PARTICIPANT 1

1.1

There is not a single state parks layer. People have to know that they can take a subset of data from a larger thing.

Keyword search “state parks nc” (no extent)

Ton of results. “normally I just do a quick search. Knowing what extent I’m looking at, I’ll usually look at that first, then the source of the data. The first thing for me here [results screen] is ‘why can’t I sort by extent?’ I would love to have it, to make my visual skimming easier.

Modifies search to “state parks north carolina” (no extent)

Tons of results. “the keywords are so inclusive, I always think like ‘wow, this is a lot of county data… where is north carolina?’”

He is scrolling up and down a giant list of returns, somewhat aimlessly.

“I’m browsing the list, looking first at ‘extent’ then at ‘source’ or description [title].” He’s looking for the title something like “north carolina state parks” “usually I do a search on keywords that are relevant, in this case ‘north carolina state parks’ and then I’ll be skimming down. There might be something national with all the state parks but that would be really big and maybe not up to date, so I usually try to find something with the exact extent of what I’m looking for. There are certain kinds of data where I just go to the source (though usually I start at this GIS page). For example elevation data, I use NCDOT directly. When using the GIS search, I have such a short tolerance for data search, that if it isn’t easy to find on your site I’ll go out and just do a Google search. Or I’ll go to the source agency and contact their GIS person directly. Or I do both.

“People who do this all the time know that they can take a subset of data that they want, they will definitely do that, but that’s a lesson that’s frustrating to teach new GIS users.” A problem for new users is thinking the data will be exactly what they are looking for, not inside something bigger.

1.2

“With something county specific, I always go to the county first. Sometimes it’s not there.”

Keyword search “buncombe county parcels” (in QuickSearch box by accident)
Searches again in correct box, uses find-in-page search for Firefox “buncombe”

Goes back to home page and searches again “buncombe county” (uses \texttt{ctrl F} again and finds)

Goes to individual results screen and from there follows “download GIS data” link, taking him to the county’s web page. Opens the HTML view for the Parcels part of the package and says “next thing is to find out if they have the historical data” (there was years of this data listed on the library GIS page but he didn’t see it on the screen when he was there). To figure that out he’s viewing the HTML metadata view.

“This metadata is tedious” “sometimes there’s no metadata there” instead of looking at metadata, sometimes he’ll just download the shape file and look at it’s attributes in arcCatalog. That’s what he would do next here. If there were only this years property values, he’d directly contact the GIS person of buncombe county and ask for the historic data.

He intuitively knows that parcel data includes property value. A beginner would have no way of knowing.

His personality is “slash and burn through” in terms of when he considers the historic data. First find subject, then download file and look for historic.

Why would you contact Buncombe county’s GIS guy for the historic data instead of Jeff? “I hesitate to bother Jeff unless I really need something. In early days I emailed the library more often, but now I can dig and find something, because he [Jeff] would probably contact Buncombe county so I’ll do that instead and let him do something else.”

He says he does not skim the entire individual return page, he sees “GIS DATA” and goes to it instead of looking further down for the historic data.

“is the libraries’ purpose to give instruction too? I don’t think so.”

1.3

Search for “north carolina populated area” (no extent) extremely large results set. Sees how large it is and quickly modifies search without looking at results, to “north carolina cities” similarly large results. He scans it for the extent “NC” [JEFF ALERTS HIM TO PRESENCE OF EXTENT SEARCH]

“I’ve never even seen that [extent search]” doesn’t modify search, but adds extent search of “north carolina” looking at results he believes that it is returning NC plus everything smaller. Scans results list, finally \texttt{ctrl + f} for “cities”.

“there is too much data. Of course you can use the ‘find’ but I want populated areas in NC and I can’t find it.” Looking in first column.

For highways uses extent NC plus search “north carolina highways” then quickly \texttt{ctrl + f} for “major” since the question has the word “major highways” in it. This search is hitting on keywords like “major
roads” but he seems completely oblivious. He’s simly ignoring anything appearing in the realm of the keywords. Doesn’t realize they might help him search. Instead when the only hits are in that section, he ctrl +F “north carolina highway”

He has the drive mapped through arccatalog and that’s how he downloads.

Students he says, do not understand that they need to download multiple files.

2. Homepage

**How arrive at GIS pages:** bookmarked homepage in toolbar.

**What entry page best:** Homepage (general data) but doesn’t even come to our pages if he needs something specific like soils data where he knows another website to find it immediately. When first started GIS, always started at our site because didn’t know where else to go. Or he Googles “statsco[?] soils data” “wake county GIS data”. Starts at our page in particular if he wants NC data. County boundaries or hydro-layers. If he’s just making a map, starts at our site. If he wants the most up to date data, go directly to source pages.

This homepage is what he shows students to use as their first resource: because “it’s on campus, it’s an important resource and it teaches you that there are outside layers as well.”

**Use this page?** Extent of me using this page is the keyword search. I’ve never even read what else is on here. “I see things like ‘instructions’ and think ‘eh, I don’t do that.’”

**Instructions helpful?**

Maybe. I tend not to use those things. There are some people that want that. Because of all my experience, I know that I can just search and skim the attributes, extent, etc.

3. Extent search

Has never seen or used the search.

**What would “no limit” do?** Will return any data layer without considering extent. All.

**How does it work?** I would think that it would return only things whose actual extent is NC rather than also things that have NC as a keyword. Do you expect to include smaller? Hope not. Only actual extent.

**Ordered intuitively?** No. Logical would be largest to smallest or visa versa (doesn’t realize that they are ordered l-s). Interspersing of national and international demarcations doesn’t seem obvious. Best if the most popular were right at top, NC, USA, or NCSU. Then a bold line demarking, then other ones. Or Wake County would be good, not NCSU maybe. A frequently used list.

4. Keywords
Do you ever use? Sometimes. Depends on how many things I’ve looked at. At how desperate I’m getting. Use results table first. “If I’ve searched 6 different phrases that didn’t work, then I’ll start looking up here [at keywords]”

Skim and find something, click it.

Get in your way? If they are really long they get in my way. It should be a link that should make it appear or disappear.

I tell him that they do collapse, he tries to figure out how and clicks on bold header even though it doesn’t appear to be a link.

Would prefer that “hide” be default.

Didn’t see because it’s not separated in any way, brain doesn’t realize it’s related to what’s below.

How are related terms gathered? Doesn’t know how, doesn’t bother him. Would assume other terms that might have his search term in their stuff. A relational database that has these terms associated somehow.

Do they help you find GIS data? They do help him find GIS data when he uses them. Clue him in on correct term, especially when he was new to GIS. He used to search very specific terms when newbie, these keywords clued him in on how to search.

5. Results table

Understand 6 columns? Yes, pretty good sense from titles.

Sufficient or want something else? Source. He can guess source from title/collection sometimes but would be nice to see it. Pretty happy though!

Ever sort? No. Never done it. If could sort one thing, would be Extent. He’s so accustomed to using the “find” on web browsers that he just sorts through the data that way.

Ever click metadata? I don’t.

What do you think will happen? Would pull up metadata? Yes. I know what the metadata files look like and “I hate reading them. I hate the form. This is useful if you need real documentation of data collection, source, accuracy, yes, but I’ve been burned so many time by county layers that don’t have metadata, or their metadata is in some other file... if I’m just making a pretty map, I don’t care. If I was doing something that was gonna be used in a spatial model, I’d look here. Sometimes it’s convoluted... you know, I’m not gonna read this. Not because most people won’t... if I can’t find it with ctrl F... if I have a need I’ll read the metadata, but I don’t read it straight from here [column display] b/c... I don’t care... I don’t care about the metadata.”

6. Individual results screen
Easy/difficult to use? I like the way this is laid out. I usually look at the folder because I have this directory mapped on my office computer so I never use these downloads. So I like this page. It shows me a good description of it [description] I can verify the extent visually [little gif map] [39:31]

I look at visual image, description, and (everything in the chunk under download: feature type (need points, polygons, etc.), data type, coordinate system) and I wanna know where to get it.

“in my case I can browse in arcCatalog through your server and look at attributes and confirm it has what I need and then I would either transfer it to a local directory or process the data somehow on my computer... like if I only want a small subsection I’ll just process it and just pull down what I need.”

I like this individual view. No improvement needed. [he mentioned before that he needs improved directions for downloading and zip versus other]

Anything that could be better? The thing I never understood, the on campus and off campus downloads where there are multiple files, I never understood why they weren’t zipped. Maybe they are somewhere and I just never noticed [looking] “like is this a zip of this? [yes]” for the purpose of teaching students, I don’t want them to get a zip. I want them to learn that there are multiple files. Especially the less computer savvy ones go and get a single shape file and don’t understand there are more. But for himself, he really just wants the zip and finds the rest confusing.

Use links at bottom of page? Occasionally. Yes useful. No need to place higher in page, likes stuff at top that’s there.

Prefers the mapped drive to the data server.

Anything you wished displayed here that isn’t? No.

Task 7. Keywords

Ever use browse? I’ve looked at it and never used it. Brain can’t function the browse way. Unless I’m having a really hard time finding something, and I’ve googled it too and can’t find it, I might use something like this... doesn’t like the scrolling.

Ever notice keywords aren’t assigned consistently? Never. He had assumed that keywords were assigned consistently. Thought someone at the Library was putting a lot of work into the keywords for the search. Assumed if it has airport then it also has airports.

Knowledge effect search behavior? Yes! Now I would search multiple terms for a single purpose “airport” and “airports”.

8. metadata views

Do you ever use: yes, when it’s important for scientific accuracy. But if I’m just making a simple map, I don’t care about the metadata. Most of the time I’m just using it as a pretty background layer.

Difficult to understand: no, cuz I deal with it constantly.
What do you use here or could something be available somewhere else: he’s fine the way it is.

Other views: #1 most visually unappealing, no separation between sections #2 prettier, better than #1. Likes the attributes being bolded #3 looks like arcatalog. Visually not as appealing as #2 but I can’t tell you why. Border and tabs are maybe distracting. #4 frustrating. I know what I’m asking, I don’t need you to ask me. This is instructional, maybe good for others.

9. Themes and resources

Ever use? No. maybe early on I can’t remember.

I use NCOOneMap etc. NCDOT, but I just google “NCDOT GIS” I don’t come from here. Looking at it now, it’s good information. Google is just faster for me than coming here. But I bet there are things on this list that I never knew existed.

10. sidebar

Ever use? Yes, just to get back to original search box (home or find GIS data). Never uses contact us because has Jeff’s email address.

Anything you’d like? No. would be too cluttered to add more.

I would indent these to be subheadings of their categories because its hard to read. “GIS data services” appears to be a link.

11. Other

What data is most useful: extent, source, description, feature type.

Other search options from other sites? No. I like text-based keyword search better than maps. I like mapped directories. Maps are clunky, never exact. Hate them. [onemap] ex, lightR data : I need those, I have to decipher their code. Onemap lets me at least search with lat/long, but lightR doesn’t. I wrote a script to do… cuz I hated doing it so much. “The people who make these things love them, I don’t know of any users who love them.” Draws a box, then has to turn off a ton of things, zoom in again and again… hates it.

“But I know GIS, so novices might need maps.”
PARTICIPANT 2

1.1. Types “nc state lands” gets giant search results, without hesitating scrolls beyond keywords and immediately sees third hit, “state owned lands” from NC OneMap 2008 and says “that’s the one I’d use”. He had very recently looked for this data and downloaded it.

I might have gone directly to NC Onemap to get this instead of using your site.

1.2. “if I’m looking for old data sets and it’s parcel data, I’d probably go directly to the county and ask them for their archives.” Types “nc counties” sees that his list is long and immediately adjusts search term to be “nc county data” scrolls down sees giant list and says that’s not it either! Types “nc county gis data” and can’t find it. Trying to remember what it’s called. Jeff says “you looking for county page?” yes he is. Then searches just “nc county”. He has this one bookmarked and he doesn’t know how to find it. It’s the listing of all the county GIS services, he’s been trying to find it in the search box instead of some other part of the site, like the resources on the web pages. Using the data search to try to find a webpage instead of data.

The counties page is “an excellent, excellent resource. I’m so thankful you all have that, I show it to people.”

1.3. “nc data” big results list, scrolls through it. Looking at titles. Back to top, “nc state boundary” scrolls through looking at list, says, “what do I need, I guess I just need states” clicks his first result, “national atlas: boundaries data” for US. Goes to individual results screen, goes to download, looks around and says, “It should tell you on here which one to download” [did not see the instructions] but then says, “wait! This is national boundaries... I don’t see states on here, there are no states” [failed to see extent in results table. Goes back and reads keywords on individual results screen, which DO include state boundaries and decides he wants that after all. Goes back to download screen and looks around, in this case there is no correct prefix because he’s looking at the entire thing, so he finds one that is probably the zipped state stuff (“states”) or something ,and says he’d download it.

Then says he’d do the same for transportation, a search. Without thinking he’s returned to the individual results screen and begins typing this search in the QuickSearch box, the only box available there. “nc” then a list of possibilities comes up, and he chooses “nc counties”. Immediately notices it’s the wrong screen, goes back. To get to search, uses sidebar “find GIS data” and says “this is usually where I go”. Notices the resources on the page and says he hasn’t really explored them and should. Searches “nc counties” scrolls through list. Says “I know I can get that off NC onemap” so he might go there directly. Hovers over a title in the results list “NCGA counties” and says “I’m not sure what that is [NCGA is what he isn’t sure about]” goes to individual page for it, says “that’s tiger files” [only place it says that is right under box Mapped Drive Folder: /tiger00r/assembly/]. “If I wasn’t worried about accuracy of counties I might just pull that one.”

This guy already understands the zipped file versus the multiple files. No confusion.
“For roads, I’m not sure how to find, remember it buried deep” “if all I’m looking for is interstate highways I can get that somewhere else”. Clicks again in QuickSearch “nc cities” immediately back, using the sidebar “find GIS data,” searches same term in the correct search box, scans list, it’s long. Says “I wonder if I need to search ‘north carolina’ [instead of ‘NC’]” [he’s correct in that assumption]. Searches “north Carolina cities” scrolls, still long. Refines to “north Carolina state cities”, frustrated. Keeps getting giant lists. Looking for “towns and cities” and isn’t finding.

“I usually find everything I need here” it just takes a little poking around.

“I should have just looked on this side here [left side, titles in list]” because now he’s found some north Carolina there. But they aren’t right either. Finally sees something labeled “CMAP: cities and towns” and thinks he found it but notices then that it’s US extent. “if I were in a real hurry I could pull that one and might just clip that. I’m sure there’s one for just nc though here.” For highways he might just look in this same list instead of doing a new search.

2. Homepage

**How do you get to data?** There are certain places I routinely go for data, and I bookmark those. I also do some searches on the NCSU library page too.

**Which page come in to our site on?** His IE brings him to NCSU homepage actually. He has a bookmark for the counties page on our site, but nothing else is bookmarked for us. Usually just goes to library homepage and types “gis data” into the QuickSearch. Takes him to homepage.

**Easy/difficult to find data from here?** If I don’t know exactly what I’m searching, I find I have to dig around a bit, but that’s probably common with most GIS [sites] because it’s hard to read the person’s mind when they’re naming the data files. I don’t know if typing in “nc cities” v. “North Carolina cities” I don’t know which one is going to give good results.

**Always use/ignore?** Search box for sure. He’s never used anything else except the counties page. I really should. Usually I’m in work mode. I’d love to browse because I know you’ve got really neat stuff.

**Tutorials on search?** Great idea. A little tutorial walking students or other folks through. People fall into two groups: either they barely use it because they are intimidated by whole process. Fear holds them back. Others are seasoned GIS users who have no problems at all. For the first group, demo would be good. The site is “a wonderful effort, my hat’s off to you” “I know that there are a lot of things in there that I don’t know about, maybe it’s because I don’t need to use this for my day to day, there are only certain data layers that I work with on a routine basis.”

3. Extent search

Has never used extent search or seen.

“No limit”? Would search without extent, only by keyword.
How do you think it works? He thinks you would get returns including smaller units. He would rather only see what was the exact extent and not less.

Ordered intuitively? Yes I like it.

Useful? Excellent.

How used? He’s only been here 2 or 3 times since summer and overlooked it. If he were browsing, he’d use it with no key terms, to see everything in NC.

4. Related terms

“Periodically I do something with those. It’s helped once in a while. Directed me to the right area. I could see what was available.” Searched, saw terms.

Get in way? Says clearly what it is, links to other searches. I think it’s very useful. First few times I saw it it was a little disconcerting to me, like “what do I do with this?” once I realized what it was for, now I glance at it. Most often I don’t use it, because I’ll find what I want if I scroll down.

Ever collapsed? No, didn’t know it was possible. Hadn’t seen the link.

Know how gathered? Assumed it was done somehow through the metadata. They are listed in the metadata for that set. But now that I look I don’t see how that could be [he sees unrelated terms here in the list] my first guess now that I realize it’s not in the metadata is that when the data comes in and is being cataloged that Jeff [Essic] decides related terms.

5. Results table

Titles clear? Yes. Might not understand terms listed in “collection” actually. I think this is very important the way you have it.

These 6 fields good: date and scale really necessary. The term “collection” throws him, suggests “origin”. Looks at title first, then date, not too concerned with collection because assumes they are reliable sources. Extent is extremely important too for searching.

Ever sort? I was trying to sort by extent before, but there wasn’t a sort. It looks like there is one for “date” maybe not for “scale” [he understands the sort with the red arrow, but does not understand that the green words without the arrow indicate sortability]. 33:41 it would be nice to have a sort for extent and title [doesn’t understand that there is one for title].

Use metadata column? Yes, periodically. “especially when I’m citing.”

6. Individual results

Like, easy difficult? I like the map, the preview image. The download is confusing. He assumes when he clicks to download it will only download the files he wants, but then pops up the list to scroll through.
What else use frequently? I’ll glance over stuff under download and it’s good to have, but don’t pay much attention. Good to see “created by” good to know is “data type” “coordinate system”. Comments that the data type would be useful to have in the table results list.

Anything else you’d like displayed here? Explanation of how to download. [then sees the instructions there, hadn’t seen them before].

Ever use links at bottom? No. he’s noticed but not used.

Prefer to download or map drive? Download. Has never used mapped drive. Where is that? [can’t see the link in download box that says “mapped drive FTP help” it was not clear to him!]

7. Thesaurus

Has never seen or used before.

Noticed lack of consistency? No, never noticed. Assumed it was his fault until now, not knowing correct term.

Effect your search behavior? Yes. Would never occur to him that there would be both singular and plural of keywords.

8. Metadata

Ever use, difficult? Yes use, not difficult because he’s had to write metadata before so understands it.

when use? Looking for spatial resolution, raster data, citation, if he wants to contact someone, process steps (if interested in how they created the data). Used to be less info available in the search systems about data, and he’d have to look at the metadata. These days with systems like ours, he doesn’t have to open metadata file so often.

Useful to have any of those outside this file? I don’t think so. Fine with it the way it is. Because he knows where to find it. People are being shown where to get that info. Students here are being shown by teachers.

Which display do you prefer? #1 “I’m not a times roman person” #2 nice format. Likes this format the best. #3 That one’s ok. #4 alright too but FAQ format… he doesn’t have time to sit through all the questions.

9. Themes and resources

Ever use? Yes, definitely. This is where he finds the county data. Or used to. “I usually end up getting to this page but I’m not sure how” thinks he gets here instead of home page possibly when we searches for GIS from the library homepage. Thinks this page is important for folks who are learning how to find GIS data. Some of the things listed here he knows about and goes directly to the source if he needs.
Participant 3

1.1. Would come to NCSU site first in a search, usually. Searches “north Carolina state parks”. Immediately sees new extent and adds “NC” (on the very first search). Gets a lot of hits and isn’t sure what to do with them. Remembers having problems looking for state park data before, saying the national stuff and local stuff overlaps. Says the next thing he would do is hit up NC OneMap’s to see if “state parks” is easily accessible there. When he is scanning the big list of results, he’s looking at “title.”

He uses the map drive.

1.2. He would come to our site first for anything county data related because we are so good for that. Says the first thing he’d do is go to Buncombe county’s site. The way he does this is to click “interactive mapping” from homepage, from there get to “counties”, find buncombe and follows like “web map” or “gis web” he says.

I tell him what about historic nature? He’d start hitting us up at that point to see if we’ve got historic data. But he does not realize he can go to “library web” right next column in counties list to see our data, he returns to the search box and types in “buncombe county parcel” as he does, says that the filtering isn’t very good on these searches because they return so many things. It needs to be improved [JEFF: keyword search should be AND not OR.] searches without extent, gets so many results he adds extent, says “is that new, don’t remember seeing extent before?” wants to find the word “buncombe” in results list, it’s too big, says to himself, “can I sort this?” very quickly figures out how, already assumes that clicking “title” will sort. Then quickly finds buncombe. Instead of clicking title (would show him what he’s looking for), he clicks the collection name, which takes him to the county list page where he was previously. He says, “it’s taken me right back where I was, so there doesn’t appear to be historic data.” Says the next thing he’d do is leave our site and contact buncombe county directly [we need to do a better job here].

1.3. he’d probably go to NC Onemap first for towns/cities, municipal boundaries, or points. Interstate highways he’d want NCDOT GIS layer for that. Says he’d do a keyword search first, but if he didn’t find it there he’d look around at “themes and sources”. This is where he would come to link out to NCDOT or NCONE map. Finds county boundaries out at the NCDOT site. Says NC OneMap and NCDOT boundaries are often slightly different and he has no idea why, he’d probably download both and compare them. Goes to NCONE page on our site from themes and resources to show us where he’d look for comparative data, and he’d go to “alphabetical or categorical listing” that Jeff has set up there. He hasn’t seen this page before but really likes it. Starts control F’ing on this page for stuff, finds “railroad,” can’t find “city” or “town” sees “county boundaries” says he’d take that, and next to it in list sees “municipal boundaries 2008” just sitting in the list, decides that would be best for towns/cities. Says it is very useful to have the “vintage” data sitting there right at a glance (in the list, 2008 and 2006 municipal boundary data are next to each other, he doesn’t seem to notice 2004/5 right below them though. It is illogically placed, why isn’t it before 2006?) might be helpful to have link out to NCDOT from this NCONE
page he says, particularly because transportation data isn’t available from NCOne [he knows this purely from advanced user knowledge].

*How do you arrive at pages?*

Sometimes remembers urls, but “I’m so lazy, I just use google.” For NC data, there are only two good places: library and NCOne. He googles “NCSU GIS” and follows first hit to homepage.

*Entry point page? Home page.*

2. **Easy or difficult?** Really good for access to all data, suggestion: hone the filter on the search. Huge list of results it terrible. Need to minimize the result set. Also: big complaint about the use of whitespace on the homepage. We need a LOT more between the sections on the homepage. He can’t see/read it.

*User or never use?* uses the top two left areas “heavily”. Occasionally looks at top rightmost area, and thinks he would more if there were more whitespace. He sends people from his classes to this page to use. doesn’t use anything on the bottom except “virtual campus”. But he usually googles “ncsu virtual campus” doesn’t come through here.

*More instruction useful?* Probably since it’s usually pretty daunting for first-timers to come into this. Instead of having all blocks on front page be equal size, he suggests having left top be bigger and the bottom ones moved down or something, then on each section in the left top, add a sentence about what you *do* with that for novice users. Or group top two left sections under a header like “find data” or “look at data”. It’s not intuitive what you do with these links if you’re new.

3. **Extent, used before now?** No. hasn’t used in past 6 months. He uses it in GIS classes to show people. The “counties and cities” pages he thinks are super useful. One-stop shopping for counties and what you can get. This page (counties) is top page he goes to. It’s huge but great. Even though it says “interactive mapping sites” there is all this useful stuff in there that isn’t that that (?)... jeff points him to “data downloads” link from home, which seems to be what he’s talking about being interesting on counties page, he says he’s never seen it but points out that there is international resources at the top of that page people will just leave because NC is way at the bottom. He thinks this page should be renamed from “… on the internet” to explain that these are other download sites that are (?) second tier after the “interactive mapping” site for NC stuff. points out that you can point it out by type or by geography. Right now it’s by type and then by geography (interactive mapping and data download). “web mapping an feature services” and “interactive web mapping” titles appear to say almost the same thing but they don’t do the same thing. The first is a getting started page. This should be renamed something about help. Jeff points out that interactive mapping is a legacy page... these days you can’t link to all those sites, back in the day you could make a comprehensive list. So he’s thought about tossing it since it isn’t comprehensive but hasn’t.

*What does “no limit” mean?* Worldwide. (He means everything not worldwide)

*Order?* He’d put local ones, NC and NCSU, up top. So short alpha doesn’t matter.
How expect to search? Expect return subsets. Prefer: exact extent only.

How would he use extent? He would use in combo with keyword. Doesn’t think he would ever search extent without anything else [good because it doesn’t work].

4. Possible related terms.

Ever use? No, because there are so many.

Get in way? Yes. Too many

Collapse? No, never noticed before. Thinks it would be better as an arrow than a linked phrase

 Wondered how gathered? He knows it needs to be thinned, but no idea how it’s being done. It’s an “all inclusive” related list.

Ever clicked or used? Never! Would expect if he clicked it would research his original search “river” combined with the term he clicked and return all. Narrow search. It doesn’t it researches.

5. Results table

Columns? Uses scale and date the most. Slows you down that there are so many returns. “I guess I’m just too impatient” hasn’t tried using Booleans to see if that returns less [doesn’t]. thinks layout of columns is really good but too many results. He looks at titles and extent too. He also uses collection, that’s important for him.

would like it to tell him the number of results somewhere at the top of the page.

Issues with search: wants plurals to be included in the search for him by the system.

Other data in results columns he wants? No.

ever sort data? Occasionally. Scale and date. He used title earlier in study though.

Like sort function? No problem to search in one direction only.

Ever go to red metadata? Not from here. It’s useful but he would get the layer first. He would never use that external metadata at this point.

6. Individual results screen

Difficult or not? Yes easy.

Parts used? Grabs mapped drive folder path first thing and looks at it (on campus). Doesn’t look at much else. How about all that stuff underneath block for download (data type, feature type, etc). not really. [JEFF: you mentioned wanting to know if the data is available through a mapping interface: one of the things we put down in the bottom links is a link to where data is mapped if we know that info]
Links at bottom? No, and never seen.

Open technique? Explores by opening in ArcGIS. Then if he likes, downloads.

Anything you want displayed here that isn’t here? No. he only wishes this page does the work for him to make sure he’s getting the “latest and greatest” from all sources out there. That’s magic. Impossible. That’s what the crux is for all of them.

7. Browse by keyword

Ever been? Never. Didn’t know it was available. I probably would never use it. Unless all my searches weren’t working.

Ever noticed keywords are inconsistent? No. but has noticed sometimes things get returned that aren’t exactly what I was querying for.

8. Metadata

Which do you prefer? Likes 2nd one the most. Thinks 3rd one might be more user friendly for others due to tabs but isn’t his preference. 4th is ok, but clumped together and hard to see.

What look at in metadata? Abstract, spatial reference (coordinate system name), entity and attribute. Typically looking for entity and attribute: descriptions of what the fields mean and a key to tell him what the actual data values are.

Prefer to be somewhere else? no. but would be useful on individual results page to inform users of where this metadata is coming from (the parent metadata file) because beginners might not know about the metadata file.

9. Themes and sources

Do you use? yes. Very useful in general if you’re on a hunt. First start place. [he is confused due to link name versus page name. link says “themes...” but top of page says “libraries gis data collection” so he thinks the page he’s on is useful but doesn’t believe me that it’s the “themes and sources” page].

Up to date easy to read? Yes up to date, generally easy to read but could be improvements to readability. Green on white is hard for him to see compared to black... so why are the important titles in green and these weird other things in bold black next to them? That pulls his eye to the bold black.

Any themes not here? no.

10. Sidebar. Doesn’t use.

Other websites with searches you like? I used to use geography network. Now I’m starting to use bit of ARcGIS online services and data.gov as well.
PARTICIPANT 4

1.1. Immediately searches “State Parks NC”. Gets results and before he scrolls, notices the extent search. Adds NC there and says, “this looks new, that’s handy!” he has looked at this recently and remembers that there is no separate state parks so it’s probably “state-owned lands” the second result he says quickly, but he’ll look through list anyway. At the bottom he finds “CGIA: State Parks” and says “here we go, guess I’d use that.” Immediately realizes however that it is old, so he wants to double check because he thinks there should be something newer. “I’ve learned when I’m using this to look through the whole list because you might think of using something you haven’t used before. The way spatial analysis works is that you want to use the best thing, but if you haven’t made it yourself, you don’t know what the best thing is.”

1.2. Searches, “Parcels Buncombe county” with extent “North Carolina.” He says, “I guess one thing that might be nice is within North Carolina to have counties [in extent search].” Gets a large results list and says “because I’m lazy, I’m going to” use find in page. He accidentally goes to the google search in the top right, and then we help him find control + F and searches “buncombe”. He finds the right result, and clicks the “collection” instead of the “title”. He’s taken to the counties page and is a bit confused. Says, “that’s not what I remember… I guess I’m lost… I could go to NCOne map I guess, but I don’t think they keep timestamps of it.” He goes and looks at NCOne map. [he has lost the change to see any of the data on our site because he was confused by the links on “collection” and “title” columns]. Can’t find it. Decides he’ll have to go to Buncombe county’s site, download data and see if they have timestamped data somehow.” Looking at county page, he says he doesn’t see a “link” for the county [there is, so it’s not clearly labeled]. Then Jeff points the link out to him for “Library Web” on the buncombe row of the counties page and he says “oh excellent” when he sees the result. He didn’t know it could get him there. “This is good, this is really helpful. Especially if you have timestamped parcel data.”

1.3. Types in search “MB” with extent “North Carolina”. Gets no results so changes to “municipal boundaries” with extent. Scrolls down. “I guess I would just see which is the newest one. I presume this is sorted by date already [it is].” Picks the correct one, the first result, and goes to individual page. Now looking for county boundaries, changes his search to “county boundaries” and scrolls results. He finds several called “county boundaries…” he knows that he wants polygons, he says (a beginner might not know this). Next is interstate highways. “I’ll tell you what I’ve started doing for highways. I’m downloading from NCDOT now (GISRIM). That’s formatted in a way that I can do many things with it.” He searches “DOT interstate highways” and gets a few results. Chooses the most recent CGIA Primary Roads 2004. If he hadn’t been doing this study, he’d have gone straight to DOT, not used our site for that. Says the danger is, he doesn’t know when the last time they updated the file is [I guess they don’t write that down for researchers?]

How do you arrive at the pages? I bookmark them. May not have our GIS page bookmarked, because he prefers to minimize his bookmarks and since he’s got the library portal and can click into
GIS from there, he does that. He prefers the extra clicks to messy bookmarks. It’s clear enough to get there. Goes to NCSU, library services, geospatial blah [that actually doesn’t take you to our homepage, it takes you to lib.ncsu.edu/data, not where these people really want to go. Needs one more click].

Which page as entry point? /data by accident. The multiple clicking isn’t a hassle for him.

2. Home page

Easy or difficult? Use or don’t? Starts with search box. If can’t find, might browse through some of these links by hand from homepage. Says that the new “limit data coverage” is a huge help.

Helpful to have tutorials? Yes! He taught a class and it was difficult for students. It was a graduate level class but intro to GIS and they had trouble. It was complicated for them to figure out how to download. One recommendation: doesn’t “think we should post shape files outside a zipfile at all. For most novices, there’s a high amount of error there.”

3. Extent

How should be organized? “Since it’s spatial, you could perhaps organize it by hierarchy in terms of space: US under north America, etc.” [this is what it is currently but it’s not obvious]. Thinks we should have another box for county.

No limit? He think we should change the phrasing of “no limit” to suggest results from various scales will be returned [‘all extents’ or something]. He assumes it would include everything. “no limit” for him would be the same as “none” [not clear].

4. Search results screen

Use ever? No, too complicated. Clicked? No, not intentionally. I’ll tell you what would be real nice here. A semantic map. Online ontology visualization. Little lines relating terms (needs work on backend is the challenge, he says. It visualizes the relationships for you). “To me, that would be much nicer.” Wants to know which terms are closest.

Ever get in your way? Not a bad thing to have, but list gets so long that it doesn’t help you filter in your mind. Ever collapsed? No, didn’t know it was possible. It’s never bothered him to have to scroll.

Ever wondered how terms gathered on backend? He’s wondered but it hasn’t bothered him. Assumes it’s an attempt at some kind of metadata.

5. results screen

Columns? Yes intuitive, but the collection names don’t tell you much. Maybe a blurb somewhere to explain. Like why is BasinPro 8 part of CGIA, what’s the difference between the two?
**Which does he use?** scans titles first. Then the scale. Thinks these are good columns to have. Thinks a combo of scale, date, and title will tell him whether he’s further interested. Can’t think of anything else he wants displayed for all results. He’s sees some value in a small thumbnail but that’s probably too much trouble.

**Ever sort data in columns?** Yes, or I’ll do find-in-page. He has noticed that he can sort all the columns with green headers. No need to sort anything else.

**Ever use metadata column?** Yes, if I get interested in a layer and I haven’t heard of it, then I open that.

### 6. Individual results

**Easy/difficult?** Easy. This substitutes for the metadata in some ways. This is the level of metadata I want when I’m trying to figure out what a layer has, not the full metadata file. Sometimes he reads metadata files.

**What do you often use here?** Usually I just come to do the ftp download. By this time he’s usually decided already that he wants it. He downloads, doesn’t do the mapped drive. Because he has to modify the files, so he needs his own copy.

**Ever used links?** Never seen them. He might have gone to metadata. He usually gets it with the data download.

**Any other data from larger file it would be good to see here?** Hard to say. No. You want to know the level of mapping accuracy, but those aren’t ever included in older metadata files, so that’s a ton of sets that don’t have that at all. The scale doesn’t always tell you what the mapping accuracy is. You can infer it from scale but you might be wrong. That’s the thing that’s missing here. Show that here if it exists [often doesn’t]. “From a teaching perspective...I’ve seen students struggle with this notion of projections for different data sets. And I’m not sure if I didn’t get all the parameters just right if I was using a projection for the first time or it’s just a function of how accurately they mapped it. Those are two different things. That’s where it might be helpful.”

### 7. Keyword browse

**Ever used?** No. Seen the link, but never come to it.

**Ever noticed they aren’t assigned consistently?** Not here, but he might have noticed it in the related terms list, but he’s never considered it. Would it affect the way you search to know you don’t get all results with one? yes it would. Good point.

### 8. Metadata view

I’m used to seeing #1 and I don’t like it. I’ve always found it to be more work than using the data. #2 He likes that, the use constraints are located obviously. #3 the value is that students who use arcCatalog will be used to seeing this (standard ESRI approach). #4 I like this. It leads you through
the thoughts you should have, as opposed to “what are the thoughts you have had.” This leads me through information. You don’t have to think too hard.

**What data do you use on this page?** The processes (steps of data creation), spatial reference if the file isn’t projected [?].

9. **Themes and resources**

**Ever use?** Yes, he’s used it. Comes here for NC OneMap and DOT links at top. For a class he used census data from here. Not frequently, really.

**Easy/hard to read?** Everything in print this small is hard to read. Many of these are data sets where I would just go to their page directly instead of coming here to find it.

**Anything not here?** Not sure off the top of his head. Weird that some of these are inconsistently labeled. “FEMA flood data” includes the organization that produces the data. “Energy Data Resources for GIS” doesn’t. Challenging, because most GIS people know they want FEMA data so it’s nice that it’s there, but causes inconsistency.

10. **Sidebar**

**Ever use?** Yes. To go back to the main page (Library Data services or find GIS data).

**Anything else that should be there?** No.

The heading “GIS DATA SERVICES” looks like a link to him and it’s a problem.

**Any other websites with search options that we don’t have?** No.
PARTICIPANT 5 (novice-ish)

1.1. Searches “parks”. Gets results and before looking at them, adds “north Carolina” extent to her search. She had noticed the extent search while practicing at home for this session (reviewing the site). She browses titles. She says usually she scrolls through the titles and spends her time thinking, “What is the meaning of this/these?” → titles are not intuitive to her as a novice. “I notice you can kind of tell by looking at the collection, if you have some expertise in the collections, if that’s the one you want or not.” Thinks basinpro 8 collection must mean water basins. Says she’d choose the 1999 “CGIA state parks” first (because it has the exact phrase in it, and the other one doesn’t). But says, “CGIA... I don’t know what that means.” Goes to individual results screen. She would then download the data, look at it on a map, see the attribute table and decide whether or not it’s what she wants (that’s the long way she knows to see the attributes?) Jeff explains. She was unsure of the fact that you might have to get something larger in order to get something smaller.

1.2. Searches “property value” with extent NC. Hesitates for a moment about whether extent NC will include counties smaller than total NC. She’s going to go with the first hit [not correct]. She didn’t get Buncombe county at all, because of the search term she chose. Then she tries searching “parcel data” except she doesn’t go through the search. Says she recently found that you can map the drive so you don’t have to download. Thinks that is awesome. Saw something on the homepage telling her she could do that. Jeff tells her she should be searching for “buncombe” and she says that isn’t intuitive to her that she should search the county. Does the search. Scrolls through a ton of results and catches buncombe county by eye. Surprised by how many results, figures out on her own that “county” is producing too many search results in her list [correct, since search is set up to be OR not AND]. Goes to individual results page for the only result that includes the word “buncombe.” Looks at the page but is confused. Reads the second section carefully, but those links are all generic. She needs the block with NCSU-specific stuff to be higher up: she is interpreting the top stuff as most important and not seeing other stuff. She asks, “Is there a metadata page?” because she is confused and can’t find it. Jeff answers, “this is telling you what our holdings are for buncombe.” She says she really likes the map highlighting buncombe county. She finally starts reading the NCSU section. Stops at, “may include” and figures it’s generic due to “may.” Jeff explains it to her. She noticed the multiple years of holdings listed here right away. It was confusing that the external links are above the internal links. She’s thinking of herself as browsing NCSU’s holdings and then these external links are privileged there.

1.3. [we tell her to just look up one of these many items requested]. She searches, “cities” with extent “NC”. Scrolls through her results. Sees first result “municipal boundaries” (correct one) and likes it. Goes to individual page and says, “I have a button, which is always attractive, and I
have a little map, which is a preview of my stuff.” Clicks “on-campus” download. She would copy this directory to her local directory. The whole thing. She thinks she needs the whole thing. She says she only needs the zipfiles (she seems to understand that the unzipped ones are the same as what’s combined in the zips, but not that she only needs one of the zipped files). “This is a real problem for me. When I get here, I’m thinking ‘which one do I need?’ I have no idea. But it seems that if they are all in this directory, linked to this button from the municipal boundaries page, I must need all of it.” Jeff shows her the prefixes. She had not ever seen it. She still doesn’t see the instructions explaining the download. Finally she finds them. She suggests a bookmark within the opening directory page. Jeff says he could play around with that. JC suggests adding test to the top of each popup directory download box that says “only download the stuff with the prefix from the page previous.” She suggests that on the Help page you have specific instructions for how to download data. She looked for that and there wasn’t anything.

How do you get to our page? She’s tried from the library homepage but it’s impossible to find, so she goes to google and googles, “GIS lookup ncsu” and it’s the first hit.

What GIS page as entry point? It brings her to “find GIS data” page /data.html.

2. Homepage

Ever used? No.

Instructions? Yes! She wants. She knows other people who can’t figure out how to download just the piece they want too.

3. Extent

Last weekend, she thought that USA would be included in “North America” as a subset (she didn’t notice “USA” as its own extent) and then it didn’t return subsets and she was confused [this is because the North America extent search is broken. It returns NC]. Then she figured it out.

Extent search is useful.

No limit? Would mean any of the below choices.

Ordering? Short list so doesn’t matter. Fine.

She suggests adding year to the search (another tab)

4. Possible related terms

Ever use? yes. Example: looking for pollution data. She noticed those words, specific kinds of pollution. Realized maybe she needed so search by some of those specific terms.

Get in your way? Would be better if you could make it expand/collapse. Or link.

Had not noticed link to hide terms. Suggests a +/- sign as convention.
Any idea how they are gathered/bother? Hadn’t thought about it. Now that she looks at her related terms, she’s confused because she’s not sure what her results are. If she searches “pollution” and it says one of the related terms is “air pollution” does that mean that “air pollution” results aren’t included in her current results set? Because she would think that they were. Now she thinks maybe they aren’t. Looking at the related terms is causing her to question how the keyword search is working at all.

Helpful? Yeah.

5. Table results

Understands labels? Yes.

Says, “I think I tried to look at ‘metadata’ before but some of the links were broken”

Other data you want in results list? She wants to see the attribute fields, but it’s in the metadata so maybe she doesn’t need it in the results list. A column that shows the format! Raster? Shape? Wants to be able to skim for that.

Ever sort? Hadn’t noticed that you could sort. Happy about it. Assumes it’s always sorted by title [it’s not, it’s always sorted by date]. It’s not. Would like to be able to sort up and down, more intuitive. Sort anything else? She’s not sure why you could sort some columns but not others. It would really make sense if all of them were sortable.

Ever clicked red “metadata”? yes.

6. Individual results

What does she use? data type, what type of file (shape), description, map (these two are good at top, most important).

Ever used links? Yeah. But only trying to download and in the wrong place because she wasn’t reading. Not much. Just once.

Mapped drive. She uses that when she’s able on campus.

data from metadata file that you’d like here? A list of the fields!

7. Thesaurus of keywords

Ever used/seen? Not here, but saw it somewhere.

Would you ever use this? It could be useful for someone like her who isn’t a natural resources specialist who’s looking for ideas about data to use for a visualization project or something.
Noticed inconsistency? No, hasn’t used enough. Assumes she would find airports for searching airport. She doesn’t see why Jeff can’t make it work if it’s a string search for plurals if nothing else. Reaction: “that could be a little alarming.”

Affect the way you search now that you know? “Yeah. That’s actually very scary.”

8. Metadata

Has only looked at this a few times.

Find it difficult to understand? Yeah.

Which is your favorite? #2 helps to have the bolding and word highlighting. Uncomputerization of terms. Nice to have the image preview. #3, she wouldn’t have had a problem with the collapsed information. She assumed she could click and expand. #4, looks useful but maybe over the top. Maybe you could write up a help document instead of this view that is “how do I read the metadata?” she’d want to see it once then, but not every time she was looking. Likes 2 and 3 the best. She loves control F and wouldn’t want that to disappear with #3. So she picks 2.

9. Themes and sources

Ever used? She thinks so, once. By accident.

Any uncovered themes? I don’t even know what you mean by theme.

10. Sidebar

Ever use? Had noticed but not had need for it so far. She only used it to try and get back to the original search page. That thing “GIS services” does look like a link and confuses her. She says there’s no need for a title in the sidebar. People don’t use those anymore. Also “home” is confusing because it should be library home or relabeled.

Very important to deal with the issue of clicking on the button to download data and having that process explained. Also the keyword situation. Immediately put an explanation, later you’d want to fix the data.
PARTICIPANT 6

1.1 He’d check “deener” first, not our site. Searches, “state parks” and actually puts it in quotes. Notices extent, and puts in NC. He’d never seen it before though. Got very concise return set. Finds the CGIA state parks 1999, clicks “on campus” for download page and says, “Oh now I get into trouble, this is the part I never like.” “Is there an ‘info’? There’s an info.” Clicks on the directory that says, “info.” Basically doesn’t know how to get the prefix. Guesses by file names which ones are the ones he wants. Says he wishes there were more instructions for download there.

1.2 “buncombe county” with extent NC, including quotes. Only one return, the correct one. Goes to the detailed listing. Scrolls down the page. Says he’s found it, ownership parcels for the past decade, looking at the older holdings.

1.3 “cities” with NC extent and quotes. First result is correct one, looks down the list. Finds “cities and towns” from NCGA, from 2000. Chooses that because it’s the exact phrase. Individual page for that. Download again. Looks for “readme” file. He often reads those. He hates to read manuals though. First he looks at file names, seeing if something is obvious. He’d probably just grab a bunch of stuff and look before reading. He can’t figure out what kinds of files these are (image, etc.) goes back to full directory and sees shape files. Jeff asks why he chose this layer instead of another. He answers because it contained the exact phrase he was searching for. Also because he thought he was looking for points not polygon vector files [we had confusing wording: boundaries were what we wanted for cities but he rejected the right one because he thought he wanted points].

How to arrive at page? Has bookmark for a few GIS pages, usually goes to the library homepage, searches in QuickSearch for “GIS” and gets there. If it’s something he knows what he wants like “soils” he’ll often go somewhere directly instead of our site.

Entry point? This one, he thinks.

2 Homepage

What do you use/ignore? The extent search is new and it is great. Usually he comes and looks around this page to see if what he wants is there, it’s usually not, sometimes he goes to the counties page, but mostly he uses the search box. Usually remembers that there’s NC-specific stuff in top left.

Instructions helpful? His presumption is that it will be Boolean logical searching. Always tries quotation marks. If that doesn’t work how he expects, he’ll look for help. Doesn’t like to use. That said, help pages should always be there, explaining how the search works. Not a video.
Always use? Search box, not other stuff. Sometimes scans to see if anything’s changed. Over there in ‘what’s new’ he’ll scan, or look at news to see what we put there, is his stuff in it. Never goes to the bottom. Does go to virtual campus sometimes.

3 Extent hadn’t used before, did see it.

No limit? Search everything.

How does search work? Assumes include smaller sets. Prefer not to have smaller included.


Useful? Really cool.

4 Possible related terms

Normally doesn’t use them. Now that he’s looking he sees they are alphabetical and would use it. Ignored in the past. Usually scrolls down and starts scanning titles. The titles are not in alphabetical order and that bugs him.

Ever get in your way? Never notices them, so no.

Collapse? N/A

How gathered? Bother? Don’t know, don’t care, as long as they work. If he thought something should be somewhere and it wasn’t he would be peeved. His presumption would be that the library has “done a good job.” “Did you guys make these based on keywords?” [no, explained].

He doesn’t know what the ordering is on the display returns. Asks, “Can you sort these however you want? Let’s see, you can sort them by title” (discovers the sort feature). Says he might use now that he sees it.

5 results table

Sorting isn’t intuitive. The word, “MD” isn’t intuitive. He would like “metadata.”

Anything else should be shown? Distinction between point, vector, raster.

Sort function? He would like to be able to sort first by one column and second by another, like you can in excel. The only time he is peeved not to be able to sort reversely (on other sites, since he didn’t know about it here) is when the results are really large. Then he’s peeved if he can’t reverse sort.

Ever click on red “metadata”? Not usually here. Usually I presume I’ve got what I want. I go to the individual results page and read that if I need some metadata. “I don’t even know what the ‘metadata’ is.” He clicks to see what it is. Remembers what it is, “this is just too much information.” At this stage I don’t use it. “If I’m doing something and I really need to know where the data came
from and what the accuracy is or if I’ve done something wrong in terms of projects or re-projection, then I would come back here and look at the metadata. But otherwise the individual results page is good. “You’ve taken the most important things in terms of polygons and units and meters [feature type, map units, and put them on the individual results page]… I mean those are the things I really need to know.”

6 Individual results

Info easy to use? Pretty easy, your descriptions for the most part I find pretty good, pretty accurate and pretty brief. So I can scan pretty quickly, don’t really have to read them I just look for keywords in there. I come down here [under download] and I look at the size just in case, I might be looking at something huge, and that’s important in terms of student work, you don’t want a file that’s enormous because then we’re going to have to sub-set it to use it in the lab. I almost always look at [coordinate system] [map units], [scale].” Doesn’t usually look at created by/released by/content date/published date. Or anything else under it. Image at the top is useless to me.

Ever use links at bottom? No. if I found something here that I found useful and needed something related I might use a link at the bottom to go to external site and find other stuff.

How get? Always download.

Anything you wish were displayed here that isn’t? No, things I want are here [right under download].

“Usually I just wanna get it. I don’t wanna look at that stuff if I don’t need to. Especially if I trust the source, and then if I have any issues with it, I would then start reading the metadata to see if my questions were answered in the metadata. And typically I would do that in arcCatalog where I can see the metadata.”

7 Thesaurus

Ever seen/used? Yeah seen it. That’s the way he used to come in, and he didn’t like it. It used to be one of the bookmarks he had and he’s searched it before. But “I would often not come up with the right keyword, it seemed.” Doesn’t like the scrolling here. Would prefer a search window on the page to type in keyword.

What he typically does when he gets large results lists is control F the page for the keyword he thinks he’s looking for. Especially now that we’ve got the extent limit, search results are better. He doesn’t use the thesaurus keywords anymore.

Notice inconsistency? Not really. He doesn’t understand what some of these keywords mean. He wants a brief description on the thesaurus page. Part of his problem with this keyword list is the length of it. Too much.
"My presumption these days is: it’s out there. It’s just a question of finding it. Anything you can think of that can be geo-referenced I presume someone has done. The question is whether you can find it, and whether it’s what you really want.” My preference is to just go to a search function now.

8 Metadata view

The one we use he calls the “ugly one”. But he does have a general sense of where he finds stuff here since he’s used it. He uses #3 in arcCatalog. Likes to split attributes and spatial. Usually he downloads this and looks in arcGIS, he never looks at it on the library site. He wouldn’t use #4 but sees the value of it for newbies. #3: might not be clear that green is active links to expand.

9 themes and sources

Ever use? Yes. “Sometimes I just come here because you have things organized in a way I don’t have to search. Sometimes I go to DOT because they have some stuff you can’t get other places, like the lightR data. NCOne I go there on my own, I wouldn’t come here. Other things I would use that are here, I would just go directly.”

“The issue that I have with this site is that it’s so comprehensive.” There’s too much here to take in at a couple of glances. “Typically I wouldn’t be here unless I got frustrated somewhere else” he goes to One map when he’s looking for something super current.

10 Sidebar I used to, but I didn’t really know what things were. Not well labeled. “now that I know that this is going to get me where I wanna go [GIS data services] I will just make a link for this page”.

Virtual campus... I just go to their page.

Nothing that he thinks should be in sidebar that isn’t.

He finds the quicksearch box confusing and it looks like it’s part of our site, he says. Should be labeled “search library”

Other search options that you like? Sometimes I like map searches. Websoilsurvey, is a clunky example.

“I used to find your site difficult to navigate but I also find that you are making it much easier.”
PARTICIPANT 7 (non NC researcher, Africa climate data, intermediate user)

1.1. Goes straight to search box. Starts writing “north” but stops and switches to “parks” scrolls down list. I ask what she’s looking at. The titles and the extent she answers. Decides on “US parks” form 2006 after scrolling needlessly through.

1.2. Starts searching “property” but stops and says “first I wanna search ‘buncombe county’”. And searches “buncombe county”. She gets a ton of results. Starts scanning the keywords for something about property. She sees “land parcels” and clicks it. Realizes the search messed her up and used the back button. Checks a couple other keywords. Then decides to scan results list. “there is no buncombe county” she says before she’s anywhere near the Bs. She fails to find it even though it’s there, because the results list is so large. Jeff tells her to do control F. She does and finds it. She goes to individual results page. Scrolls down. Reads “property ownership parcels” and says “this might be useful. It has ‘property ownership parcels’ and it may have property values in those layers.” I prompt her for time span that she needs. She sees the archived data, success.

1.3. [We only asked her to work on ‘towns and cities’ due to time constraints] searches “towns” scans titles and dates. Goes to one of top choices, municipal boundaries from NC one map (good choice) reads abstract. Clicks “on-campus” gets popup. She has been in here to download the data once. “I find this a little confusing.” Why? “There are a whole lot of files.” She’s unsure which ones she wants. She goes and looks back on the page and quickly sees the instructions, and is tripped up again trying to figure how which of the files with that prefix she wants. She thinks she must want all of them.

2. Homepage

How do you arrive at GIS pages? Normally google. If she finds a great page she thinks she’ll return to, she bookmarks.

Which page of ours is the best entry point? Goes through the library homepage and gets to our homepage from there. Ask her to do it. She clearly has trouble finding the GIS site from the library homepage.

Easy/difficult? What use? Only use the GIS keyword search, nothing else. Couple times she’s done browse themes and sources, ignores NC stuff because doesn’t do that research.

Tutorials? Maybe more instructions on downloading. “Search is pretty self-explanatory. Everyone knows how to use Google.” [Our search works nothing like Google, so this is a very problematic assumption]. She isn’t someone who likes to read instructions, she jumps in. if she’s stuck or really confused, she reads instructions. Prefers written instructions, not video tutorials.

3. Extent

What is no limit? everything.
How do you think it works? Assume: including subsets. She assumes this because she sees NC and Virginia in our list, but no other states. So she assumes “those other states must be somewhere”. prefer: no preference.

Intuitive order? Sure. “no limit” and “world” are confusing to her though, look similar. It would help her if there were more extents listed. She needs Africa. [we don’t have Africa]. She would never search just extent, she’d do keyword and maybe add extent.

4. Keywords

Ever use? Sometimes, but, “they don’t tend to be as useful as you would hope. They don’t seem to pull up the possible related terms for the search term you just looked up.” She means she wishes it would refine her search if she clicks on a keyword instead of doing a new search. But sometimes she uses it to see if there is a better keyword than the one she thought of.

Get in your way? Yeah. She just scrolls through them “I wish they’d just go away”

Ever noticed you can collapse? No.

Any idea how they are collapse? Never thought about it.

Who do you think is relating those terms? The computer. Or maybe a human, at one point. She then guesses correctly, same keywords from hits with “river.”

5. Results table

Intuitive titles? Clear.

Want other stuff? “For a while I didn’t need “collection” but it’s kind of nice to know where your data is coming from” when she looks through the list, the most important things to her are title and extent and date. Sometimes she looks at scale but with Africa data you mostly just have to take whatever you can find. She doesn’t care about attributes until individual page. Order of elements is fine.

Can you figure out sorting? She figures it out pretty quick. Descending and ascending would be nice. Would be nice for her to search extent, but she’s forgetting about extent search option.

Ever clicked on the word “metadata”? Yes. You get a long confusing HTML metadata file. “I hate reading through it.”

6. Individual results table

Easy/difficult? Downloading is confusing.

What do you use? She uses data type, feature type, keywords and themes, description at top.
Ever used links? Hasn’t used hasn’t noticed b/c so far down. If she decides she wants it, she downloads, doesn’t keep scrolling.

How do you get them? Download, was showed the mapped drive once but never used it.

Anything you wish on this screen that’s not? Which attributes there are for shape files. She doesn’t like to download or look through the bulky metadata file just to find out if it’s got the attributes you need.

7. Thesaurus

Ever seen? No.

Ever use hypothetically? Maybe just to play around and see what keywords there are.

Ever noticed keywords aren’t consistent? Nope. Thinks it’s really weird when I show her an example of the dysfunction. Yes, she had assumed they would be assigned consistently. Would it affect your search habits? She does that anyway, she switches up keywords, but she would assume that plural was included in a single search. It would be nice if the really related ones (synonyms or plurals) showed up as the first related terms.

8. Metadata

Why would you ever need to come here? For attributes. Nothing else

Difficult to understand? Yes.

She likes #3 the most. Likes “spatial” and “attributes” split off in a tab. Problem with not expanded? No. she gets it. Better this way cuz she doesn’t have to read through other stuff she doesn’t want.

9. Themes and resources

She played with it once. Found it useful. Looked at energy data resources. Nothing was broken or hard to understand. Can’t think of anything missing. Likes climate data. [note to Jeff: add street map to themes and resources]

10. Sidebar? She doesn’t use it. If she wanted to search and there wasn’t a box, she would use back button, not side bar. She thinks the thing looks like a link that isn’t.

What’s most useful data about GIS for you? Title, attributes, date.

She doesn’t like the map searches where you draw squares. Too imprecise. She wants exact extent of square she draws, sometimes it just gives her subset extent.
PARTICIPANT 8

1.1. Goes directly to “themes and sources” looking for something he’s seen before, political demographics or something but can’t find it. But sees NCOone map there and at first doesn’t want to go to it, but then realizes it’s an internal page not the NCOone map site (by hovering over link and looking at bottom left). On our NC1 page he finds what he was looking for “categorical listing/downloaded of NC oneMap data”. He clicks it, browses the list of categories. Looking for words like “park” “natural heritage” or something. Doesn’t ctrl+F despite a lot to scroll through. At this point he’d go back over and do a keyword search because he’s finding nothing. What he actually does is NOT a keyword search: goes back to homepage and clicks on “browse keywords” and picks “park lands” from the Ps. Scans list titles and says “some of these words mean something to me and some of them don’t. I’ve heard ‘tiger’ but I don’t remember…” decides he’d go for ESRI Data: US Parks from 2000. Says that he recognizes the word ESRI so it feels friendly. He would download this and limit to NC within ArcMap. He FTPs from off-campus.

1.2. He goes to the “county” page from homepage (he’s familiar with this). Finds Buncombe line and says “this I’m always, I can never remember exactly what this means” referring to all the options in the row for each county. “maybe I’d try ‘download’” it takes him out of our site, he has faith in our stuff so he doesn’t want to leave our site. Second tries “lib web” [which is what he wants]. Scrolls down, looking at what we’ve got. Sees different dates. Sees “ownership parcels” in description. Clicks most recent year to download 2009. Based on the question, he decides he’ll grab the zip file named “parcels.zip” but he isn’t really sure. He thinks he could get the time span data from these different years [correct].

1.3. Goes again to “browse themes and resources” to our NC OneMap page. He isn’t sure why, but has the feeling that OneMap is the place to go. He thinks this because it’s the first thing on the themes page, and he assumes some thought by librarians went into that being first. Promptly gets lost on our NCOoneMap page. he doesn’t want to leave our page, links on our NCOM page keep taking him to their site. Then he remembers where he found the categorical thing before. He browses it for “cities” or “towns”. He finds “municipal boundaries 2006 an 2008” [those are the correct files] and says he’d download those. Says he next question is “points or polygons?” not sure what we’re asking for. Jeff tells him to take a look at state boundaries for surrounding states. He goes back to the homepage. Goes to keyword browse. Looks for word “states”. “I think I’ve learned … that this keyword data is pretty rich. There’s not necessarily authority control and you have to look under a lot of similar terms” he chooses “state boundaries” chooses “state boundaries” from ESRI. Says he hasn’t learned how to read scale yet. Jeff says that’s the right file. Addresses the issue of downloading. “It took me a while to figure these pages out.” One of the most important things on the page “filename prefix” he didn’t see. The info in the download box is his “action window” he says, so he wasn’t looking outside of that. It took him a while to find that. After that, he got confused by the clicking on files and sometimes they’d open directly instead of downloading. And what he wanted to do was save it, not open it (this is based on his browser settings). So he switched to right-clicking to download. “Everything is so nicely customized, so you
burrow down, and then you come here [download file list] and you’ve just been blown back out. So that’s potentially confusing.” Last time he used it he just learned that we sometimes offer a zip file with everything as well as the list. He remembers that there’s a good reason but he can’t remember what it is. Until last week he was getting individual files and didn’t know about zip.

2. **how do you arrive?** Through the Library homepage.

   **Entry point?** Homepage.

   **Easy/difficult find data from this page?** He wouldn’t say it’s easy. We’re talking about a lot of stuff on this page. So many facets to it, is it what you want, is it point or polygon, date, compatible with data you already have? A bit difficult.

   **What do you use/ignore?** I haven’t strayed out of upper left. Themes and resources, keywords, county. Doesn’t even use the keyword box on this page. Likes to limit his search to small terrain first, which he thinks he’s doing by using those top three links. When he searches, he doesn’t start with keyword search.

   **Tutorials?** Doesn’t know. It’s hard, deciding how much to make. From homepage, there are all these choices in direction you can go at every point. Like facets. So I don’t know if there would be a way to graphically represent that. As you’re headed in, you can see your way back out. He goes only two clicks and then he can’t remember how he got there. [breadcrumbs?] part of the problem is that he doesn’t know how big the world is compared to what he’s already used. Does he kind of already know his way around in general or is he just a tiny baby on the site? “I don’t have any sense of context.”

3. **Seen/used?** Has never used. Unclear whether he’s seen.

   **No limit?** search against all the data we have to offer.

   **How presume to work?** Smaller pieces too. **Preference?** Include smaller pieces.

   **Order of list?** Gets impression that a lot of the use is local. He would flip it therefore. Have NC, campus, Virginia as first three. Backwards from current.

   **Rate ability to search extent?** Pretty useful.

4. **Ever used related terms?** He thinks so. But from browse list not from here.

   **In your way?** Never seen search with a lot of results.

   **Figure out collapse?** Yes but he never noticed before now.

   **How gathered?** He knows already from Jeff.

5. **Column titles make sense?** Yes
Sufficient? Wouldn’t add anything.

Sorted? No. immediately sees arrow on “date” so knows it searches. Clicked arrow and it did nothing, clicked word and worked. Then figured out that scale would do too, meaning all three green words sort. He uses sort in other internet contexts and he certainly expects to be able to reverse it. Doesn’t think he’d need it here. But it would throw him off if it didn’t reverse. Doesn’t expect to be able to sort within sort.

Ever clicked on metadata? He hadn’t, but it did what he expected when he clicked it. He said “what is this?” he has looked at them before.

6. Easy or difficult? Easy.

What do you use? Square underneath download box. Coordinate system, feature type, data type, map units. Has used the third thing down when he needs to credit data creators in map he makes. Until now he thought the thumbnail was generic for all pages, now he realizes it’s individual and thinks it is really useful. Does read the description, and the download box.

Links at bottom? Never used, never seen. Would they be useful? Higher? He might expect metadata to be under the coordinate system box. In terms of context. Can’t quite tell what any of these links will do.

Data missing he wants here? No.

7. Yes uses keyword browse. Why? Because I know that it’s messy and there’s no authority, so I’d rather see other terms like mine (assumes they will be located in proximity) “I like to browse, I guess.”

8. Use? Sometimes.

Difficult to read? Yes.

What data use here? “It’s fear-based, that’s how it’s taught in 531. You learn that coordinate system and projection are deadly important. I know this will tell me [that information] right up top somewhere, so maybe I do a ‘control F’ or something on ‘coordinate,’ but that’s the only reason [I would come to the metadata file].” I mention that these are both on the individual results screen and he says yes, but he uses the metadata file for it when he doesn't come in through the individual results screen, or when he’s got the files open in ArcCatalog.

Which option does he prefer? #2, more going on visually, more fun. “layout, color, font... it’s all less intimidating. I like the picture and this info box up top.” Ultimately it doesn’t matter too much because he always does a control F if what he’s looking for doesn’t appear right at top. I point out that #3 will in fact mess him up. He hadn’t thought of it. #3 it was clear to him that they were links. #2 and 3 are nice.

Any themes not here? Not really, but he has confusion here. He supposes that it makes sense for the provider to be mentioned in these names, to know where it comes from. **But when he comes in here he expects to see content themes rather than providers.**

10. **Ever use?** yes.

**What do you do?** “I click on ‘data services’ to get home and it never works, so then I click on ‘home’ and then I think ‘oh yeah I wanna be here [themes and sources, not home]’.

**Anything else that should be there, or should be removed?** I expect ‘contact us’ to be on it’s own somewhere. Doesn’t like it when email addresses aren’t provided. Finds it good that there are phone numbers here. Doesn’t like forms like this because then he doesn’t have a copy for himself. There is a link here for additional contact that will take you to their personal info. Neither I nor Participant saw that link until Jeff pointed it out. “I have a hatred of trying to interact with some agency, and I get a form to ask my question. It feels different to have a person and their name than to have a form.” Form dates back to a long time ago, before Jeff. No real reason for having it though.
PARTICIPANT 9

1.1. He says he might start by going to NC OneMap instead of our site, but probably he’d use both our site and NCOM. He goes to the search box and types “state parks” with extent of “north Carolina”. Scans the list looking at titles and collection names. Does a control F for “parks”. That finds him the very old CGIA state parks 1995. Clicks on the metadata file and the link in broken. Then comments that it’s too old, but goes to check it out anyway on individual page. He’s looking at keywords and date on this page. Also looking at the coordinate system, which says it’s 1983: really old. Backs out due to date and looks for better. Finds the correct file, “state-owned lands” as first return. Goes to metadata file on far right column and reads through the metadata instead of going to individual results page. Sees “state parks” and decides to download. Reads download instructions carefully. He’s never downloaded data before. Clicks “on campus”. This is not what happens at UNC, which is what he’s familiar with. At UNC it just gives you the path on the server and you have to go in through the command line to get to the stuff. He has trouble finding the filename prefix that the instructions told him to look for. Finds it and goes back to the page looking for prefix. Doesn’t see the zipped file at first but does later. Thinks he’ll have to click on each one and download individually.

1.2. Searches for “property values” with the extent “North Carolina.” Mentions that he’s looking for extent of Buncombe county but doesn’t see anything to limit to that’s smaller than NC. Gets to results page and says he’d probably look at some of these key words. Decides how to construct his next searches based on the titles he sees in the current results list. Switches search to “Buncombe property parcels” because he saw a Wake county one like that. First return is the correct one. He looks at it and goes to the individual results page but is confused as to what it is. Can’t figure out if it’s got data or not. Looking at links to see where “they’re trying to send me” [he looks at: GIS info webpage, web mapping application, and download GIS data]. Finally he decides to click the “2009” data link [and thereby succeeding in what he was trying to do].

Says, “because this is Buncombe county data, and the very first link at the top of the page is Wikipedia, it’s trying to tell me that the best place to go is just directly to the source. That’s my impression.” So he clicks on “GIS information webpage” which leads outside of the lookup to the source county page. Decides that means we don’t have copies of everything [the exact opposite of reality. He is very confused by the prominent placement of various links such as Wikipedia.] “I made the assumption that because at the top of the page, the very first stuff is Wikipedia, and then the next thing is ‘go to the county website’ that the library didn’t have good stuff.”

1.3. Searches “cities” extent NC. First result is the right one, clicks on the metadata file instead of the individual results screen [he’s used to UNC’s setup, where there is no individual results screen so he has to glean all the metadata from the metadata file]. He says, “I have a hard time reading metadata. I’ll look at it but I tend to skim it.” Sees that it’s auto-sorted by date, and he trusts NCOM, so for those two reasons he says he’d choose the file, “municipal boundaries” [correct one]. Opens individual results page and reads description. Notes “feature type” and “coordinate system” as important things he looks at. When looking for state boundaries, he doesn’t see “United States” as
option and chooses, “North America” but “North America” is broken [remind Jeff to fix] and it
searches North Carolina instead of North America. “Datum” is important to him (under “coordinate
system”).

2. How do you arrive at GIS pages? He has a massive bookmarks menu that isn’t of use to him it’s too
big. Usually he’ll just Google to begin with for a GIS project. That’s his research method though,
when he’s getting to the pages he’s familiar with (UNC GIS) he starts at the library home page.

What is most important entry point for you on our site? Homepage.

What do you use/ignore on the page? He’s checked out almost everything. He likes the GIS
internships and jobs blog page. He has used the top left stuff, “themes and sources/browse
keywords/counties”. But usually he just uses the search box.

Instructions useful? Yes. “A lot of this stuff isn’t intuitive at all. People get really confused, not just
figuring out how to use the software – that’s a whole monster by itself – but knowing which data is
appropriate and if it’s the best, also figuring out how it’s stored, how to download it.”

When you see a search box like ours, do you assume it can do Boolean? Yes, he’d usually try. He
wouldn’t assume quotes or special characters. If he searches “state boundaries” he assumes it’s
doing an AND and not an OR. He likes how it gives him all these suggestions he can try in the form of
keywords with his results. He throws in a term that might get him close, but then he looks at the
keywords that it suggests back to him. Because the search box is so small, that encourages him to
keep the query short.

3. Seen before? Yes

No limit? Assumes that it’s everything.


He suggests a little box near the search to explain how it works to people.

Ordered intuitively? North Carolina and “no limit” should be at the top. “I guess Virginia is more
important than South Carolina?” he says somewhat jokingly, but his statement is underlining a
question about why the state, “Virginia” is made available as an extent search and not any other
states that belongs in a logical category with Virginia (neighboring states, for example).

How useful rate extent search? Very useful.

4. Every use? He often uses possible related terms and finds them useful.

Get in your way? Yes sometimes they are so big they get in the way. First couple times he searched
our site they filled the whole page, he didn’t think to scroll down and he was confused as to his
results. Thought that these terms were the results because he couldn’t see the results list.

Ever hidden them? No. finds easily though.
Any idea how gathered? Doesn’t know but stops to think about it.

5. Titles labeled ok? Some people might not know what “MD” stands for. “‘Collection’ is that... some people might think, ‘does NCSU have an NCOM collection?’ Rather than understand that it’s external

Anything else you want here? Collection column could go on individual results page but it’s nice to have it here too. Column with point/polygon/vector could help a little. But again, he’s going to decide based on title and date, not anything else. Date maybe should go next to title.

Ever sorted? How do you think it works? You just click on these and it resorts by them [correct] he usually assumes the system is way smarter than him and he should just take the results as they are given to him. He can’t figure out if the sort is changing direction as he continues to click on it. Inability to reverse sort is confusing to him. He’d probably not use the sort often anyway. He’d be interested in the ability to sort by collection or extent. He thinks that might be more useful sorts than title even.

Discussion control F: he does it when he gets too many related terms, to try and find something, also on the metadata page.

6. What do you use? Description and keywords. Image is nice because I can see right away that it’s a polygon layer. It took him a while to see the “filename prefix” thing, he points out.

Ever used/noticed links at bottom? No.

How do you use (mapped drive or download)? Download, didn’t know about the mapped drive. He’s done that at UNC though. But when he does that he forgets that he’s running off the server copy and tries to modify and then can’t save it.

Anything you want here that isn’t here? no.

7. Ever used? Yes

What did you use it for? Just because he was curious. Found it useful though because he could control F since it was all on one page. “Drives me crazy when I can’t control F.”

Ever noticed that keywords aren’t assigned consistently? Yeah, noticed that he gets different results when he alters his search even slightly. That’s “always a little bit frustrating” but everybody’s system is like that.

Does that influence the way you search? Sometimes. “Most often I just take what I can get the first time.”

8. He likes the #3 the best. I remind him that he can’t control F here. Then he says that when he first started using it, he liked #3 the best, but then after a while he started working with #1 mostly. It’s hard to look at but it’s all there. Doesn’t like the way it looks though. #2 likes having it organized and
different colors and stuff. He’s starting to like this one. Finally decides he likes #2 the best. #4: “this one just scares me.” Menu is too big.

9. **Ever use this page?** “Yeah I’ve seen it. I think it’s really nice because it helps you to know what the most common sources are in North Carolina and nationally. Sometimes there’s just so many sources of data it’s nice for the library to tell you ‘this is the best’.”

   **Intuitively organized and easy to read?** Yeah.

   **Any themes not covered that should be?** He doesn’t know.

10. **Ever use to navigate?** Probably has not used the “data services” links. He has used “home” because he’s always getting lost. He’s looked at them all to see what they are but doesn’t really use them. The one he imagines he would use the most is “NCSU GIS links”.

   **Anything missing?** No.

   **What data is most important to you about GIS data sets?** Probably **extent and date**, in that order. If it’s a vector layer: the attributes. In that order. If it’s a raster layer: resolution.

   **Any other search options that we don’t have that you find particularly useful?** The boxy map drawing thing. Though a lot of the sites that have that often the systems don’t work.