Enabling Data Discovery and Data Re-use by Improving Software Usability

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It is well understood that a good data scientist needs domain science, analysis, programming, and communication skills to create finished data products, visualizations, and reports. Articles and blogs tout the need for "expert" skill levels in domain knowledge, statistics, storytelling, graphic design, technology...and the list goes on. Since it seems impossible that one person would encompass all these skills, it is often suggested that data science be done by a team instead of an individual.

This research into, and experience with, data product design offers an augmented definition – one that elevates relationships and engagement with the final user of a product. Essentially, no matter how fantastic or technically advanced a product appears, the intended audience of that product must be able to understand, use, and find value in the product in order for it to be considered a success. Usability is often misunderstood and seen as common sense or common knowledge, but it is actually an important and challenging piece of product development.

This paper describes the National Snow and Ice Data Center's process to usability test the Arctic Data Explorer (ADE). The ADE is a federated data search tool for interdisciplinary Arctic science data that has been improved in features, appearance, functionality, and quality through a series of strategic and targeted usability testing and assessments. Based on the results, it is recommended that usability testing be incorporated into theskill set of each data science team.

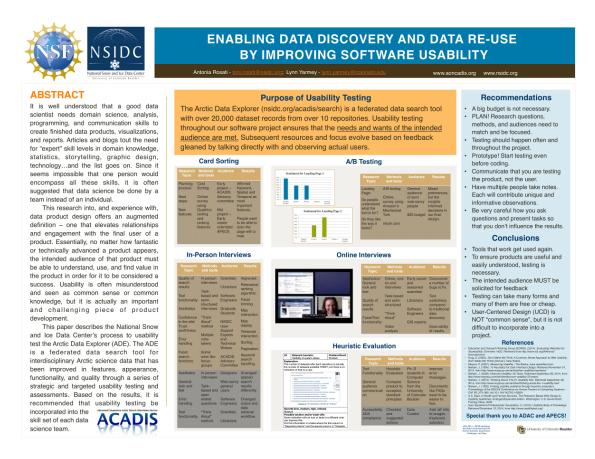


Figure 1. Sample of Heuristic Evaluation Output