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Clicking past Google: A qualitative research approach to user-centered design

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Introduction

National Institutes of Health (NIH) Library staff designed and implemented a research project using qualitative research methods. The aim of the study was to ascertain the needs and preferences of NIH Clinical Center (CC) staff with regard to a proposed "federated search" system for library databases and other licensed resources. The federated search system promises to enable NIH staff to search multiple, independent databases and other resources simultaneously through a single interface, thereby enhancing both retrieval and efficiency.

This poster explores the differences between qualitative and quantitative research, discusses grounded theory and content analysis, and examines the issues involved with coding data in qualitative studies. This paper concludes with an analysis of qualitative data obtained from a focus group of nurse informaticians. The focus group was designed to gain an understanding of user preferences when searching for biomedical information.
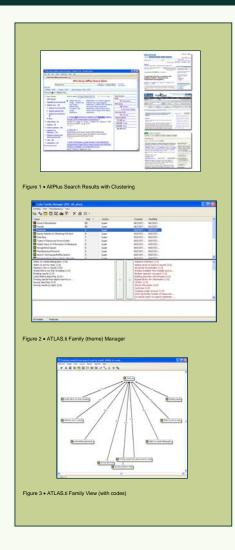
Materials and Methods

The research team recruited a group of six nurse informaticians to participate in a focus group. Focus group participants met with library staff in the NIH Library Training Room for a single 90-minute session. Focus group activities included a discussion of federated searching and a demonstration of a Federated Search Prototype prototype (AllPlus). Additional discussion to elicit feedback from the participants concerning the preferred design and features of a federated search system completed the focus group activities. Specifically, participants were asked the following questions:

1. What is your favorite web site and why?

2. When you search for information on the web, where do you go?

3. What resources do you use at the library?

Having obtained the consent of participants, the interviews were digitally recorded using an Olympus WS-100 Digital Voice Recorder. Audacity v1.2.6 was used to create transcripts of the focus group session. The transcript of the focus group was loaded as a primary document into ATLAS.ti v5.2.12 for analysis.

The coding scheme used Berg's content analysis framework. Content analysis is the systematic examination and interpretation of a primary document to identify themes and meanings. Eighty codes were generated from 114 quotations using the open coding technique (2), in which research team members grouped each line of discreet and meaningful text from the focus group transcript into conceptual units (2, 3).

Members of the research team worked both independently and collaboratively to organize the codes into themes. After the first and second stages of organizing the codes into themes, a third researcher was brought in to resolve differences in organizing the codes into groups, resulting in 16 final themes.

Figure 1 • AllPlus Search Results with Clustering

Figure 2 • ATLAS.ti Family (theme) Manager

Figure 3 • ATLAS.ti Family View (with codes)

Results

Table 1 lists the top ten codes generated from the textual analysis of the transcripts along with the code frequency or "groundedness," and an example of a quotation for those codes with a code count greater than 1. Groundedness refers to the number of quotations to which the code is applied. Generally, large numbers indicate stronger evidence for the code.

Code	Code Count	Example
Google	6	Like everybody else, I Google it
Clinical information	5	I do look at clinical items
Good sources at top of list	4	It does not bother me as long as the best ones are at the top
Search interface flexible enough to adapt to different users	4	I do not know about that. I think if you have the option to dial up or dial down is how I think about it...honing in versus being more general
Abstract view in results	3	Yes, because otherwise you get this article and you don't know what is in it
Including images in search results	3	Also for graphs, I mean we use a lot of graphs um, and trends...
Misperceptions about access to library services	3	but because I am a contractor, I don't have access
Reliable sources	3	Personally, I would go to what is most reliable
Trusted sources is important	3	I think that is good point because "we" are a research institution so you are looking for information that is trustworthy...in terms of something that is authentic and reliable
Adding terms to improve results	2	when I was searching I used to use of parts of searches or other phrases to do more search so if everything is listed there

Table 1 • AllPlus Codes per Document Matrix

Table 2 lists the 16 themes generated from the codes, ranked by the number of codes assigned to the theme. The "Features" theme includes responses focusing on the manipulation of search results and saving searches; this theme topped the list with 9 assigned codes. The next two themes "Types of Resources" and "Obtaining Full Text" scored equally high with 8 assigned codes. The "Types of Resources" theme focused on the resources commonly used by these focus group participants, namely PubMed and CINAHL.

Theme Number	Theme	Number of codes in theme
1	Features	9
11	Types of Resources Known/Used	8
13	Issues Related to Obtaining Full-text	8
8	Interface	7
2	Navigational Issues	6
12	Added Value of Information Professional	6
5	Miscellaneous/Personal	5
7	Refine Search/Search Techniques	5
9	Misperceptions about Library Services	4
10	Types of Information	4
16	Search System "Guts"	4
3	Content/Source Reliability	3
4	Type of Users	3
14	Clustering	3
15	Search Results	3
6	Users Constraints	2
	Total	80

Table 2 • AllPlus Themes

Implications for Future Research

Focus group participants also made several unexpected and somewhat surprising revelations: (1) the (mistaken) belief that as contractors, they would not be permitted to access NIH Library licensed databases and resources; (2) the practice of using graduate school access to the University of Maryland Library databases and resources for their research needs; and (3) the use of Google as a primary resource for seeking information.

Conclusions

Focus group participants responded positively to the AllPlus federated search prototype and its potential integration into the CRIS interface. They offered to assist in the future selection of online resources and to provide additional feedback on improvements to the AllPlus interface.

Although encouraged by the positive response of focus group participants, members of the research team were particularly concerned that the nurse informaticians were under the mistaken impression that as contractors, they would not be permitted to access NIH Library licensed databases and resources.

One of the major limitations of the research study was the use of contractors rather than NIH employees as focus group participants. After incorporating data obtained from the research study into an improved AllPlus federated search prototype, the research team plans to organize several additional focus groups, pulling from the ranks of diverse groups of NIH employees.

The research team plans to expand the project to include focus group participants from a more representative sample of NIH staff. The data obtained from these focus groups will be used to guide future design and functionality improvements to the federated search system

Literature cited

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For further information

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