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Qualitative vs. Quantitative: Two Case Studies

There are two main schools of thought when approaching a definition of relevance: the systems approach and the user-centered approach. Whereas the systems approach puts a more quantitative emphasis on the definition by stating that measurable elements should be given precedence when evaluating and constructing information retrieval systems, the user-centered approach puts a more qualitative emphasis on these same systems. The user-centered approach, as its name may imply, focuses on determining how systems can be made more relevant to the user and his needs.

The basic characteristics of qualitative, user-centered approaches to research are that the research is:

- descriptive and exploratory
- naturalistic
- focused on processes, not results
- open and inductive

The following sections will outline these four characteristics using descriptions of the Jones and Smith studies provided as support.

Descriptive and exploratory

To share a phenomenon as completely as possible requires that the methods and conclusions of the research should be descriptive and exploratory.

In Jones' study, subject experts were first given articles to rank their relevancy. The subjects were then given the three different descriptors by which to rank the

relevancy of articles. Jones' conclusion focused on how well the relevancy as determined by the subjects matched the relevancy as determined by the subject experts. This is not exploring how well bibliographic citations, indexing terms, and abstracts help users determine the relevancy of a document for an individual user; rather, it is just determining how well Jones' subjects could think like subject experts.

Smith's study was much more descriptive and exploratory. He had background information about his subjects and determined why his subjects ranked the relevancy of documents the way they did. There was no answer that was better than any other in this study because Smith understood that what makes a document relevant for one user may cause it to not be relevant for another user.

Naturalistic

Each user is different, but there are generalities and conclusions that can be made to groups when doing qualitative research; however, the researcher must be careful to appeal to the subjects in some sort of natural environment in order to achieve these sorts of results.

The Jones study, in many ways, was not naturalistic. There were 50 people in her study. Although they were all part of a university's history department, they were all at different levels in their studies and probably even focusing on different concentrations. An undergraduate studying ancient China will probably have much less knowledge than a tenured professor of American history in the query that Jones provided. She did not take this into account and had no idea how much they knew about the subject; this may have

provided her with more insight and a better understanding of the results when looking at how the subjects ranked the articles' descriptions.

Smith, however, allowed his subjects to choose what topic their literature search would be on and the subjects only looked at documents that were retrieved for them. He also required them to fill out a form as to why this material was needed and rank their knowledge on the subject. This allowed Smith to form a better image of the subjects and focus on them in their natural environment; it better allowed him to see his users from their point of view.

Focused on processes, not results

In qualitative research, the processes by which results are obtained are through techniques such as individualizing the research, neutral questioning, and allowing the subjects to speak freely during the research process. The results are very often not able to be generalized because describing the results as completely as possible and exploring the reasons for these results are what is desired.

The Jones study had a very strict process that only seemed to be focused on getting a result rather than the process by which the results were obtained. Participants rated the relevancy of articles on a numerical scale after looking at three different descriptive aspects of the articles provided by Jones. After the subjects ranked the articles, they were not interviewed or asked about their rankings. Jones simply took their rankings of the relevancy of the articles and compared those figures to the ones obtained from the subject experts. Jones did not take anything else into account; she was most interested in the numerical data.

The Smith study was much less focused on results and more focused on the process by which the results were obtained. There was a lot of initial information gathering about the subjects and Smith knew the subjects' level of knowledge of the topic area. After each subject had a chance to look over each of the three descriptive aspects of the articles in question, Smith used neutral questioning techniques to learn how each subject evaluated the certain descriptor that he or she was examining. After each of the subjects went through this technique for each descriptor, Smith took the recordings of the interviews and developed categories for certain clues mentioned by the subjects. Although Smith did develop results similar to Jones (abstracts were also the most relevant descriptors of documents in Smith's study), Smith's methodology allows the results to be better understood and related to other studies.

Open and inductive

Being open to the subjects of the study and any results that come from this openness is necessary in qualitative research. The researcher needs to be able to take anything that arises and relate it back to his conclusions.

In the Jones study, subjects were given bibliographic citations, indexing terms, and abstracts for articles and told to rate on a numerical scale what they believed was the articles' relevance to the specific topic given to them by Jones. There was no interaction between Jones and the subjects afterwards to find out why some of the outcomes were so different from the rest; Jones only had the ratings given to her by the subjects. There were no interviews or questioning so that Jones could better understand why the subject chose to rate certain aspects of the articles' descriptions in the ways that they did.

It is fine to report that most subjects predicted the articles' relevance closest to the subject experts' ranking of relevance based on the abstracts, but Jones needed to be more open to the fact that there were a number of instances where the bibliographic citations' rankings better matched the subject experts' ranking of relevance rather than placing blame on the user. She only took the results that made sense for her hypothesis seriously; she was not open to these other results.

Smith was probably more overwhelmed with research than Jones, but this is a part of qualitative research also. He was then able to take this massive amount of information and deduce his conclusions from it. He was open to anything the subjects said, and even told them that at the initial interview. These are hallmarks of good qualitative research.

Qualitative, user-centered research requires that the user be at the center of the research. When conducting research, we must remember to be descriptive and exploratory and not stop at the first, simplest answer like was reported in the Jones Study. We must look at things like the Smith Study and remember that keeping the user at the center of our exploration is key and provides many more avenues of discovery because it is only when we keep our research naturalistic will we come anywhere near knowing how people behave in certain situations and when faced with certain obstacles and why they behave that way.

Smith kept the user in mind throughout his research; he had background information on all of the subjects and kept a dialogue going with all of them. He had a firm grasp of his subjects' knowledge and how they ranked relevance when he finished his study. Jones lost sight of the fact that her subjects were actual people with reasons for

doing things. Similarly, the processes used during qualitative research are important and provide a much better understanding of the results, and in turn, how people behave and why they do the things that they do. Smith knew why his subjects ranked their articles the ways they did because of his lengthy interview and categorizing process. Jones merely knew that sometimes users ranked the relevancy “better” when given a bibliographic citation rather than the abstract. She did not know why. Finally, qualitative research needs to be open to whatever comes up and use these instances to deduce conclusions. Life is not as simple as a one to ten scale as was used in the Jones Study. It is much more like the Smith Study, where things arise and they must be understood and used to form conclusions. Users—people—are not able to be categorized as simply as Jones tried to do, and looking at the differences between her study and Smith’s study—especially the conclusions and reasons why those conclusions were made—are clear signs of that.