

Appendix E. Grounded theory core categories and memos

Relevance (orange)

Relevance is a key research question in this study and the theme came up strongly throughout the interviews. We were able to get a glimpse on the meaning of relevance from the point of view of the interviewees by exploring the key factors and variables that helped them decide on relevancy when looking for information on Library search.

The first key factor to decide on relevancy is the use of keywords. During the interview, the participants adjusted their keywords in the search box as a means of refining the search. They “try to be as specific as possible” but also conscious that they do not want it to be too specific so they can “capture all the information” and not miss out on information. The importance of keywords is emphasised when they were struggling to see keywords in new Library search that were not highlighted; they mentioned that they prefer the current library search because of the yellow highlights. Seeing many yellow highlights is a sign for the interviewees that the search results are relevant. “If there are a lot of yellow highlights, then I would say that those are relevant to what I'm looking for.” Linking to the factor of date for relevancy, one interview pointed out that in the search result ‘titles’ are highlighted based on search terms but not year.

The second key factor interviewees use to determine relevancy are the ‘familiarity’ and ‘popularity’ of resources. During the interview they explained that they would scan for specific authors and publisher they are familiar with and identify “big” authors and publishers. We found that the factor of familiarity and popularity is also linked to the desire for personalisation. One interviewee reflected on the how having a personalised “list out major publishers” to see the most borrowed books would be helpful as with having an interface per department or subject for “the most clicked books or requested books”.

The third key factor to determine relevance of resources is “Date”. For example, most of the interviewees mentioned that publication date as primary factor to determine relevancy, with one undergraduate interviewee saying publication date “is the most important thing” and said that they found it difficult to assess relevancy if something is not dated. During the interviews the participants would scan the results page or details page for publication date

The interviews also uncover variables that influence relevancy. We found that reliability is a key variable to determine if a resource is relevant. We also found out the interviewees look for reliability through citations. For example they crosscheck citations between top results from different sources to determine reliability and authority of resources. Interviewees stressed that citations is important for them to assess the reliability of their sources; with one interviewee commenting that “information has to be citable” especially in the context of formal course work. Another interviewees said, “you can’t references sources that are not known established”. There is an assumption that library search does not provide a function to check/get citations; one interviewee said, “I tend to go to Google scholar for something like that”.

Interviewees tend to focus on the first few results when they are deciding on relevancy; they rarely scrolled down and did not go the next page. They would look for the first few results when looking for specific information or for known items and would judge failure and success of search immediately based on top results on the first results and number of results retrieved. Also there seems to be an assumption that the top items on the result page are the most popular.

Information overload has a negative effect and delay the identification of relevant items. Information overload is described in the interview as getting results that are too advanced. One interviewee mentioned that it would be desirable to have a “split between undergrad and postgrad resources” or “having resources/results arrange by level”. There is a feeling that library search is intimidating and interviewees would prefer to go to Google “when results search are daunting”

Sense of space (green)

An interesting observation was what the interviewees interpreted ‘The Library’ and ‘Library Search’ to be. This was affected by the research needs of the interviewee which reflected their academic level. We have called this ‘sense of space’.

In general interviewees did not have a consistent view of what Library Search is. Library search was referred to by one interviewee as ‘this’ whilst pointing at the screen. Undergraduate interviewees saw Library Search as a way to search and locate books that are physically in the library. Postgraduate interviewees spoke more about information searching in a broader manner and using library search to find articles and theses as well as books. Although, one undergraduate interviewee said they would search for articles if they had time to read them. Perhaps suggesting an awareness but not the need to search for more than books.

The location of the library in the interviewees search strategy was reasonably clear. Several comments by interviewees indicated that their use of The Library and Library Search was heavily directed by reading lists, course material and lecturers. This process needs to be fast and painless which links to comments on cross-department integration. Thoughts on this were varied, some desired and some thought that there already was, a clear connection between reading lists and library search. In comparison one spoke about buying all of his course books as they didn’t know they would be in the library and expressed surprise that they would be. Essentially, it was clear to the interviewees that the library is key to their studies however, the extent to which the library is integrated with the rest of college was less clear.

One interviewee associated borrowing books from the library as ‘sharing’ with others. They described the pain points of this and explained this can result in buying their own copies.

The distinction between physical and digital sources was in general, that books are physical and journals are digital. Books and journals were also implied to be in physically different places. This was less distinct for postgraduate students who also seemed less bothered by the type of source although did want to know this information.

Directed search (yellow)

Directed search are where the interviewees are directed to search for information. In general we found that most of our interviewees are easily responsive and influenced by directions from many sources (peers, lecturers, librarians) through face-to-face, social media and/or emails and have a high awareness of multiple spaces to find information. The starting point for finding information include reading lists through blackboard, online databases, publisher website, YouTube, Wikipedia, Google, Google scholar etc.

We found that directed search is somehow influence by level of study. One interviewee on a master programme associated Library Search with information search rather than specific search and describe how he "dives into" search and use filtering as a search strategy to find relevant resources. One undergraduate interviewee expressed better confidence in Google than Library Search and said that "I might try..." library search but "Basically I'll Google it and get a free PDF copy."

The use of blackboard/reading lists have been emphasises as a key and valuable source for information. One interviewee said that blackboard is organised, up to date and a central location for resources from lecturers. The interviewees value guidance through lecturer resources and equate content management with reliability. This could explain the high usage of blackboard as a starting point for most of our interviewees. There is desire for a clear connection between reading lists and Library Search, one of the interviewee mention that they copy/paste the resource title into the Library search. In general, interviewees will try various channel/spaces (Library search, ask tutor) before buying the resource from the reading lists. There seems to be confusions or barriers around finding books from the reading lists in the physical and digital space in the library (this is linked to the sense of space). This could highlight a broken link (complexity of classmark, citation search functionality etc.) between reading lists and library search, which is currently being address with the Leganto software.

Throughout the interviews we found a reliance on lecturers for guidance when finding information. Interviewees are confident that lecturers will direct them to the right information they need. For example, they would go to them if they are unsuccessful with library search or if they are looking for specific information. We also found that the reliance on their Peers/friends and lecturers has an impact on their search behaviour and assumptions about the library. For example, they use Google like their peers (in most cases) because they are not familiar with library search and assume that students will buy books even if the library has copies to "write on it" and reiterate that "...most Imperial students would say the same".

The theme of directed search pointed out issues with services and functions visibility as well as complexity with Library search. A clear example is most of the interviewees had no knowledge of the 'Document Delivery' service during the interview and found the document delivery online form extremely difficult to use; this could explain why one of the interviewee visited other libraries for resources.

Feelings (purple)

One particular aspect drawn out from these interviews was the feelings of interviewees when they use Library Search. The emotional responses that users have to the system informs their present experience of using it and their future use of it. How the system makes the user feel is an important aspect of their overall user experience.

Interviewees did reference positive emotional experiences of using Library Search: one interviewee referred to it as "really excellent" stating that they "don't find it difficult".

The interviewee's confidence (or lack of confidence) in Library Search had an impact on their approach to the system. Interviewees expressed feelings of trust and confidence in search engines like Google and databases like Google Scholar: they tended to use words like "rely" in relation to Google and referred to Google as a first port-of-call for searches and a source for links to items when Library Search fails. "Basically I'll Google it and get a free PDF copy." This is contrasted with their expressed lack of confidence in Library Search: when talking about Library Search, they more frequently used words like "try", "trying again", and "suss out". Interviewees expressed doubt in the capabilities of Library Search and expressed surprise when it offered basic search functions similar to other search engines: "Maybe I can put quotation marks. I don't know if this will..."

Interviewees were often hesitant about using Library Search: when using Library Search, interviewees demonstrated heightened concentration through body language or facial cues. They performed actions like opening records in new tabs "just to be safe that I can... go back to it [the results list]" seemingly because they didn't trust the record to be what they were searching for. This heightened concentration could be linked to accessibility elements of the system's design.

This sense of doubt also gave way to confusion at several elements of the system. Confusion was expressed about elements like classmarks and finding shelf locations. When doing the Document Delivery process, interviewees expressed confusion during and after the process. At the start of the process, they were unclear about what information might be required for a Document Delivery request. At the end, they were unsure what had been achieved at the conclusion of the process and whether the request had been placed at all. There was also confusion about seemingly filling in the form twice for a single request i.e. it was not clear to users that the initial Citation Linker form is to search the catalogue and the second is to send a Document Delivery request.

Confusion led to feeling overwhelmed and even annoyed. Information overload is a particularly negative emotional experience: this was brought up in relation to seeing 'advanced' results in the results list i.e. results which interviewees felt were inappropriate for their level of study. Undergraduate interviewees did not want to see 'postgraduate-level' resources. In this sense, Library Search was perceived as intimidating. The feeling of being overwhelmed by Library Search led to users going to simpler search engines like Google instead.

Not specifically related to Library Search use, one interviewee expressed a strong emotional reaction to the concept of borrowing. Borrowing (as in borrowing a

physical book to the library) was conflated with sharing which, rather than having positive associations, was felt as a "painful" experience. "I don't have to che... or someone else requesting it so I have to give it back so it's kind of painful." When items are borrowed or shared, there is not the security of sole ownership: for library books, it means other users can request a book and take it off the user when they need it. This pain associated with sharing comes down to the inconvenience of dealing with other people: "People keep requesting back the books..."

Rather than, as might be expected, interviewees blaming the system for negative emotional experiences, negative feelings came together for the users as self-doubt. Interviewees internalised negative emotional responses and interpreted search failure as indicative of personal failings rather than system failings. They expressed high levels of self-doubt, guilt, and personal blame when searches failed or the system didn't behave as expected. Interviewees tended to use first-person pronouns to refer to failings thus blaming themselves rather than the system. We see this in quotes like "I'll just go search again because I did it wrong on the first go", "After I didn't find it... Even if I didn't find it", and "Is there something wrong with my internet?"

Negative emotional reactions to Library Search, particularly the self-doubt and guilt from internalising system failings, leads to certain expectations of Library Search and impacts the user's likelihood to actively approach Library Search in the future.

Valued elements (blue)

Valued elements are the particular parts or features of the Library search the interviewees identified as being beneficial in their search activity and those that they found to expedite the identification of relevant record in the search results.

Interviewees showed a tendency to winnow useful result by modifying initial keyword searches and spoke of 'scanning' the result to identify useful records, using the 'keyword highlighting' in the result panel as a visual indicator of relevance of the returned results.

Users showed preference for the new UI design layout over the previous version, and perceived the new design as clearer and less cluttered. The hierarchical design in the new user UI, were seen as 'easier to read', and the improved iconography in the results helped users distinguish book and article records.

There was a general unfamiliarity and uncertainty when interacting with the secondary features of the Library search i.e. 'My account' & 'Document delivery'. There was an awareness of the 'More search options' and the 'actions buttons' but the features were rarely used or assumed to be 'useful for other users' and were valued less highly than the core elements.

Interviewees spoke of wanting to 'Get in and get out' when interacting with the Library search.

Users showed confidence where features mapped to their familiar search tools (i.e. google scholar) and where the elements follow current UI design patterns. Value was found in visual features that aid quick assessment of search results. Less value was attached to the peripheral functions beyond core search.

