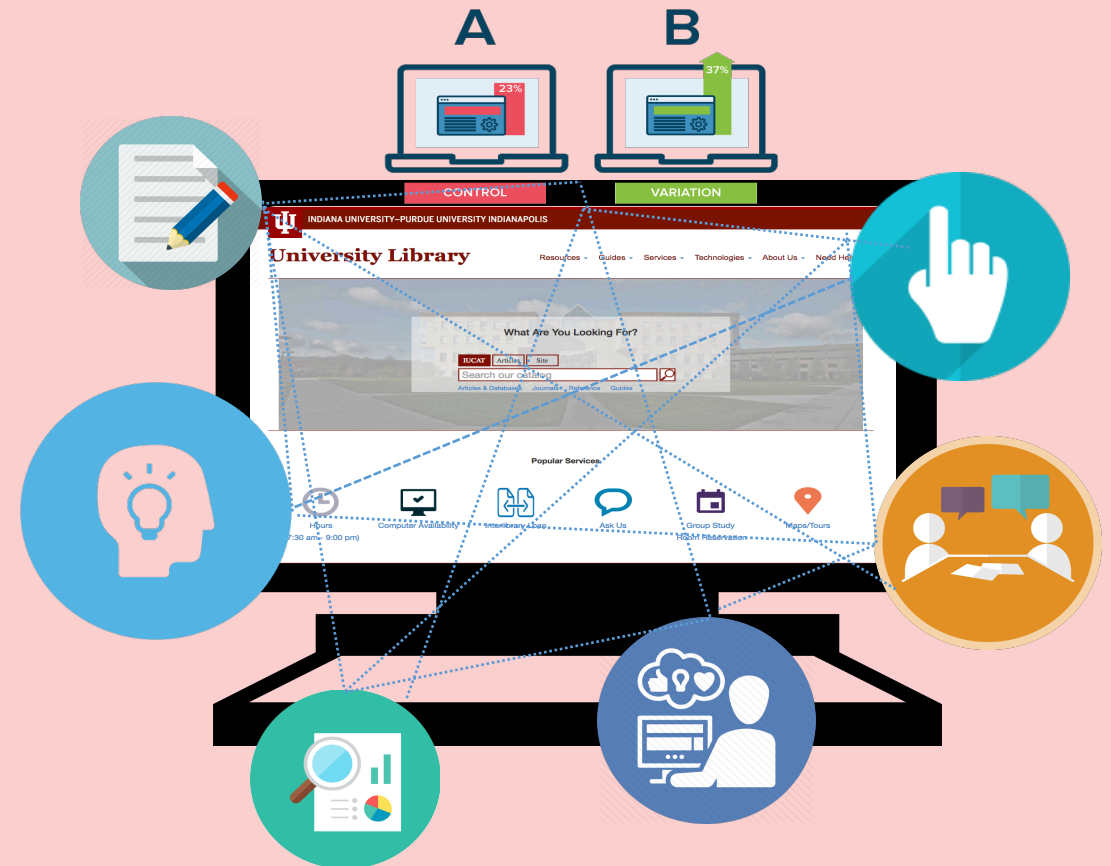


Innovative Data-Driven Methods to Improve Digital User Experience

Yoo Young Lee
Andy Smith
Lisa Calvert
Eric Snajdr

Indiana University - Purdue University Indianapolis (IUPUI)
ulib.iupui.edu

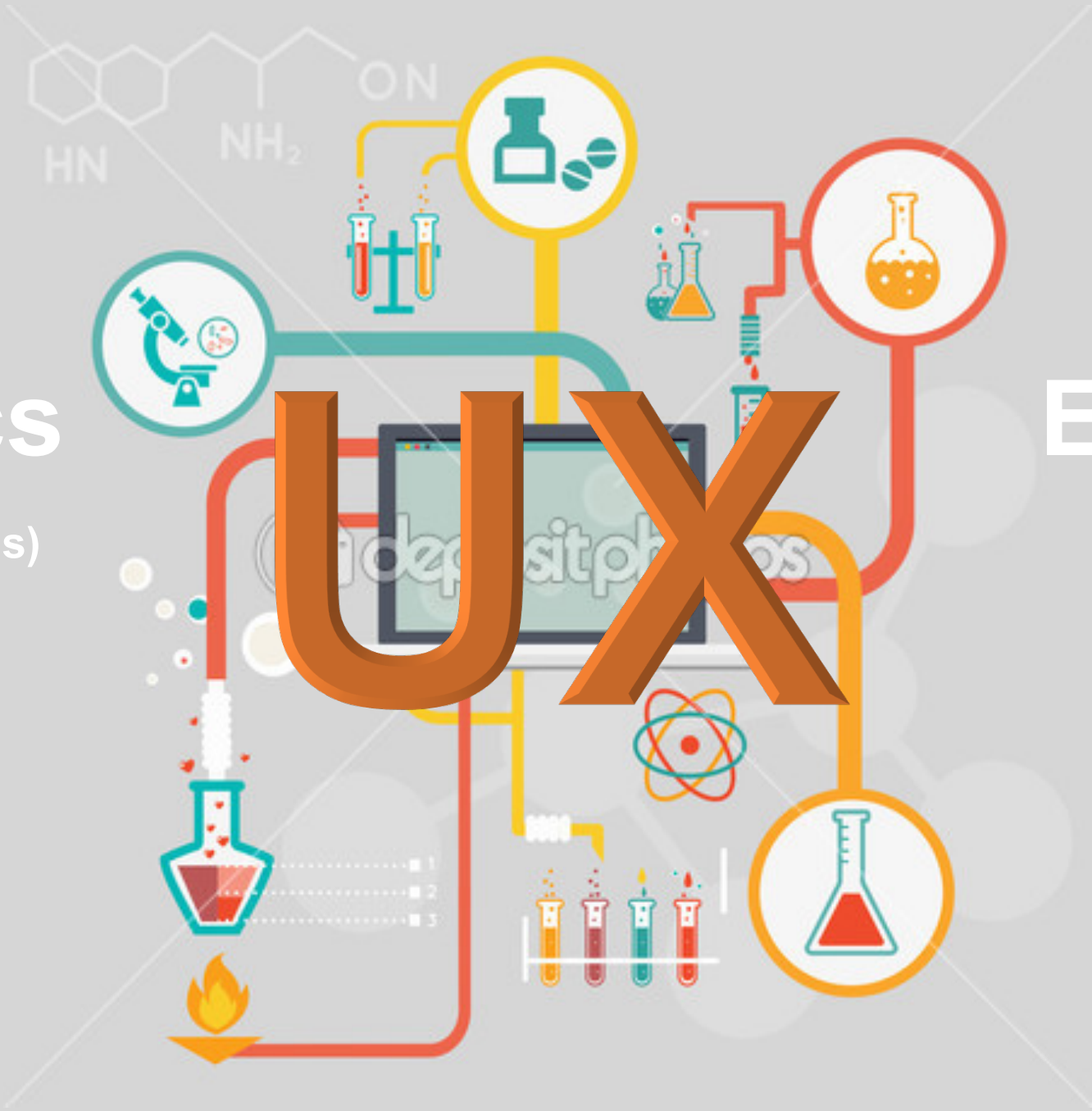


For our users: simple and easy as possible



**What does the
backend of our
work look like to
provide simple
and easy services
for our users?**





Analytics

(Research methods)

(Science)

Emotions

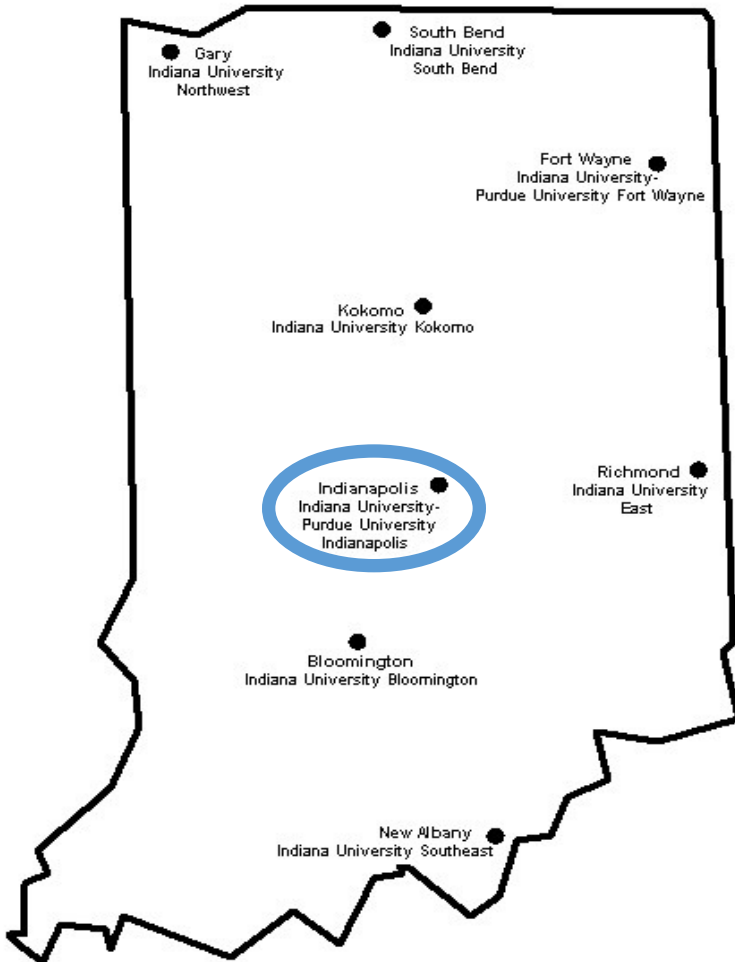
(Interfaces)

(Art)

Table of Contents

1. Introduction
2. User research methods
3. Lessons learned
4. Q&A

Introduction: IUPUI University Library



IUPUI

- Home to two of Indiana's top universities: Indiana University and Purdue University
- Urban research university offering more than 200 degree programs
- More than 30,000 Students' enrollment

University Library (UL)

- Inform, Connect, Transform
- 380 information literacy instructions
- Over 1,000,000 volumes and 35,000 current periodicals
- Leader in the application of technology to library practice

Introduction: Team

The DUX Working Group

Liaison Librarian



Yoo Young Lee

DUX Librarian

Andy Smith

Developer

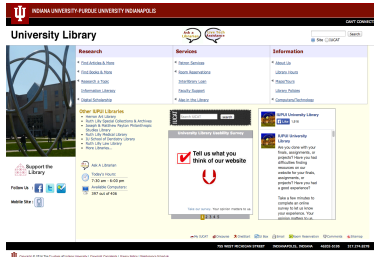
Lisa Calvert

Digital
Scholarship
Collections
Specialist

Eric Snajdr

Sciences Librarian

User research methods: DUX stage



2014

Planning

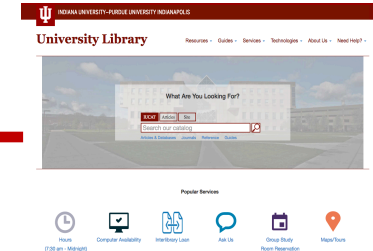
- DUX working group formed
- Heuristic evaluation
- Staff survey

User research

- Surveys
- Google Analytics
- Google Webmaster Tools
- User behavior
- Informal interviews

Design & Implementation

- A/B Testing



2015.07 Launch

Evaluation

- UX in the library instruction
- Google Analytics
- Google Webmaster Tools

User research methods: Goals

How we used findings?: Prioritization with heuristic evaluation

What to improve and how to improve

DATABASE

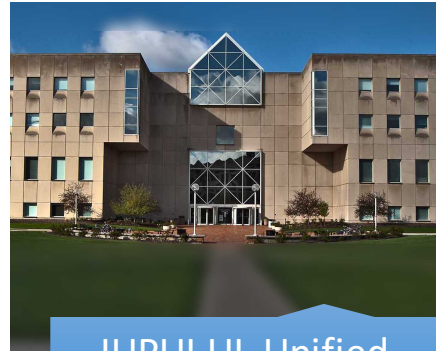


Easy Access to Resources

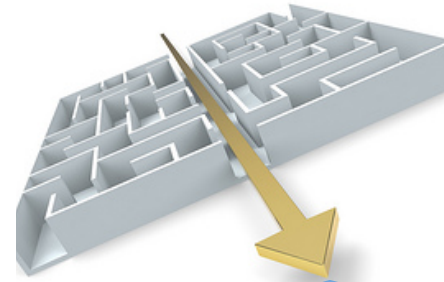
Mobile Friendly



Mobile Friendly



IUPUI UL Unified Presence



Streamline



Design

User research methods: Survey

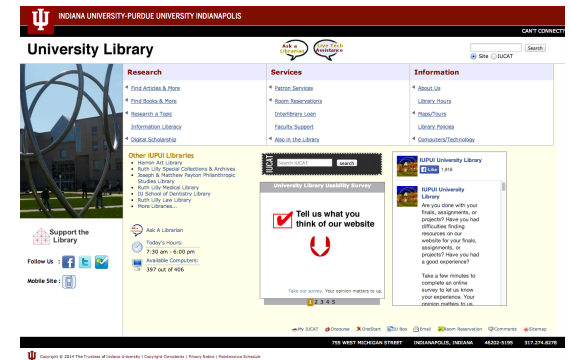
Goals: Evaluate the UL website

Discover why users used and what they did on the website

Find out what they expected

Method:

- Tool used: [Survey Monkey](#)
- Period: April 7, 2014 ~ May 16, 2014
- UL Website (pop-up), UL social media (Facebook and Twitter), UL public computer workstations
- Invitation link was sent out through UL communication, and campus-wide newsletter
- 21-24 questions



User research methods: Survey

Findings: (n=282/ valid data=165) Report: <http://hdl.handle.net/1805/7289>

- Main users: undergraduate students
- They found the library website from course management system and friends or professors.
- They used it for research, course assignments, and room reservation.
- The aspects of visual appeal, intuitive terminology, and content layout should be improved.
- The most important task was to find books, articles, and other resources.

User research methods: Survey

How we used findings? Persona



- Have a major user group for our website in mind
- Focus on them – their expectations, their web behavior
- Negotiation tool when dealing with other requests which were out of scope

User research methods: Google Analytics

Goals: Identify most visited pages

Identify most used site search terms

Identify most used organic search keywords

Discover behavior flow

Findings: (Data sets: January 2013 – April 2014) Reports: <http://hdl.handle.net/1805/7290>

- Users looked for resources, particularly databases.
- They looked for collections like digital collections and special collections.
- They used subject, course, and how-to guides for their assignments and research.
- They were interested in room reservation.
- They wanted to know 'About Us' like librarians, hours, fines, and etc.

User research methods: Google Analytics

How we used findings? Homepage design to list popular services and popular resources

Popular Services



Hours

(7:30 am - 9:00 pm)



Computer Availability



Interlibrary Loan



Ask Us



Group Study
Room Reservation



Maps/Tours

Popular Resources



Databases



Journals



Subject Guides



Reference



Special Collections



Digital Collections

User research methods: Google Analytics

How we used findings? Develop information architecture (menu system)



UL Site Map

Resources

Find

- [Books & Media](#)
- [Databases \(Articles\)](#)
- [Journals](#)
- [Theses & Dissertations](#)

Reference

- [Reference Collections](#)
- [Citation styles](#)
- [City/State/Country](#)
- [College/Career](#)
- [Criticisms/Reviews](#)
- [Directories](#)
- [Encyclopedias/Dictionaries/Thesauri](#)
- [Facts/Figures](#)
- [GIS/Maps/Atlases](#)
- [Legal Research](#)

Tools

- [IUCAT](#)
- [WorldCat](#)
- [Citation Linker](#)
- [MetaSearch](#)
- [EndNote](#)
- [Zotero](#)

User research methods: Google Analytics

How we used findings? Content Audit

[Guide](#) [Finding Articles](#) [Finding Books & Media](#) [Reference Materials](#) [Web Resources](#) [Open Access Resources](#)

Finding Articles

Finding Forensics Articles in Library Databases

- [ProQuest Criminal Justice Periodical Index](#) a comprehensive database of U.S. and international criminal justice journals
- [Web of Science Citation Databases](#): for finding scholarly information in the sciences
- [Applied Science and Technology Full Text](#) contains content from "...leading trade and industrial publications, professional and technical society journals, specialized subject periodicals, plus buyers' guides, directories, and conference proceedings."


Finding Forensics Articles in Library Indexes and Abstracts (Print)

Biological Abstracts	QH301 .B37 (4th floor)
Forensic Science Abstracts	Ref RA1001 .F653 (2nd floor)

Review Journals

These specialized journals provide access current news, developments and trends in the field. Some examples are:

Science & Justice	HV6001 .F67 (3rd floor)
The Internet Journal of Forensic Science	Electronic resource
Journal of Forensic Sciences	R.L. Med. Library



Eric Snajdr
Assistant Librarian

University Library
Room UL 3135B
esnajdr@iupui.edu
317-278-2778

UL Reference Desk

- [Hours](#)
- [Ask a Librarian](#)
- (317)274-0469

[Interlibrary Loan](#)
[Style Manuals / Writing Aids](#)

[Department Websites](#)
[Forensic & Investigative Sciences Program](#)

Forensic & Investigative Science
Guide

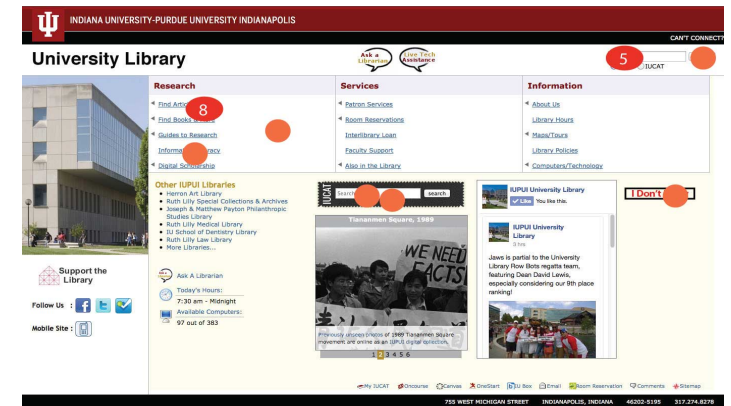
User research methods: User behavior research

Goals: Identify user's web behavior on the library website

Investigate the intersection between user's web behavior and library instruction

Method:

- Tool used: [Verify](#)
- When and where: Fall 2014 semester in library instruction
- Sample: Freshman students enrolled in two separate sections of an introduction to science course
- Pre & Post test for comparison of two sections



User research methods: User behavior research

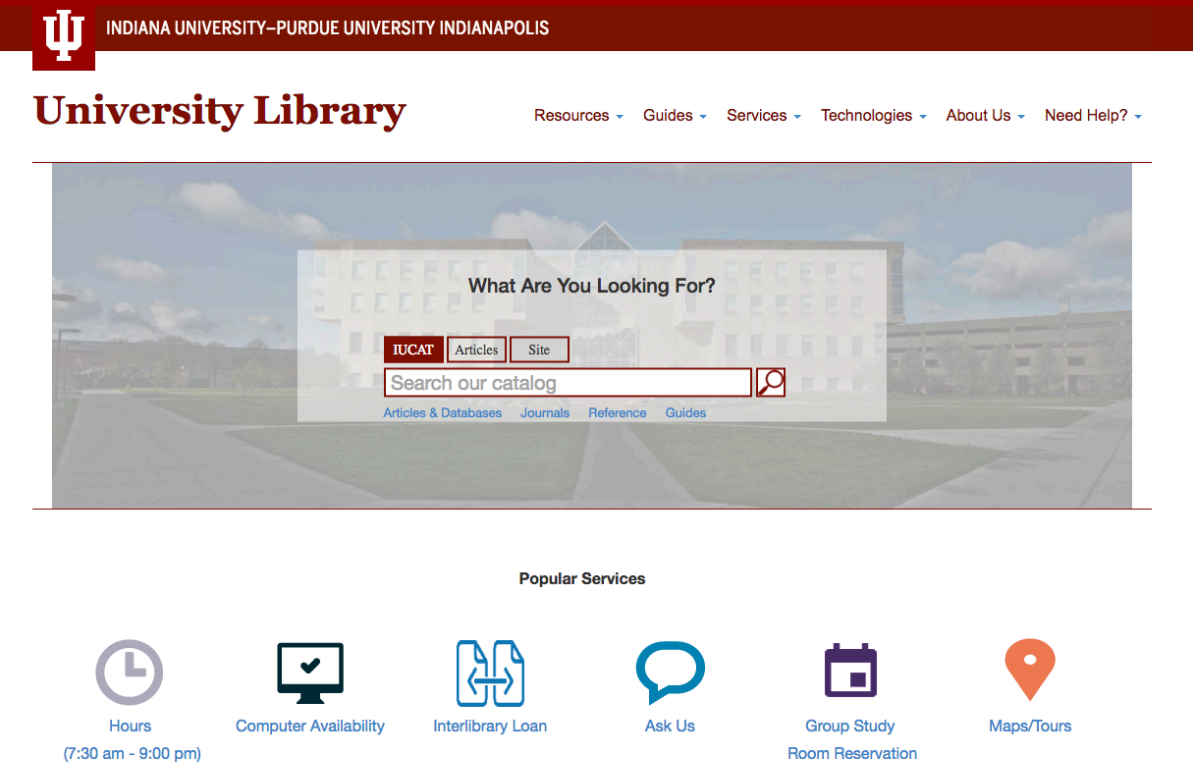
Findings: (n=48) Report: <http://hdl.handle.net/1805/7291>

- Students started browsing while very few used the search box.
- They were more likely to navigate through menu.
- They tended to search if they knew what they were looking for.
- The information seeking behavior has changed right after library instruction.

User research methods: User behavior research

How we used findings? Homepage design support both navigation and search

More collaboration with information literacy instruction



User research methods: (informal) A/B Testing

Goal: Compare two versions to choose better one

Findings: Informal guerrilla as no IRB process

- Page design: two-column layout – key information is highlighted in the right side
- Sticky menu (IUPUI website) vs. left-side menu vs. breadcrumbs
- Color variation

User research methods: (informal) A/B Testing

How we used findings? Page design (two column vs. three columns)

Ψ INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS

University Library

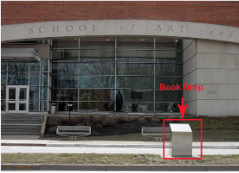

IUCAT Articles Site

Home Resources Guides Services Technologies About Us Need Help?

Book Drops

There are 2 book drops available for your convenience to turn in library materials when the library is closed.

- University Library: The left of the front entrance to the library
- Eskenazi Herron School of Art and Design: In front of the building (735 W. New York St.)



If the library is open, we encourage you to return materials directly to the Service & Information Desk. If there is ever a line, there is a book drop slot located to the side of the desk where you can return items. You can also return items at any library within the IU system

Updated Jul 14, 2015 by Access Services Team

Ψ INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS

University Library

IUCAT Articles Site

Home Resources Guides Services Technologies About Us Need Help?

Health and Rehabilitation Sciences

Home

Welcome to the Guide

Related Guides


Find Articles

Find Books

Reference


Career Resources

Librarian



Welcome to the Guide

This guide is primarily designed for undergraduate students in the School of Health and Rehabilitation Sciences.



- Find Articles:** List of databases and journals related to Health and Rehabilitation Sciences where articles can be found
- Find Books:** Provides information on where to find books and list of e-books related to Health and Rehabilitation Sciences
- Reference:** Includes useful resources for statistics, medical dictionaries, encyclopedias, nutrition and dietetics, study aids, and tests and measures
- Career Resources:** Includes useful resources for career in the Health and Rehabilitation Sciences

Are you a graduate student?
You need to contact [Rick Ralston](#) at the Ruth Lilly Medical Library.

Related Guides

- SHRS-W270 Global Rehabilitation and Health
by Yoo Young Lee Last Updated Apr 14, 2016 31 views this year
- SHRS-W362 Journal Report Assignments Guide

User research methods: (informal) A/B Testing

How we used findings? Menu location

INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS

University Library

Resources Guides **Services** Technologies About Us Need Help?

Home/ Services/ Interlibrary Loan

Interlibrary Loan

Interlibrary Loan

Borrowing from Other Libraries

The Interlibrary Loan service (ILL) allows current IUPUI faculty, staff and students affiliated with University Library or the Herron School of Art Library to borrow materials not owned by the library.

Requesting a document via interlibrary loan is done through an online system, **ILLiad**. You can find more information about the Interlibrary Loan service such as IL policies, guidelines, information on Get It Now pilot project on the ILLiad website. Log in to **ILLiad** to submit an ILL request.

Borrowing from IUPUI University Library

Other libraries or organization can request the library's materials owned by IUPUI University Library. You can find detailed information on **How to Borrow from Us**.

This service is only for other libraries or organization. We do not accept interlibrary loan requests from individuals. If you're Indiana residents, you may apply for an IU Libraries Borrower's Card. Please see **information for guest**. If you are not an Indiana resident living in the Indianapolis area, please contact the interlibrary loan office of your local public or university library.

Updated by Resource Sharing & Delivery Services Team on October 8, 2014

IUPUI ILLiad

Log in to **ILLiad**.

Interlibrary Loan Office

Monday - Friday:
8am - 5pm

University Library:
317-274-0500
Herron Art Library:
317-278-9484
Email: uill@iupui.edu

Pick Up Location

University Library:
Circulation Desk
2nd Floor

Herron Art Library:
Circulation Desk

Research Services Information Need Help?

Placeholder text: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam auctor erat id euismod congue. Nunc dapibus, arcu quis mollis semper, magna est scelerisque arcu, quis lincidunt eros tellus eu velit. Proin porta massa quis lorem laoreet lobortis pulvinar in lacus. Nullam non egetas sem. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Nunc lectus justo, iaculis quis blandit in, lobortis vitae elit. Nunc quis feugiat sapien, a iaculis quam. Praesent vitae nisl uma. Phasellus porttitor, nibh quis dignissim convallis, ipsum nibh venenatis nibh, nec sagittis velit augue nec dolor. Maecenas quis turpis ac mi fringilla interdum vel sed nisi. Nulla at ex nibh. Duis hendrerit fringilla pharetra. Phasellus porttitor, nibh quis dignissim convallis, ipsum nibh venenatis nibh, nec sagittis velit augue nec dolor. Maecenas quis turpis ac mi fringilla interdum vel sed nisi. Nulla at ex nibh. Duis hendrerit fringilla pharetra.

Updated by Client Support Team on September 24, 2014

IUPUI University Library

317-274-8278
755 W. Michigan St.
Indianapolis, IN 46202

Support the Library

My IUCAT

Interlibrary Loan
Digital Scholarship Center
Herron Art Library
Ruth Lilly Special Collections & Archives
Joseph & Matthew Payton Philanthropic Studies Library
Ruth Lilly Medical Library
IU School of Dentistry Library
Ruth Lilly Law Library

Oncourse
Canvas
OneStart
One.IU
Email
Webmail
Outlook Web Access
IU Box

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User research methods: (informal) A/B Testing

How we used findings? Color variation

The screenshot shows the University Library website with a dark red header. The navigation menu includes 'Resources', 'Guides' (highlighted in red), 'Services', 'Technologies', 'About Us', and 'Need Help?'. The main content area is titled 'Health and Rehabilitation Sciences' and features a sidebar with links like 'Getting Started', 'Find Articles', and 'Reference'. The 'How to Use This Guide?' section is highlighted in orange.

The screenshot shows the University Library website with a dark red header. The navigation menu includes 'Resources', 'Guides' (highlighted in purple), 'Services', 'Technologies', 'About Us', and 'Need Help?'. The main content area is titled 'Health and Rehabilitation Sciences' and features a sidebar with links like 'Home', 'Welcome to the Guide', 'Find Articles', and 'Reference'. The 'Welcome to the Guide' section is highlighted in purple and contains a list of resources and a photo of a librarian.

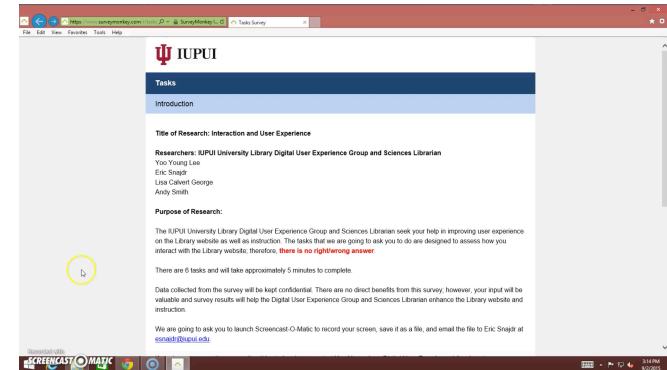
User research methods: UX in library instruction

Goals: Measure overall UX evaluation | Measure overall task performance

Difference between what students said and what they did | Role of library instruction in UX

Method:

- Tools: [Survey Monkey](#), [Screencast-O-Matic](#)
- When and where: Fall semester 2015 in library instruction
- Sample: 213 students from 9 classes including freshmen, middle level and senior courses
- 5 minutes of information seeking tasks -> Pre-survey -> Instruction -> Post-survey



User research methods: UX in library instruction

Findings: (n = 213/ valid data = 160)

- Students found the website easy to use, helpful, and user-friendly.
- They didn't think that the website was useless. They were not frustrated to use, but they were a bit uncertain.
- They were able to easily find their subject guide, 3D Printing Studio, but they had hard time locating one scholarly article in their major.
- They were more likely to navigate first than search on the library website.
- They used only one or two keywords and they used search box for everything.
- Although students said that they were confident, their task performance was not.
- Library instruction helped students decrease their level of uncertainty.

User research methods: UX in the library instruction

What we are going to do? One search box (QuickSearch) developed by North Carolina State University

Library

The screenshot shows the NCSU Libraries search interface. At the top is a red navigation bar with the NCSU Libraries logo, a search box containing 'usability', and navigation links for FIND, GET HELP, SERVICES, LIBRARIES, and ABOUT. Below the navigation bar is a dark grey bar with links for ASK US, MY ACCOUNT, HOURS, FAQ, LOG OUT, and CHAT NOW. The main content area is titled 'Search All' and features a search box with 'usability' entered and a 'Search' button. Below the search box are navigation links for Articles, Books & Media, Journals, Databases, Databases by Subject, Frequently Asked Questions, and Our Website. The results are organized into two columns: 'Articles' and 'Books & Media'. The 'Articles' column lists three results: 'Usability 2009' by Stewart, Tom; 'Journal of usability studies 2005'; and 'Speculative usability 2016' by Rivers, Nathaniel; Soderlund, Lars. The 'Books & Media' column lists three results: 'UX redefined : winning and keeping customers with enhanced usability and user experience [2016]' by Robier, Johannes; 'Usability testing of medical devices [2016]' by Wiklund, Michael E.; and 'Ux redefined [electronic resource] : winning and keeping customers with enhanced usability and... 2016.' by Robier, Johannes. A link at the bottom of the 'Articles' column says '> See all 188,189 article results'.

NC State Home RESOURCES ☰ search ncsu.edu 🔍

NCSU LIBRARIES FIND GET HELP SERVICES LIBRARIES ABOUT

ASK US MY ACCOUNT HOURS FAQ LOG OUT CHAT NOW 🗨️

Search All About this search tool

usability Search

[Articles](#) [Books & Media](#) [Journals](#) [Databases](#) [Databases by Subject](#) [Frequently Asked Questions](#) [Our Website](#)

Articles

Usability 2009
Stewart, Tom
Behaviour & Information Technology, Vol. 28,
Issue 3, pp. 199 - 200.
[Journal Article Full Text Online](#) 📄

Journal of usability studies 2005
Journal Of Usability Studies.
[eJournal Full Text Online](#) 📄

Speculative usability 2016
Rivers, Nathaniel; Soderlund, Lars
Journal Of Technical Writing And Communication, Vol. 46,
Issue 1, p. 125.
[Journal Article Full Text Online](#) 📄

[> See all 188,189 article results](#)

Books & Media

UX redefined : winning and keeping customers with enhanced usability and user experience [2016]
Robier, Johannes, author.
eBook
✔ Online

Usability testing of medical devices [2016]
Wiklund, Michael E., author.
Book
✔ [Veterinary Medicine Library R856.4 .W55 2016](#)

Ux redefined [electronic resource] : winning and keeping customers with enhanced usability and... 2016.
Robier, Johannes.

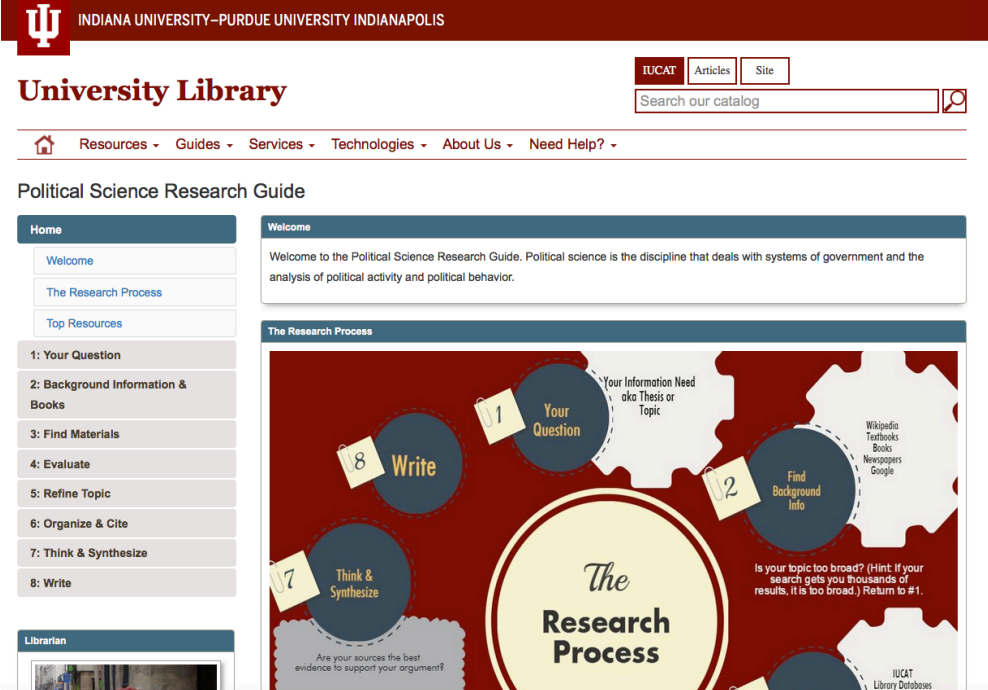
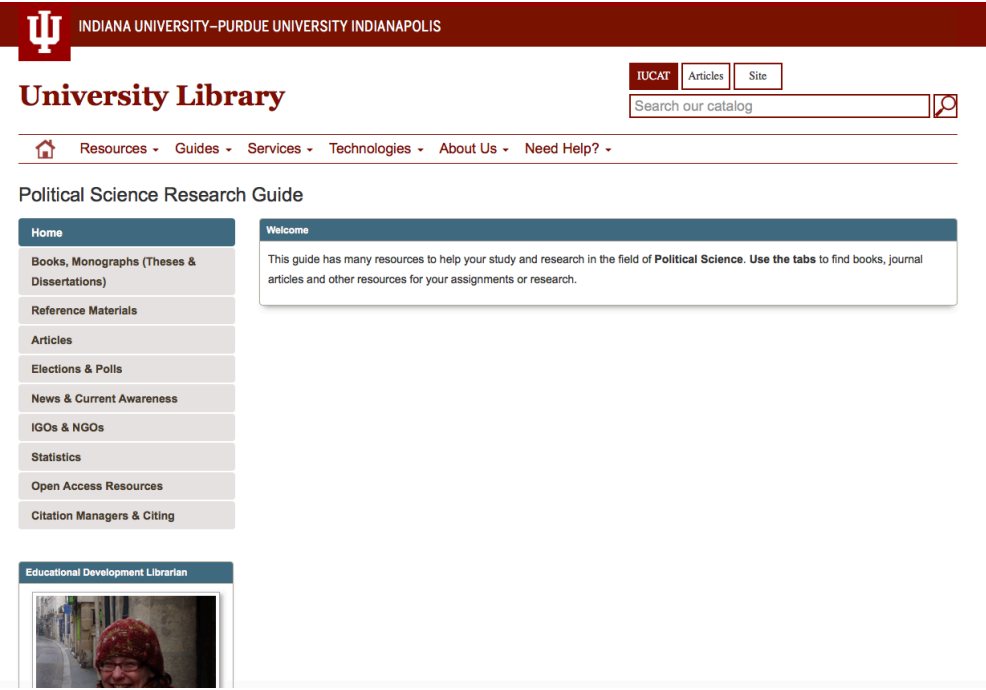
User research methods: UX in the library instruction

What we are going to do? Collaboration with Educational Services Charter Group - Content

The screenshot shows the top portion of the University Library website. At the top left is the IU logo and the text 'INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS'. Below this is the 'University Library' title. To the right is a search bar with the text 'Search our catalog' and a magnifying glass icon. Above the search bar are three buttons: 'IUCAT', 'Articles', and 'Site'. Below the search bar is a navigation menu with a home icon and links for 'Resources', 'Guides', 'Services', 'Technologies', 'About Us', and 'Need Help?'. The main content area is titled 'How-To Guides: To help you become a better researcher' and is divided into three columns: 'How to Use...', 'How to Research...', and 'Contact Us'. The 'How to Use...' column lists guides such as 'Citation Styles', 'E-Books: Finding and Using Electronic Books', 'EndNote - Citation Management Software', 'Mendeley - Citation Management Software', 'Zotero - Citation Management Software', 'Data Visualization Basics', 'How to Find Public Domain & Creative Commons Media', and 'Finding Data and Statistics'. The 'How to Research...' column lists guides such as 'Start Your Research - A Self-Guided Tutorial', 'Introduction to Library Research - Overview of the Research Process', and 'Exploring Academic Integrity - A Self-Guided Tutorial'. The 'Contact Us' column provides contact information including 'Find Us' (with a URL), 'Call Us' (317-274-0469), 'Text Us' (317-333-7556), 'Email Us' (refdesk@iupui.edu), 'Follow Us' (@iupui_ulib), 'Like Us' (IUPUI Library), and 'IM Us' (askalibrarian). At the bottom of the 'Contact Us' column is a chat window titled 'Chat with a Librarian' with the message 'Chat is offline.'

User research methods: UX in the library instruction

What we are going to do? LibGuides design: the way we organize (pathfinder vs. pedagogical)



Lessons Learned

- Neither simple nor easy to conduct UX studies
- Important to balance between attitude and behavior/ quantitative and qualitative/ context of use/ formal and informal
- Important to plan and prepare in order to collect the “right” data
- Important to clearly define the study’s questions such as what the study is for and what researchers want to know from this study
- Data, data, and data!

Q&A

Innovative Data-Driven Methods to Improve Digital User Experience

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Eric Snajdr

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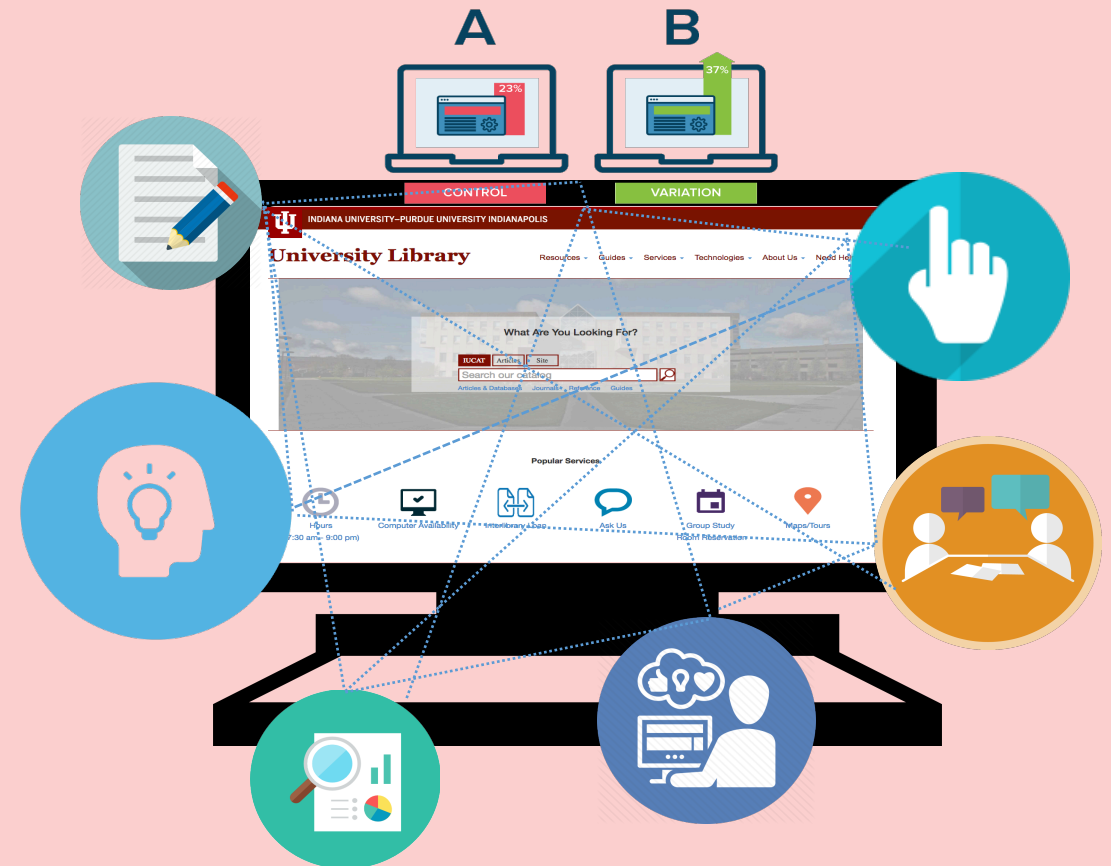


Image Credit:

[Slide 1]

- A/B: <https://www.optimizely.com/ab-testing/>
- Click: <http://fatfish.com.au/>
- Interview: <http://www.expresspros.co.za/the-29-smartest-questions-to-ask-at-the-end-of-every-job-interview/>
- Usability testing: https://www.iconfinder.com/icons/360795/accessibility_development_feedback_interface_design_product_design_testing_usability_user_icon
- Analytics: <http://www.modernsoftwares.com/services/>
- Brain: <https://www.brightfind.com/work/services/user-experience/>
- Survey: https://www.iconfinder.com/icons/281873/checklist_document_edit_paper_pen_pencil_survey_icon
- Computer: <https://openclipart.org/detail/213214/computer-icon>

[Slide 3]

- Monitor: <http://slonik.com.br/papel-de-parede-para-imac-de-27-polegadas/>

Image Credit:

[Slide 4]

- Background: <http://www.stockphotos.ro/science-research-infographics-image39982176.html>

[Slide 7]

- Collaboration: <https://www.tranemo.se/kategori/kommun-och-politik/>

[Slide 9]

- Database: <http://conaxe.com/v1/page-1856-dbms-enterprise-.html>
- Mobile friendly: <http://www.jameskosur.com/author/james-kosur/>
- Streamline: <http://barnabaschicago.com/>
- Design: <https://stockfresh.com/image/1833399/green-city-spring-time-concept-illustration>