

USABILITY STUDY REPORT

Academic Research Database Comparison

*EBSCO Academic Search Complete &
ProQuest Research Library*

Presented To:

Kate Lawrence: VP User Research, EBSCO (klawrence@ebSCO.com)

Deirdre Costello: Senior UX Researcher, EBSCO (dcostello@ebSCO.com)

May 5, 2015



UX-GO Consulting:

Kemal Akbay | Tracey Chan

Hannah Dym | Mary Gribbons

Contact: dym_hann@bentley.edu

PRESENTATION OVERVIEW

- Project Goals and Scope
- Usability Study Details – Timeline, Methodology, and Questions/Tasks
- Participant Description
- Executive Summary
- Overall Usability Findings
- Task Findings and Identified Usability Problems
- Conclusions and Recommendations

PROJECT GOALS

- Establish a big-picture overview of how Bentley students conduct scholarly research
- Assess the overall usability of the EBSCO Academic Search Complete database including considerations like ease of use, lack of confusion, and workflow compatibility with existing student research habits
- Determine how EBSCO Academic Search Complete compares to a main competitor (ProQuest Research Library) in terms of usability, feature offerings, and overall participant preference
- Original Problem Statement:

“College students have many options when it comes to conducting scholarly research. Given the array of research databases available through a typical library, where do students start the research process, what tools do they use in their search, and where do difficulties arise during the process? Additionally, how do the EBSCO databases available through the Bentley University Library website compare to those of a major competitor (ProQuest), when it comes to factors like ease of use, success in finding resources, and the usefulness of interface-specific functionalities like search and filter?”

PROJECT SCOPE

Given the two feature-intensive databases under consideration, it was important for UX-GO to limit the scope of the study so as to capture a realistic workflow.

- While both EBSCO and ProQuest offer a number of subject-specific databases through the Bentley Library, only the EBSCO Academic Search Complete and ProQuest Research Library systems were tested.
- UX-GO only tested a subset of functionality that overlapped between the two databases, as will be outlined in the Study Tasks. Any functionality not addressed by participants during task completion was therefore out of scope.
- This formative study focused exclusively on a small sample of students from Bentley University, so any statistical analysis that can be applied to a general population is out of scope.

PROJECT TIMELINE

- This study consisted of approximately 3 months of work by UX-GO with continued support from the EBSCO team. The following outlines the timeframe for deliverables throughout the project process:
 - **Project Proposal Submission:** February 18, 2015
 - **Formal Test Plan Submission:** March 16, 2015
 - **Database Expert Review Submission:** April 14, 2015
 - **Usability Testing by UX-GO:** April 3 – 10, 2015
 - P1: April 3 | P2-P5: April 4 | P6: April 6 | P7: April 9 | P8: April 10
 - **Final Report Presentation to Bentley Class:** April 27, 2015
 - **Final Report Presentation to EBSCO:** May 5, 2015

METHODOLOGY & TESTING TOOLS

- **8 participants (all local Bentley students); 60-minute sessions:**
 - 6 in-person sessions at Bentley University's User Experience Center using Morae Usability Software and the available testing facilities
 - 2 remote synchronous sessions exclusively through Go-To-Meeting software
 - Each member of UX-GO moderated 2 sessions (Mary, Hannah, and Kemal held in-person sessions while Tracey conducted remote sessions from San Francisco with Bentley Students in Waltham, MA using Go-To-Meeting)
 - A [video reel](#) of notable clips from the study was created using Adobe Premiere Pro, and will be submitted to EBSCO to emphasize findings
 - EBSCO offered UX-GO three credits for the popular tool **UserTesting.com**, to try out a short test with anonymous participants outside of Bentley. An analysis of the findings from this exercise can be found in [Appendix L](#)
 - EBSCO provided **\$50 Amazon Gift Cards** as compensation for each participant

TESTING SESSION BREAKDOWN

- **Pre-Test Survey:** UX-GO administered a pre-test survey to better understand the demographics and backgrounds of participants (see [Appendix A](#))
- **Part 1 – Qualitative Interview Questions:** To gain insights into general research habits, UX-GO started each session with questions relating to how participants typically conduct academic research (see [Appendix B](#) for the list of questions)
- **Part 2 – Comparative Usability Study Tasks:** To comparatively analyze the EBSCO and ProQuest databases, UX-GO tested the same set of tasks on both. To curb biases due to priming, the order in which participants worked with each database varied (see [Appendix C](#) for the full list of tasks tested). Following the use of each database, participants completed a **SUS questionnaire** and selected **three adjectives** from a given list to describe their experiences.
- **Part 3 – Wrap-Up:** After working with both databases, participants were asked a series of questions to gauge overall database preference (see [Appendix B](#) for these questions)

TARGET USER DESCRIPTIONS

More Novice Researchers:

Students with little or some academic research experience. They may have done a few research papers, but often still have questions about the tools available through the Bentley Library.

More Experienced Researchers:

Students who have completed many research papers during their undergraduate careers and/or for their graduate work. They have a high level of familiarity with various databases and research tools.

These both represent potential users of EBSCO Academic Search Complete and ProQuest Research Library. Therefore, the databases must be easy enough to use for less experienced researchers, while also robust enough to meet the needs of more experienced researchers.

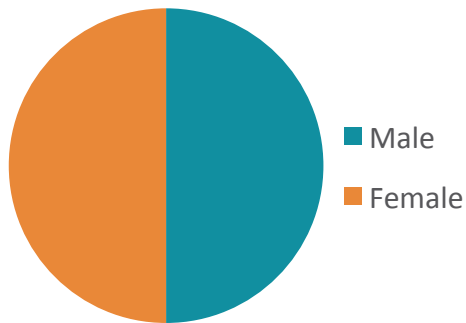
UX-GO learned through testing that many undergraduate students at Bentley are introduced to the library research services through their professors and courses or even in high school. While the recruit did not result in any truly novice database users, the participants were varied in terms of age (19-25 years old), academic level (5 undergrads and 3 graduates), country of origin, and moderate to high self-proclaimed familiarity with Bentley databases.

PARTICIPANTS – RECRUITING

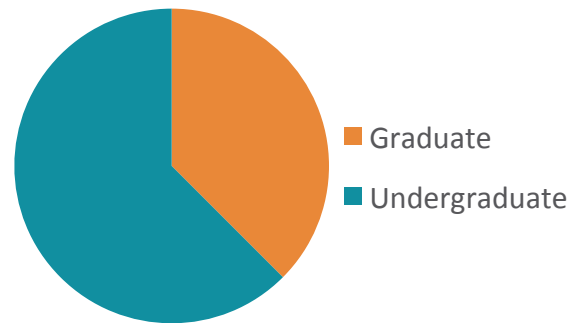
- To recruit among Bentley University students, UX-GO distributed a survey through social media to both Bentley undergraduate and graduate students. UX-GO also personally shared the survey with peers not in the HFID program.
- The screener asked a series of questions: if the participant currently attended Bentley, their level of education, when they last conducted a research paper/project, their level of familiarity with the databases accessed through the Bentley Library, their major/program, and their favorite class at Bentley.
- UX-GO only accepted participants who are currently students at Bentley and who had conducted a research paper/project in the last three months.
- UX-GO aimed to get an even spread of participants based on their level of education, their level of familiarity with the databases, and their major/program.
- Finally, UX-GO assessed participants' open response answer (their favorite class at Bentley) in order to determine their level of literacy/openness.

PARTICIPANTS – GENERAL INFORMATION

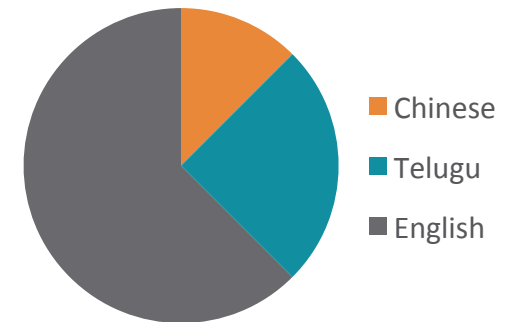
Gender Breakdown



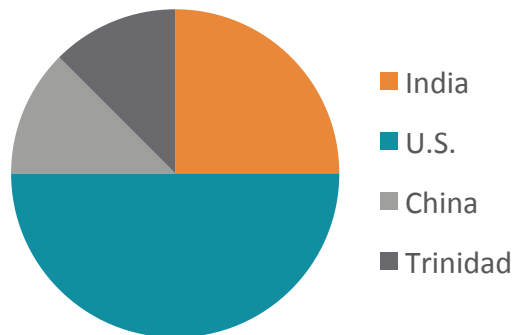
Education Level Breakdown



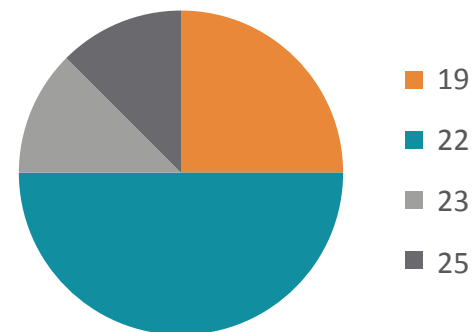
Native Language Breakdown



Country of Origin Breakdown



Age Breakdown



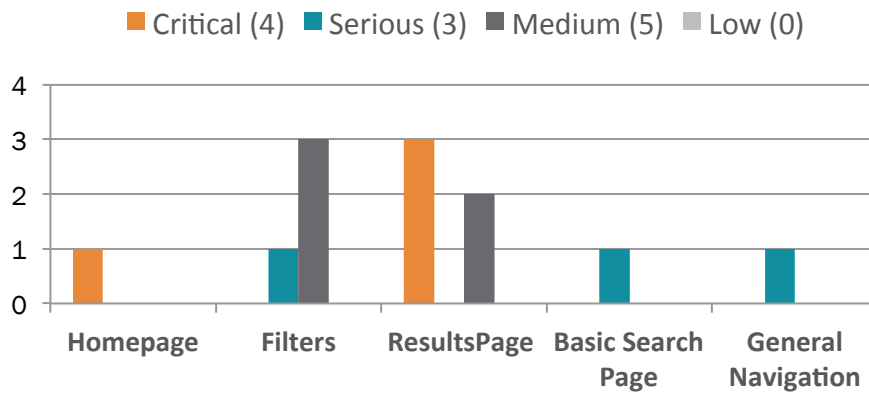
EXECUTIVE SUMMARY

- A student's research process often begins when there is little time left to complete their assignment. During this time of urgency, an easy to use and robust database is key for quick and efficient work.
- While EBSCO currently offers numerous high quality resources, usability issues can limit the discovery of them. Students also lack knowledge around the best practices of using an academic research database, such as the meaning of Boolean or when to put multiple word search terms in quotes.
- In comparison to ProQuest, EBSCO was considered more difficult to use, though due to its professional appeal and quality of resources, participants believed that if they could figure out how to use it, they would.
- By improving its ease of use and by helping students learn how to effectively utilize academic research databases, EBSCO has the fantastic opportunity to be a student's go-to research database.

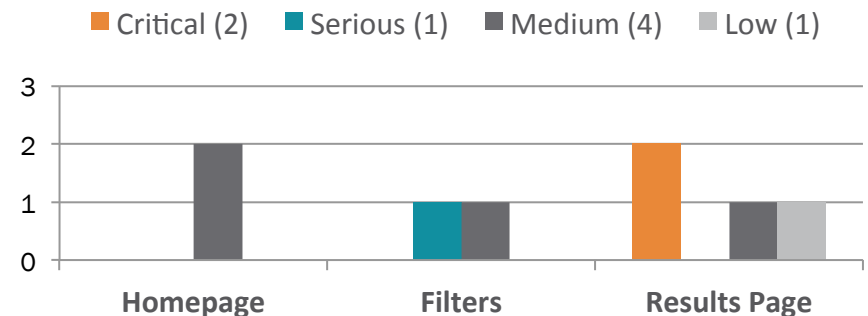
OVERALL USABILITY ANALYSIS

- There were no show-stopping usability problems. All participants could conduct and filter a search with both databases.
- The key issue UX-GO uncovered related to users being unable to locate or understand how to utilize features that would help them to best structure search queries. As a result, relevant results can be missed, especially with novice users.
- **7 positive features identified in EBSCO, 8 in ProQuest**
- **12 usability problems found for EBSCO (see [slide 81](#)); 8 for ProQuest (see [slide 82](#))**

EBSCO Usability Problems by Severity



ProQuest Usability Problems by Severity



KEY POSITIVE FINDINGS – EBSCO

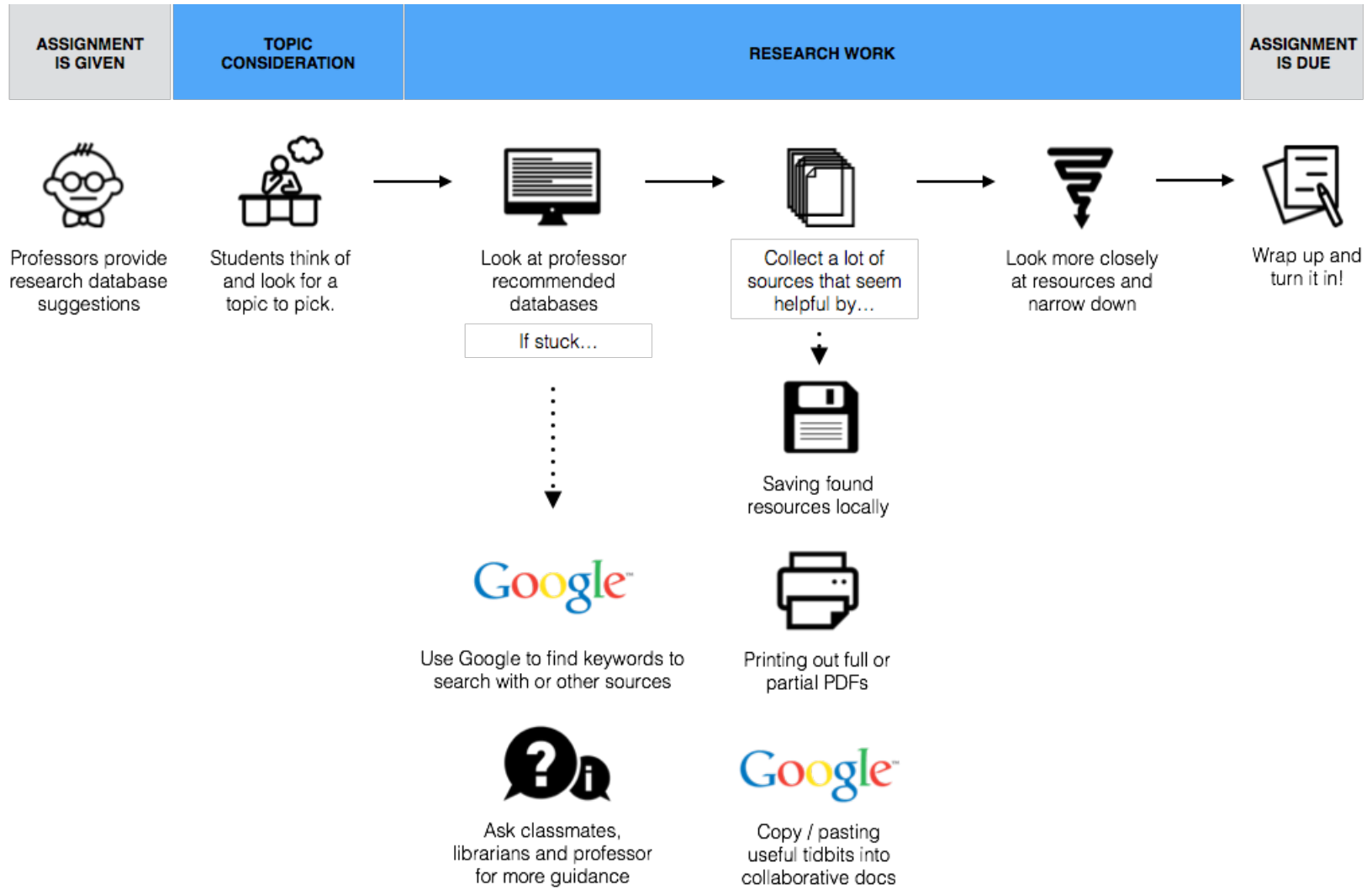
- **Professional Look**
 - Visual design is appealing and appeared trustworthy to participants
 - Side panel of filters on Search Results pages is compact and efficient
 - Results seemed more professional/scientific and therefore more valid
- **Participants understood how to move through the workflow**
 - Participants understood the presence of filters
 - Ability to change filters from search results page is easy to understand
 - Abstracts are easy to scan
 - Participants could easily navigate through an organic search
- See [Appendix D](#) for supporting screenshots and information on positive findings

KEY POSITIVE FINDINGS – PROQUEST

- **Easy To Use**
 - Placement of ‘related search’ is not obtrusive, is understandable, and provides useful keyword recommendations
 - There are multiple ways to select a date range (week, month, year, etc.)
 - Options to select full text and peer reviewed articles are closer to the search bar and therefore easier to find
- **Participants understood how to move through the workflow.**
 - Participants understood the presence of filters
 - Abstracts are easy to scan
 - Participants could easily navigate through an organic search
 - Participants liked the ‘Search by Subject Area’ option
 - Basic Search met participants’ expectations
- See [Appendix D](#) for supporting screenshots and information on positive findings

QUALITATIVE INTERVIEW QUESTIONS & STUDENT RESEARCH JOURNEY

THE STUDENT'S RESEARCH JOURNEY



THE RESEARCH JOURNEY TIMELINE

In actuality, most of the journey steps illustrated on the previous slide in the Research Work phase occur in a compacted period of time. Participants claimed to leave themselves at least 25% of the assignment's duration to complete it.



“[for a two month assignment], two weeks before it’s due you get into the nitty gritty [of research].”

See [Appendix E](#) for additional findings from the Qualitative Interview Questions.

ADDITIONAL INSIGHTS ON THE CURRENT JOURNEY

- **Students consider research to be a puzzle** of determining the correct keywords and the appropriate database(s) to use. They need this knowledge to successfully structure a search.
 - *“It’s frustrating to not know which databases are specifically for what.”*
 - *“[It’s frustrating] when I’m not sure how to structure my search. I would have to change up the wording... and using the OR [feature] before bought me to another [irrelevant] topic.”*
- **Professor recommendations and library trainings play a big part in students’ usage of academic databases and how well they use them.**
 - 6 of 8 received database recommendations from their professors while the other 2 sought librarian help.
- Students like when **keywords and abstracts** are provided within copious and well-organized search results.
- **Students manage their found resources by downloading and/or printing PDFs.** They often do not use or may be unaware of the save features within databases.
- **Google** is used to kick off broad, preliminary searches and to also identify specific keywords to use in academic databases.
- **Novice & Expert Users:** Overall, there were not notable differences between undergraduate and graduate student research habits. However, the graduate participants also happened to all be international students, so appeared less familiar with the 2 databases than some of the undergraduate participants. This speaks to the impact that prior experience can have in shaping research database usage and mastery, perhaps independent from academic level.

ANALYSIS OF DATABASE TASKS AND USABILITY PROBLEMS FOUND

FINDINGS & USABILITY PROBLEM DISCUSSION

- The following slides discuss findings from the Qualitative Interview, Task, and Wrap-Up portions of the study. Metrics are considered where appropriate (such as task completion successes and failures). Note that while we originally anticipated reporting number of assists on the part of moderators, assists did not come up frequently enough in the study to warrant discussion.
- Usability problems identified with both databases will be highlighted inline with the tasks during which the problems appeared. The severity of these problems will also be discussed, based on the severity scale identified on the next slide.
- Upon discussing the usability problems associated with each section of the study, this presentation will consolidate all problems found and offer recommendations for how EBSCO should interpret and utilize the findings.

TIE-IN OF EXPERT REVIEW

- UX-GO previously did an Expert Review of both the EBSCO and ProQuest databases to identify potential usability issues. As will be noted in the discussion to follow, many of these issues also arose with participants during testing.
- While the Expert Review findings were developed with the usability study tasks in mind, UX-GO was more critical of potential issues and scrutinized finer details of each database within that analysis.
- Due to the fact that the usage of each database was limited to around 20 minutes per participant during testing, a considerable amount of issues from the Expert Review were left untouched, and fewer usability problems were noted overall.
- However, the Expert Review still enabled meaningful insights to be connected back to the usability study, which helped in part to explain the issues that came up during testing.

SEVERITY SCALE UTILIZED

- To remain consistent in comparing findings, UX-GO used the same severity scale from **David Travis** as was employed in the previously conducted Expert Review
- **3 questions used to help frame a problem:**
 1. Does the problem occur on a red route (does it come up frequently or impact a functionality that is critical or central to the system)?
 2. Is the problem difficult for users to overcome?
 3. Is the problem persistent (does it come up several times for a user throughout their workflow)?
- **4 severity categories based on the above questions:**
 1. **Critical Severity:** the answer to all 3 questions above is “Yes”
 2. **Serious Severity:** the answer to 2 of the 3 questions above is “Yes”
 3. **Medium Severity:** the answer to 1 of the 3 questions above is “Yes”
 4. **Low Severity:** the answer to all 3 questions above is “No”

Severity Scale From: <http://www.userfocus.co.uk/articles/prioritise.html>

SCENARIO FOR TASKS

- To help participants get into the appropriate mindset for completing the tasks associated with this study, the following scenario was described before the comparative usability task portion of the session:
- *“In 2 weeks you have a paper due for your elective course, and have decided to do a detailed report about the Grand Canyon. Your professor suggests that you use the EBSCO Academic Search Complete (or ProQuest Research Library) database to focus the scope of your paper and find your references.”*
 - Note: UX-GO spent a lot of time considering which topic to use for this study. To avoid biases and expertise in a particular subject matter, a neutral topic was desirable. “Grand Canyon” was ultimately selected because it was a general topic, could be adjusted as desired for the organic search tendencies of each participant, and resulted in a variety of useful results on both databases, even when a variety of filters were applied.

TASK 1: CONDUCTING A SEARCH (ORGANIC PROCESS & BASIC VS. ADVANCED)

CONDUCTING A SEARCH – TASK DESCRIPTION

- **First, UX-GO asked participants to find research on the Grand Canyon. The more specific tasks associated with this section included:**
 - “Please browse through the search hits and show me the top two you would select. As you do so, please tell me what types of information you are looking for. Why did you select these two sources?”
 - “Below the search bar, it says ‘Basic Search.’ What do you think is the difference between this option and the search bar you just used?”
 - “Now, please go ahead and click ‘Basic Search.’ Is this what you expected to see?”
 - “Which one of the two (Advanced or Basic Search) do you typically prefer, if either?”
 - “When would you use the Basic Search over the Advanced Search, or vice versa?”






CONDUCTING A SEARCH METRICS - EBSCO

Task/Action	Performed Task (Yes)	Did Not Perform Task (No)
Complete the Advanced Search on the Grand Canyon	8 participants	0 participants
Limited search in some way without prompting	6 participants	2 participants
Went past the first page of results (to the second page)	2 participants	6 participants
Felt like Basic Search matched expectations	4 participants	4 participants
Preferred Basic Search over Advanced Search	5 participants	3 participants

See [Appendix F](#) for a more thorough discussion of these findings, along with supporting quotes from participants.

EBSCO USABILITY PROBLEM: RELEVANT RESULTS

Search Results: 1 - 20 of 2,026

- 1. NO SURRENDER. (cover story).**

By: Nickens, T. Edward. Field & Stream. May2015, Vol. 120 Issue 1, p26-27. 2p. 2 Color Photographs.
Subjects: TROUT fishing; CASTING (Fishing); SNAKE River finespotted cutthroat trout; MAYFLIES; HELLS Canyon (Idaho & Or.); Finfish Fis
[HTML Full Text](#) [PDF Full Text](#) (599KB)
Periodical
- 2. GRAND CANYON, ARIZONA.**

Outside. May2015, Vol. 40 Issue 5, p42-42. 1/8p.
Subjects: HIKING; CAMPING; GRAND Canyon (Ariz.) -- Description & travel; ARIZONA
[Search for a full-text copy of the article.](#) [Request this Item via Interlibrary Loan](#)
Periodical
- 3. ORIGINAL GRAND CANYON MULE-SHOE.**

By: B. Y. Outside. May2015, Vol. 40 Issue 5, p50-50. 1/8p. 1 Color Photograph.
Subjects: KITSCH -- Collectors & collecting; GRAND Canyon National Park (Ariz.)
[Search for a full-text copy of the article.](#) [Request this Item via Interlibrary Loan](#)
Periodical
- 4. FOREST WOODWARD.**

Outside. May2015, Vol. 40 Issue 5, p52-52. 1p. 1 Color Photograph.
Subjects: RAFTING (Sports); TRAVEL photography; GRAND Canyon (Ariz.); All Other Amusement and Recreation Industries
[Search for a full-text copy of the article.](#) [Request this Item via Interlibrary Loan](#)
Periodical
- 5. Unfinished Repairs at Veterans Affairs.**

By: Stroud, John W. Wall Street Journal (Online). 4/15/2015, p1. 1p.
Subjects: INTERNATIONAL relations; RANCHO Cordova (Calif.); GRAND Canyon (Ariz.); UNITED States. Dept. of Veterans Affairs; VETER affairs; Administration of Veterans' Affairs
News

- **Problem Description:** Many participants felt as if they were not generating relevant results that would be helpful for their research.
- **Severity – Critical:** This is central to the research process, as students will only want to use EBSCO if they feel as if they are generating useful results.
- **Recommendations:** Be more clear about *how* users can generate useful results from the beginning – by using a Boolean search, quotation marks, limiters and filters, etc. Offering more accessible and apparent instructions or descriptions of effective search strategies, for instance, would help more novice researchers

EBSCO USABILITY PROBLEM: BASIC SEARCH

The screenshot displays the EBSCO Basic Search interface. At the top, there is a navigation bar with links: New Search, Publications, Subject Terms, Cited References, More, Sign In, Folder, Preferences, Languages, Bentley Help, and Help. The Bentley University Library logo is in the top right. Below the navigation bar, the EBSCO logo is on the left, and the search area on the right includes the text "Searching: Academic Search Complete | Choose Databases", a search input field with the placeholder "Enter any words to find books, journals and more", a green "Search" button, and a link for "Search Options". Below the search area, the "Search Options" section is expanded, showing "Search Modes and Expanders" with radio buttons for "Boolean/Phrase" (selected), "Find all my search terms", "Find any of my search terms", and "SmartText Searching". There are also checkboxes for "Apply related words" and "Also search within the full text of the articles". The "Limit your results" section includes checkboxes for "Full Text" and "Scholarly (Peer Reviewed) Journals", a "Publication" text field, a "Number of Pages" dropdown set to "All", and a "References Available" section with a "Published Date" range selector and a "Publication Type" dropdown menu showing "All", "Periodical", "Newspaper", and "Book". There is also an "Image Quick View" section with checkboxes for "Image Quick View Types" including "Black and White Photograph", "Color Photograph", "Graph", "Map", "Chart", "Diagram", and "Illustration". A "Reset" button is in the top right of the "Search Options" section, and a "Search" button is at the bottom right.

- **Problem Description:** Half of the participants felt like Basic Search looked too much like Advanced Search. This screen did not meet their expectations – they were looking for something more general. UX-GO noted this potential problem in the Expert Review.
- **Severity – Serious:** This problem will not affect all users, as it did meet some participants' expectations and may not be accessed by all users. However, some will be looking for a more general search to start with.
- **Recommendations:** Simplify this page further by removing some of the limiters that are also found on the Advanced Search page.

EBSCO USABILITY PROBLEM: “SELECT A FIELD”

The screenshot shows the EBSCO Academic Search Complete interface. At the top, there's a navigation bar with links: New Search, Publications, Subject Terms, Cited References, and More. Below this, the search bar area includes the EBSCO logo, a search input field, and buttons for AND, AND, and a Search button. A dropdown menu titled 'Select a Field (optional)' is open, showing a list of fields: TX All Text, AU Author, TI Title, SU Subject Terms, AB Abstract or Author-Supplied Abstract, KW Author-Supplied Keywords, GE Geographic Terms, PE People, PS Reviews & Products, CO Company Entity, IC NAICS Code or Description, DN DUNS Number, TK Ticker Symbol, SO Journal Name, IS ISSN (No Dashes), IB ISBN, and AN Accession Number. The dropdown menu is highlighted with an orange border. To the left of the search bar, there are links for Basic Search, Advanced Search, and Search History. Below the search bar, there's a section for Search Options, including Search Modes and Expanders, Limit your results, and Document Type. On the right side, there are sections for Apply related words, Also search within, References Available, Published Date, Publication Type, and Language.

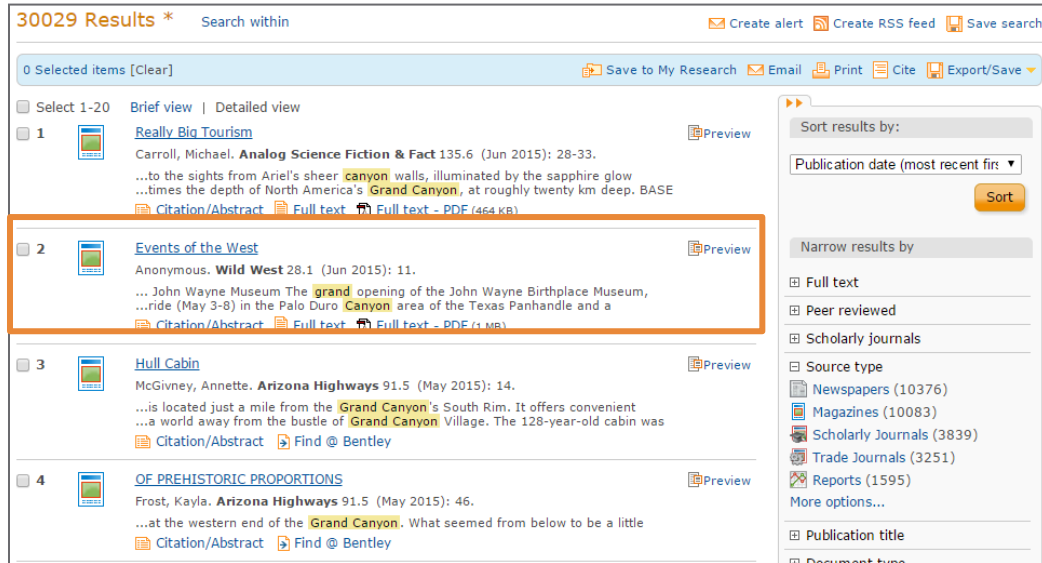
- **Problem Description:** One participant tried to use items in this dropdown, but then mentioned that they were confusing and he was not familiar with many of them. The “expert nature” of this terminology is something that UX-GO also identified in the Expert Review.
- **Severity – Medium:** Not all users will encounter this, but those who do and are not used to these terms may have trouble applying them to their search, which could make a difference in their results.
- **Recommendations:** Simplify the language in the dropdown or provide clearer help for users who do not understand how to use this feature or what the terms mean.

CONDUCTING A SEARCH METRICS – PROQUEST

Task/Action	Performed Task (Yes)	Did Not Perform Task (No)
Complete the Advanced Search on the Grand Canyon	8 participants	0 participants
Limited search in some way without prompting	4 participants	4 participants
Went past the first page of results (to the second page)	1 participants	7 participants
Felt like Basic Search matched expectations	8 participants	0 participants
Preferred Basic Search over Advanced Search	4 participants	2 participants *2 had no preference


See [Appendix F](#) for a more thorough discussion of these findings, along with supporting quotes from participants.

PROQUEST USABILITY PROBLEM: RELEVANT RESULTS



- **Problem Description:** As with EBSCO, many participants felt as if they were not generating relevant results that would be helpful for their research.
- **Severity – Critical:** This is central to the research process - users will only use ProQuest if they feel as if they are generating useful results.
- **Recommendations:** Be more clear about *how* users can generate useful results from the beginning – by using a Boolean search, quotation marks, limiters and filters, etc. Offering more accessible and apparent instructions or descriptions of effective search strategies, for instance, would help more novice researchers

PROQUEST USABILITY PROBLEM: “SEARCH IN” FIELDS



ProQuest

For assistance wit...

Advanced Search

[Look Up Citation](#) | [Command Line](#)

[Thesaurus](#) | [Field codes](#) | [Search tips](#)

"Grand Canyon" in Anywhere

AND () OR () in Anywhere

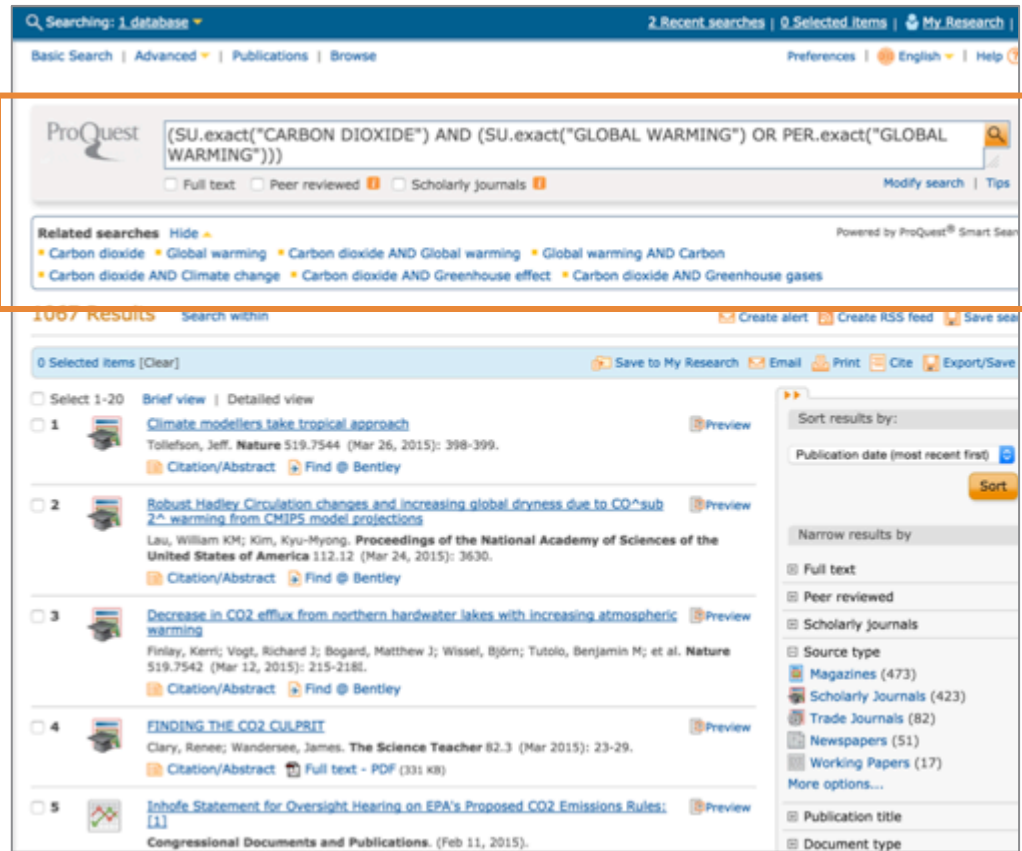
AND () OR () in Anywhere

[Add a row](#) | [Remove a row](#)

[Search](#) [Clear form](#)

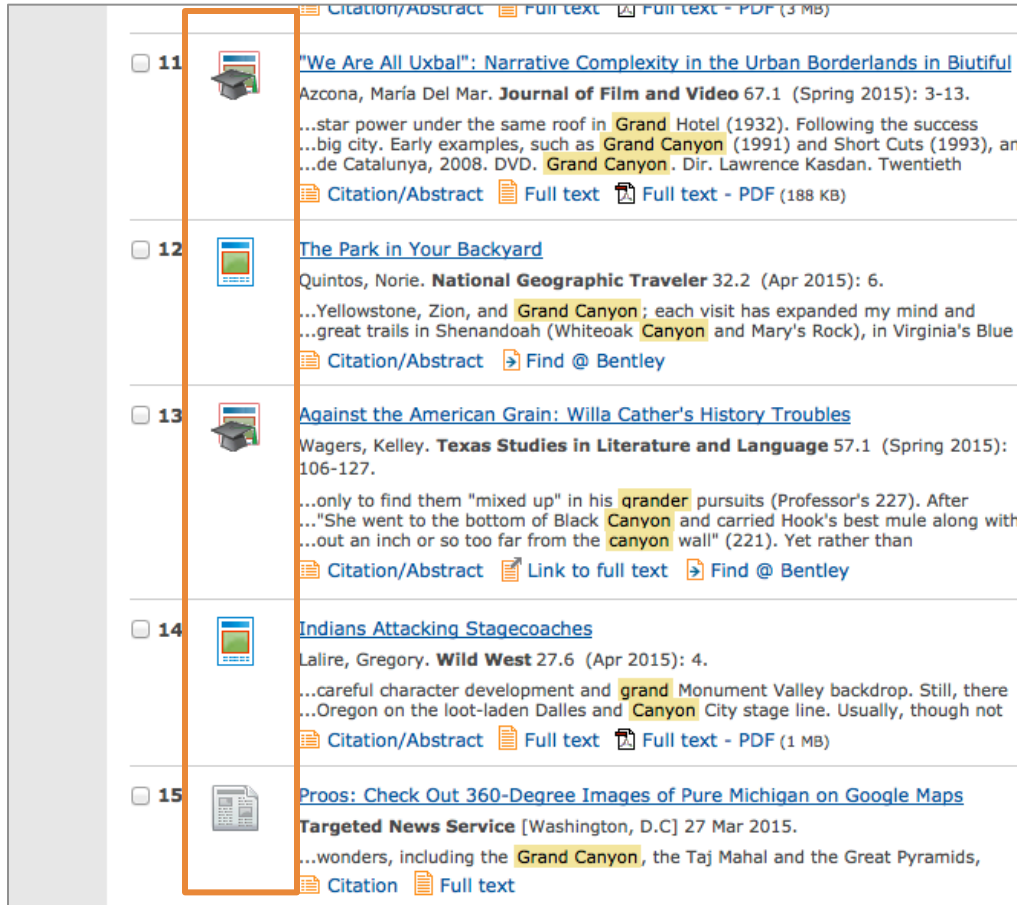
- **Problem Description:** One participant noted that the “Search In” drop-down options used to target a primary search query “didn’t mean anything” to him. Other participants who tried using these were not always successful in filtering their search as desired.
- **Severity – Medium:** This is a prominent feature in the main search process. While it could make a notable difference in a search query for some users, it may not be clear why or how best to utilize it.
- **Recommendations:** Simplify the language in the dropdown and/or provide clearer instructions of what this feature does and how it can help users with their search.

PROQUEST USABILITY PROBLEM: SEARCH SYNTAX



- **Problem Description:** When users select a “Related Search” option, the search bar populates with text that is formatted using search query syntax. One participant said that although they were interested in using this feature, they did not understand what this text meant.
- **Severity – Medium:** Although not all users will use this functionality and they can overcome it by copying and pasting the search query text, this can cause confusion and slow workflows.
- **Recommendations:** If possible, use less technical syntax, so that users will understand how related searches are conducted.

PROQUEST USABILITY PROBLEM: DOCUMENT ICONS



- **Problem Description:** One participant pointed out that she was not familiar with all the resource type icons. This was addressed in the Expert Review.
- **Severity – Low:** This severity was downgraded from the Expert Review, considering that it only came up with one participant, and she was able to overcome the problem by clicking through to the resource.
- **Recommendations:** Consider labeling these icons so that users don't need to question the type of resource they are clicking into.

CONDUCTING A SEARCH: SUMMARY & COMPARISON

- Overall, participants illustrated that they were at least somewhat experienced when performing searches. All participants mentioned filtering searches without being prompted, and some did this on their own.
- Participants expressed that they want to quickly scan results to find what they are looking for. This was done with abstracts, titles, summaries, and keywords.
 - *“I generally read the abstract first to see if it’s a topic I relate to.”*
- Most participants expect to find relevant results on the first result page.
- Participants seem to want a more basic option when starting a research project. The Basic Search offered by ProQuest better met participant expectations over that offered by EBSCO.
- Participants expressed frustration when they came across results that did not match their search criteria. In some cases, they were confused as to where their keyword terms would show up in the resource.
 - In both databases, participants had trouble finding relevant results, which demonstrates that they do not truly understand how to structure searches.

TASK 2: FILTERED SEARCH

FILTERED SEARCH – TASK DESCRIPTION

- **First, participants were asked for the meanings of the following terms and phrases within their visual context:**
 - Boolean
 - AND and OR next to search bars
 - Interlibrary Loan
 - Search for a Full-Text Copy of this item (*EBSCO only*)
 - Find @ Bentley (*ProQuest only*)
- **Then, participants were asked to find and identify resources that:**
 - Have been evaluated by other academics in the field
 - Are dated between 1995 and 2015
 - Come from the U.S. National Park Service
 - Are fully and immediately accessible (i.e. Full Text HTML or PDF)

FILTERED SEARCH METRICS – BOTH DATABASES

Task / Action	EBSCO			ProQuest		
	P	PWD	F	P	PWD	F
Filtered dates to 1995 – 2015 range	7	1	0	6	2	0
Narrowed search to only “Scholarly Journals” / “Peer-Reviewed” sources	6	2	0	6	2	0
Filtered for sources from the US National Park Service*	3	2	3	4	1	3



P

= pass



PWD

= pass with difficulty



F

= fail

**UX-GO believes that the fail rate of this task would have been lower if the presentation of the question made it clearer that the US National Park Service is not a publication, but rather an organization (some participants seemed to think that it was a magazine title). Still, the numbers are telling that the more complex filters can be difficult to find, even when a user has a company’s full name to search with.*

FILTERED SEARCH FINDINGS – BOTH DATABASES

- **Both Databases**
 - 7 of 8 knew the meaning of Interlibrary Loan
 - 8 of 8 participants quickly spotted which sources they have full access to
 - 6 of 8 participants easily spotted the date filters
 - More specific filters like “Company” were difficult to find
 - Some had difficulty locating the Scholarly (Peer-reviewed) Journal checkboxes
 - The purpose of AND/OR was generally understood, but participants were not confident in their understanding
- **EBSCO**
 - 6 of 8 participants did not know the meaning of Boolean
 - 4 of 8 did not understand what “Search for a Full-Text Copy of the Article” means
- **ProQuest**
 - 6 of 8 understood what Find @ Bentley means

EBSCO USABILITY PROBLEM: BOOLEAN MEANING

The screenshot shows the EBSCO search interface. At the top, there's a navigation bar with links like 'New Search', 'Publications', 'Subject Terms', 'Cited References', 'More', 'Sign In', 'Folder', 'Preferences', 'Languages', 'Bentley Help', and 'Help'. Below this, the search area is titled 'Searching: Academic Search Complete | Choose Databases'. It features a search input field, a 'Select a Field (optio...)' dropdown, and 'Search' and 'Clear' buttons. Below the search area, there are two rows of 'AND' buttons, each followed by a 'Select a Field (optio...)' dropdown. These two rows are highlighted with an orange box. Below the search area, there are links for 'Basic Search', 'Advanced Search', and 'Search History'. The 'Search Options' section is visible below, containing 'Search Modes and Expanders' with radio buttons for 'Boolean/Phrase', 'Find all my search terms', 'Find any of my search terms', and 'SmartText Searching'. There are also checkboxes for 'Apply related words' and 'Also search within the full text of the articles'. The 'Limit your results' section includes checkboxes for 'Full Text', 'Scholarly (Peer Reviewed) Journals', and 'Publication'. It also has a 'Document Type' list, a 'Number of Pages' dropdown, and 'Image Quick View Types' with checkboxes for 'Black and White Photograph', 'Color Photograph', 'Graph', 'Chart', 'Diagram', and 'Illustration'. The 'References Available' section has a checkbox and a 'Published Date' range selector. The 'Publication Type' section has a list box with 'All', 'Periodical', 'Newspaper', and 'Book'. The 'Language' section has a list box with 'All', 'Afrikaans', 'Arabic', and 'Azerbaijani'. The 'Cover Story' section has a checkbox. The 'Image Quick View' section has a checkbox. The 'PDF Full Text' section has a checkbox.

- **Problem Description:** Because users are unaware of the term's meaning, they are missing out on the fundamental way in which searches are structured.
- **Severity – Critical:** This is central to completing a successful search for all users.
- **Recommendations:** Define Boolean explicitly prior to the user's initial search or make the definition more available.
- **Related Quotes:**
 - "I know it's a math term, but nothing more."
 - "I've never seen that word before."
 - "I have no clue. Maybe it's a colloquialism?"

EBSCO USABILITY PROBLEM: “SORTING”



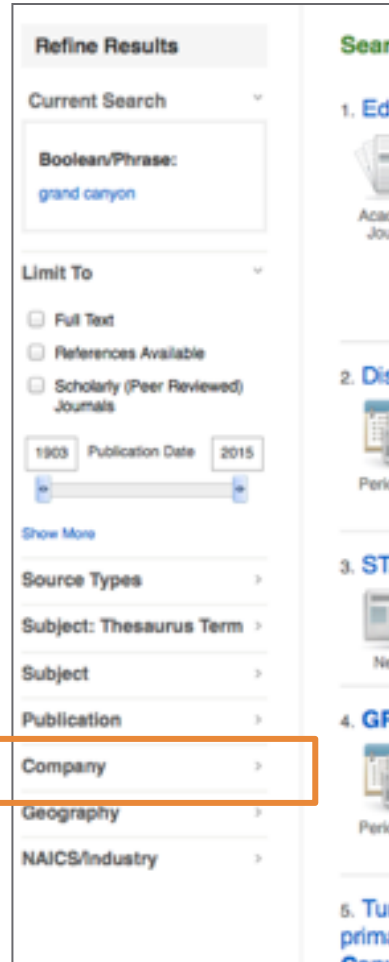
- **Problem Description:** Some users seemed unsure how their search results were organized, and some thought their results were irrelevant to their search. However, few noted that search results are sorted by “Date Newest” by default, not by “Relevance.”
- **Severity – Critical:** This appears on all search hit pages (red route & persistent), may not be overcome or realized, and could greatly impact perceived utility of results.
- **Recommendations:** Consider labeling this drop-down list as “Sort By” or a more recognizable term, and change the default sorting state to “Relevance”

EBSCO USABILITY PROBLEM: SCHOLARLY (PEER-REVIEWED) JOURNAL CHECKBOX

The screenshot shows the EBSCO Academic Search Complete interface. At the top, there's a navigation bar with links like 'New Search', 'Publications', 'Subject Terms', 'Cited References', 'More', 'Sign In', 'Folder', 'Preferences', 'Languages', 'Bentley Help', and 'Help'. Below this is the EBSCO logo and a search bar with a dropdown menu for 'Select a Field (optio...)' and buttons for 'Search' and 'Clear'. There are also 'AND' operators and additional search fields. The 'Search Options' section is visible, with a 'Reset' button. Under 'Search Modes and Expanders', there are radio buttons for 'Boolean/Phrase', 'Find all my search terms', 'Find any of my search terms', and 'SmartText Searching'. The 'Limit your results' section is highlighted with an orange box, showing checkboxes for 'Full Text' and 'Scholarly (Peer Reviewed) Journals'. Other sections include 'Publication', 'Document Type', 'Number of Pages', 'Image Quick View Types', 'References Available', 'Published Date', 'Publication Type', 'Language', 'Cover Story', 'Image Quick View', and 'PDF Full Text'.

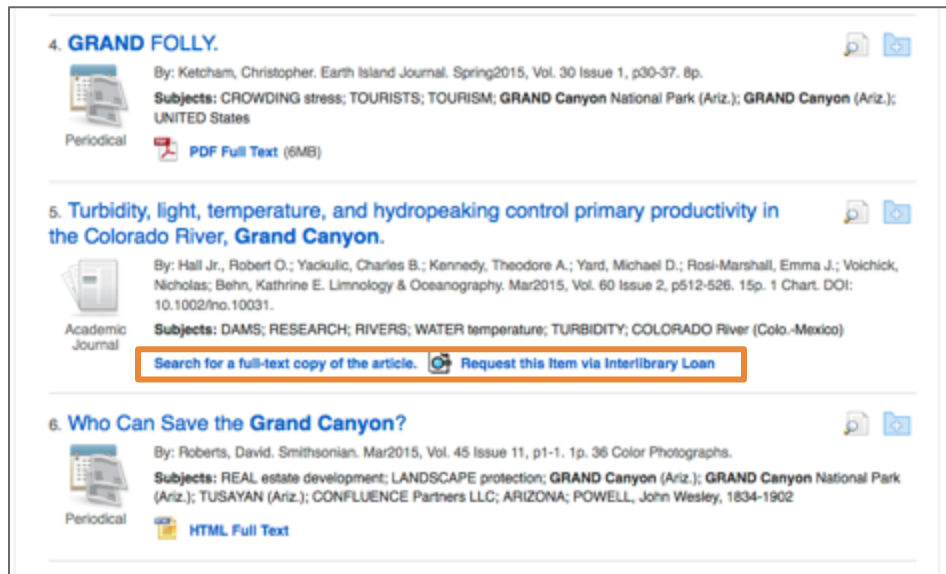
- **Problem Description:** Some participants faced difficulty when trying to locate these checkboxes.
- **Severity – Serious:** This is central to completing a successful search that yields high quality and full access results.
- **Recommendations:** Place the checkboxes or options closer to the text search boxes.
- **Quote:**
 - “I really liked in ProQuest [that] the option for...peer-review was much closer to the search bar...was just an easy checkbox...[this] wasn’t as attention-grabbing in EBSCO.”

EBSCO USABILITY PROBLEM: FINDING SPECIFIC FILTERS



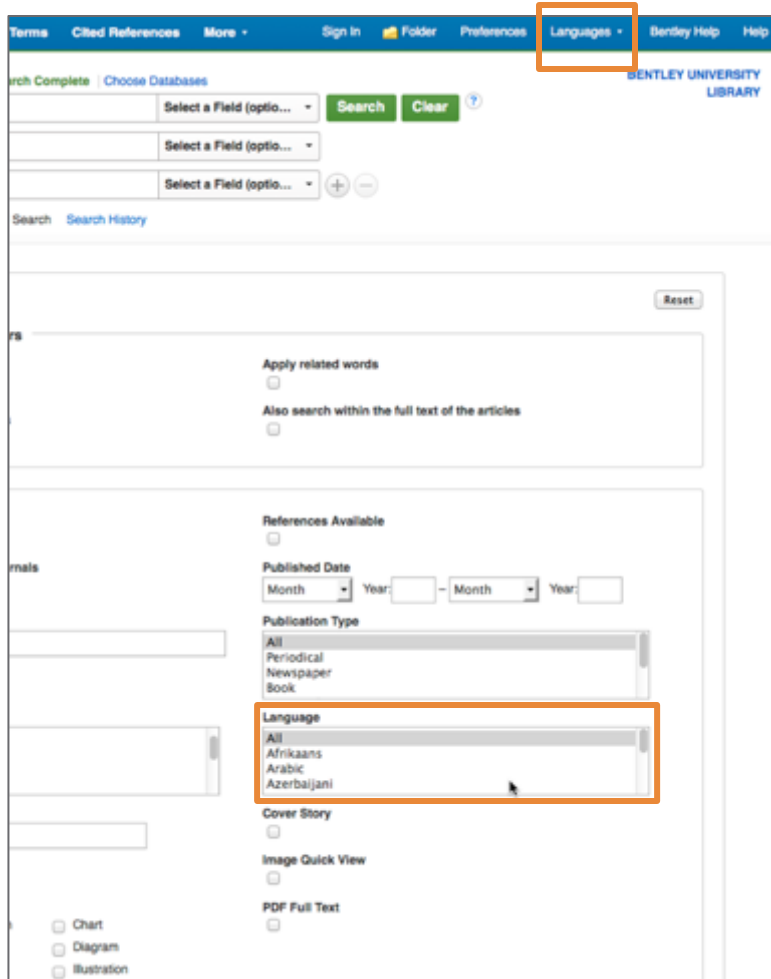
- **Problem Description:** Users experienced a higher incidence of difficulty finding the filter that would enable them to find resources from the U.S. National Park Service (i.e. filtering by “Company” or “Organization”)
- **Severity – Medium:** This will not impact all users and may not be persistent, but users may fail at reaching their goal if they are unable to locate the filters needed to do a successful search.
- **Recommendations:** Improve communication regarding what different filters do, and improve findability.

EBSCO USABILITY PROBLEM: “SEARCH FOR A FULL-TEXT COPY” OF THE ARTICLE FEATURE



- **Problem Description:** Only half the users understood what this feature does, which is an issue if a user is confused about how to gain access to a source they can't immediately view through EBSCO.
- **Severity – Medium:** This appears on all search hit pages (it is persistent), but it may not impact all users and they can overcome the problem by clicking through to hopefully learn more.
- **Recommendations:** Clearly communicate what this feature does with a help tip so users know to take advantage of it, rather than ignore it.

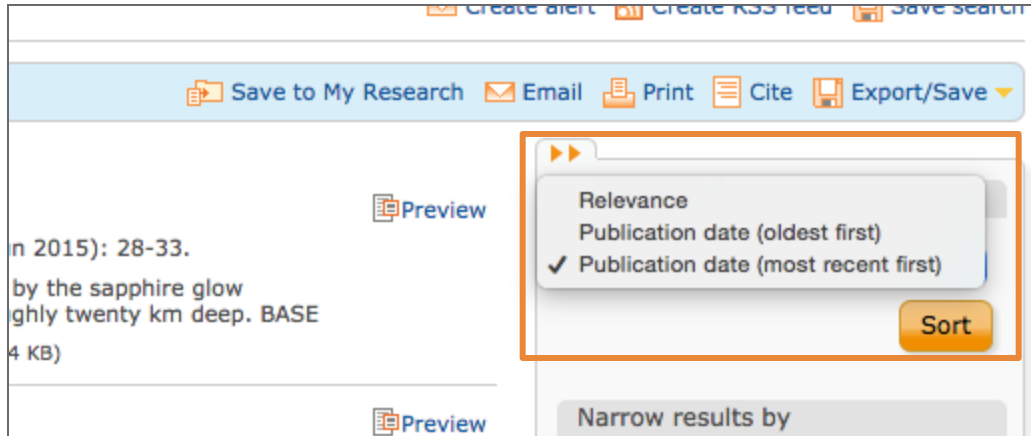
EBSCO USABILITY PROBLEM: LANGUAGE FILTER



- **Problem Description:** The language filter is especially useful for international students, though one participant didn't see it initially.
- **Severity – Medium:** Although not all users will need this, being able to filter by language could be a notable asset – and a barrier to proper usage – for many students.
- **Recommendations:** Offer an explanation around the various features available that can assist non-native English speakers (including the ability to change the language of the whole system), rather than embedding features within the dense filters.
- **Related Quote:**

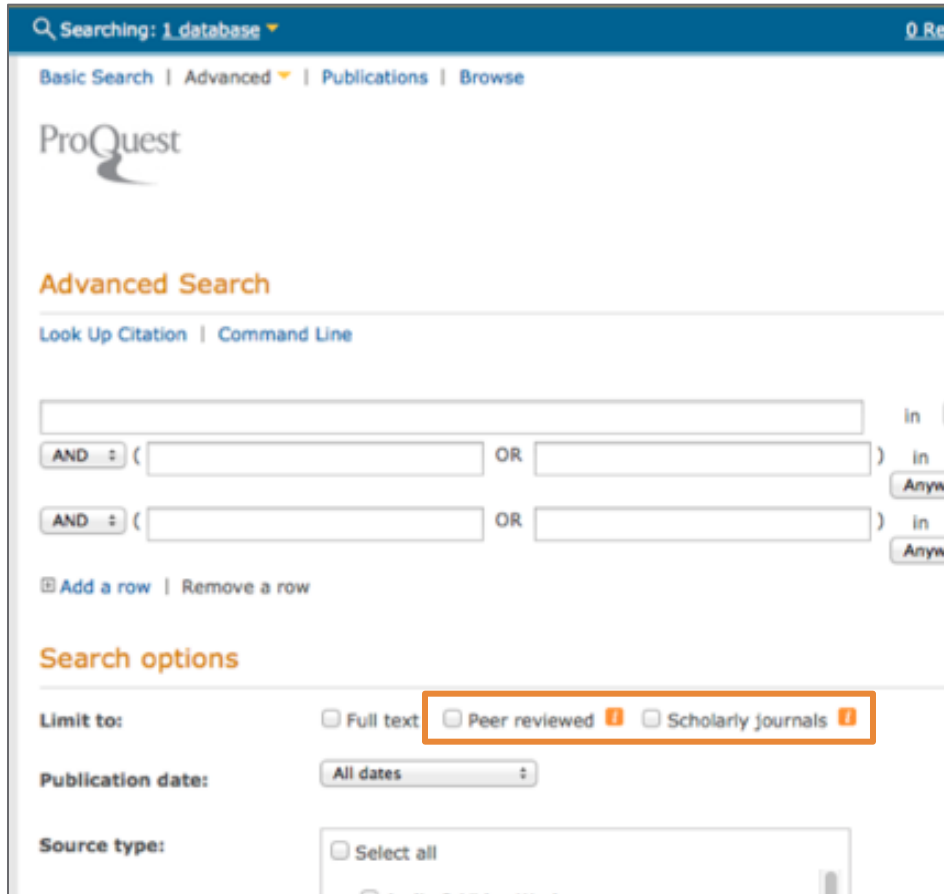
“The outlay [of EBSCO] was complex... I really need to see everything [the filters]... I did not see the Languages before... I think most people just directly go through the search and don't really go through the options”

PROQUEST USABILITY PROBLEM: “SORTING”



- **Problem Description:** As with EBSCO, search hits are sorted by “Date Newest” as a default, not by “Relevance.” This likely contributed to questions regarding relevance of search results.
- **Severity – Critical:** This appears on all search hit pages (red route & persistent), may not be overcome or realized, and could greatly impact perceived utility of results.
- **Recommendations:** While the large “Sort” button is clearer than with EBSCO, the feature is far to the right of the search results, so may not be noticed. Consider moving this immediately above the search results, and change the default sorting state to “Relevance.”

PROQUEST USABILITY PROBLEM: SCHOLARLY (PEER-REVIEWED) JOURNAL CHECKBOXES



Searching: 1 database 0 Results

Basic Search | Advanced | Publications | Browse

ProQuest

Advanced Search

Look Up Citation | Command Line

AND () in Anywhere

AND () in Anywhere

Add a row | Remove a row

Search options

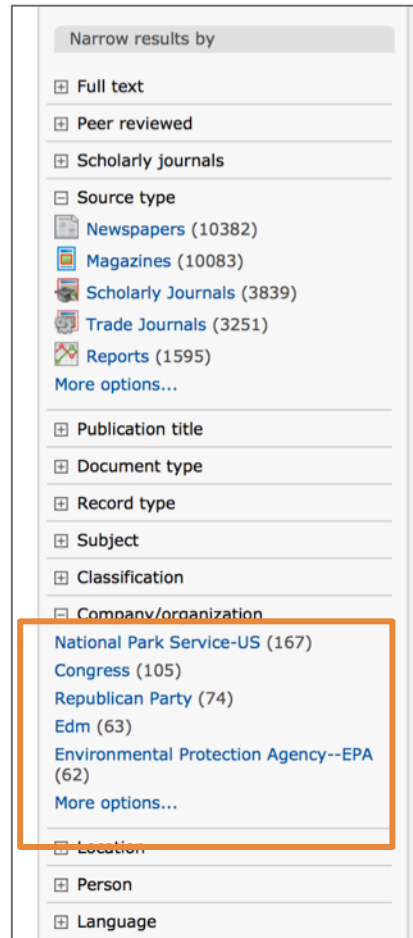
Limit to: ☐ Full text ☐ Peer reviewed ☐ Scholarly journals

Publication date: All dates

Source type: Select all

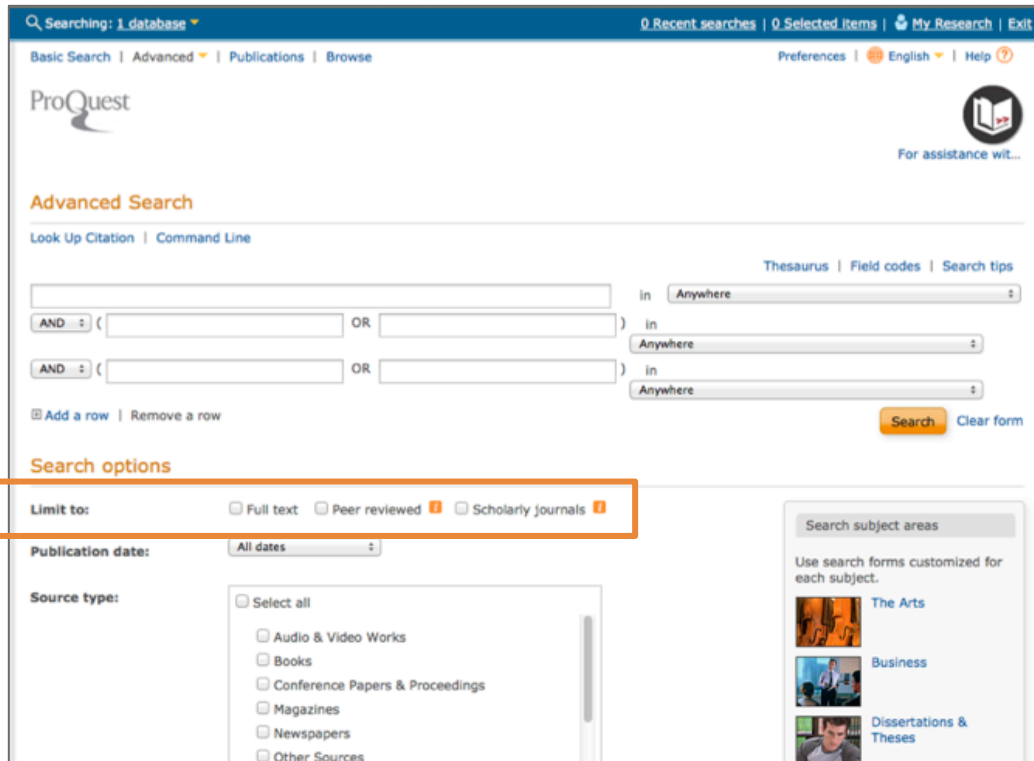
- **Problem Description:** Some participants faced difficulty when trying to locate these checkboxes, though they were overall easier to spot here in comparison to EBSCO.
- **Severity – Serious:** This is central to completing a successful search that yields high quality and full access results.
- **Recommendations:** Place the checkboxes or options even closer to the text search boxes and make them more prominent.

PROQUEST USABILITY PROBLEM: FINDING FILTERS



- **Problem Description:** Users experienced a higher incidence of difficulty finding the filter that would enable them to find resources from the U.S. National Park Service (i.e. filtering by “Company” or “Organization”).
- **Severity – Medium:** This will not impact all users and may not be persistent, but users may fail at reaching their goal if they are unable to locate the filters needed to do a successful search.
- **Recommendations:** Improve communication regarding what different filters do, and consider improving findability.

PROQUEST USABILITY PROBLEM: HELP TIP ICONS



- **Problem Description:** Orange icons seem clickable but aren't and are not responsive when hovered over.
- **Severity – Medium:** Although not all users will use this function, those who will want quick help and might give up if the icon is non-responsive.
- **Recommendations:** Increase responsiveness of these icons.
- **Related Quote:**
 - “I wanted to click on [the orange “i” icons], I was thinking if I put my cursor over it, that a box would pop up but it didn’t do anything...”

FILTERED SEARCH: SUMMARY

- The term Boolean is unfamiliar to the majority of users; this impedes their ability to use the database as effectively as they could.
- In addition to Boolean, other words or phrases are unfamiliar or only vaguely understood by users such as AND, OR, Field, Field Codes, and “Search for a Full-text Copy of this Article.” Provide nearby and accessible guidance in these instances.
- Key filtering elements like the Scholarly (Peer-Reviewed) Journals checkboxes are not easily located and are slightly easier to locate in ProQuest. Consider making the checkboxes more prominent and place them in closer proximity to the search bars.
- Many participants could not discover how to narrow their search to only show results from the US National Park Service. Reconsider communication, presentation, and organization of the more complex filters like “Company” and “Language.”
- Overall, the database must increase users’ awareness of the many features it offers and how to use them via help tips and revised user interface designs in order for the student to return relevant search results.

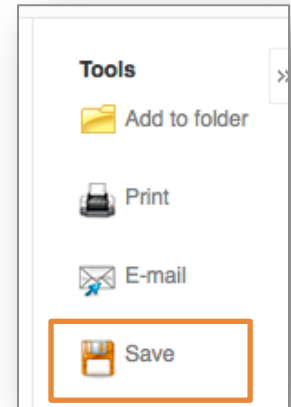
TASK 3: SAVING RESEARCH

SAVING RESEARCH – TASK DESCRIPTION

- Participants were asked to show how they would save the resources they found in each database. During testing, this question was adjusted for 4/8 participants to “keep track of resources,” to see if the word “save” was suspect of word-matching. The results did not vary significantly between the two wordings.
- UX-GO originally developed this question in part to see if participants would notice EBSCO’s “Folder” feature, which mandates that users create an account in order to save resources in the database rather than exporting files locally to their computer. ProQuest offers a similar “My Research” tool.
- EBSCO later identified that they are aware of the unpopularity of the folder feature, though were still curious to see what other saving options participant were inclined to use.
- A brief summary of the findings from this task are included in the slides to follow, while a full table including the responses from each participant are contained in [Appendix G](#).

SAVING RESEARCH METRICS - EBSCO

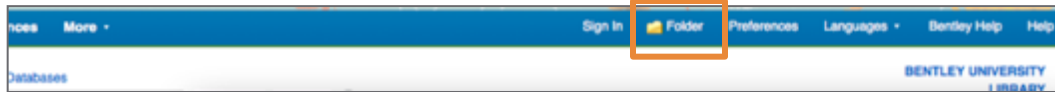
- 5/8 participants said that they could download a PDF of the resource
- 4/8 participants mentioned saving the resource digitally (either bookmarking or emailing themselves a resource link/bibliography)
- 2/8 participants used the “Save” button on a detailed record page
- 2/8 participants used the “Add to Folder” feature;
 - After being probed about, 1 participant indicated that they didn’t consider using this because it wasn’t clear what “Add to Folder” meant. Another probed participant said they remember trying it in the past and have difficulties using it
 - 1 participant found this feature later in the study, and said he would consider trying it
- 2/8 participants selected the “Save Searches/Alerts” option for saving an overall search versus an individual resource



SAVING RESEARCH DISCUSSION - EBSCO

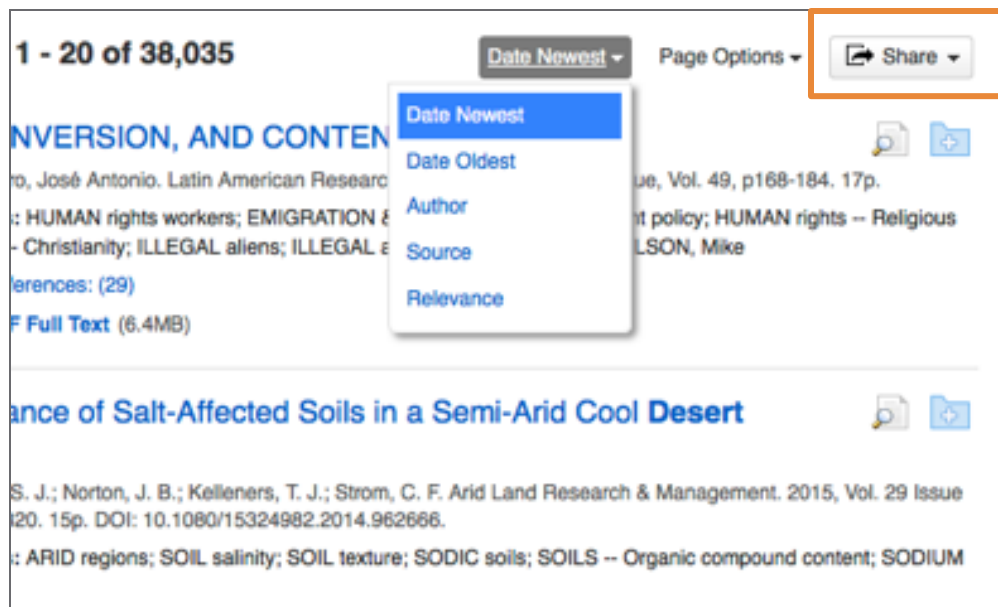
- Participants indicated a number of different ways they would save their research using the EBSCO database, some noting multiple methods.
- There were 2 general workflows – some utilized features for saving files offline, others utilized methods for saving online, and some identified an interest in both methods.
- A number of participants explored the “Folder” and “Save Searches/Alerts” options, noting that while they didn’t understand what it was initially, they would be interested in trying it out and could recognize the convenience that an account service could offer in managing resources.
- Quote from a participant, in response to whether or not she would use the Folder feature after being probed to explore it:
 - *“I probably would if I knew about it... it didn’t really click to me as anything that pertains to me – it just says ‘Folder’...”*

EBSCO USABILITY PROBLEM: FOLDER FEATURE



- **Problem Description:** As identified in the Expert Review, the purpose of the Folder feature is not clearly communicated, and confusion arose during testing, despite the fact that participants showed interest in the functionality.
- **Severity – Serious:** UX-GO maintains that this is a serious problem, given that it is persistent and could impact many users.
- **Recommendations:** Make it clearer what the Folder feature does, so that users don't need to click through to figure it out. Perhaps a clearer and more personally-applicable label would encourage more rapid understanding and usage.

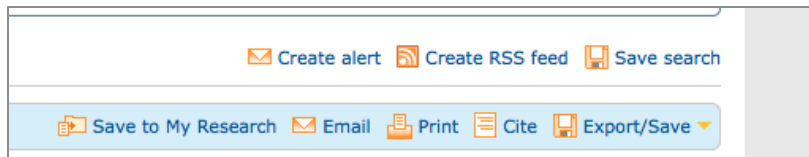
EBSCO USABILITY PROBLEM: SHARE BUTTON



- **Problem Description:** When looking for ways to save a resource, one participant noted that she saw this “Share” button, but didn’t think it was related to saving a resource, even though it is.
- **Severity – Medium:** The “Share” option offers a primary way to save and manage resources from this part of the system, so this could impact a key point in a user’s workflow.
- **Recommendations:** Consider labeling this button “Save & Share” or something similar to make users aware of their saving option. Furthermore, better promoting the social media icons within “Share” could be an opportunity for EBSCO to be more competitive with group-minded tools like Google Docs.

SAVING RESEARCH METRICS - PROQUEST

- 5/8 participants said that they would download a PDF of the resource (either through the Full-Text PDF link or through the “Export/Save” option).
- 4/8 participants noted the “Save to My Research” link, a features similar to EBSCO’s “Folder” option.
- 2/8 participants selected the “Save Search” option for saving an overall search versus an individual resource.
- 2/8 participants indicated that they would bookmark or email themselves a URL.
- Overall, no notable usability problems were identified for ProQuest in this task.



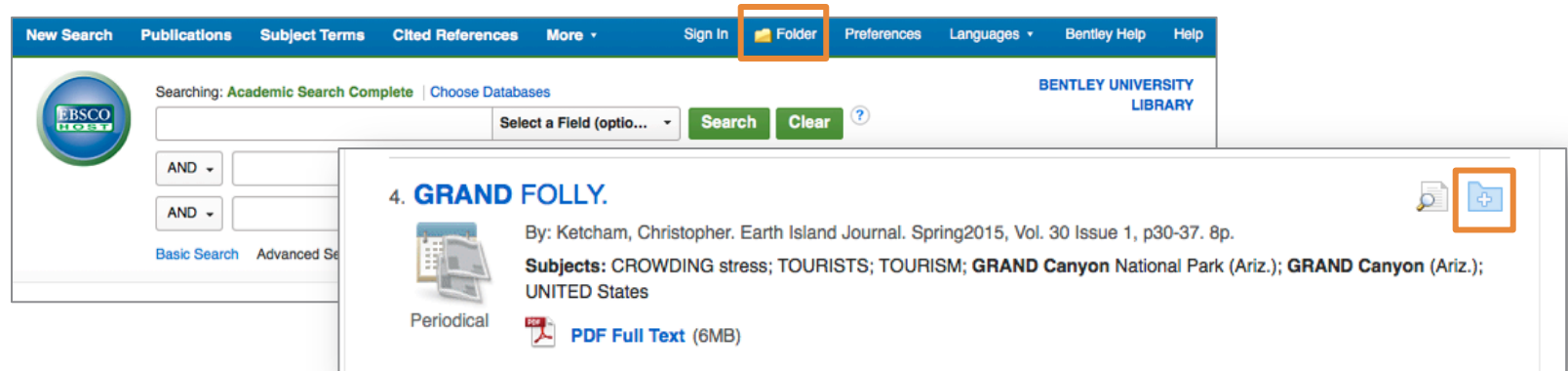
SAVING RESEARCH DISCUSSION – PROQUEST

- As was the case with EBSCO, participants opted to save resources both externally and internally to ProQuest, either by downloading a PDF or exploring the “Save to My Research” and “Save Search” options. Some participants noted that they may use a number of different methods.
- **Two times as many participants found the “Save to My Research” option in ProQuest on their own, versus finding EBSCO’s comparable “Folder” option on their own.** One proposed reason for this is because the “Save to My Research” text is prominent and adjacent to other saving options, and therefore more readily fits into the users’ natural workflow.



SAVING RESEARCH TASK: SUMMARY & COMPARISON

- Overall, it was clear that users seek different options for saving and managing their resources. Therefore, the variety of offerings available in each database are good, in that they support the needs of many users.
- EBSCO indicated that their Folder feature is not popular, however a number of participants either found it on their own or noted an interest in using it after being probed. When compared to ProQuest, the link to the main Folder option in EBSCO is out of the user's natural workflow, and it is unclear what the "Folder" label and icon actually mean. Clarifying what this feature does and making it both more actionable and applicable to the user's workflow could lead to enhanced usage.



Database Wrap-Up:

*One thing you would change
about each database and why.*

“ONE THING YOU WOULD CHANGE” DISCUSSION

- **4 of 8 participants** indicated that they would change the “Search History Alerts” area of EBSCO, calling it “frustrating, “unclear” and that there is “too much going on” in this area. Some participants misunderstood this section to be akin to the “Related Search” area in ProQuest, not realizing that it contains a summary of all the searches that the user previously conducted.
- No two participants indicated that they would change the same thing about ProQuest, and 2 of the 8 comments pertained to aesthetic considerations (i.e. color preference) as opposed to usability issues. This underscores the significance that half of the participants would change the same thing about EBSCO, and the existence of a noteworthy usability problem.
- For a full list of participant responses to this question (for both EBSCO and ProQuest), see [Appendix H](#).

EBSCO USABILITY PROBLEM: SEARCH HISTORY

The screenshot displays the EBSCO search interface. At the top, the 'Search History' link is highlighted in the navigation bar. Below this, the 'Search History/Alerts' section is visible, containing a table of previous searches. The table has columns for Search ID#, Search Terms, Search Options, and Actions. The searches listed are for 'deserts', 'national parks', 'Grand Canyon', and 'grand canyon'. The 'Search Results' section below the table shows the first result for 'deserts'.

Select / deselect all	Search ID#	Search Terms	Search Options	Actions
<input type="checkbox"/>	S6	deserts	Search modes - Boolean/Phrase	View Results (38,035) View Details Edit
<input type="checkbox"/>	S5	national parks	Search modes - Boolean/Phrase	View Results (30,517) View Details Edit
<input type="checkbox"/>	S4	Grand Canyon	Search modes - Boolean/Phrase	View Results (2,016) View Details Edit
<input type="checkbox"/>	S3	grand canyon	Narrow by SubjectCompany: - united states, national park service Narrow by Subject: - grand canyon (ariz.) -- environmental conditions Search modes - Boolean/Phrase	View Results (1) View Details Edit
<input type="checkbox"/>	S2	grand canyon	Narrow by Subject: - grand canyon (ariz.) -- environmental conditions Search modes - Boolean/Phrase	View Results (20) View Details Edit
<input type="checkbox"/>	S1	grand canyon	Search modes - Boolean/Phrase	View Results (2,016) View Details Edit

Search Results: 1 - 20 of 38,035

1. **FRICTION, CONVERSION, AND CONTENTION.**

By: Lucero, José Antonio. Latin American Research Review. 2014 Special Issue, Vol. 49, p169-184. 17p.

Subjects: HUMAN rights workers; EMIGRATION & immigration -- Government policy; HUMAN rights -- Religious aspects -- Christianity; ILLEGAL aliens; ILLEGAL aliens' rights; ARIZONA; WILSON, Mike

Cited References: (29)

[PDF Full Text \(6.4MB\)](#)

- **Problem Description:** As identified in the Expert Review, the “Search History” list on search results pages expands with each search, pushing down the list of resources. The disorienting nature of this feature was noted in the usability study.
- **Severity – Critical:** UX-GO maintains that this problem is critical, in that it impedes a primary task (i.e. search)
- **Recommendations:** In the Expert Review, UX-GO recommended making it easier for the user to hide this feature. Beyond this, given that a number of participants didn’t understand what this section is showing, offering greater clarification about its purpose may help to increase its utility.

Database Wrap-Up:

System Usability Scale (SUS)

SUS SCORE – BY STATEMENT

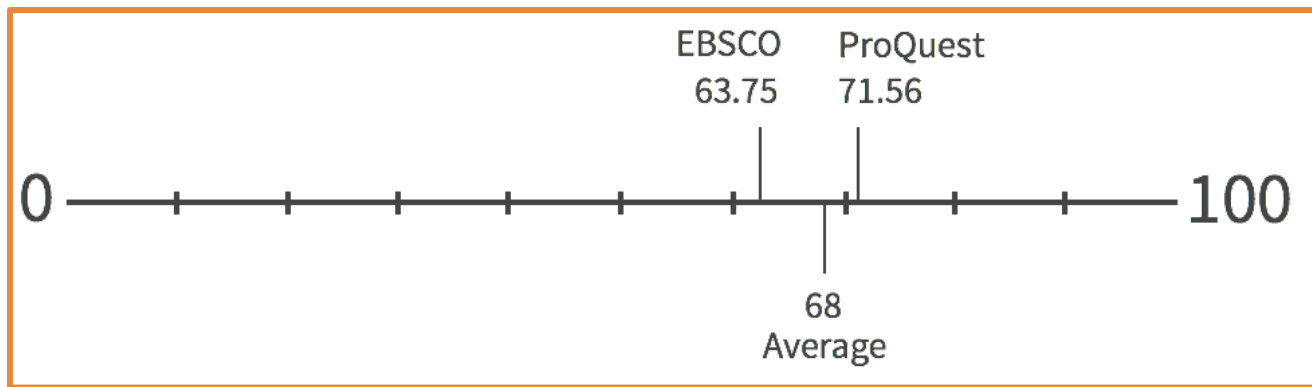
Statement	EBSCO	ProQuest
I think that I would like to use this research database frequently. (+)	32	29
I found the research database unnecessarily complex. (-)	22	18
I thought the research database was easy to use. (+)	28	35
I think that I would need the support of a technical person to be able to use this research database. (-)	15	12
I found the various functions in this research database were well integrated. (+)	30	29
I thought there was too much inconsistency in this research database. (-)	16	19
I would imagine that most people would learn to use this research database very quickly. (+)	24	29
I found the research database very cumbersome to use. (-)	21	16
I felt very confident using the research database. (+)	27	31
I needed to learn a lot of things before I could get going with this research database. (-)	23	19

 indicates the better score of the two

Note: For positive statements, higher scores are desired. For negative statements, lower scores are desired.

SUS SCORE – OVERALL FINDINGS PER DATABASE

- According to a study* that analyzed SUS scores from 500 past studies, a good approximation of the **average SUS score is 68**. EBSCO fell slightly below this number (at 63.75), while ProQuest ranked slightly above it (71.56).



- However, although ProQuest was considered generally easier to use, EBSCO scored higher on the statement: “I think that I would like to use this research database frequently.”
- See [Appendix I](#) for additional SUS findings and a list of the questions asked

*Study Reference: <http://www.measuringu.com/products/SUSpack>

Database Wrap-Up:

If you could pick three adjectives to describe your overall experience with this database, what would they be?

POST-TEST SURVEYS: 3 ADJECTIVES

- At the conclusion of the tasks for each database, UX-GO asked participants to choose 3 adjectives that they felt best described the given system.
- EBSCO recommended this exercise as a useful way to garner unique insights and help shed light on participant preferences in the competitive analysis.
- To make this data easier to analyze, UX-GO gave participants a list of 30 words to choose from (rather than selecting their own arbitrary words), and turned these results into word clouds for both the EBSCO and ProQuest databases.
- The 30 words were derived from the Microsoft Product Reaction Cards. UX-GO selected those words that were perceived as the most relevant to the databases at hand, including 15 words deemed “positive” and 15 deemed “negative.” The full list of words is in [Appendix J](#).
- Restricting the word count enabled UX-GO to more readily identify trends in word selection, given that participants were limited to selecting their top 3.

EBSCO – ADJECTIVE RATIONALE

- **Of the 30 adjectives offered, the top 5 selected most frequently included:**
 1. Accessible
 2. Complex
 3. Professional
 4. Organized
 5. Time-consuming
- Of these five words, three are commonly seen as “positive,” while two are commonly seen as “negative.”
- **When asked, participants clarified why they chose these words:**
 - Participants chose the positive words because it was clear how to access the information once it was found and because the complexity gives it the appearance that it would fit a professionals’ needs.
 - Participants chose ‘complex’ because they didn’t feel the filters were necessary on Basic Search.
 - Participants chose ‘time-consuming’ because of the nature of the database - it would take them some time to find the right results and to accomplish their research goals.

EBSCO – WORD CLOUD



PROQUEST – ADJECTIVE RATIONALE

- **Of the 30 adjectives offered, the top 4 selected most frequently included:**
 1. Understandable
 2. Clean
 3. Accessible
 4. Consistent
- Of these four words, all are commonly seen as “positive.”
- **When asked, participants clarified why they chose these words:**
 - Participants chose these positive words because they thought the research process was straightforward. Some participants also expressed a liking for the visual design of ProQuest, and the fact that the layout helped them to complete their tasks.

PROQUEST – WORD CLOUD



Overall Wrap-Up:
*General preferences between
the two databases.*

OVERALL WRAP-UP QUESTIONS

- After UX-GO completed the interview questions and tasks, participants were asked 6 more questions before ending the session, in order to really capture the comparative element of the analysis:
 1. Between the two databases you worked with today, which one do you prefer overall and why?
 2. Which was easier to use? Why?
 3. Which one enabled you to better complete your research objectives when studying the Grand Canyon?
 4. Are there particular features you liked in one over the other? Why?
 5. Which did you find more visually appealing? Why?
 6. How would either of these databases fit into your future research workflow?

WRAP-UP QUESTIONS – RELEVANT METRICS

Question	EBSCO	ProQuest	Both Databases
Overall Preferred Database	3 participants	5 participants	N/A
Comparative Ease of Use	2 participants	6 participants	N/A
Better Achieve Grand Canyon Research Objectives	4 participants	2 participants	(2 participants didn't have time for this)
Comparative Visual Appeal	4 participants	4 participants	N/A
Preference for Future Use	2 participants	2 participants	4 participants

RELATED WRAP-UP QUOTES OF INTEREST

- **EBSCO – more professional but more complex**
 - *“EBSCO was more useful but ProQuest was easier”*
 - *“I feel [in] ProQuest I created my parameters more, but maybe they weren’t correct, while EBSCO I feel like I got more stuff from the parameters I created.”*
 - *“EBSCO was too professional. ProQuest looked easier to use.”*
- **ProQuest – more approachable, user-friendly**
 - *“Less complex”* (Simplicity of search bar)
 - *“Offers more options”* (Filtering options)
 - *“The design is clear and organized, and easy to preview”*
- **For a full list of quotes and more thorough analysis of feedback gathered from the wrap-up portion of the study, see [Appendix K](#)**

DISCUSSION OF WRAP-UP QUESTIONS

- Overall, while participants felt that EBSCO was more complex and difficult to use, they felt it was more professional and allowed them to better achieve their Grand Canyon research objectives, such as finding scientific vs. editorialized results.
- While participants found EBSCO's visual design to be more professional and appealing in terms of color and simplicity, some participants expressed that the 2 wide column format of EBSCO's Advanced Search page was demanding to read. Alternatively, the narrow single column of filters on ProQuest's Advanced Search page was more approachable and afforded a more linear reading process.
- Please see the screenshots on the following slide to note the distinction between the layouts of these interfaces.

WRAP-UP SECTION DISCUSSION (IMAGES)

New Search Publications Subject Terms Cited References More Sign In Folder Preferences Languages Bentley Help Help

Searching: Academic Search Complete Choose Databases

Select a Field (optio... Search Clear

AND Select a Field (optio... AND Select a Field (optio... + -

Basic Search Advanced Search Search History

Search Options

Search Modes and Expanders

Search modes Boolean/Phrase Find all my search terms Find any of my search terms SmartText Searching

Apply related words Also search within the full text of the articles

Limit your results

Full Text Scholarly (Peer Reviewed) Journals Publication Document Type Number of Pages Image Quick View Types

References Available Published Date Publication Type Language Cover Story Image Quick View PDF Full Text

Searching: 1 database Recent searches Selected items My Research Exit

Basic Search Advanced Publications Browse Preferences English Help

ProQuest

Advanced Search

Look Up Citation Command Line

Thesaurus Field codes Search tips

AND in Anywhere AND in Anywhere AND in Anywhere

Add a row Remove a row Search Clear form

Search options

Limit to: Publication date: Source type: Document type:

Select all Audio and Video Works Books Conference Papers & Proceedings Magazines Newspapers Other Sources Reports

Select all CLIN 0 (BL) Religion (D) History - General (DS) History - Asia (F) American / Canadian / Latin-Am. History

Search subject areas

The Arts Business Dissertations & Theses Health & Medicine History Literature & Language News & Newspapers Science &

It was noted that the 2-column layout of search filters in EBSCO was harder to read, especially on a wide screen (too much scanning). Alternatively, the single column of filters in ProQuest was easier to follow along, perhaps contributing to the notion that ProQuest was easier to use overall.

WRAP-UP SECTION DISCUSSION (CONTINUED)

- An important finding was that participants who had used one of the databases in the past were more inclined to prefer that database overall. For instance, those who had worked with EBSCO in high school still prefer using it in college. This suggests that forming an early relationship with students is something worthwhile for EBSCO to focus on.
- Users who favored EBSCO stated that they thought the search results were more relevant to their objectives when compared to the results from ProQuest. Yet users who favored ProQuest over EBSCO mentioned the same thing. However, few users realized throughout the test that, due to default settings, their search results in both databases were always sorted by “Newest” not by “Relevance.” This suggests that both databases should consider the importance of how results are sorted.

WRAP-UP SECTION: PRIOR KNOWLEDGE & BIASES

- Participants who had no past experience with either EBSCO or ProQuest preferred ProQuest. Participants who had prior experience with just one database chose that database as their preference. This strongly suggests that previous exposure or training plays into preference and that ProQuest is easier for newer users to grasp.

Participant #	Preferred Database	First Database Tested	Used E or PQ before?
1	PQ	E	No
2	E	PQ	E
3	PQ	E	PQ
4	PQ	PQ	No
5	E	E	E & PQ
6	PQ	PQ	E & PQ
7	PQ	E	No
8	E	E	E

Study Conclusions & Recommendations

SUMMARY OF USABILITY PROBLEMS – EBSCO

Problem	Severity	Slide
Relevance of Search Results	Critical	Slide 27
Confusion Regarding Term “Boolean”	Critical	Slide 40
Search Results Sorting Unclear	Critical	Slide 41
“Search History” Section Placement & Confusion	Critical	Slide 62
Confusion Over Basic Search	Serious	Slide 28
Lack of Communication Regarding “Folder” Feature	Serious	Slide 55
Hard to Find Scholarly (Peer-Reviewed) Journal Checkbox	Serious	Slide 42
Lack of Clarity Surrounding “Select a Field” Dropdown	Medium	Slide 29
Finding Specific Filters (Company)	Medium	Slide 43
Misunderstanding of “Search for Full-Text Copy”	Medium	Slide 44
Finding the “Language” Filter	Medium	Slide 45
Lack of Clarity Surrounding “Share” Button	Medium	Slide 56

SUMMARY OF USABILITY PROBLEMS – PROQUEST

Problem	Severity	Slide
Relevance of Search Results	Critical	Slide 31
Search Results Sorting Unclear	Critical	Slide 46
Hard to Find Scholarly (Peer-Reviewed) Journal Checkbox	Serious	Slide 47
“Search In Fields” Drop-Down Menu Confusion	Medium	Slide 32
Expert Terminology – “Related Search” Syntax	Medium	Slide 33
Finding Specific Filters (Company/Organization)	Medium	Slide 48
Orange Help-Tip Icons – Clumsy Interaction	Medium	Slide 49
Unclear “Document Type” Icons	Low	Slide 34

USABILITY PROBLEM OVERLAP WITH EXPERT REVIEW

- Of the usability problems found during testing, many overlap with those identified in UX-GO's Expert Review. This reinforces the seriousness of the identified problems. With respect to EBSCO, some examples of these include:
 - Lack of clarity surrounding “Folder” feature for saving files
 - Confusing similarity between Basic and Advanced Search
 - Unawareness of the meaning of “Boolean” phrasing
 - The intrusiveness of the “Search History” window
- One notable issue UX-GO underestimated is the **primary sorting mechanism**, given that the perceived irrelevance of search results users expressed might have been related to how searches are sorted by “Date Newest” as a default rather than “Relevance.” UX-GO has opted to upgrade this problem to “Critical” severity, because it can greatly impact not only the success of a user's research experience but also their perception of a database overall.

CONCLUSIONS & RECOMMENDATIONS

- In the research process, saving and sharing research with group members is important. Many students mentioned Google Docs, which is a tool that works for them. If EBSCO can emulate some of these qualities and better integrate a social element to doing research, they could become more competitive on this front.
- Students appear loyal to databases they are comfortable with. From a competitive standpoint, EBSCO may find it beneficial to continue creating relationships with high schools, universities, and professors, who all play a role in shaping how students learn about scholarly research databases.
- Given that EBSCO was considered more professional and complex than ProQuest, it may not as readily appeal to novice users. Adding more visible contextual tips or general system instructions to walk users through the search process could enable more novice researchers to conduct faster and more successful searches.

CONCLUSION & RECOMMENDATIONS (CONTINUED)

- Overall, students want to be able to complete both basic and high level searches, depending on how far along in the search process they are.
 - It is important to keep in mind that students start research quite close to their due date, so these two types of searches will likely be happening close together. Students prefer to start broad with a Basic Search, in order to find relevant keywords. They then use these keywords to perform a more Advanced Search. Improving the accessibility and distinctiveness of the Basic Search page in the EBSCO database would therefore be advisable.
- It is also important to note that students become confused and frustrated when their search results don't meet their expectations. Offering clearer instructions on the types of searches being conducted (i.e. Boolean) and how students can best structure their queries will ensure that users are able to utilize these databases to their fullest potential.

THANK YOU! QUESTIONS OR COMMENTS?



EBSCO Logo: <http://ww1.prweb.com/prfiles/2008/02/21/184217/ehostPortal.png>

APPENDICES

[Appendix A](#): Pre-Test Survey Questions

[Appendix B](#): Qualitative Interview Questions

[Appendix C](#): Usability Study Tasks

[Appendix D](#): Positive Findings Screenshots

[Appendix E](#): Qualitative Interview Findings

[Appendix F](#): Detailed Findings from Task 1 (Completing a Search)

[Appendix G](#): Detailed Findings from Task 3 (Saving Research)

[Appendix H](#): “One Thing You Would Change” about Each Database

[Appendix I](#): SUS Questionnaire & Additional Findings

[Appendix J](#): “Top 3 Adjectives” – Word List and Analysis

[Appendix K](#): Database Wrap-Up – Detailed Analysis & Quotes

[Appendix L](#): UserTesting.com Mini-Study

[Appendix M](#): Video Reel from Testing Sessions

APPENDIX A - PRE-TEST SURVEY QUESTIONS

- In order to better understand the perspectives and nuances of recruited participants, UX-GO emailed a pre-test survey to be completed in advance of the study sessions. Participants were asked to share the following pieces of information, though were also informed that they did not have to answer any questions they might not feel comfortable with:
 - Gender
 - Age
 - Native Language and Country of Origin
 - Undergraduate or Graduate Student
 - Graduate Program or Major/Minor
 - Date of enrollment at Bentley
 - Anticipated date of graduation from Bentley
 - Current employment status (including full or part-time student)

APPENDIX A - PRE-TEST SURVEY FEEDBACK

Participant Number	Name	Gender	Age	Native Language	Country of Origin	Major/ Program	Year of Enrollment @ Bentley	Bentley Database Familiarity (1-7 scale)
P1	Bhaskar	Male	23	Telugu	India	MS, Marketing Analytics	2015	4
P2	Alexandra	Female	22	English	U.S.	BS, Computer Information Systems	2011	6
P3	Emily	Female	22	English	U.S.	BS, Marketing	2011	6
P4	Lu	Female	22	Chinese	China	MS, Finance	2014	6
P5	Brandon	Male	22	English	U.S.	BS, Finance	2011	7
P6	Rosemarie	Female	19	English	U.S.	BS, Information Design & Corporate Communication	2013	5
P7	Karthik	Male	25	Telugu	India	MS, Information Technology	2015	4
P8	Mathias	Male	19	English	Trinidad	BS, Marketing	2012	5

- All full-time students at Bentley

APPENDIX B: QUALITATIVE INTERVIEW QUESTIONS

UX-GO started each hour-long study session with the following questions relating to existing participant research habits.

- **Please tell me about your last research paper:**
 - What was it about?
 - Please estimate how much time was given between when the assignment was given and the due date. How soon did you start the research process before the due date?
 - What was the first step you took to start the research process?
 - How did you find scholarly sources to help write the paper?
 - Is this typically how you conduct scholarly research?
 - If not, how do you normally conduct research when you write papers?
 - How did you find out about the resources that you used?
- Do you remember anything especially positive or negative about your last experience conducting scholarly research?
- Which research services or databases have you used in the past? Of these, can you think of things that you liked or didn't like about them?
- As you do your research, how do you manage and keep track of the information and resources you find?
- When you encounter a research roadblock, what do you typically do or whom do you turn to for help?
- Have you ever participated in one of Bentley's Library Training workshops? If so, did you find that it was helpful?

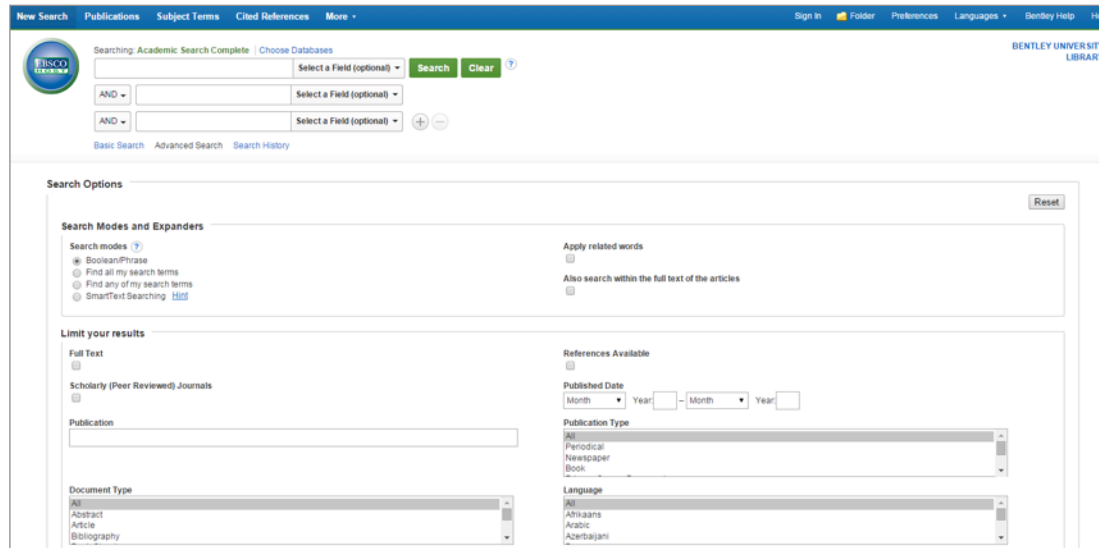
APPENDIX C: USABILITY STUDY TASKS

- *The following series of tasks were tested on both databases.*
- **Task 1 - Organic and Basic vs. Advanced Search:** First, participants were asked to see what research is out there on the Grand Canyon, talk through their process, select two resources they would consider using, and point out the reasons behind their selections. They were also asked to identify the perceived differences between Basic and Advanced search options, as well as which search type they preferred. Lastly, participants were asked to explain their understanding of key search features like “And/Or” queries and “Boolean.”
- **Task 2 - Filtered Search:** The next task focused on reviewing how participants handled filtering options in both databases. They were told to limit their search to resources that had been “evaluated by other academics in the field” (i.e. peer-reviewed), were dated between 1995 and 2015, and came from the U.S. National Park Service group. They were also asked if they knew the meaning of “Interlibrary Loan” as well as how they knew which resources they had complete access to (i.e. “Full Text” HTML pages or PDFs).

APPENDIX C: USABILITY STUDY TASKS (CONTINUED)

- **Task 3 – Saving Research:** In the third task, participants were asked how they would keep track of the resources they found if they needed to move on to another paper. UX-GO initially framed this as “saving” resources, but later altered the wording to see if the word “save” was suspect of word matching (no significant difference in answers were observed).
- **Individual Database Wrap-Up:** Participants were asked to complete the SUS questionnaire and pick three adjectives out of a list of 30 to describe their overall experience with the database. They were also asked what they would change in the database if given the chance and why, as well as whether or not they would consider using the database for future scholarly research needs.
- **Overall Session Wrap-Up:** In this last section of the study, participants were asked to compare the two databases by answering 5 questions: Their overall preference, comparative ease of use, particular features they liked in one database over the other, the comparative visual appeal, and how they would consider using these databases in the future.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



The screenshot displays the EBSCO Academic Search Complete interface. At the top, there is a navigation bar with links for 'New Search', 'Publications', 'Subject Terms', 'Cited References', and 'More'. A 'Sign In' button and a 'Folder' icon are also present. The main search area includes a search bar with the text 'Searching: Academic Search Complete' and a 'Choose Databases' dropdown. Below the search bar are three input fields for search terms, each with a 'Select a Field (optional)' dropdown and a 'Search' button. A 'Clear' button is also visible. The 'Search Options' section is divided into several panels. The 'Search Modes and Expanders' panel includes radio buttons for 'Boolean/Phrase', 'Find all my search terms', 'Find any of my search terms', and 'SmartText Searching'. The 'Limit your results' panel includes checkboxes for 'Full Text', 'Scholarly (Peer Reviewed) Journals', and 'Publication'. The 'Document Type' panel includes a dropdown menu with options like 'All', 'Abstract', 'Article', and 'Biography'. The 'References Available' panel includes a 'Published Date' section with 'Month' and 'Year' dropdowns, and a 'Publication Type' section with a dropdown menu. The 'Language' panel includes a dropdown menu with options like 'All', 'Afrikaans', 'Arabic', and 'Azerbaijani'.

EBSCO Positive Finding: Visual Design is appealing

Participants noted that they thought the visual design of EBSCO is appealing. They thought that the layout looked professional and trustworthy, which is important to them when conducting research.

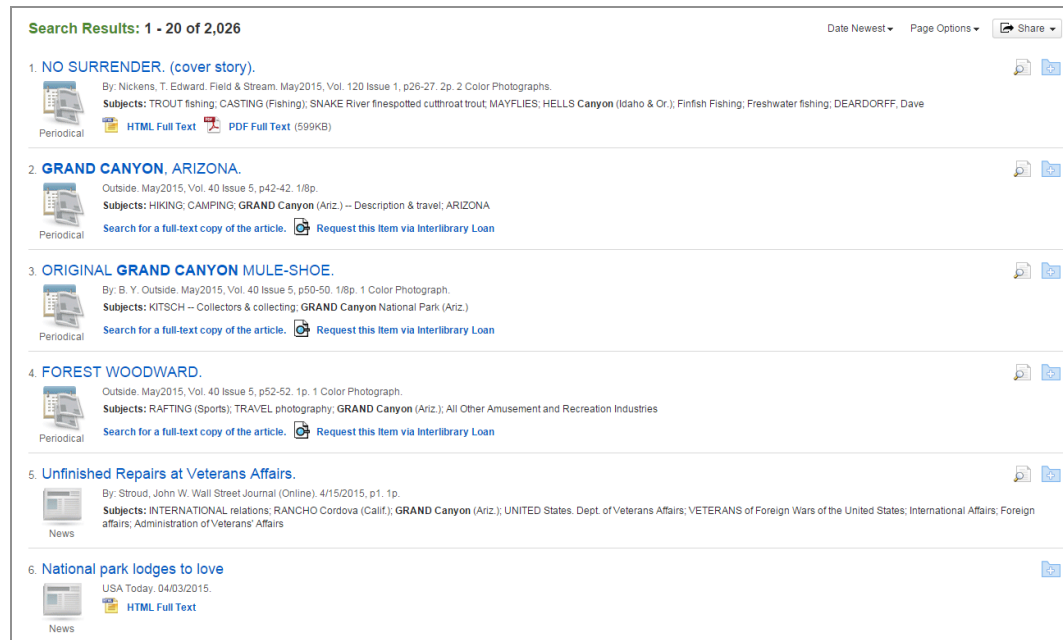
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS

The screenshot shows a 'Refine Results' side panel. At the top is a 'Current Search' section with a dropdown arrow and a text box containing 'Boolean/Phrase: Grand Canyon'. Below this is a 'Limit To' section with a dropdown arrow, containing three unchecked checkboxes: 'Full Text', 'References Available', and 'Scholarly (Peer Reviewed) Journals'. Under these is a 'Publication Date' range selector with input boxes for '1903' and '2015' and a slider. A 'Show More' link is below the date range. The bottom section is 'Source Types' with a dropdown arrow, containing five checkboxes: 'All Results' (checked), 'Magazines (862)', 'Newspapers (440)', 'Academic Journals (422)', and 'Book Reviews (218)'.

EBSCO Positive Finding: “Refine Results” Side Panel on Search Results Page

Participants found this feature in EBSCO to be compact and efficient, which gave it a clean look and made it helpful when conducting research. Participants seemed to understand how to modify and refine search results using this in a way that was consistent with their workflow.

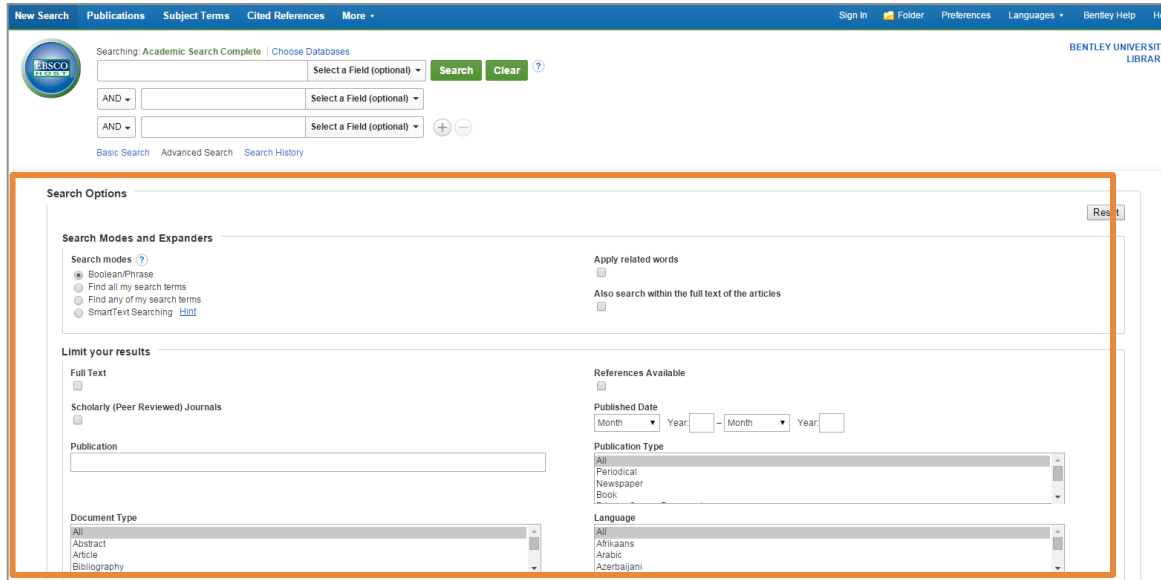
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



EBSCO Positive Finding: Search Results

Although participants were not always confident that their search results were consistent with their search queries, when relevant resources were found, they were often deemed to be trustworthy. One participant noted her preference for the “scientific” findings in EBSCO versus more “editorialized” findings in ProQuest.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



EBSCO Positive Finding: Presence of Filters

When performing an organic search, participants were able to point out the presence of filters. Although they did not always find the correct filters, they understood why/how filters would be used in the search process.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS

◀ Result List | Refine Search ▶ 2 of 1,653 ▶

ORIGINAL GRAND CANYON MULE-SHOE.

Authors: B. Y.

Source: [Outside](#). May2015, Vol. 40 Issue 5, p50-50. 1/8p. 1 Color Photograph.

Document Type: Product Review

Subject Terms: *KITSCH -- Collectors & collecting

Geographic Terms: [GRAND Canyon National Park \(Ariz.\)](#)

Abstract: The article evaluates the original **grand canyon** mule-shoe, a kitsch item from **Grand Canyon** National Park in Arizona

Full Text Word Count: 34

ISSN: 0278-1433

Accession Number: 101899978

◀ Result List | Refine Search ▶ 2 of 1,653 ▶

EBSCO Positive Finding: Article Abstracts

Participants appreciated the fact that the abstracts were easy for them to scan. This was important in their workflow, since they typically scan abstracts to judge the relevance of an article before reading it.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS

The screenshot displays the EBSCO search interface. On the left, the 'Refine Results' sidebar includes filters for 'Current Search' (Boolean/Phrase: Grand Canyon), 'Limit To' (Full Text, References Available, Scholarly), 'Publication Date' (1903 to 2015), 'Source Types' (All Results, Magazines, Newspapers, Academic Journals, Book Reviews, Trade Publications), and 'Subject: Thesaurus Term' (Subject, Publication). The main area shows 'Search Results: 1 - 20 of 2,026'. The first result, 'NO SURRENDER. (cover story)', is annotated with an orange box around the 'HTML Full Text' and 'PDF Full Text (599KB)' links. The second result, 'GRAND CANYON, ARIZONA', is annotated with an orange box around the 'Request this item via Interlibrary Loan' link. The third result, 'ORIGINAL GRAND CANYON MULE-SHOE', is also annotated with an orange box around the 'Request this item via Interlibrary Loan' link. The fourth result, 'FOREST WOODWARD', is annotated with an orange box around the 'Request this item via Interlibrary Loan' link. The fifth result, 'Unfinished Repairs at Veterans Affairs', is annotated with an orange box around the 'Request this item via Interlibrary Loan' link. The sixth result, 'National park lodges to love', is annotated with an orange box around the 'HTML Full Text' link.

Refine Results

Current Search

Boolean/Phrase:
Grand Canyon

Limit To

☐ Full Text
☐ References Available
☐ Scholarly (Peer Reviewed) Journals

1903 Publication Date 2015

Show More

Source Types

☒ All Results
☐ Magazines (862)
☐ Newspapers (440)
☐ Academic Journals (422)
☐ Book Reviews (218)
☐ Trade Publications (59)

Show More

Subject: Thesaurus Term

Subject

Publication

Search Results: 1 - 20 of 2,026

1. **NO SURRENDER. (cover story).**
By: Nickens, T. Edward. Field & Stream. May2015, Vol. 120 Issue 1, p26-27. 2p. 2 Color Photographs.
Subjects: TROUT fishing; CASTING (Fishing); SNAYE River; finespotted cutthroat trout; MAYFLIES; HELLS Canyon (Idaho & Or.); Finfish Fishing; Freshwater
Periodical
[HTML Full Text](#) [PDF Full Text \(599KB\)](#)

2. **GRAND CANYON, ARIZONA.**
Outside. May2015, Vol. 40 Issue 5, p42-42. 1/8p.
Subjects: HIKING; CAMPING; GRAND Canyon (Ariz.); Backpacking & Hiking; HIKING
Periodical
Search for a full-text copy of the article. [Request this item via Interlibrary Loan](#)

3. **ORIGINAL GRAND CANYON MULE-SHOE.**
By: B. Y. Outside. May2015, Vol. 40 Issue 5, p50-50. 1/8p. 1 Color Photograph.
Subjects: KITSCH -- Collectors & collecting; GRAND Canyon National Park (Ariz.)
Periodical
Search for a full-text copy of the article. [Request this item via Interlibrary Loan](#)

4. **FOREST WOODWARD.**
Outside. May2015, Vol. 40 Issue 5, p52-52. 1p. 1 Color Photograph.
Subjects: RAFTING (Sports); TRAVEL photography; GRAND Canyon (Ariz.); All Other Amusement and Recreation Industries
Periodical
Search for a full-text copy of the article. [Request this item via Interlibrary Loan](#)

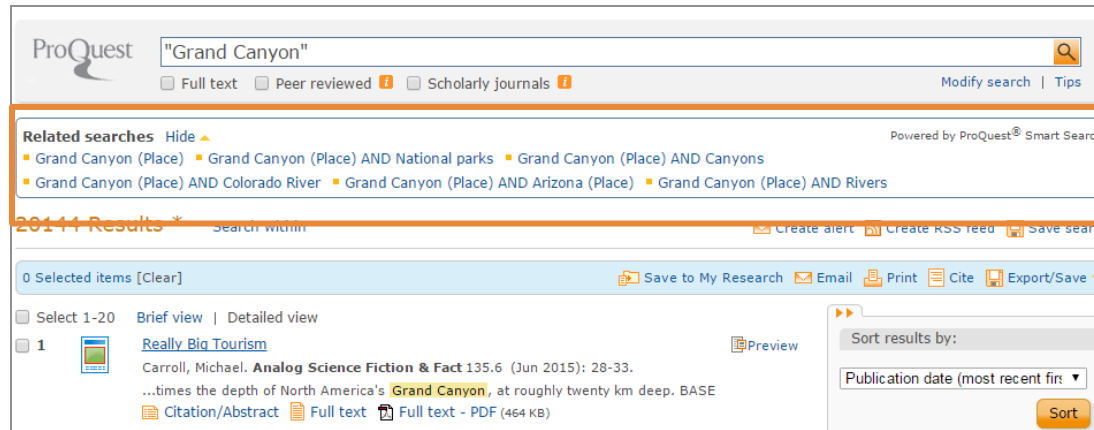
5. **Unfinished Repairs at Veterans Affairs.**
By: Stroud, John W. Wall Street Journal (Online). 4/15/2015, p1. 1p.
Subjects: INTERNATIONAL relations; RANCHO Cordova (Calif.); GRAND Canyon (Ariz.); UNITED States. Dept. of Veterans Affairs; VETERANS of Foreign W affairs; Administration of Veterans' Affairs
News
[Request this item via Interlibrary Loan](#)

6. **National park lodges to love**
USA Today. 04/03/2015.
[HTML Full Text](#)

EBSCO Positive Finding: Organic Search Process

Participants were able to successfully conduct and navigate through an organic search, while recognizing terms like 'full-text' and 'Interlibrary Loan.'

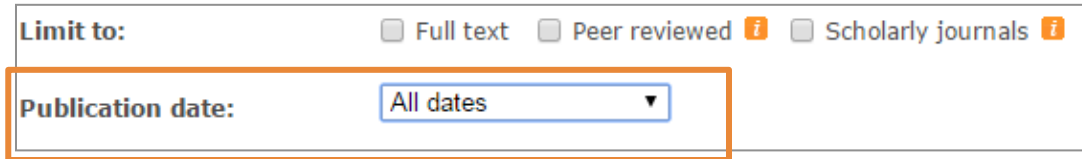
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



ProQuest Positive Finding: “Related Searches”

The “Related Searches” section was deemed to be well-placed and not obtrusive. This section also appeared easy to understand, and offered participants helpful keyword recommendations.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS

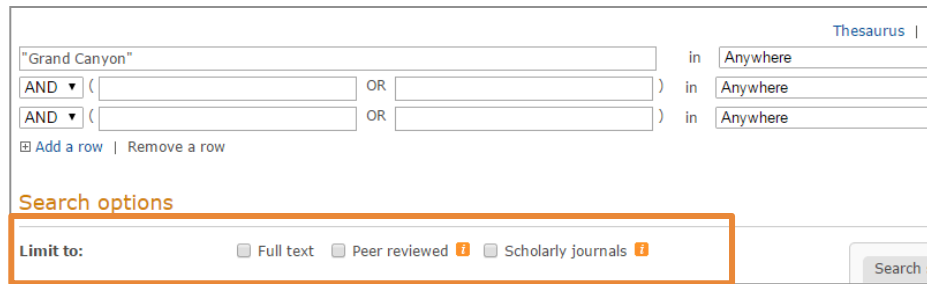


The screenshot shows a search interface with a 'Limit to:' section containing three checkboxes: 'Full text', 'Peer reviewed' (with an information icon), and 'Scholarly journals' (with an information icon). Below this is a 'Publication date:' section with a dropdown menu currently set to 'All dates'. An orange rectangular box highlights the 'Publication date:' label and the dropdown menu.

ProQuest Positive Finding: Date Filter

The ProQuest date filter drop-down offers several different ways to change the date (by week, month, date range, etc.), which makes it flexible and easy-to-use. One participant in particular really appreciated this flexibility.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



The screenshot displays a search interface with a search bar containing "Grand Canyon". Below the search bar, there are three rows of search criteria, each with a dropdown menu set to "AND", a text input field, and a radio button set to "Anywhere". Below these rows, there are links for "Add a row" and "Remove a row". A section titled "Search options" is highlighted with an orange box, containing a "Limit to:" label and three checkboxes: "Full text", "Peer reviewed" (checked), and "Scholarly journals" (checked). A "Search" button is visible on the right side of the interface.

ProQuest Positive Finding: Key Filter Placement

The options to choose full-text, peer-reviewed, and scholarly journal articles are close to the search bar, making them easier for participants to find (relative to EBSCO) when conducting a search.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS

ProQuest

For assistance wit...

Advanced Search

[Look Up Citation](#) | [Command Line](#)

[Thesaurus](#) | [Field codes](#) | [Search tips](#)

"Grand Canyon" in

AND () in

AND () in

[Add a row](#) | [Remove a row](#)

[Clear form](#)

Search options

Limit to: ☐ Full text ☐ Peer reviewed [?](#) ☐ Scholarly journals [?](#)

Publication date:

Source type:

- ☐ Select all
- ☐ Audio & Video Works
- ☐ Blogs, Podcasts, & Websites
- ☐ Books
- ☐ Conference Papers & Proceedings
- ☐ Magazines
- ☐ Newspapers
- ☐ Other Sources

Search subject areas

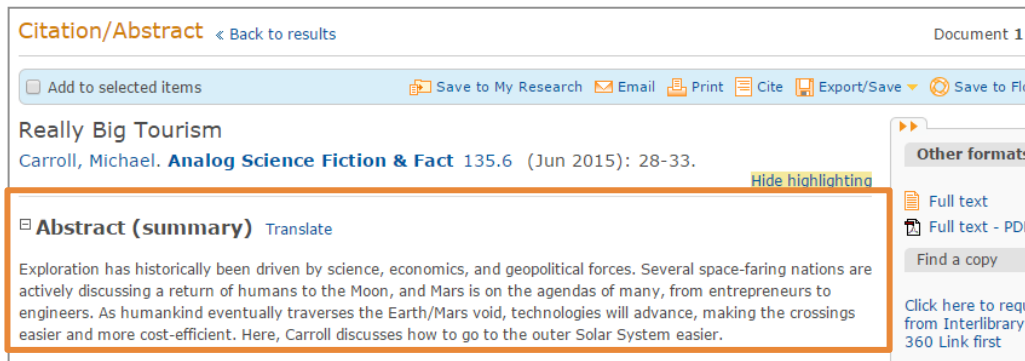
Use search forms customized for each subject.

- [The Arts](#)
- [Business](#)
- [Dissertations & Theses](#)
- [Health & Medicine](#)

ProQuest Positive Finding: Presence of Filters

When performing an organic search, participants were able to point out the presence of filters. Although they did not always find the correct filters, they understood why and how they would be used in the search process.

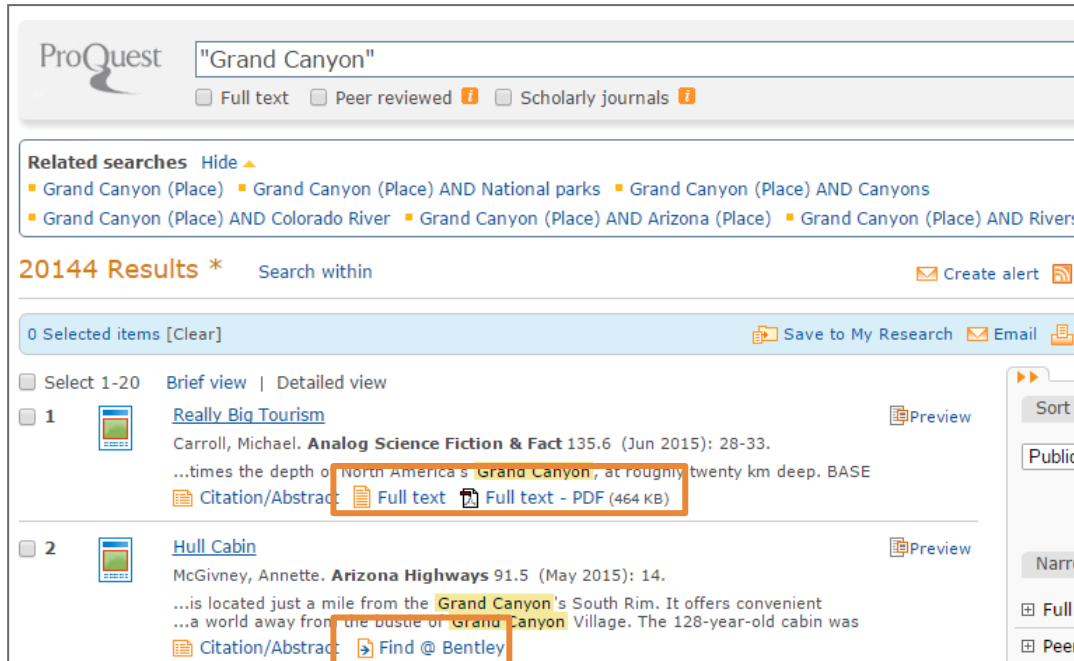
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



ProQuest Positive Finding: Abstracts

Participants appreciated the fact that the abstracts were easy for them to scan. This was important in their workflow, considering that they typically scan abstracts to judge the relevance of an article.

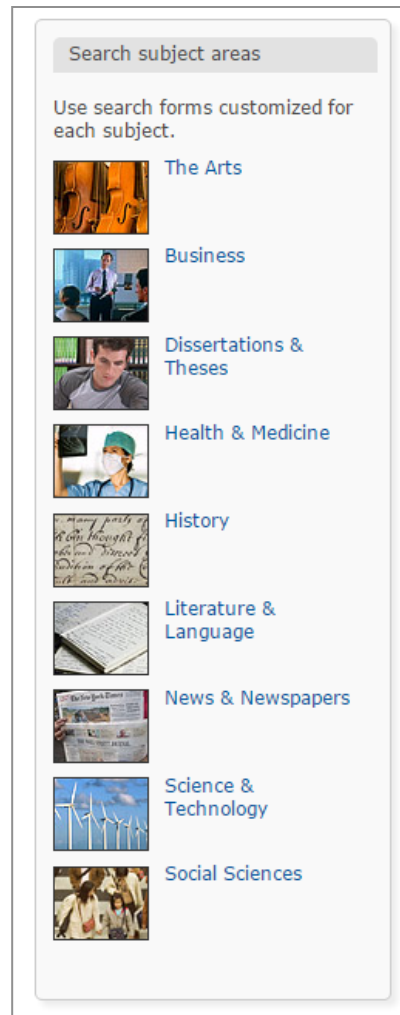
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



ProQuest Positive Finding: Organic Search Process

Participants were able to successfully conduct and navigate through an organic search, while recognizing terms like 'full-text' and 'Find @ Bentley.'

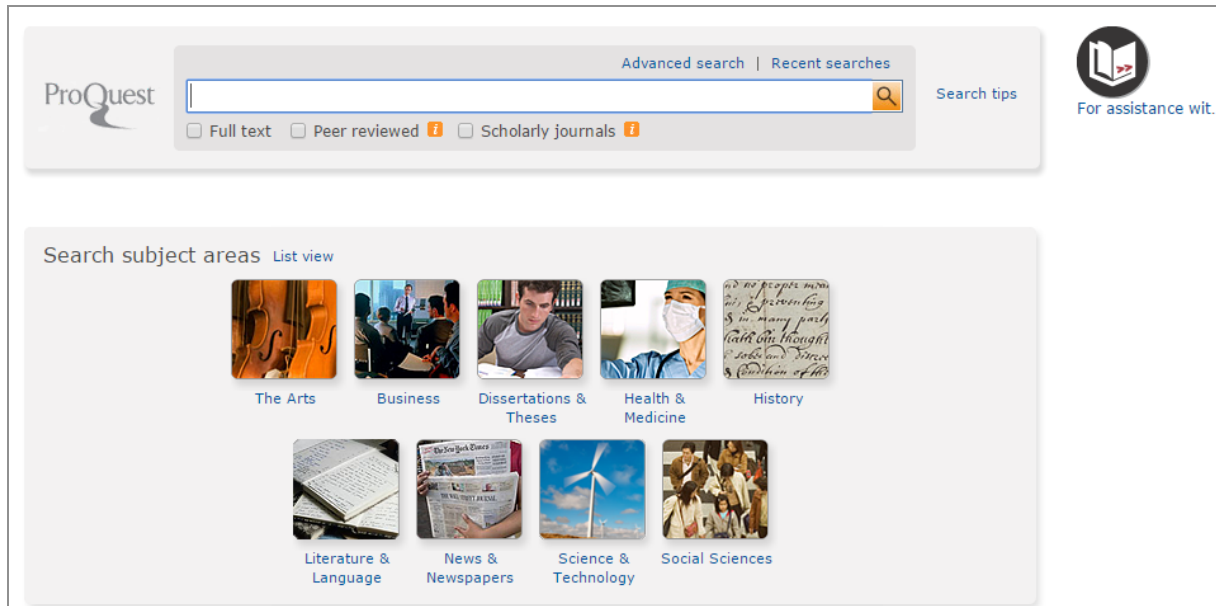
APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



ProQuest Positive Finding: Subject Areas

Participants thought that the “Search Subject Areas” section would help them be more successful when performing their research. They felt like this would help when narrowing a search down from a broad topic.

APPENDIX D: POSITIVE FINDINGS SCREENSHOTS



ProQuest Positive Finding: Basic Search

Participants felt like the Basic Search page met their expectations – a simple page where they could perform a more general search. This was not often the case with EBSCO's basic search.

APPENDIX E: QUALITATIVE INTERVIEW FINDINGS

Participant Number	Topic of Current or Last Research Paper / Project(s)	Assignment Duration	% of Time Used to Complete Assignment
P1	<ul style="list-style-type: none"> Robotics and how the economy has been affected 	<ul style="list-style-type: none"> 4-5 months 	<ul style="list-style-type: none"> 40%
P2	<ul style="list-style-type: none"> Capstone on nuclear energy, policy, how it is generated, challenges faced, causes of cancer 	<ul style="list-style-type: none"> 4.25 months 	<ul style="list-style-type: none"> 60%
P3	<ul style="list-style-type: none"> New product and development for Harley Davidson; secondary research to find out what the market wants, what people need, who the target market would be 	<ul style="list-style-type: none"> 2 months 	<ul style="list-style-type: none"> 25%
P4	<ul style="list-style-type: none"> Analyzing a stock and how she would convince investors to buy it 	<ul style="list-style-type: none"> 1 month 	<ul style="list-style-type: none"> 25%
P5	<ul style="list-style-type: none"> (1) Diseases in Vietnam, (2) Liberal arts perspective on theater in Europe (3) A finance driven topic 	<ul style="list-style-type: none"> 3 months 	<ul style="list-style-type: none"> 66%
P6	<ul style="list-style-type: none"> Persuasive presentation of the legalization of marijuana 	<ul style="list-style-type: none"> 1 month 	<ul style="list-style-type: none"> 50%
P7	<ul style="list-style-type: none"> Creating a database for TripAdvisor, making it more user friendly 	<ul style="list-style-type: none"> 3 months 	<ul style="list-style-type: none"> (did not collect this information)
P8	<ul style="list-style-type: none"> Various company reports in the science, operations, marketing, accounting fields for GB320 course 	<ul style="list-style-type: none"> Two weeks 	<ul style="list-style-type: none"> 88%

APPENDIX E: QUALITATIVE INTERVIEW FINDINGS

Participant Number	First Step Taken	How They Conducted Research Overall
P1	<ul style="list-style-type: none"> Searched Bentley Library databases 	<ul style="list-style-type: none"> Used EconLit because his professor suggested it and Google Focused on reading abstracts and identifying keywords
P2	<ul style="list-style-type: none"> Library consultation as suggested by professor 	<ul style="list-style-type: none"> Went through many databases on library website Visited library Sought professor help Looked for recent news through Google
P3	<ul style="list-style-type: none"> Searched Bentley Library databases by subject and checked class research guides 	<ul style="list-style-type: none"> Searched various library databases and Google Considered interlibrary loan but found it faster to have her friend at Cornell download and send to her
P4	<ul style="list-style-type: none"> Chose three industries to focus on from a list that her professor directed her to 	<ul style="list-style-type: none"> Searched a variety of library databases If she didn't find what she needed, she'd pick another topic
P5	<ul style="list-style-type: none"> Used Bentley Library search bar 	<ul style="list-style-type: none"> Tried "throw spaghetti at the wall approach" with a broad search, then dove into specific databases
P6	<ul style="list-style-type: none"> Searched databases through Bentley and used Google to narrow her topic to something specific 	<ul style="list-style-type: none"> Searched Bentley Library databases and Google What she found on Google guided her database work Received library assistant help
P7	<ul style="list-style-type: none"> Visited teacher assistant's website to see tips for the assignment 	<ul style="list-style-type: none"> Searched Gartner Research Database
P8	<ul style="list-style-type: none"> Looked at multiple library databases and pulled up market reports on companies 	<ul style="list-style-type: none"> Searched Bentley Library databases Checked out books in the library Used Google

APPENDIX E: QUALITATIVE INTERVIEW FINDINGS

Participant Number	Databases They've Used	How they Hear About Databases	Positives of Research Process	Negatives of Research Process
P1	<ul style="list-style-type: none"> EconLit 	<ul style="list-style-type: none"> Professor 	<ul style="list-style-type: none"> Abstracts and keywords 	<ul style="list-style-type: none"> No abstracts
P2	<ul style="list-style-type: none"> EBSCO 	<ul style="list-style-type: none"> Professor Library 	<ul style="list-style-type: none"> Lots of results, fast 	<ul style="list-style-type: none"> Redundant and contradictory results
P3	<ul style="list-style-type: none"> Minta, Google 	<ul style="list-style-type: none"> Professor Library research guides 	<ul style="list-style-type: none"> Databases organized by topic or sections 	<ul style="list-style-type: none"> Too much information with broad searches
P4	<ul style="list-style-type: none"> Morning Star, Fast Company, Bloomberg, Yahoo! Finance 	<ul style="list-style-type: none"> Professor 	<ul style="list-style-type: none"> (did not collect this information) 	<ul style="list-style-type: none"> (did not collect this information)
P5	<ul style="list-style-type: none"> JSTOR, PlexusNexus, UNICEF, Wall Street Journal, Google 	<ul style="list-style-type: none"> Past experience Google Professor 	<ul style="list-style-type: none"> When you know a database's strength 	<ul style="list-style-type: none"> When you don't know a databases strength (i.e. JSTOR not good for straight explanations)
P6	<ul style="list-style-type: none"> EBSCO Host, ProQuest, GitGIC, Ibis 	<ul style="list-style-type: none"> Professor Library research guides Library assistants 	<ul style="list-style-type: none"> (did not collect this information) 	<ul style="list-style-type: none"> Not sure how to structure a search, esp. with AND / OR
P7	<ul style="list-style-type: none"> Gartner 	<ul style="list-style-type: none"> Professor 	<ul style="list-style-type: none"> When you get familiar with a database 	<ul style="list-style-type: none"> None
P8	<ul style="list-style-type: none"> EBSCO, Demographics Now, Mintel, Google Scholar, regular Google 	<ul style="list-style-type: none"> Library 	<ul style="list-style-type: none"> When you know which database to go to 	<ul style="list-style-type: none"> When you don't know which database to use Getting outdated info

APPENDIX E: QUALITATIVE INTERVIEW FINDINGS

Participant Number	How they Manage Sources They Find
P1	<ul style="list-style-type: none">• Print it out and have hardcopy, sometimes only prints first few pages• Downloads as PDFs• Goes home and sorts through everything
P2	<ul style="list-style-type: none">• Downloads PDFs into a local folder• Takes notes from books
P3	<ul style="list-style-type: none">• Writes everything down in a notebook and organizes it later• Copy / pastes info or article links into Google Docs to share with team
P4	<ul style="list-style-type: none">• Downloads articles locally• Shares articles with teammates via Google
P5	<ul style="list-style-type: none">• 9/10 times downloads to a local folder on desktop• Bookmarks articles in his browser
P6	<ul style="list-style-type: none">• Uses multiple browser windows and tabs to sort through sources• Creates quick bibliography
P7	<ul style="list-style-type: none">• Saves unique IDs and names of articles he finds
P8	<ul style="list-style-type: none">• Uses whiteboard to layout ideas• Prints out resources and organizes into piles• Copy / pastes info into a Word document

APPENDIX E: QUALITATIVE INTERVIEW FINDINGS

Participant Number	How they Find Help When They Hit a Roadblock	Attended Library Training?	Library Training Helpful?
P1	<ul style="list-style-type: none"> Goes to Google to find keywords to improve search or to find full sources 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> n/a
P2	<ul style="list-style-type: none"> Has an advisor Professor 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> No
P3	<ul style="list-style-type: none"> Takes a step back to look for a different approach Librarians helpful in picking databases 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> No
P4	<ul style="list-style-type: none"> Doesn't usually turn to people, will sometimes redirect her project 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> n/a
P5	<ul style="list-style-type: none"> Library research assistants 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> (did not collect this information)
P6	<ul style="list-style-type: none"> Professor Library research guides Library assistants who come to class 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes
P7	<ul style="list-style-type: none"> Professor Yahoo Library faculty 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> n/a
P8	<ul style="list-style-type: none"> Group members Roommates Talks it out with himself 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes

APPENDIX F: TASK 1 DETAILED FINDINGS (EBSCO)

- *Discussion of Organic Search – EBSCO*
- **6 participants filtered their search**
 - 1 participant chose “Abstract” before searching and put search term in quotations
 - 1 participant put search term into quotations without using filters
 - 1 participant used “And” and “Or” in their search
 - 1 participant used a Boolean search
 - 1 participant chose “Abstract” before searching without other filters
 - 1 participant narrowed the date range & limited to full text/scholarly reviewed results
 - 1 participant wanted to further filter the results, but did not understand the terms in the drop-down
- **Several factors were important to participants when looking through results:**
 - PDFs available
 - Titles & abstracts
 - Keywords
 - Broad results that would give them an overview
- **Several participants went back to further limit search when they could not find relevant results**
 - Quote: *“These look really narrow, so I’m not sure I searched right.”*

APPENDIX F: TASK 1 DETAILED FINDINGS (EBSCO)

- *Discussion of Chosen Sources – EBSCO*
- When participants were asked to choose two sources from their list of search results, they had a variety of criterion in mind:
 - Relevant title
 - Relevant keywords
 - Looks interesting
 - Abstract
 - Summaries
 - Availability of PDF
- **Desire for Abstracts:** *“I really like when it gives you the abstract because you don’t want to read through a whole article and then find out it’s not relevant to you.”*
- **When asked about moving to the second page of search results, one participant said:** *“Sometimes there’s information that hasn’t been updated in a while or gets bogged down by things that match my search words more. Even if I go further than the second page, I won’t go past the third page – I’ll try another database or rely on the information I already have.”*

APPENDIX F: TASK 1 DETAILED FINDINGS (EBSCO)

- **Discussion of Basic/Advanced Search – EBSCO**
- Overall, participants expected that Basic Search would be simpler, generate more general results, and would show a single search bar.
- **Although participants had similar expectations of Basic Search, half felt like the actual page met their expectations while half did not.**
 - Some felt like the Basic Search page was simple, with actions more compact
 - Some felt like this page was too similar to Advanced Search and not “basic” enough
 - *“[I] did expect the single search bar, but all the other stuff limiting your results – I was not expecting any of that because when I think of Basic Search, I think as simple as possible. This seems more like Advanced Search.”*
 - *“This is more complex than I expected Basic Search to be. [I] figured it would be Google-esque with just one search bar you could enter [information].”*
- **Participants were divided when asked if they prefer Advanced or Basic Search**
 - 5 participants chose Basic Search, so they could find more general information to start their search. They all said they would then move on to Advanced Search.
 - 3 participants chose Advanced Search because they preferred using all the filters, and did not think Basic Search was much different.

APPENDIX F: TASK 1 DETAILED FINDINGS (PROQUEST)

- *Discussion of Organic Search – ProQuest*
- **4 participants filtered their search**
 - 1 participant chose 'abstract' before searching
 - 1 participant chose 'full text' and 'peer reviewed'
 - 1 participant chose 'full text'
 - 1 participant chose 'document text' from the drop-down
- **Several factors were important to participants when looking through results:**
 - PDFs available
 - Titles & abstracts
 - Keywords
 - Broad results that would give them an overview
- **Several participants further limited their search if they did not find relevant results.**
 - When she did not find relevant results, one participant noted: *"I didn't use quotes, maybe that's why I'm having problems"*
 - One participant said he needed to filter his search or *"...give up on ProQuest at this point."*
- **Several participants also used the "Related Search" feature to refine results**
 - However, participants noted confusion regarding the related search syntax that appeared

APPENDIX F: TASK 1 DETAILED FINDINGS (PROQUEST)

- *Discussion of Chosen Sources – ProQuest*
- When participants were asked to choose two sources, they had a variety of criterion in mind:
 - ‘Grand’ and ‘Canyon’ used together in a phrase
 - Titles
 - Abstract
 - Keywords
 - Relevance
- One participant said that when deciding which resources to choose, he *"opens multiple things and then looks through all of them"* at once.

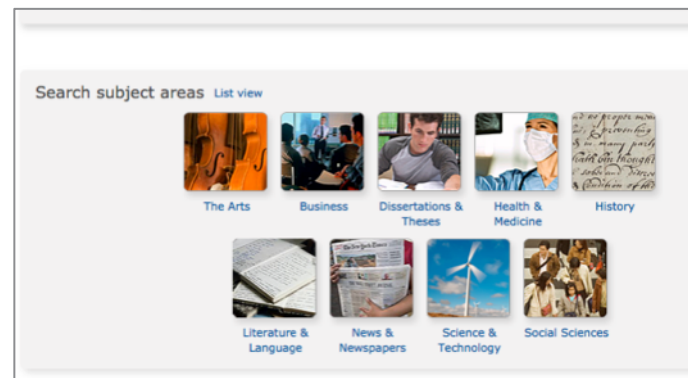
APPENDIX F: TASK 1 DETAILED FINDINGS (PROQUEST)

- *Discussion of Basic/Advanced Search – ProQuest*

- As with EBSCO, participants overall expected that Basic Search would be simpler, generate more general results, and would show a single search bar.

- **All participants felt like Basic Search met their expectations.**

- *“Looks like it’s trying to be Google-like, which I compliment it for. It’s pretty solid; it’s just the one search. It looks good. If I wanted to do my Booleans I would go to Advanced.”*
- Several participants noticed the subject category images, and felt like they would be able to use those in their research →



- **Participants were divided when asked if they prefer Advanced or Basic Search**

- 4 participants chose Basic Search, so they could find more general information to start their search. They all said they would then move on to Advanced Search.
- 2 participants chose Advanced Search because they preferred using all the filters
 - *“Advanced because if you know you need scholarly information, you can definitely search for that, and you can look for an Interlibrary Loan.”*

APPENDIX G: SAVING RESEARCH TASK FINDINGS

EBSCO

Participant Number	Steps Take to Save Research in EBSCO
P1	<ul style="list-style-type: none">• Clicked “Save” button on a Detailed Record page and viewed options• He expected to see a download button or bookmark option
P2	<ul style="list-style-type: none">• Saved the PDF directly via the embedded PDF reader
P3	<ul style="list-style-type: none">• Clicked the “Add to Folder” icon – at first unsure what it was, but found that she liked the idea• She would also email it to herself, export the PDF, or copy the link and save it on her desktop
P4	<ul style="list-style-type: none">• First clicked the “Save Searches/Alerts” text• When in a PDF, she also clicked the “Add to Folder” icon. She was initially not sure what this does, but noticed the folder icon up top and said that she would use this in the future.
P5	<ul style="list-style-type: none">• Would open and save a PDF on his computer in a folder called “Research”• Would also bookmark a resource for later• He found the Folder option later on, and said he would consider trying it
P6	<ul style="list-style-type: none">• Doesn’t see anything at first - she doesn’t think “Share” is relevant• Normally she just remembers what she searched or will copy the bibliography and go back later• She doesn’t bother to explore the Folder icon – she’s not sure what it is based on the title
P7	<ul style="list-style-type: none">• Would download the PDF locally (via “Save” button in PDF browser) and organize it on his computer
P8	<ul style="list-style-type: none">• First clicked the “Save Searches/Alerts” text• Also within a detailed resource page, he would click the “Save” button for an HTML resource to save the file externally in a project folder on his computer, or just save the PDF

APPENDIX G: SAVING RESEARCH TASK FINDINGS

ProQuest

Participant Number	Steps Take to Save Research in ProQuest
P1	<ul style="list-style-type: none">• Would Export/Save to PDF and/or look into what “Save to My Research” does
P2	<ul style="list-style-type: none">• Would either export as a PDF to print or email the file to herself
P3	<ul style="list-style-type: none">• First clicked “Save to My Research”• Would also copy and save the URL or email it to herself
P4	<ul style="list-style-type: none">• First clicked “Save Search” instead of saving an individual resource• Then clicked “Save to My Research” or “Export/Save” for an individual resource
P5	<ul style="list-style-type: none">• Would download and save a PDF locally or bookmark it – this is easier than going back to ProQuest to access old research• He has used “Save to My Research” in the past when working on a different computer than his own
P6	<ul style="list-style-type: none">• Clicked “Save Search” and indicated that she would sign into My Research, though she has never tried saving resources within a database before
P7	<ul style="list-style-type: none">• He would download PDFs locally (via the PDF browser window) and organize it on his computer
P8	<ul style="list-style-type: none">• He would save the PDF externally

APPENDIX H: “ONE THING YOU WOULD CHANGE”

EBSCO Feedback:

- P1 – “Select a Field” Dropdowns – it was not clear what they are used for
- P2 – “Search History” alerts – the placement is not good, and it’s frustrating how it grows and inhibits her ability to see search results
- P3 – “Search History” alerts – unclear what it shows and is too big
- P4 – “Search History” alerts – she doesn’t understand what it is for (believes it to be related searches by other users), and doesn’t need it
- P5 – Searches aren’t always relevant, so some refinement of tool is needed
- P6 – “Search History” alerts - there is too much going on here and it’s not clear what these do
- P7 – *N/A (ran out of time to ask question)*
- P8 – The title “EBSCO Host” is not clear – would prefer “EBSCO Research”

APPENDIX H: “ONE THING YOU WOULD CHANGE”

ProQuest Feedback:

- P1 - “Select a Field” Dropdowns – still not clear (same as EBSCO)
- P2 – Would like the ability to search by organizations (which is possible – she failed the task associated with this)
- P3 – Keep the AND/OR fields at the top of the search results pages, so it is clearer how to update your search without starting over
- P4 – A prominent download button should be placed at the bottom of a resource page under the abstract (rather than having to scroll up)
- P5 – Searches aren’t always relevant, so some refinement of tool is needed (same as for EBSCO)
- P6 – Greater visual contrast would be desirable (too much white/gray)
- P7 – Offer open textboxes instead of dropdown menus or checkboxes for filters to enable better searching within documents
- P8 – It looks unprofessional (aesthetics seem geared towards high-schoolers)

APPENDIX I: SYSTEM USABILITY SCALE (SUS)

- **Participants were asked to answer the following 10 questions on a scale of 1 to 5, where 1 meant “Strongly Disagree” and 5 meant “Strongly Agree”**
 1. I think that I would like to use this research database frequently
 2. I found the research database unnecessarily complex
 3. I thought the research database was easy to use
 4. I think that I would need the support of a technical person to be able to use this research database
 5. I found the various functions in this research database were well integrated
 6. I thought there was too much inconsistency in this research database
 7. I would imagine that most people would learn to use this research database very quickly
 8. I found the research database very cumbersome to use
 9. I felt very confident using the research database
 10. I needed to learn a lot of things before I could get going with this research database

APPENDIX I: SUS SCORE BY PARTICIPANT

Participant #	EBSCO	ProQuest
1	47.5	55
2	92.5	75
3	45	72.5
4	85	77.5
5	62.5	65
6	55	75
7	37.5	62.5
8	85	90

 indicates the better score of the two

APPENDIX J – 3 ADJECTIVE WORD LIST

At the conclusion of the tasks for each database, UX-GO asked participants to choose 3 adjectives that they felt best described the given system. These included the following words:

Accessible

Appealing

Boring

Busy

Clean

Complex

Comprehensive

Confusing

Consistent

Dated

Difficult

Easy to use

Effective

Efficient

Frustrating

Hard to use

Impressive

Inconsistent

Ineffective

Innovative

Intuitive

Organized

Overwhelming

Professional

Slow

Stressful

Time-consuming

Time-saving

Unattractive

Understandable

APPENDIX J – 3 ADJECTIVES BY PARTICIPANT

Participant	3 EBSCO Adjectives (in no particular order)	3 ProQuest Adjectives (in no particular order)
1	Complex, Intuitive, Professional	Frustrating, Unorganized, Understandable
2	Accessible, Appealing, Efficient	Boring, Consistent, Understandable
3	Complex, Hard to Use, Time-consuming	Accessible, Clean, Understandable
4	Clean, Organized, Understandable	Accessible, Comprehensive, Effective
5	Comprehensive, Effective, Time-Consuming	Accessible, Clean, Ineffective
6	Accessible, Busy, Frustrating	Busy, Professional, Time-Consuming
7	Complex, Difficult, Professional	Confusing, Consistent, Organized
8	Accessible, Easy to Use, Organized	Clean, Unattractive, Understandable

See [Video](#) timestamp 56:22 for additional explanations regarding adjective selection

APPENDIX K: DATABASE WRAP-UP QUESTIONS

Between the two databases you worked with today, which one do you prefer overall and why?

- 3 of the participants preferred EBSCO and 5 of the participants preferred ProQuest. Following are some quotes and supporting rationale:
- The positive aspects of EBSCO stated by the participants included:
 - *“It looks nicer”*: Visual acuity
 - *“I trust it more”*: Relevance of search results
 - *“I’ve been using it for years”*: Long-term usage
- The positive aspects of ProQuest stated by the participants included:
 - *“Offers more options”*: Filtering options
 - *“More relevant”*: Relevance of search results to desired research objectives
 - *“Less complex”*: Simplicity of search bar

APPENDIX K: DATABASE WRAP-UP QUESTIONS

Which database was easier to use? Why?

- 2 of the participants found EBSCO and 6 of the participants found ProQuest easier to use. Following are some quotes supporting participant perspectives:
- The positive aspects of EBSCO stated by the participants included:
 - *“Everything seems spelled out easier with EBSCO.”*
 - *“Easier to modify and refine search in EBSCO.”*
 - *“Side-panel is more compact and efficient.”*
- The positive aspects of ProQuest stated by the participants included:
 - *“Interface was better and the results were more relevant.”*
 - *“Source types and document types helped”*
 - *“EBSCO was more useful but Proquest was easier”*

APPENDIX K: DATABASE WRAP-UP QUESTIONS

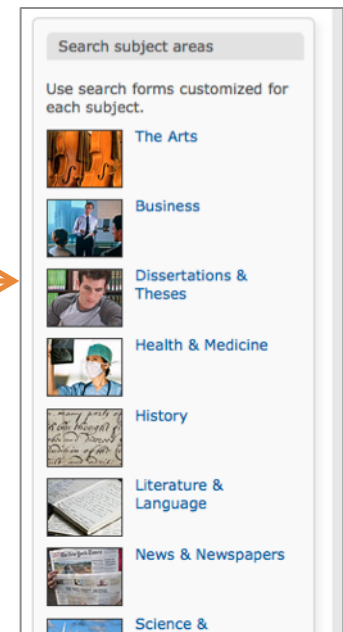
Which database enabled you to better complete your research objectives when studying the Grand Canyon?

- Despite the perceived ease of use of ProQuest over EBSCO, 4 participants said they thought they were better able to achieve their research objectives on EBSCO (*versus 2 participants for ProQuest - 2 participants didn't have time for this question*)
- **Why EBSCO allowed Grand Canyon research objectives to be better achieved:**
 - Key words were clearer and the search results seemed more relevant comparatively
 - More articles of interest came up in the search, and they seemed more scientific rather than editorialized/opinionated like with ProQuest
 - While EBSCO seemed more complicated at first, once the search was properly adjusted, better results came forth in the long-run
 - *"I feel [in] ProQuest I created my parameters more, but maybe they weren't correct, while EBSCO I feel like I got more stuff from the parameters I created."*
- **Why ProQuest allowed Grand Canyon research objectives to be better achieved:**
 - The results felt more irrelevant in EBSCO, but it might have been because the participant questioned if she was doing the search correctly
 - The filtering options on the Advanced Search Page were preferable when searching

APPENDIX K: DATABASE WRAP-UP QUESTIONS

Are there particular features you liked in one database over the other? Why?

- **Preferred features of EBSCO included:**
 - The ability to modify a search from the results page is easy
 - The overall professional look makes it feel more legitimate
- **Preferred features of ProQuest**
 - The “Search Subject Area” image tiles (3 participants said this) →
 - The placement of the “Related Searches” area at the top of the page is less obtrusive than the “Search History” area on EBSCO
 - The multiple ways to select a date range (by week, month, etc.)
 - The options to select full text and peer-reviewed articles are closer to the search bar, so were easier to see than in EBSCO
 - How the filters within search results pages are on the right side rather the left



APPENDIX K: DATABASE WRAP-UP QUESTIONS

Which did you find more visually appealing? Why?

- In terms of visual appeal, participants were divided between EBSCO and ProQuest.
- The positive visual aspects of EBSCO are summarized in the following quotes:
 - *“There is a huge focus on research results in EBSCO, bigger than on ProQuest, which has more white space and squishes the results”*
 - *“I like the blue color...soft, visually appealing to me.”*
 - *“EBSCO has lower contrast; in ProQuest it’s hard to read results, it has more colors.”*
- The positive visual aspects of ProQuest are summarized in the following quotes:
 - *“I like how it doesn’t take up the whole page, the eye doesn’t see the whole page.”*
 - *“It has a cleaner look to it. I like the interface”*
 - *“The design is clear and organized, and easy to preview”*

APPENDIX K: DATABASE WRAP-UP QUESTIONS

How would either of these databases fit into your future research workflow?

- In terms of database preference for future research, 2 participants chose EBSCO, 2 participants chose ProQuest and 4 participants chose both of them.
- The following quotes summarize a preference of EBSCO over ProQuest:
 - *“Definitely EBSCO. I am so loyal to that database.”*
 - *“The layout makes me feel like I am doing professional work.”*
 - *“I used EBSCO before. First EBSCO, then Proquest.”*
- The following quotes summarize a preference of ProQuest over EBSCO:
 - *“EBSCO was too professional. Proquest looked easier to use.”*
 - *“I used ProQuest before, so I am more into it.”*
 - *“More user friendly, easier to understand”*

APPENDIX L: USERTESTING.COM

- UserTesting.com is a popular tool that allows for asynchronous and rapid usability testing with anonymous participants
- EBSCO's internal User Experience team frequently employs UserTesting.com, and therefore wanted to share the tool with UX-GO
- To see how the results of the actual usability study compared to a broader population of students outside of Bentley, UX-GO conducted a short study on UserTesting.com with 3 participants
- UX-GO team members did not want to share personal Bentley Library log-in credentials with anonymous participants, so the UserTesting.com study only included qualitative interview questions from the original study as well as basic interface questions based on screenshots of the 2 databases. Actual tasks on the systems could not be completed.

APPENDIX L: USERTESTING.COM STUDY QUESTIONS

Screening Criteria: 18-25 years old; Full-time graduate or undergraduate student; Conducted scholarly research within the last 3 months

Scenario: “Please think about the last time you had to write a paper that required scholarly research.”

Interview Questions:

- Approximately how much time was there between when the assignment was given and the due date? How soon did you start the research process before this due date?
- What was the first step you took to start the research process?
- What scholarly resources did you use to help write the paper, and how did you find out about them?
- Do you remember anything especially positive or negative about this last experience conducting scholarly research?
- In general, as you do your scholarly research, how do you manage and keep track of the information and resources you find?
- When you encounter a research roadblock, what do you typically do or whom do you turn to for help?

APPENDIX L: USERTESTING.COM STUDY QUESTIONS

Prototype for Task-Based Questions: <http://vovljz.axshare.com/ebsco.html>

Task-Based Questions:

- Please direct your attention to the given link. What is your first impression of Screen A? Do you think it would be easy or difficult to conduct academic research using this database, and why?
- Please click the "next" button and look for the red boxes that appear in the upper-left corner of Screen A. How would you use the AND/OR/NOT drop-down, if at all? What does the word "Boolean" mean to you?
- Please click the "next" button. What is your first impression of Screen B? Do you think it would be easy or difficult to conduct academic research using this database, and why?
- Please click the "next" button, and look for the red box that appears in the upper-left corner of Screen B. What would you expect to see on the "Basic Search" page?

APPENDIX L: USERTESTING.COM STUDY FINDINGS

- **Some findings from the UserTesting.com study include the following:**
 - Participants typically keep track of the resources they find while doing research in a word document or in tabs on their browser.
 - Participants have never heard of Boolean phrasing. They either know or have a sense of what AND/OR/NOT stand for.
 - Although 2 participants did not fully understand the task to compare Basic vs. Advanced search, they shared the notion that basic search should be simpler.
 - The EBSCO screenshot was perceived as useful, usable and a good fit for academic research, while the ProQuest screenshot was perceived as being easy to use.
- **This was a great opportunity to explore a popular industry tool, and to identify trends that are consistent with students both at and outside of Bentley.**
- UX-GO found that the participants experienced some confusion over how the questions were presented, and the feedback suffered accordingly. This underscores the benefits of having a human moderator to clarify confusion, as well as the importance of making sure that studies conducted through UserTesting.com are as clear as possible.

APPENDIX L: USERTESTING.COM STUDY FINDINGS

Questions	Participant 1	Participant 2	Participant 3
<i>Due date for last research / when you began research</i>	I had 3-4 weeks, started 1 week before.	I had 1 week, started right away.	I had a couple weeks, started a couple days ago.
<i>The first step you took to start research</i>	Everything was marked up (i.e. he had clear research steps to follow)	In EBSCO, I select full text, scholarly type, document type and click.	Type on the search bar and go.
<i>Scholarly resources used</i>	None, to be honest.	EBSCO	N/A
<i>Positive or negative experiences during research</i>	Finding research results was difficult.	N/A	None
<i>Keeping track of resources</i>	Word pad or note pad	Multiple tabs or URLs	Word document or in a tab in the browser

APPENDIX L: USERTESTING.COM STUDY FINDINGS

Questions	Participant 1	Participant 2	Participant 3
<i>What they do if they encounter a research roadblock</i>	He goes to forums and finds formatted results.	Uses Google Scholar	Searches deeper, asks the professor, or changes the topic
<i>Thoughts on EBSCO (main screen)</i>	Covers everything I could use. Looks useful. Why are right hand columns not aligned?	I like Full Text, Scholarly and Document type options.	I like EBSCO. Easy to use. Gives all types of resources. Good for academic research.
<i>AND/OR/NOT and Boolean phrases</i>	I use AND a lot, they are for narrowing. Boolean means true/false? No idea at all.	AND/OR helps to optimize the search. I don't know Boolean.	AND/OR is to search for more than one topic. For Boolean, I have no clue.
<i>Thoughts on ProQuest (main screen)</i>	It looks easier. Subject area customization looks useful.	Used before, user friendly and easy to find. I prefer EBSCO.	Never used before. Looks similar to EBSCO. Looks easy.
<i>Advanced vs. Basic Search</i>	Was it Advanced (by default)? Basic has to be like Google.	Every document with search titles should be in Basic Search.	Basic would include non-filtered results I guess.

APPENDIX M: VIDEO REEL FROM TESTING SESSIONS

- Considering that EBSCO contacts did not attend any of the usability test sessions, UX-GO created a video reel capturing key insights from the study. This is intended to reinforce findings and offer EBSCO a resource for better understanding research habits of Bentley students.
- **Link to Video:**
https://www.dropbox.com/s/vqgxp7wgzkewl5z/UXGO_EBSCOUsabilityStudy_HighlightReel.mov?dl=0
- **Notable Timestamps:**
 - **00:08** - Qualitative Interview - General Research Habits
 - **05:17** - Qualitative Interview - Research & Google
 - **08:28** - Search Process Insights – EBSCO
 - **14:01** - Search Process Insights – ProQuest
 - **21:47** - Basic Search Expectations (EBSCO & ProQuest combined)
 - **27:51** - Thoughts on And/Or and Boolean
 - **32:27** - Saving Research (EBSCO & ProQuest combined)
 - **40:10** - EBSCO Preferences
 - **44:00** - ProQuest Preferences
 - **50:45** - One thing to change about EBSCO
 - **53:54** - One thing to change about ProQuest
 - **56:22** - Rationale behind 3 adjectives (EBSCO)
 - **1:01:51** - Rationale behind 3 adjectives (ProQuest)
 - **1:07:39** - Which database would you use in the future?