

# Keeping Search Options Open

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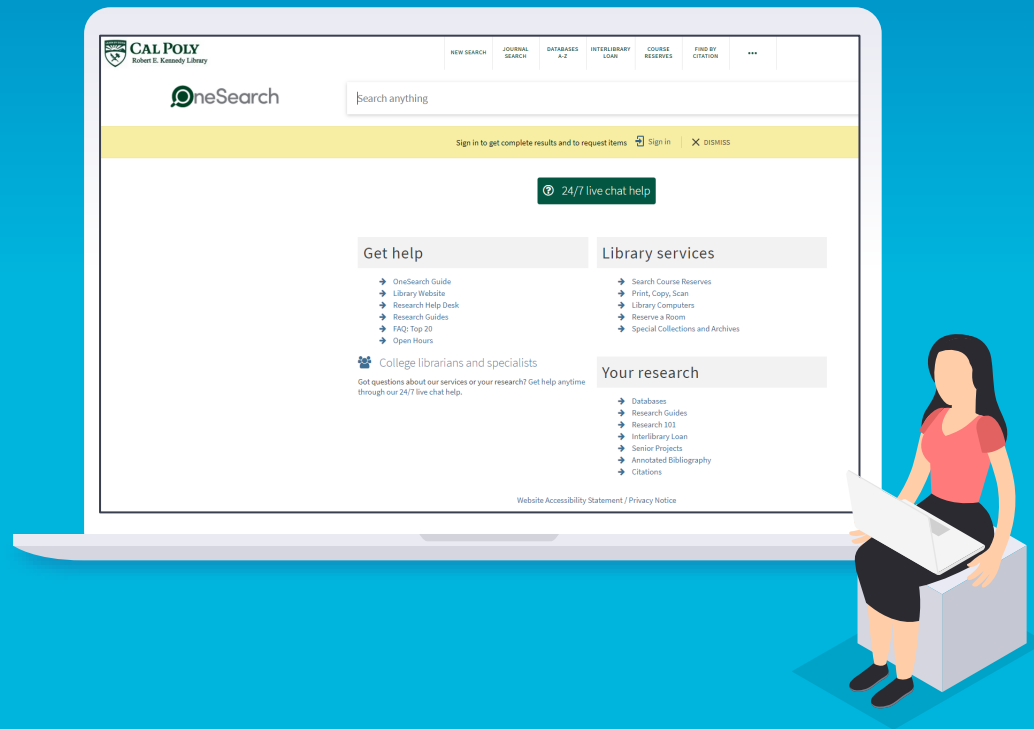
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# Library Discovery Platforms

"tools that search seamlessly across a wide range of local and remote content and provide relevance-ranked results."

- Marshall Breeding (2014)



# Search engines vs. Discovery layers & Databases

Published content vs Google searching/open web

- ▶ Tools for citation and refining results.
- ▶ Controlled vocabulary vs keyword searching.
- ▶ Type of information retrieved.
- ▶ Cost including presence of ads and sponsors.
- ▶ Sustainability, credibility, evaluation.
- ▶ Metadata indexing vs web crawlers.
- ▶ Scope of search.

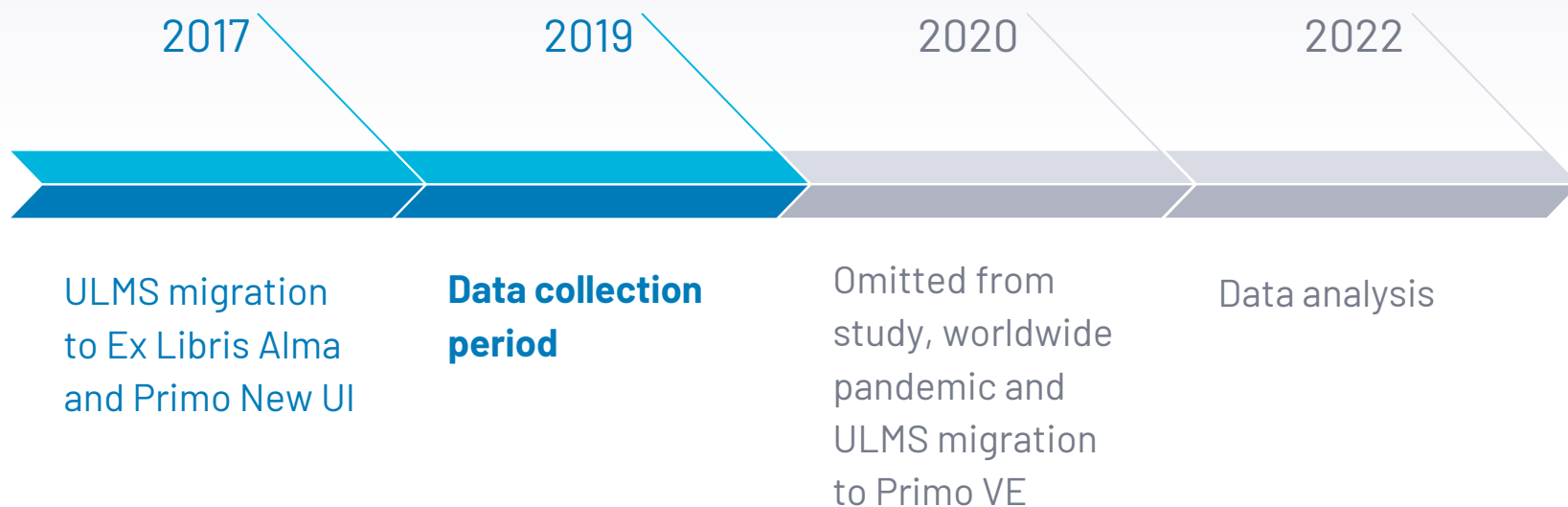


# California State University

24 Libraries



# Timeline



# Research objectives

## How do our users search?

Which types of search are used most?



## To what extent do users pre-filter?

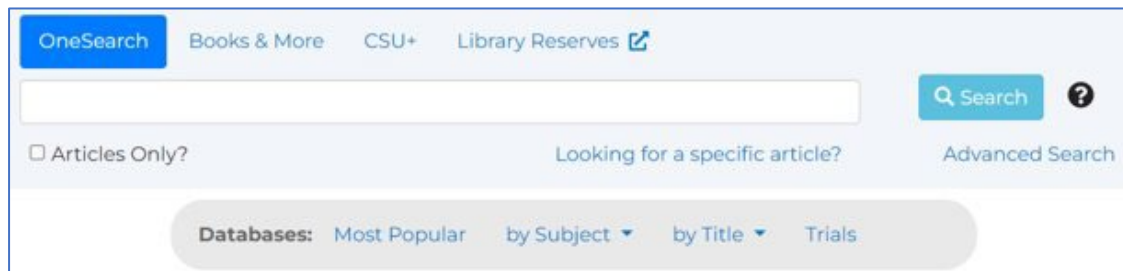
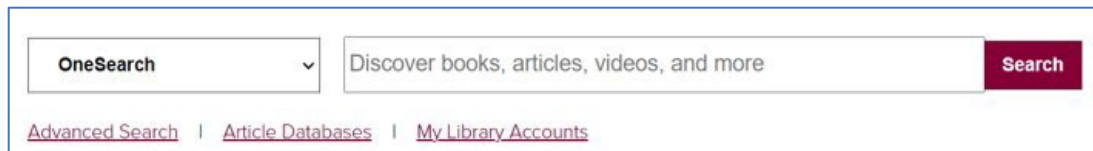
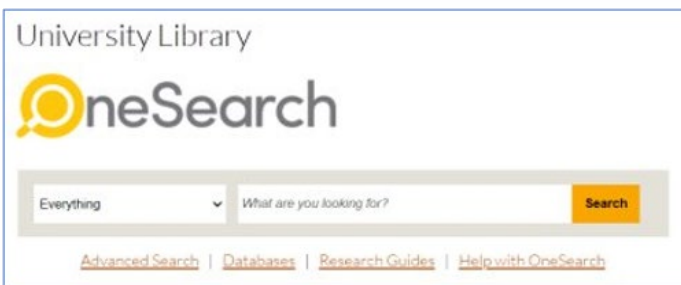
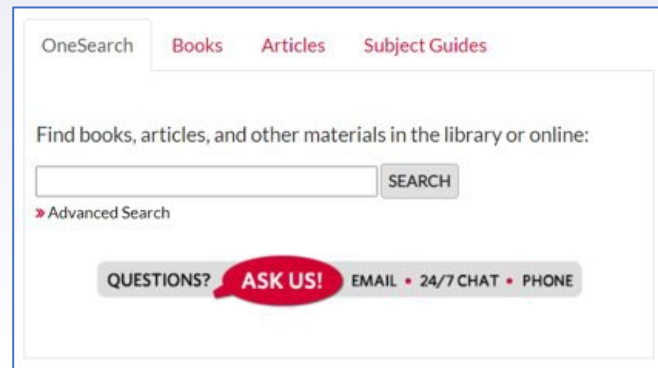
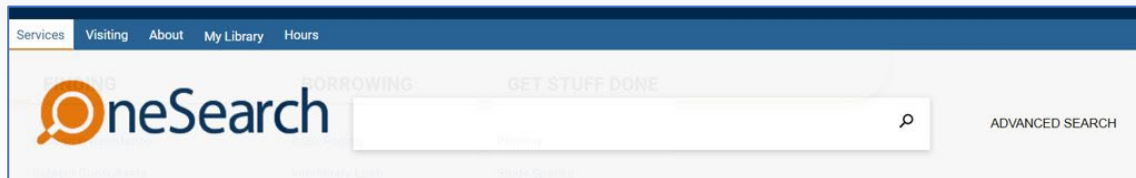
How many search options does a discovery layer need?



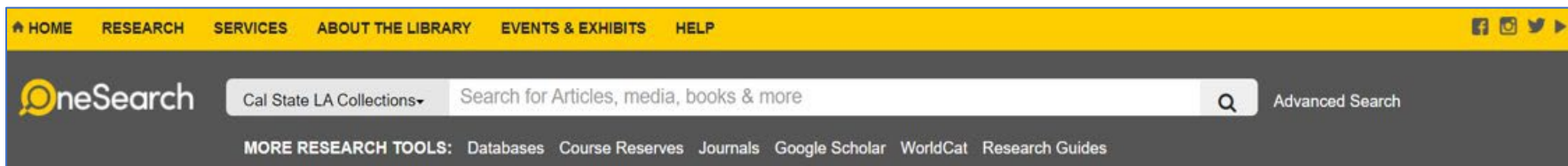
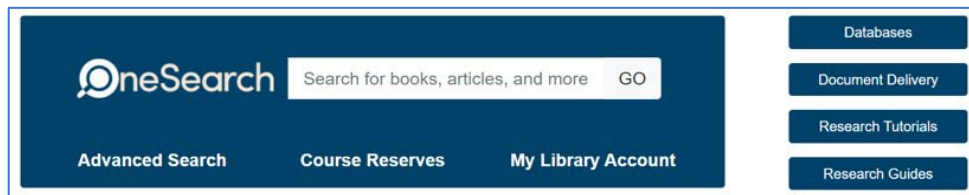
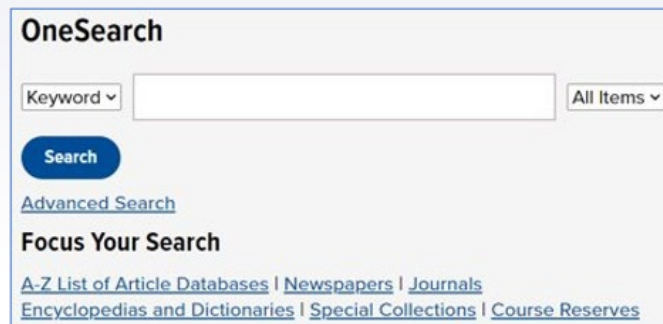
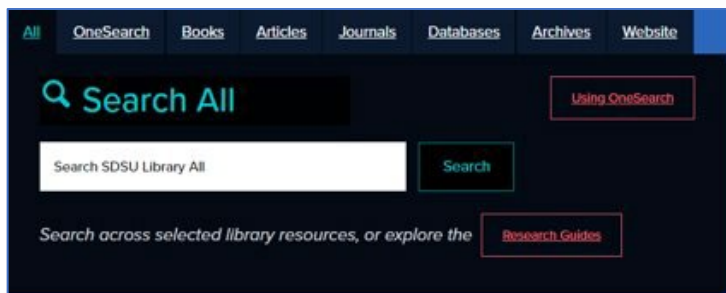
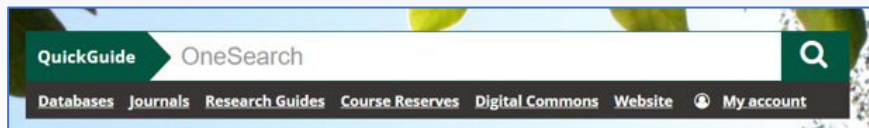
## Identify trends in usage over a 3-year period to explore user search behaviors related to search option configurations.

Examine current literature and relevant research studies to better understand findings in the context of user experience.

# "Default" search box configurations for Primo

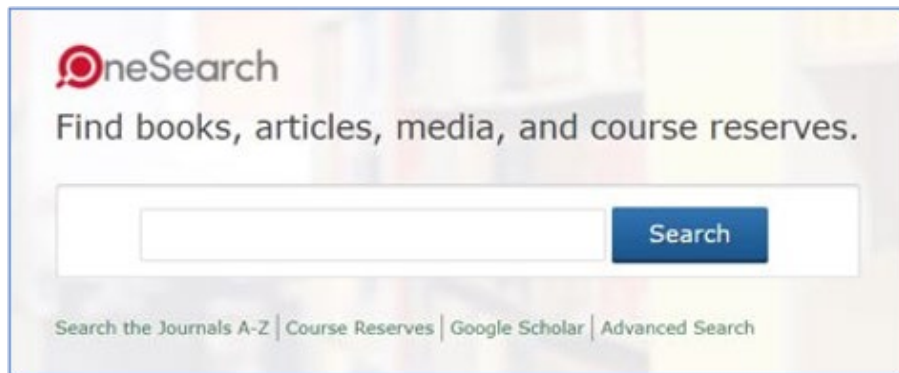
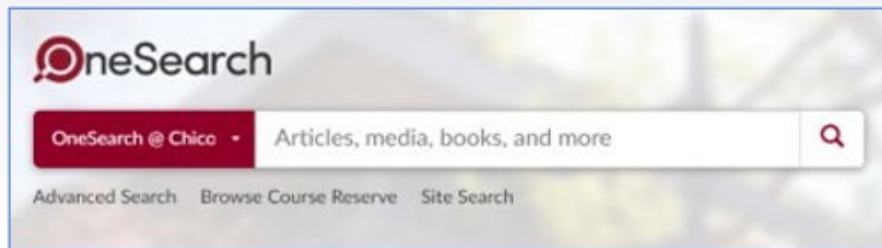
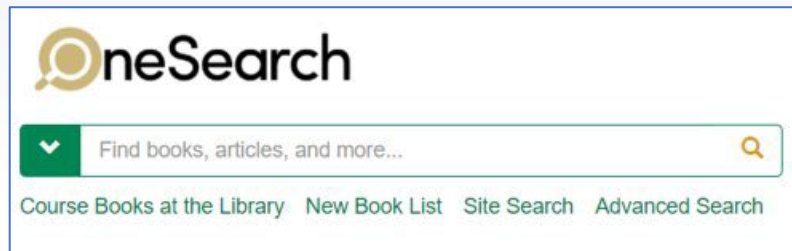


# "Default" search box configurations for Primo





# "Default" search box configurations for Primo



# Tab configurations



CAL POLY  
Robert E. Kennedy Library

NEW SEARCH JOURNAL SEARCH DATABASES A-Z INTERLIBRARY LOAN COURSE RESERVES FIND BY CITATION ...

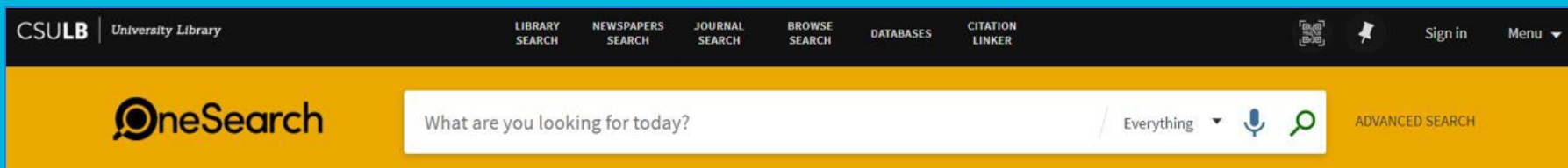
OneSearch

Search anything

ADVANCED SEARCH

Sign in Menu

Detailed description: This screenshot shows the top navigation bar of the CAL POLY OneSearch website. The header is white with the CAL POLY logo on the left. A horizontal menu contains links for 'NEW SEARCH', 'JOURNAL SEARCH', 'DATABASES A-Z', 'INTERLIBRARY LOAN', 'COURSE RESERVES', and 'FIND BY CITATION', followed by a three-dot menu icon. On the right side of the header, there are icons for a search engine, a pushpin, and links for 'Sign in' and 'Menu'. Below the header is a large white search bar with the OneSearch logo on the left, the placeholder text 'Search anything', a microphone icon, a magnifying glass icon, and the text 'ADVANCED SEARCH' on the right.



CSULB | University Library

LIBRARY SEARCH NEWSPAPERS SEARCH JOURNAL SEARCH BROWSE SEARCH DATABASES CITATION LINKER

OneSearch

What are you looking for today?

Everything

ADVANCED SEARCH

Sign in Menu

Detailed description: This screenshot shows the top navigation bar of the CSULB OneSearch website. The header is black with the CSULB logo and 'University Library' on the left. A horizontal menu contains links for 'LIBRARY SEARCH', 'NEWSPAPERS SEARCH', 'JOURNAL SEARCH', 'BROWSE SEARCH', 'DATABASES', and 'CITATION LINKER'. On the right side of the header, there are icons for a search engine, a pushpin, and links for 'Sign in' and 'Menu'. Below the header is a large yellow search bar with the OneSearch logo on the left, the placeholder text 'What are you looking for today?', a dropdown menu set to 'Everything', a microphone icon, a magnifying glass icon, and the text 'ADVANCED SEARCH' on the right.



SSU | UNIVERSITY LIBRARY

NEW SEARCH JOURNAL SEARCH NEWSPAPER SEARCH BROWSE ILL REQUEST

OneSearch

Search anything

Search Everything

CSU+

ADVANCED SEARCH

Sign in Menu

Detailed description: This screenshot shows the top navigation bar of the SSV UNIVERSITY LIBRARY OneSearch website. The header is dark blue with the SSV UNIVERSITY LIBRARY logo on the left. A horizontal menu contains links for 'NEW SEARCH', 'JOURNAL SEARCH', 'NEWSPAPER SEARCH', 'BROWSE', and 'ILL REQUEST'. On the right side of the header, there are icons for a search engine, a pushpin, and links for 'Sign in' and 'Menu'. Below the header is a large white search bar with the OneSearch logo on the left, the placeholder text 'Search anything', a dropdown menu set to 'Search Everything', another dropdown menu set to 'CSU+', a microphone icon, a magnifying glass icon, and the text 'ADVANCED SEARCH' on the right.



# Scope

General concept used to differentiate subsets of resources or information. (Primo Back Office & Primo VE)



# Slot

Selectable group of search scopes in Primo VE.



# Tab

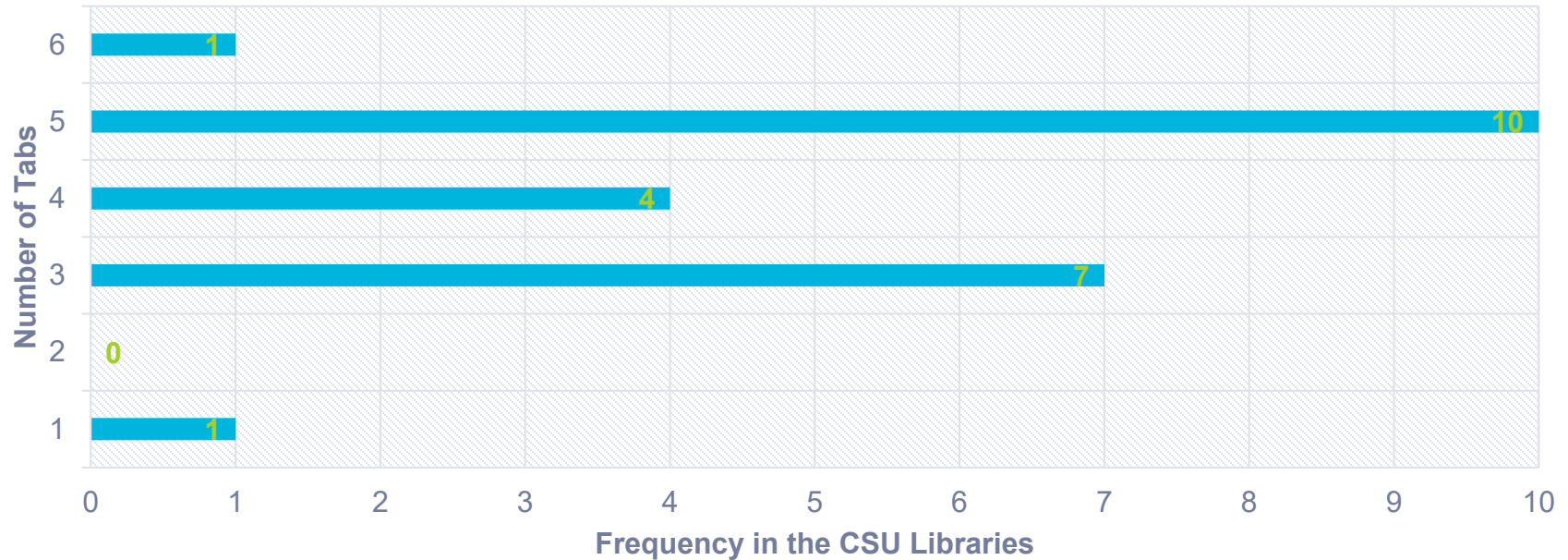
Selectable grouping of search scopes in Primo New UI (Primo Back Office).



# Tab Frequency

2017 - 2019

## Campus Tab Counts \*



\* During study period.

# Primo Analytics Data

Calendar Years 2017 - 2019

- ▶ Institution Name
- ▶ Action Sub Group
- ▶ Action
- ▶ Search Scope Type
- ▶ Action Tab
- ▶ Referrer
- ▶ User Group
- ▶ Signed in [numeric]
- ▶ Actions (searches) [numeric]
- ▶ Sessions [numeric]
- ▶ On Campus [numeric]

## Synthetic Variables

- ▶ Searches per session
- ▶ **Used:** advanced, browse, journal, newspaper search "Exploration"
- ▶ Various Referrer descriptors
- ▶ Action **AND** Scope **AND** Tab Match Library Homepage Default combined with referrer to measure origination

# Exceptions & Caveats

## Primo Analytics bugs/defects

- ▶ Blank values
- ▶ Blank user groups



- ▶ Both FIXED August 2021

## Primo Analytics limitations

- ▶ Does not paint a full picture of usage
- ▶ Ex Libris codes



- ▶ Asked only the questions the data could answer
- ▶ Large sample size

## Lack of Standardization

- ▶ Tab/Slot names
- ▶ User groups



- ▶ Manually reconciled names based on behavior
- ▶ Reconciled user groups by verifying directly with each campus



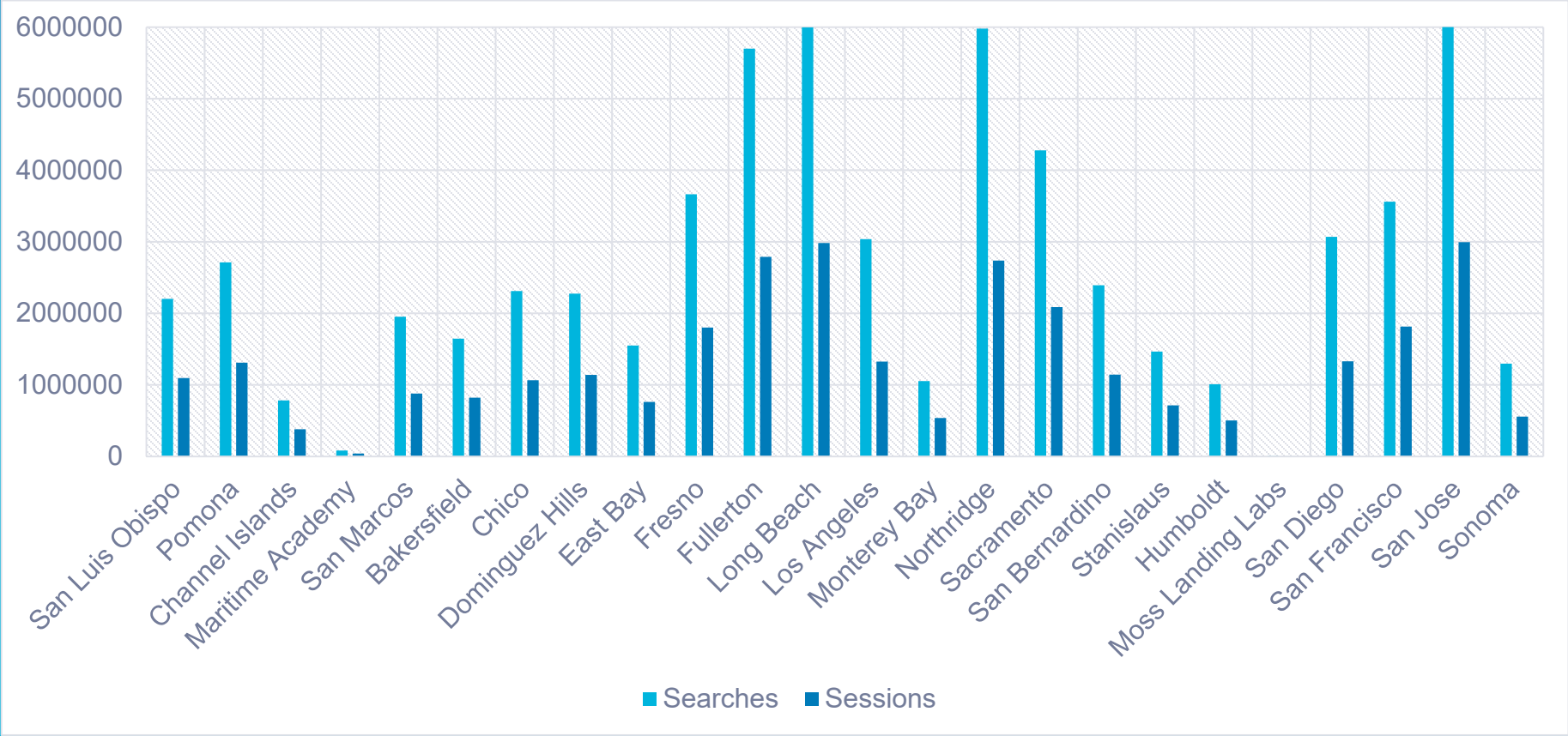
# Usage Patterns

Across all libraries and groups



# Campus Activity

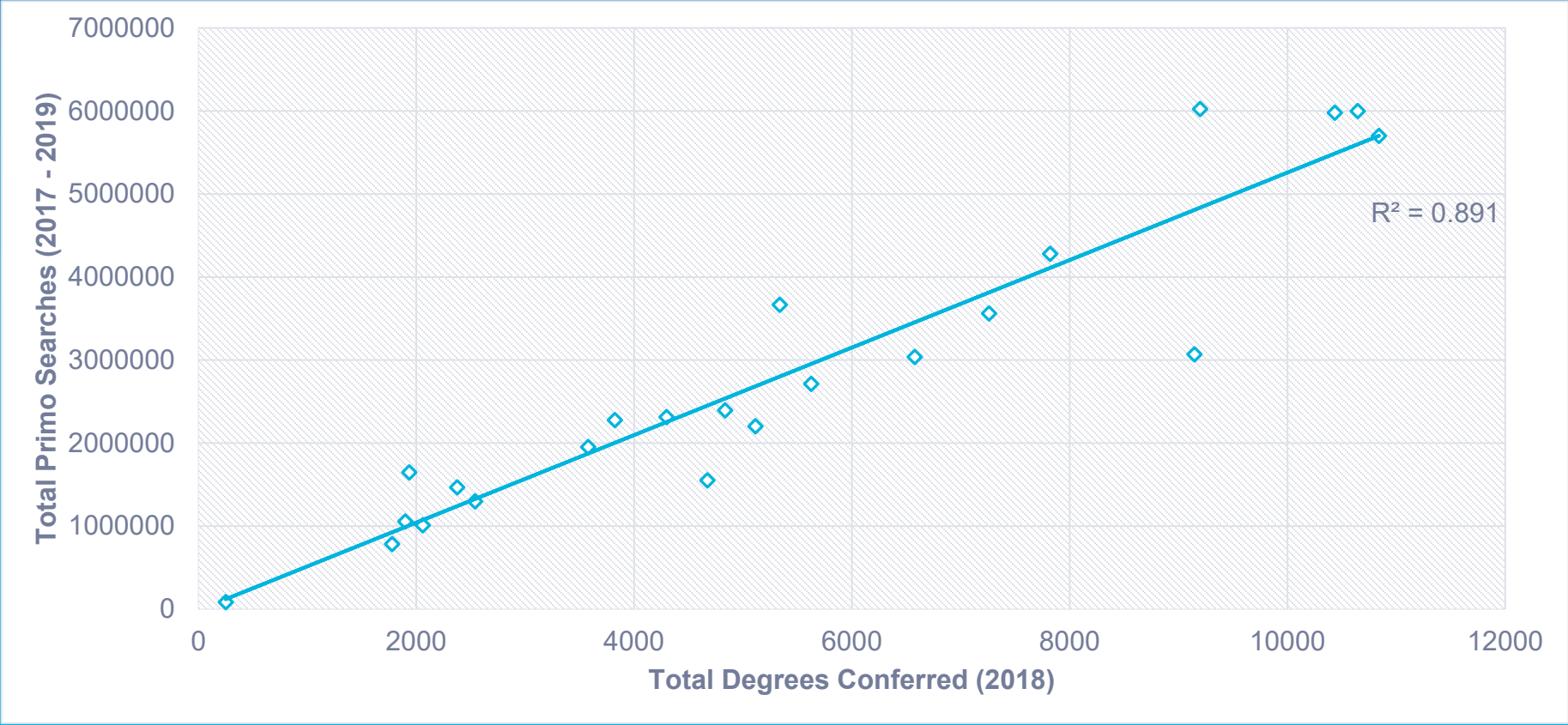
2017 - 2019





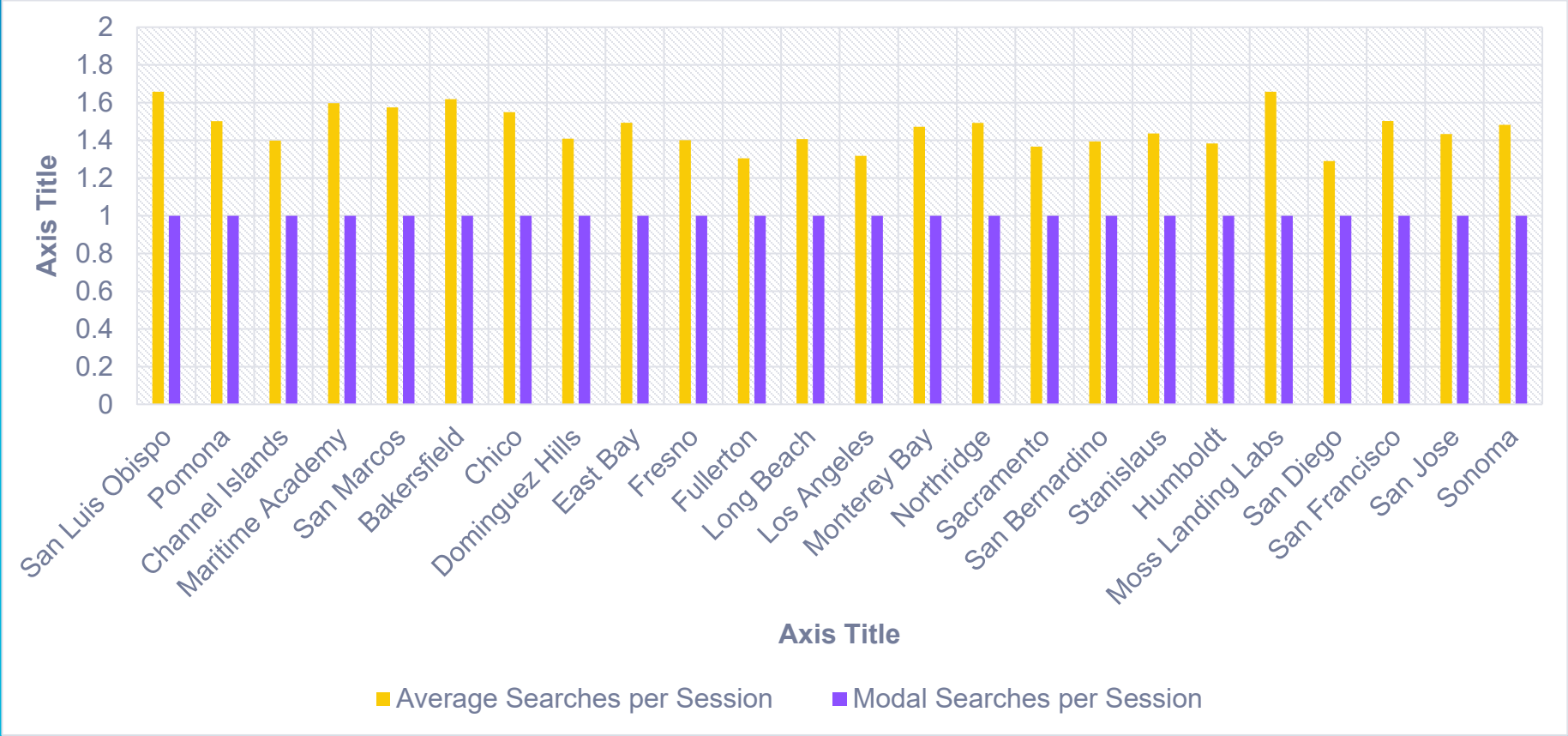
# Search activity is a function of size

2017 - 2019 searches, 2018 Degrees



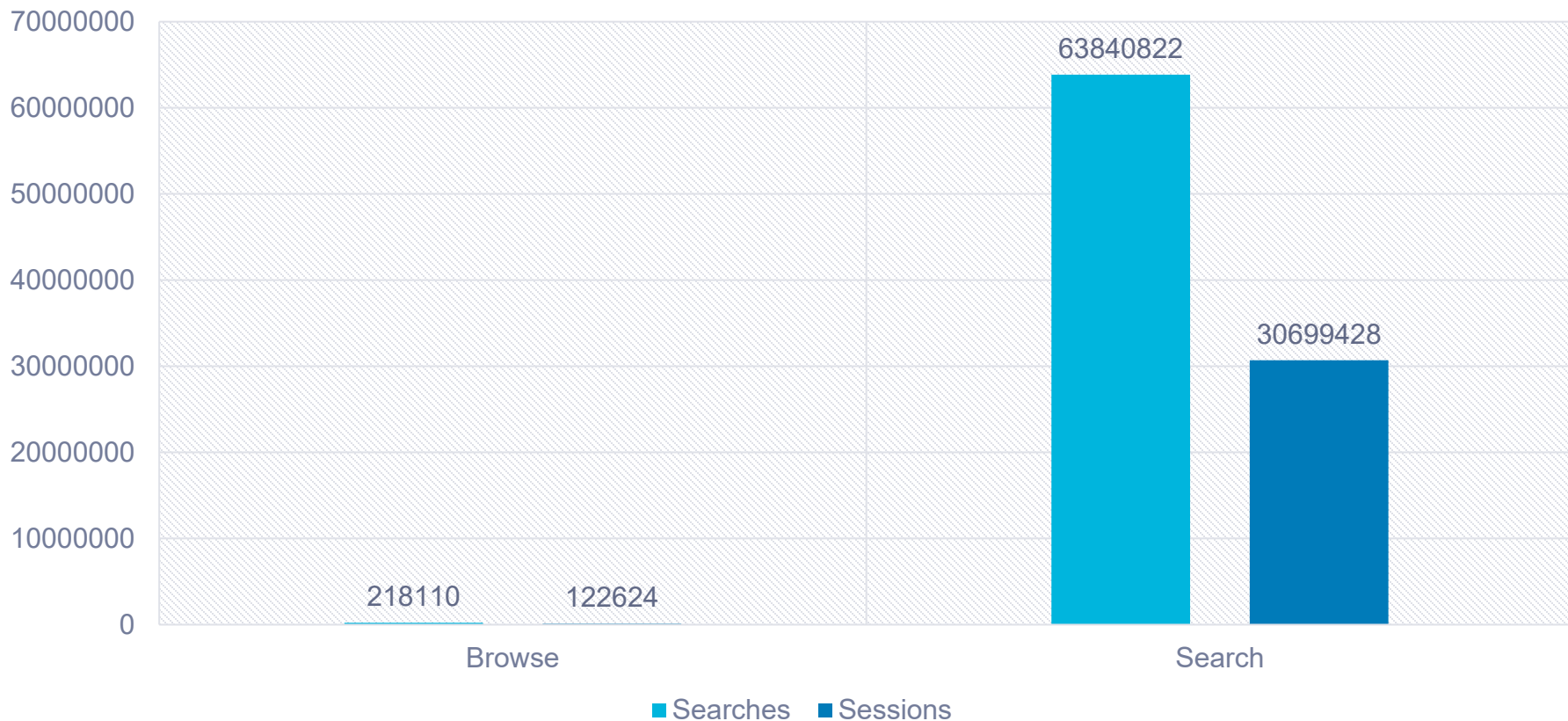
# Search Session Ratio

2017 - 2019



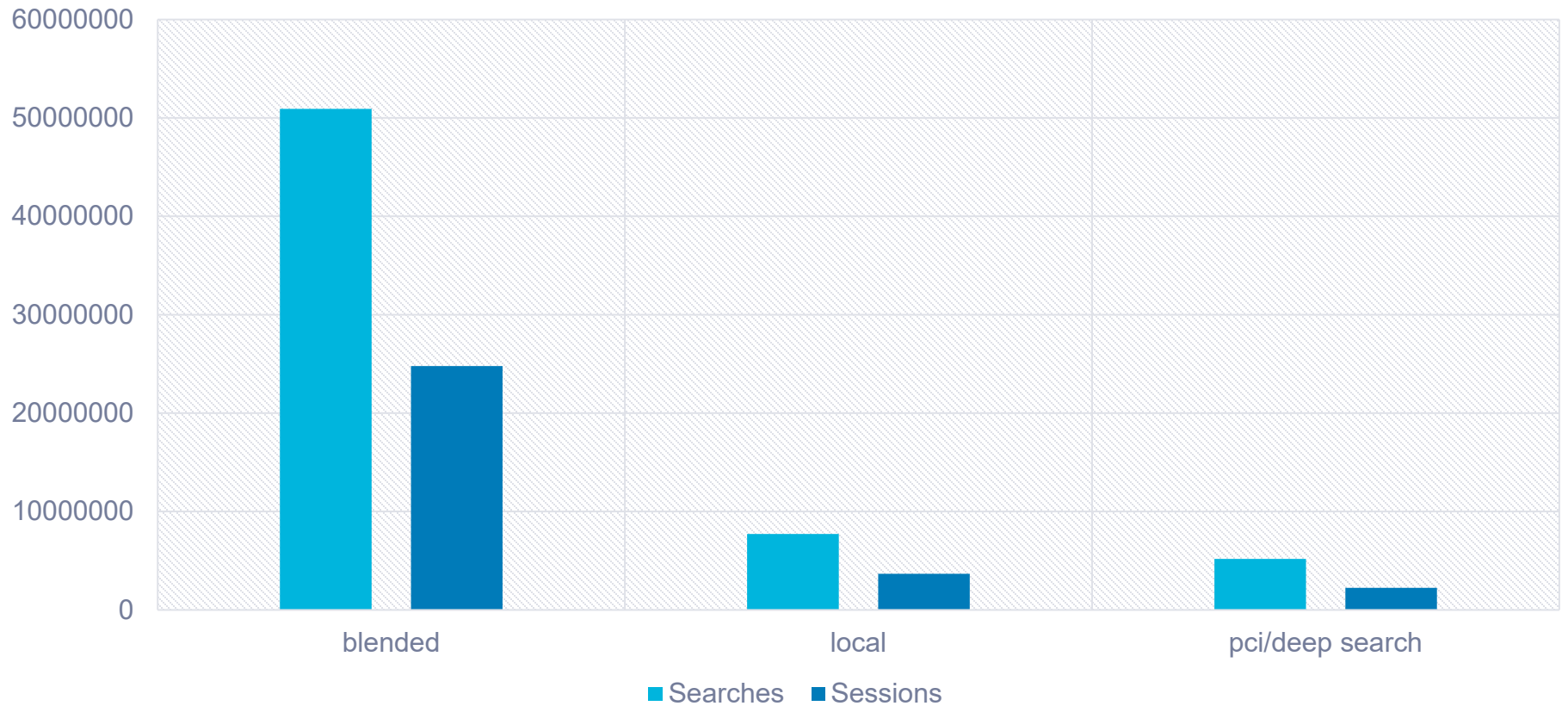
# Action Group Activity

2017 - 2019



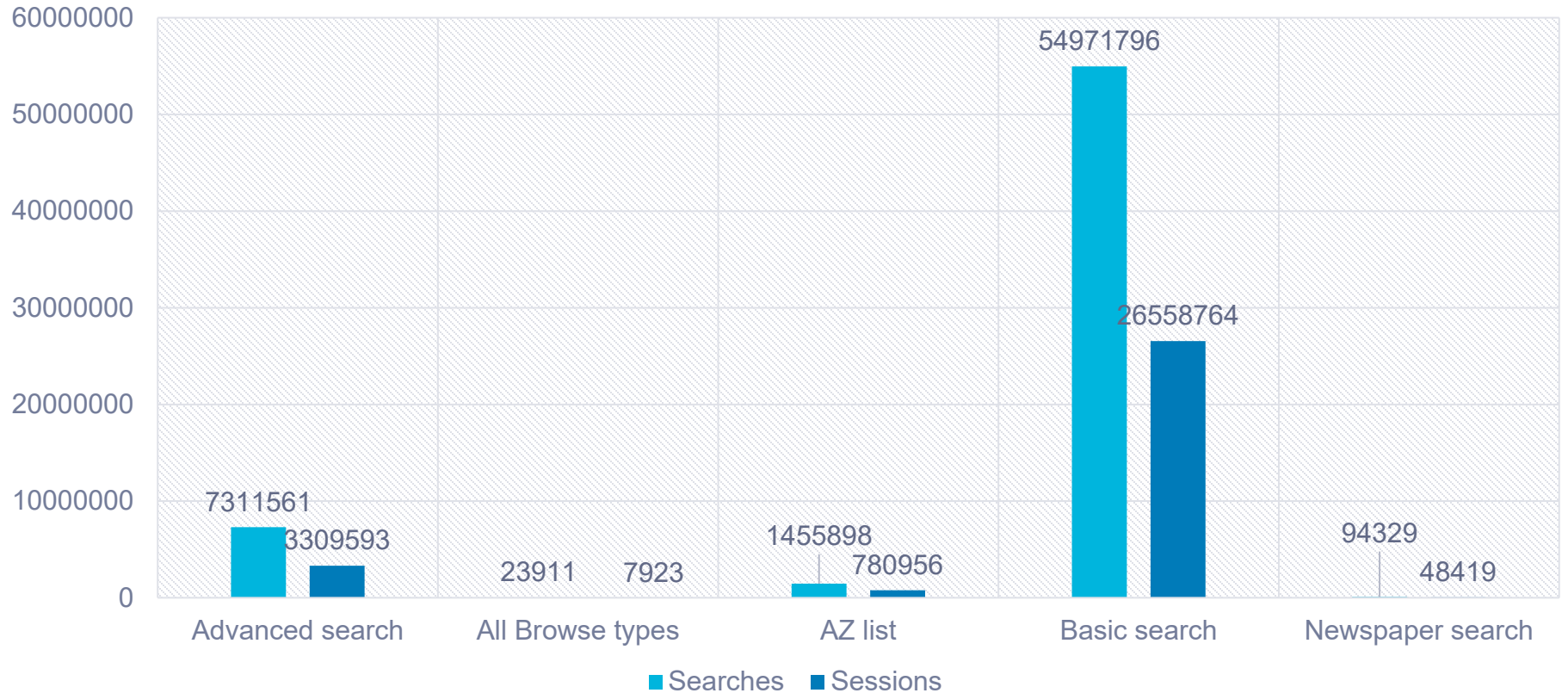
# Scope Type Activity

2017 - 2019



# Action (Search Type) Activity

2017 - 2019



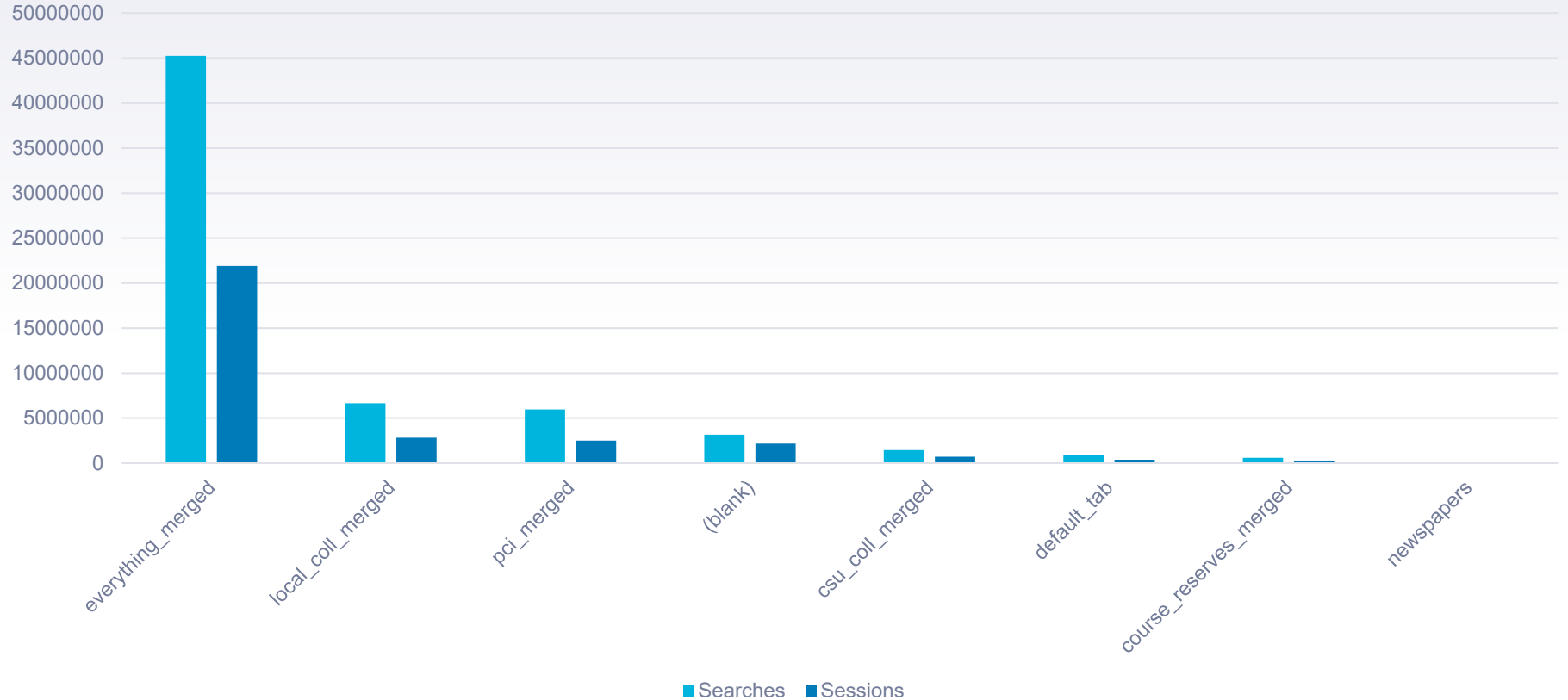
# Unsurprising Findings



# Differences Between Active Tab Usage

		Sum of Squares	df	Mean Square	F	Sig.
Searches	Between Groups	164718602477.311	16	10294912654.832	11.451	<.001
	Total	28047539705773.496	31030			
Sessions	Between Groups	38152162973.796	16	2384510185.862	12.220	<.001
	Total	6090204014385.499	31030			

# Active Tab Activity\* 2017 - 2019



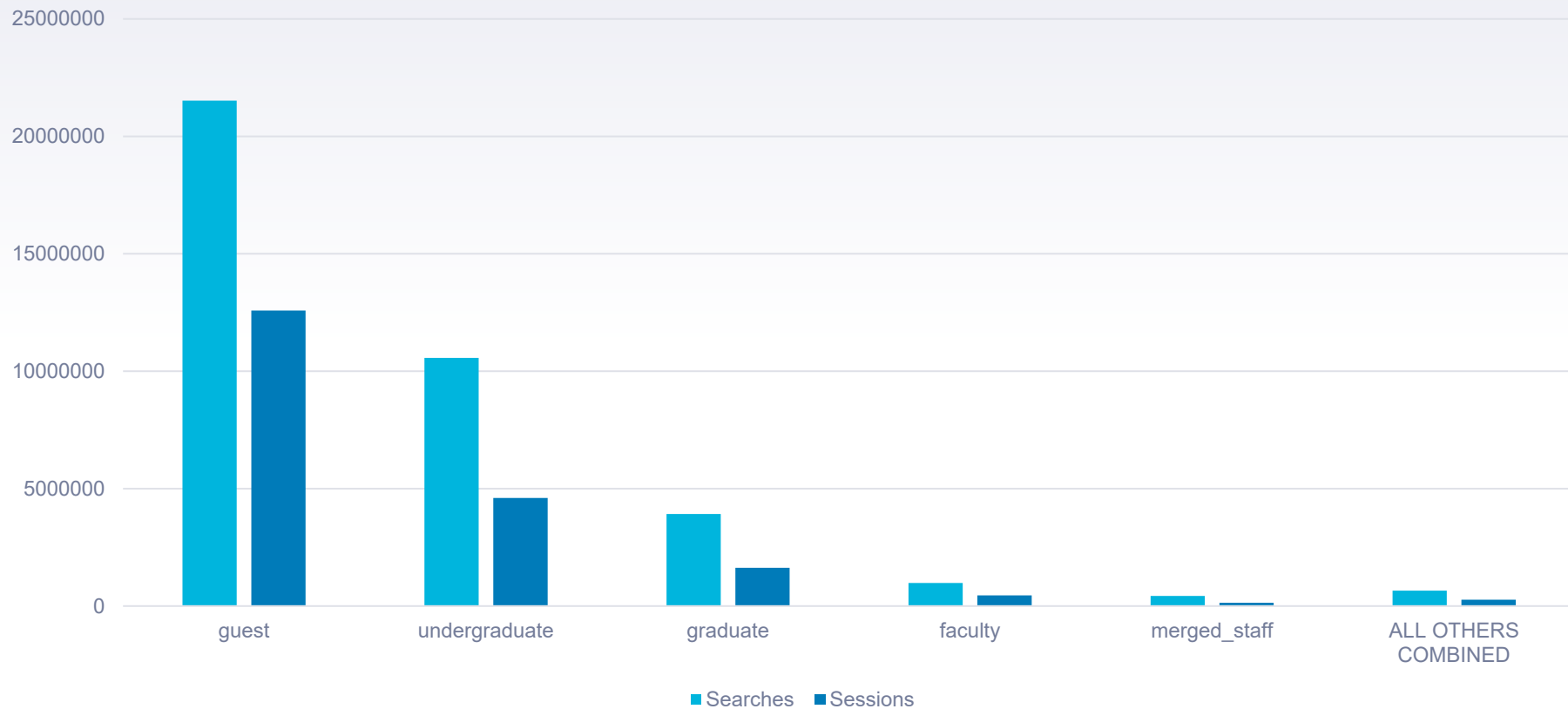
\* Tabs with usage smaller than 'newspapers' not pictured



# Differences Between User Groups Usage

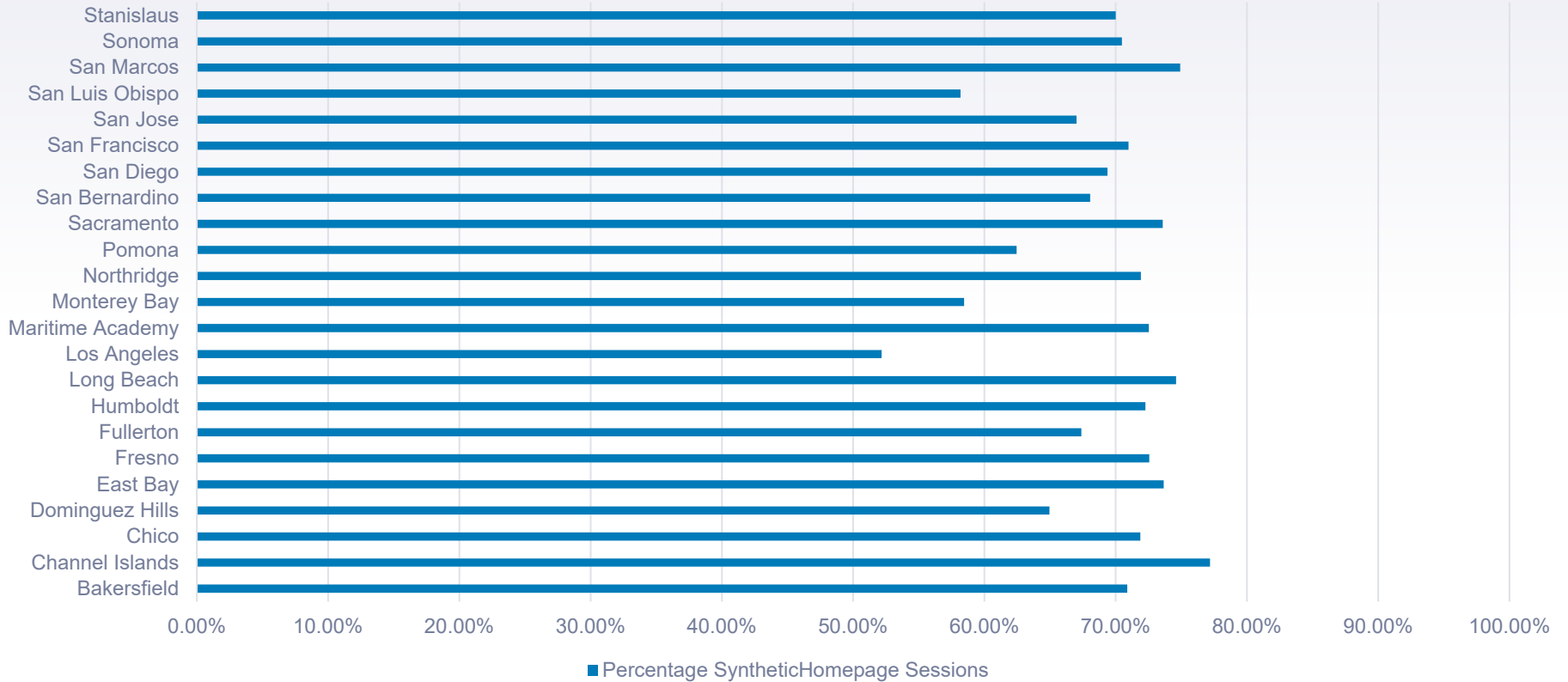
		Sum of Squares	df	Mean Square	F	Sig.
Searches	Between Groups	846998058401.018	50	16939961168.020	19.294	<.001
	Total	28047539705773.438	31030			
Sessions	Between Groups	153969752837.709	50	3079395056.754	16.071	<.001
	Total	6090204014385.519	31030			

# User Group Activity\* 2017 - 2019



\* Blank values (Ex Libris Primo Analytics error) not pictured

# Homepage Query Origin as % of Total Usage



# Searches\* Using the Default Homepage Settings Originating from Homepage



\* Excluding blank data



# Surprising Findings



## *No* statistically significant difference between on/off campus search behavior

**Action Activity** (i.e. basic, advanced, browse, journal, newspaper)

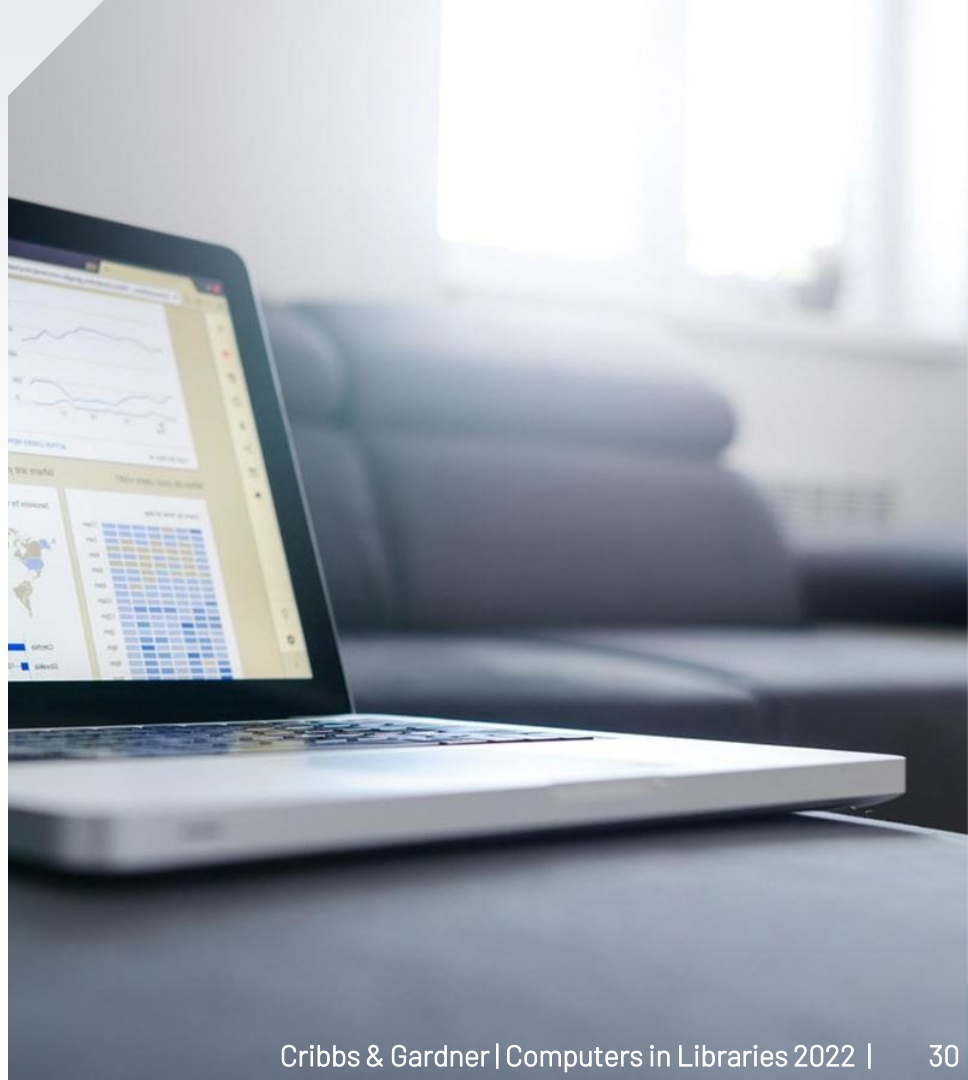
- ▶ Searches (t-test)  $p=0.48$
- ▶ Sessions (t-test)  $p=0.44$

**Scope Type Activity** (i.e. local, PCI/CDI, blended)

- ▶ Searches (t-test)  $p=0.43$
- ▶ Sessions (t-test)  $p=0.43$

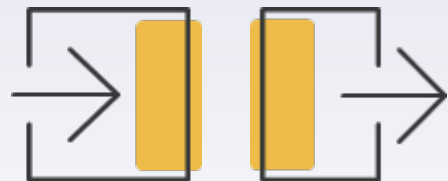
**Active Tab Activity** (i.e. Everything or CSU+)

- ▶ Searches (t-test)  $p=0.39$
- ▶ Sessions (t-test)  $p=0.35$





# No statistically significant difference between signed in *(or not)* search behavior



## Action Activity

- ▶ Searches (t-test)  $p=0.39$
- ▶ Sessions (t-test)  $p=0.46$

## Scope Type Activity

- ▶ Searches (t-test)  $p=0.38$
- ▶ Sessions (t-test)  $p=0.45$

## Active Tab Activity

- ▶ Searches (t-test)  $p=0.28$
- ▶ Sessions (t-test)  $p=0.35$



# No statistically significant difference in how user groups query

## User group queried PCI/CDI

- ▶ Searches (t-test)  $p=0.21$
- ▶ Sessions (t-test)  $p=0.22$

## User group came from homepage search

- ▶ Searches (t-test)  $p=0.56$
- ▶ Sessions (t-test)  $p=0.52$

## User group "explored" (i.e. used: advanced search, browse, journal, newspaper)

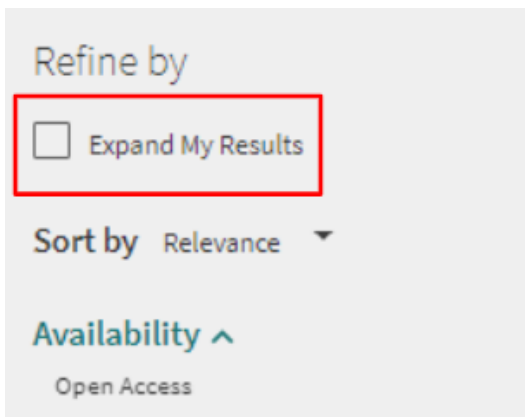
- ▶ Searches (t-test)  $p=0.27$
- ▶ Sessions (t-test)  $p=0.27$



# Limitations

## Inconsistent Public Terminology

- ▶ Definitions of "everything"
- ▶ Post search filters
- ▶ "Expand My Results"



## Primo Analytics as a Data source

- ▶ Active\_Tab value was blank
  - ▶ 5% of all searches
- ▶ User Group data blank
  - ▶ 40% of all searches
- ▶ Qualitative data and user perspectives

## Researcher Assumptions

- ▶ Referrer data in Primo Analytics
  - ▶ Homepage form action attribute pointing to Primo with target attribute = \_self
- ▶ Design changes
  - ▶ Layout and navigation alterations to CSU libraries' homepages during study period

# Simplify search tools

Web usability & human-computer  
interaction studies



# Themes from relevant literature & current research studies

## Comparing discovery layers with Google

Students' persistent expectation that any search box has a "search all" functionality as "students approach library search boxes as if searching Google" Vargas Ochoa, 2020.

## UX and system design

"Discovery layers should conform to common design practices in other search tools (e.g., Google Scholar) so that users are able to transfer their experience of other systems to the discovery layer" Zhang, 2013.

## Use of filters, facets, dropdowns, and tabs

"Test subjects had difficulty navigating and finding information in the Primo tabbed structure" including "users' confusion in distinguishing between a journal and a journal article" Galbreath et al., 2018.

# Final thoughts

No statistically significant differences between user search behavior.  
How can we accommodate faculty and other "super users"?  
Do user personas represent real world actions?

Users primarily engage in searching for answers overing browsing.  
Dropdowns and prefilter options are often ignored by users.  
Should we eliminate unused scopes to reduce cognitive overload?

When users encountered the Advanced search as the default search type, most searches were still completed in Basic, meaning users actively opted out in preference of simple search.

Most searches originated from the "default" landing page adding evidence to the importance of UX and website design.  
The library homepage is likely a user's first experience with our discovery systems.

# THANKS!

## Any questions?

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Presentation template [SlidesCarnival](#)

Illustrations [Sergei Tikhonov](#)

Photographs [Unsplash](#)

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