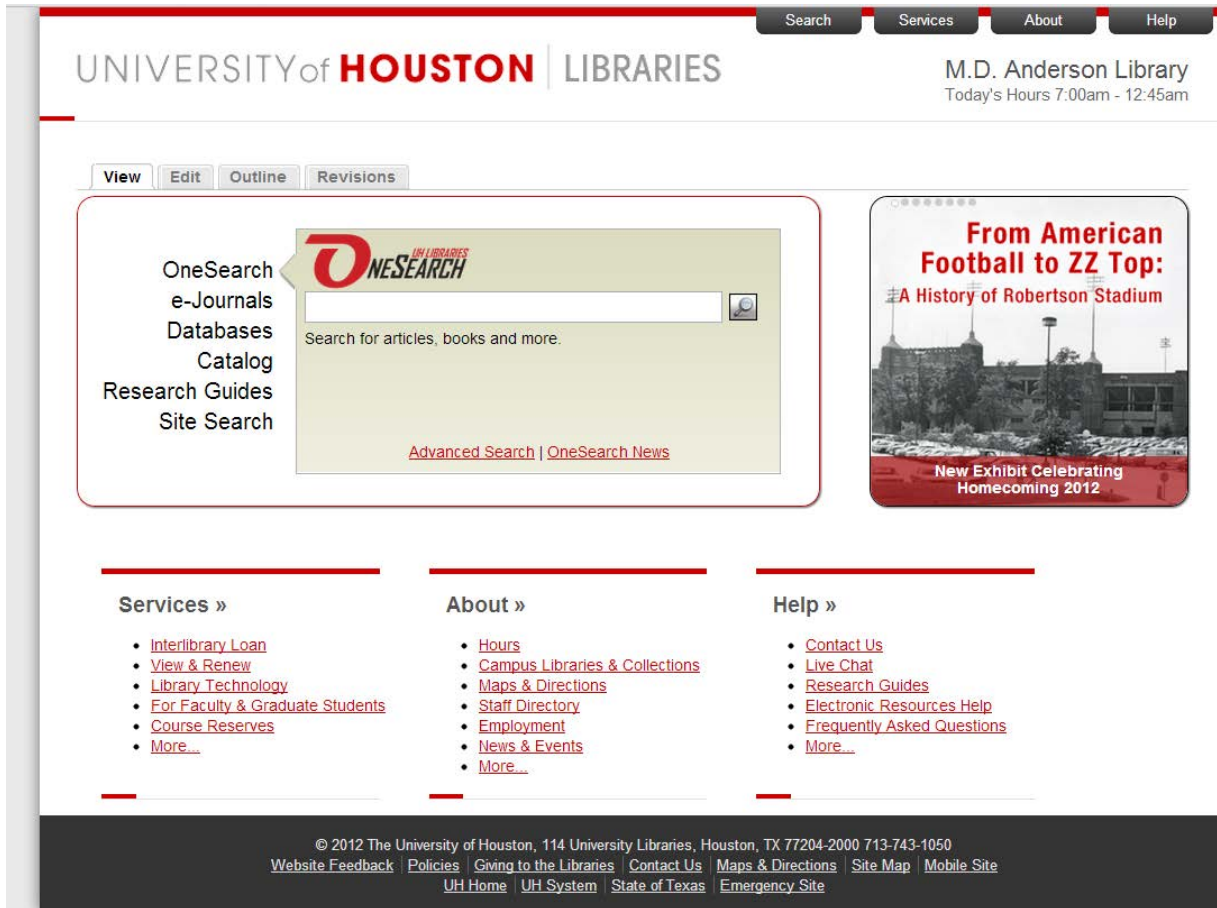


# Understanding user behavior through transaction logs

Elizabeth German

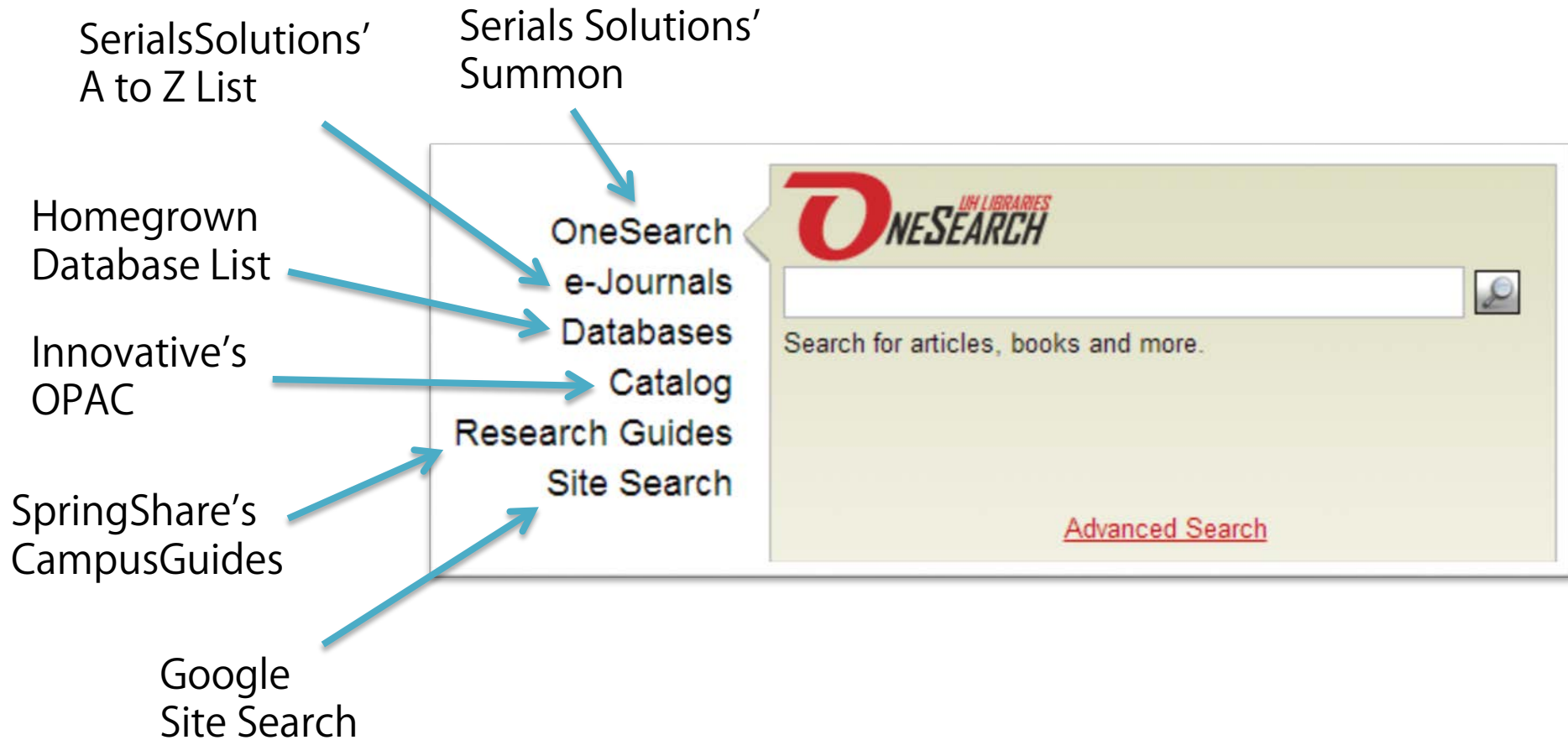
Kelsey Brett

# Background



- University of Houston libraries redesigned website in 2010
- Implemented new tabbed search interface
- Transaction log was added to the search interface in 2011

# Search Tabs



# What is a transaction log?

- A record of user interactions with a system
- We recorded
  - Search Terms
  - Tab used
  - SessionID
  - Date and Time
  - On or Off campus
  - Unique ID for the search

# Transaction log

A	B	C	D	E	F
OneSearch	Main Library	2013-03-11 02:15:09	ishmael	jfhfiia272l6g948c84pdg5gv5	>>
OneSearch	Optometry Lib	2013-03-11 02:22:16	Relationship Between Retinal Blood Flow and Renal F	jjmlj6d0st7nrkuubtorf5lch6	On campus
OneSearch	Main Library	2013-03-11 02:42:15	language impairments in elementary school	9jn8ke01i7k7j53rp0ts5ga6d3	Off campus
OneSearch	Main Library	2013-03-11 02:54:26	Wsj	ka9b36h5iocak7rnvneqmrn4c2	Off campus
OneSearch	Main Library	2013-03-11 03:55:12	a study of the burning of the slick of crude oil in wate	2fe8s7uni3esbo2m7dgcfkf367	Off campus
OneSearch	Main Library	2013-03-11 04:00:57	Ultralong-range phase imaging with orthogonal dispe	lgkgklv2pbf3pgp05rbqk1mih6	Off campus
Catalog	Main Library	2013-03-11 04:10:08	human right religious neutrality	i9ig090duk9v6of6t3ltc0kjg5	Off campus
OneSearch	Main Library	2013-03-11 04:10:27	psych info	ra9qh67gj1dijk2ve6hqo45854	Off campus
Databases	Main Library	2013-03-11 04:19:27	antivirus	p947uft83g54pvrujvp6p9nfm7	Off campus
OneSearch	Main Library	2013-03-11 04:31:14	great exhibition 1851	gect30pm4oe61dk966p0sa71e3	Off campus
OneSearch	Main Library	2013-03-11 04:36:17	Sociology of Rights: "I Am Therefore I Have Rights": H	i9ig090duk9v6of6t3ltc0kjg5	Off campus
OneSearch	Main Library	2013-03-11 04:36:49	a comparison of conversation based to imitation	9jn8ke01i7k7j53rp0ts5ga6d3	Off campus
e-Journals	Main Library	2013-03-11 04:37:38	journal of speech and hearing research	9jn8ke01i7k7j53rp0ts5ga6d3	Off campus
Catalog	Main Library	2013-03-11 04:47:20	do not deny me	726gmmuivtqei6j57f4q3l2eq2	Off campus
OneSearch	Main Library	2013-03-11 05:31:27	Neo-kantian reader	65pdp14l8ee4pf17r73gcoinq0	On campus
OneSearch	Main Library	2013-03-11 06:00:30	Ann Elizabeth Mayer	i9ig090duk9v6of6t3ltc0kjg5	Off campus
e-Journals	Main Library	2013-03-11 06:14:52	Nuclear Instruments and Methods in Physics Researc	ma3l2ums17kjm1gj7cro0d7ms0	Off campus
OneSearch	Main Library	2013-03-11 06:19:49	expected profit, price change and risk aversion	6ttof874hb0eqh2cjlthvptea7	Off campus
OneSearch	Main Library	2013-03-11 06:57:22	song for anninho	m1dh5dgj9cin3hv7nb0ii5rlk7	Off campus
OneSearch	Main Library	2013-03-11 07:06:32	Music and Nazism: Art under Tyranny	aauh0dpm3j8qni59ecne3q0gh6	Off campus
OneSearch	Main Library	2013-03-11 07:27:42	Bordetella pertussis strain variation and evolution po	r1jvhbgc0o8df27h4t6ru039i7	Off campus
e-Journals	Main Library	2013-03-11 07:43:49	journal of laboratory and clinical medicine	je8h3vbr1ou7qf444qtiru61g0	Off campus
Databases	Main Library	2013-03-11 07:44:16	game of thrones	86rkbvfufvocbcdjfgkhontn537	On campus

# How does it work?

1. User searches for **Stone circles** in the **OneSearch** tab
2. A URL is generated  
<http://info.edu/search?q=stone+circles&tab=oneseach>
3. Code writes “q” and “tab” information into a database

SearchID	q	tab
546546	Stone circles	oneseach

4. Code generates and sends user to vendor URL  
<http://summon.com/search?s.q.=stone+circles>

# The Transaction Log Team

- Beth German – Web Services Coordinator
- Kelsey Brett – Resource Discovery Systems Fellow
- Frederick Young – System Analyst 3



# Methodology: Defining Tabs

OneSearch	<p>Broad range of searches for users with varying levels of search skill and for items that are owned, licensed, or free.</p> <ul style="list-style-type: none"><li>• Exploratory searches</li><li>• Known items with different elements of bibliographic information (numbers, titles, authors)</li><li>• Discovery of all types of library material (articles, spec coll, books)</li></ul>
e-Journals	To find a known full text journal
Databases	To find a known database
Catalog	Broad range of searches for users with skills and for items owned by the library
Research Guides	To find a guide to resources related to a subject or a course
Site Search	To find information about the library, services, and events



# Methodology: Coding

Tab	Branch	Date	Search String	code	Numb	Citati	AU/TI	Title	Tab_J	Name	KI/	Lib It	Tab	Notes	SessionID	Location
Databases	Main Library	2011-11-07 14:5	Dissertations								UI			could be "Disse	vuhino5mdc19	Off campus
Databases	Main Library	2011-11-07 14:4	science					Journal			KI		x	could be a gen	mvs5dvfrndp1j	Off campus
OneSearch	Main Library	2011-11-07 07:2	sraka								UI			could be a pers	mkefee7113r43	Off campus
OneSearch	Main Library	2011-11-07 14:5	fight club					Book			KI			could be book	j6qtgebdtgntfrii	Off campus
Catalog	Special Collect	2011-11-07 15:4	Brokeback Mo					Film			KI			could be book	dooje42puk32l	On campus
e-Journals	Main Library	2011-11-07 13:2	Generations								UI			could be lookir	cdum4use6t6d	On campus
OneSearch	Main Library	2011-11-07 09:5	power and inte								UI			could be one o	5tpha6hc6kgun	Off campus
Catalog	Main Library	2011-11-07 10:5	Angels in Amer					Art Piece			UI			could be play c	j2flf21jehv9djt	On campus
OneSearch	Main Library	2011-11-07 10:0	info psych								UI			could be Psychl	a71ldv5ld8uba	Off campus
Research Guide	Main Library	2011-11-09 14:4	hrma								ui	x		Course Guide	ju7mjara19449k	On campus
Research Guide	Main Library	2011-11-09 14:5	comd								ui	x		Course Guide	fqdjbottd4f3kc	On campus
Research Guide	Main Library	2011-11-09 14:5	genb								ui	x		Course Guide	9t9ngkro4g9itb	On campus
OneSearch	Main Library	2011-11-09 12:1	Huitzilopochtli							person	ui			diety	ic4iitdctk7rhf7:	Off campus
OneSearch	Main Library	2011-11-10 10:5	""Orunile,' hea					book			ki			dissertation	vvnotpthkgon7	Off campus
e-Journals	Main Library	2011-11-07 10:0	28th IEEE Phot								KI			Doesn't work w	12bq5m6shqe7	Off campus
e-Journals	Main Library	2011-11-07 07:4	group processe								UI			don't want to c	a5667kd7ms2i5	On campus
e-Journals	Main Library	2011-11-12 15:2	scientific jury s					Book			K			E-Book	no4eduk8jteqc	Off campus
OneSearch	Main Library	2011-11-09 17:1	pareda tine sni				x	Essay		person	ki			Essay withing a	0rds7u92c1eq	On campus
e-Journals	Main Library	2011-11-09 17:2	language					journal			ki			exact match	dpr59i3a21ah8:	On campus
OneSearch	Main Library	2011-11-10 10:5	killing us softly					movie			ki			film	0f5lke9ud303v:	On campus
OneSearch	Main Library	2011-11-12 19:0	falsification of					Article			K			First phrase of	c5abfgoq7it61c	Off campus
OneSearch	Main Library	2011-11-07 10:4	Born, ?mile. Vi			x		Book		Person	KI			french	9ksgi309ccvmu	Off campus
Catalog	Main Library	2011-11-07 16:4	Le Bayou								UI			french	q69jq594kr0do	On campus
OneSearch	Main Library	2011-11-07 19:1	FCC v Comcast							Organizati	UI			Government b	vovv9f8bbfr61:	Off campus
OneSearch	Main Library	2011-11-07 08:4	hodge, d. prep							Person	UI			incomplete titl	vlm4h5hodoa6	On campus
OneSearch	Main Library	2011-11-07 09:5	Renewing the					Book			KI			incomplete titl	h96eerp1478cr	On campus
OneSearch	Main Library	2011-11-07 11:1	the complete f					Book			KI			incomplete titl	s1fpkhb7k5gq2	On campus
OneSearch	Main Library	2011-11-07 14:0	neural and cog					Book			KI			incomplete titl	snfgrmlfqpbhp	On campus
OneSearch	Main Library	2011-11-07 14:2	remapping the					Article			KI			incomplete titl	0iq7unc6on2r:	On campus
OneSearch	Main Library	2011-11-07 14:5	lecture in comp					Journal			KI			incomplete titl	nt59pdq3kiing:	Off campus
OneSearch	Main Library	2011-11-07 15:0	kerzner projec				x	Book		Person	KI			incomplete titl	cnaqdhiquqve:	On campus
OneSearch	Main Library	2011-11-07 15:1	rossmanite								UI			incomplete titl	kfv548t2g9t8p5	Off campus
OneSearch	Main Library	2011-11-07 15:5	windley runaw				x	Book		Person	KI			incomplete titl	afc3mro35j3atr	Off campus

# Methodology: Coding Key

Field	How to code
Numbers	Label with {ISBN, Call #, ISSN, OCLC, DOI, Standard, Course #}
Citation	Citation: 3 or more elements; Mark with x
Author/Title Combo	Mark with x
Title	Label with {Journal, Article, Book, Conference Proceeding, Musical Work, Art Piece, Presentation, Scripts}
Tab Jumping	User moved from one tab to another with minimal modifications; Mark with x; Do not mark original search as tab jumping
Name	Label with {Person, Organization, Test, Geographic Location, Database}
Known/Unknown Item Search	Label with {KI, UI} <i>Known Items: When the query indicates a clear intent on the user's part to locate a specific item</i>
Library Information	For things such as Hours or a service or research guide; Mark with x
Tab Inappropriate	Mark with x if search functionality is not optimized for search terms

# Analysis: Tab Usage

Tab	Total	Total %	Sample	Sample %
Catalog	54856	11.307741	421	9.78159851
Databases	39068	8.05328177	313	7.27230483
e-Journals	52529	10.8280649	431	10.0139405
OneSearch	320769	66.1217145	3023	70.2369888
Research Guides	11753	2.42270453	75	1.74256506
Site Search	3732	0.76929578	26	0.60408922
Totals	485119		4304	

# Analysis: Coding Results

Coded As	Instances	%
Unknown Items	1858	57
Known Items	2446	43
Marked Citation and Title: Article	47	1
Title: Article	441	10.2
Marked Citation and Title: Book	68	1.6
Title: Book	505	11.7
Name: Database	183	4.3
Title: Journal	384	8.9

# Analysis: Tab Inappropriateness

Tab	# Inappropriate	# Total Tab Searches	% Inappropriate
Catalog	24	421	5.7
E-Journals	123	431	28.5
Databases	125	313	39.9
Research Guides	22	75	29.3
Site Search	12	26	46.1

# Findings: Coding to User Tasks

Coded As	%	Identified User Task
Unknown Items	57	User task could not be identified
Known Items	43	I need to find a particular item
Marked Citation and Title: Article	1	I'm looking for an article and I have some citation information
Title: Article	10.2	I'm looking for an article and I have the title
Marked Citation and Title: Book	1.6	I'm looking for a book and I have some citation information
Title: Book	11.7	I'm looking for a book and I have the title
Name: Database	4.3	I'm looking for a particular database
Title: Journal	8.9	I'm looking for a particular Journal

# Findings: Tasks v. Tab Appropriateness

Tasks	OneSearch	Catalog	e-Journals	Database	Research Guides	Site Search
User task could not be identified	1865	207	153	157	34	20
I need to find a particular item	1158	214	278	156	41	6
I'm looking for an article and I have some citation information	47	0	0	0	0	0
I'm looking for an article and I have the title	412	3	14	10	2	0
I'm looking for a book and I have some citation information	60	8	0	0	0	0
I'm looking for a book and I have the title	375	117	4	9	0	0
I'm looking for a particular database	45	4	11	115	4	4
I'm looking for a particular Journal	107	29	237	10	0	1

# Findings

- When users know what they are looking for they typically choose an appropriate tab
  - Example: Users are searching for journal titles and database names more in the appropriate tab than in OneSearch
- Users are using the catalog tab appropriately
- Research Guides and Site Search are not widely used
- Unknown item searching is common



# Implementing Change

- Team is (currently) writing a report with findings and recommendations
  - Example recommendation:
    - Simple: Change e-journals to “E-journal Title”
    - Complex: Combine OneSearch and Databases tabs
- Sharing information with stakeholders
- Future user studies

# Thank You!

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