks may be involved in the research, what specific steps will be taken to minimize and monitor the risk, and what will be done to compensate and/or treat participants who are harmed by the research.

Does the research design require that participants be deceived?   ☐ Yes   ■ No

If yes: Please briefly explain why deception is necessary and what steps will be taken to reduce potential harm from this deception.

Potentially Vulnerable

Populations Will this research involve:
Physically/Mentally Challenged Individuals

Young children (ages 0-13)	☐ Yes	■ No
Older children (ages 14-17)	☐ Yes	■ No
Senior Citizens (over age 65)	☐ Yes	■ No
Pregnant Women	☐ Yes	■ No
Prisoners	☐ Yes	■ No

If yes to any of the above: Please briefly explain how the rights of this (these) population(s) will be protected.

_____

Informed Consent

Will participants be fully informed about:

The voluntary nature of their participation and the freedom to withdraw without penalty at any time	■ Yes	☐ No
The purposes and procedures of the research	■ Yes	☐ No
Any reasonably foreseeable risks or discomforts	■ Yes	☐ No
Any benefits to them or to others from the research	■ Yes	☐ No
The extent to which confidentiality will be maintained	■ Yes	☐ No
The compensation and/or treatments available if injury occurs	■ Yes	☐ No

(This question need only be answered for research that involves risks.)

Whom to contact for information about the research participants' rights and any research-related injury	■ Yes	☐ No

If the answer to any of the above is no, please briefly explain why the research requires an alteration of the standard elements of informed consent.

_____

How will participants' informed consent be documented? Please check all that apply.

Has this protocol been submitted for any other types of funding?   □Yes   ■No

If yes: Agency or Organization: _____

Submission Date: _____
Funding Start Date:
_____   □Anticipated   □Actual

Contact Person: _____
Contact's Telephone:
_____

Proof of NIH or CITI Certification
Please provide documentation of current CITI and/or NIH certification in human subjects research for all researchers involved in this project.

Certificate of Agreement

The signatures of all researchers involved in this project must be provided.

I certify that I agree to comply with the requirements of both NJCU and the Office for Human Research Protection (OHRP) of the United States Department of Health and Human Services as described in 45 CFR §46.

_____   _____
PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

Please submit the completed application and accompanying documents as one document or pdf to IRB@njcu.edu and kresch@njcu.edu.

All applications must be submitted by the NJCU faculty or staff member who is serving as the Principal Investigator (PI). Neither students nor external researchers may submit an application.

■Signature on written consent document
■Signature on document to be read to the participants and witnessed by another party
■Written documentation of informed consent will not be obtained because one or more of the
following criteria is satisfied (check all that apply):

■ The only link between the subject and the research would be the informed consent
documentation and the primary risk is loss of confidentiality.

■ The risks to participants, including risks associated with the loss of privacy, are no greater than
those ordinary encountered in daily life and the research involves no procedure for which written
consent is normally required outside of the research context.

Who will obtain the informed consent from the participants?

☐ Principal Investigator
☐ Co-Investigator
☐ Sponsor (in cases where PI is not affiliated with NJCU)
☐ Other
☐ Not applicable

Please include your protocol summary (5 pages maximum) and your recruitment materials (as applicable).

External Reviews and Funding

Has this protocol been reviewed by an Institutional Review Board or Human Subjects Review
Committee at another institution(s)?   ☐Yes ■No

If yes: At what institutions(s)?

_____

What is its status?   ☐Approved   ☐Rejected   ☐Pending (or provisionally approved)

Has this protocol been submitted for Federal Funding?   ☐Yes   ■No

If yes: Agency or Organization:_____

Submission Date: _____

Funding Start Date: _____   ☐Anticipated   ☐Actual

Contact Person: _____

Contact's Telephone: _____

Has this protocol been submitted for any other types of funding? ☐Yes ■No

If yes: Agency or Organization: _____

Submission Date: _____
Funding Start Date:
_____ ☐Anticipated ☐Actual

Contact Person: _____
Contact's Telephone:
_____

Proof of NIH or CITI Certification
Please provide documentation of current CITI and/or NIH certification in human subjects research for all researchers involved in this project.

Certificate of Agreement

The signatures of all researchers involved in this project must be provided.

I certify that I agree to comply with the requirements of both NJCU and the Office for Human Research Protection (OHRP) of the United States Department of Health and Human Services as described in 45 CFR §46.

_____   _____
PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

_____   _____
Co-PI Signature   Date

Please submit the completed application and accompanying documents as one document or pdf to IRB@njcu.edu and kresch@njcu.edu.

All applications must be submitted by the NJCU faculty or staff member who is serving as the Principal Investigator (PI). Neither students nor external researchers may submit an application.

APPENDIX B

CITI Certificate

CITI PROGRAM

Completion Date 21-Oct-2018
Expiration Date 20-Oct-2021
Record ID   29102175

This is to certify that:

Susan Van Alstyne

Has completed the following CITI Program course:

Social & Behavioral Research - Basic/Refresher (Curriculum Group)
Social & Behavioral Research   (Course Learner Group)
1 - Basic Course   (Stage)

Under requirements set by:

New Jersey City University

CITI
Collaborative Institutional Training Initiative

APPENDIX C

Adult Study Consent Form (Sample)

I agree to participate in a study entitled User Experience and the Online Academic library,"
which will be conducted by doctoral candidate, Susan Van Alstyne, New Jersey City University
Educational Technology department. The purpose of this study is to evaluate the college website.
The data collected in this study will be combined with data from previous studies and will be
submitted for publication in a research journal.

I understand that I will be required to attempt to complete a computer task, answer a survey and
participate in a focus group. My participation in the study should not exceed

I understand that my responses will be anonymous, and that all data gathered will be
confidential. I agree that any information obtained from this study may be used in any way
thought best for publication or education provided that I am in no way identified and my name is
not used.

I understand that there are no physical or psychological risks involved in this study, and that I am
free to withdraw my participation at any time without penalty.

I understand that my participation does not imply employment with the state of New Jersey, New
Jersey City University, the principal investigator, or any other project facilitator. *

If I have any questions or problems concerning this study, I may contact Dr. Ashok Vaseashta,
chair of the NJCU Institutional Review Board, at 201-200-2453 or avaseashta@njcu.edu.

_____   _____
Participant Signature   Date

_____   _____
Principal Investigator Signature   Date

APPENDIX D

Online Survey Questions via Qualtrics
Online Library User Experience

Q1 Browser Meta Info

Browser (1)
Version (2)
Operating System (3)
Screen Resolution (4)
Flash Version (5)
Java Support (6)
User Agent (7)

Q2 Please enter the name of the school you are currently attending?

_____

Q3 Have you used the online library?

○ Yes (1)

○ Probably yes (2)

○ Might or might not (3)

○ Probably not (4)

○ Not (5)

Q4 Where would you like to access the library website?

☐ From the School Welcome Page (1)

☐ A link from within each of my classes (2)

☐ A separate website (3)

☐ From both the welcome page and within my class website (4)

☐ I do not need to access the library website (5)

Q6 Please indicate below how often you use the onsite, physical library.

○ Daily (1)

○ 4-6 times a week (2)

○ 2-3 times a week (3)

○ Once a week (4)

○ Never (5)

Q5 What type of information do you look for on a typical day (i.e. using Google to search for movie reviews, directions, health information) Please describe below.

_____

Q7 Please indicate how much you agree with the following statement: I am confident in finding all the information I need on the school website.

○ Strongly agree (1)

○ Agree (2)

○ Somewhat agree (3)

○ Neither agree nor disagree (4)

○ Somewhat disagree (5)

○ Disagree (6)

○ Strongly disagree (7)

Q9 What is one word you would use to describe the library in general?

_____

Q10 Before we move on to the worksheet, please look at the page below **(This is a heat map).**

End of Block: Default Question Block

APPENDIX E

Focus Group Questions

1. What is your impression of the location of the library website?

2. How did you access the library website?

3. Have you accessed the library website before today? If so, was this a class requirement?

4. How would you compare finding the information on the library website to finding

    information in Google?

5. Why do you think students may go to Google before searching the library website?

6. Is the library homepage easy to view and navigate?

7. What information would you like to see on the website?

8. If you could make one change to the library website, what change would you make?

    (Please answer one at a time)