Optimizing Explorative Search for the Needs of Media Professionals: The DIVE+ Use Case

Justin Verhulst
University of Amsterdam
Amsterdam, The Netherlands
justinverhulst@gmail.com

Oana Inel
Vrije Universiteit Amsterdam
Amsterdam, The Netherlands
oana.inel@vu.nl

Victor de Boer
Vrije Universiteit Amsterdam
Amsterdam, The Netherlands
v.de.boer@vu.nl

Lora Aroyo
Vrije Universiteit Amsterdam
Amsterdam, The Netherlands
lora.aroyo@vu.nl

1 INTRODUCTION

DIVE+[1] has taken on the challenge to improve access to and understanding of cultural heritage. This is facilitated by DIVE+ through a web interface that allows users to interact with events and narratives. This research aimed to find out if this search browser is suitable for the user group of media professionals. By investigating their research needs and search practices, we can determine if exploratory search and DIVE+ could be useful to them. A diverse set of user testing methods was utilized to investigate this, and we translated the search requirements of media professionals into concrete recommendations for the interface of DIVE+, so that the tool can be further improved.

1.1 Research problem

In the last 3 to 4 years, DIVE+ has undergone a number of transformations of both the interface and back-end data support, in order to provide the most optimal support for the users. Recommendations from the numerous user studies provided the input for this. These user studies mainly involved humanities scholars, as this group works a lot with historical material and archival collections. As such, search tools that support them in this are very useful to them, and they will remain an important focus of the DIVE+ research community. However, the current research focuses on a new user group: media professionals. While previous research has demonstrated that events and narratives within the DIVE+ browser indeed help scholars to better contextualize and interpret the collection,

---

[1] http://diveplus.frontwise.com/

more research on the relationship between narratives and the interpretation process is needed [3]. Also, as [2] argues, more user studies are needed to test the DIVE+ interface so that it can be improved. A potentially relevant user group that could be part of the DIVE+ user studies are media professionals, since they share a lot of the exploration practices of humanities scholars. Just as humanities scholars, sense-making and contextualization are central in the work practices of media professionals. Investigating the digital exploration practices of media professionals and determining if, and how, events, narratives and serendipity are useful to them thus perfectly fits as a DIVE+ research project and helps us to determine what aspects and features of a search tool media professionals value when they conduct exploratory searches.

2 METHODS

A range of methods was used to achieve the research goals. Specifically, the following data collection methods were adopted:

- Usability testing of DIVE+ by means of simulated work tasks, in which think-aloud protocols were followed
- Self-administrable questionnaires
- Focus group
- Poster session
- Log analysis

The methods were used in different compositions and in different settings in the period from May to July 2017. Four user studies were conducted, with four different user groups: humanities scholars, media professionals, (digital) humanities students and computer science students. This unique combination of user tests allowed us to retrieve in-depth insights on the exploratory search practices of media professionals and their use of DIVE+, while it also gave us the possibility to determine how this group compares with students and humanities scholars. The focus on the current research however is on media professionals; consult [1] for more detailed results concerning the scholars.

3 FINDINGS

The findings can be summarized in two categories: (1) Search requirements of media professionals are influenced by work-related constraints and (2) the DIVE+ user experience is not optimal due to a lack of transparency and limited user control.

3.1 Work-related Constraints

Media professionals argued that their search process is influenced to a large extent by, most prominently, the following constraints: **time, budget, and target audience of a program**. When making a program, there is a limited amount of time as there often is a deadline, although this also depends on the type of program. Elaborate (exploratory) searches are thus not always possible. Also, the type of material sought depends on the target audience of the program. If a program has a younger audience, material that is recognizable is suitable, while programs that have an older target audience rather need material that is new and original. So there is a clear difference between the material sought when the target audience is different. Moreover, to do their jobs efficiently, media professionals are in need of transparency during search - they need to know where sources come from and they need to be able to verify it.

3.2 Limited DIVE+ User Experience

The DIVE+ user experience was not considered optimal. One of the most prominent issues in DIVE+ that was the cause of this, identified by the media professionals, was a **lack of transparency** at different levels in the tool, mainly related to how events are represented in DIVE+ and how they are presented to the user. This is where the problem lies: DIVE+ did not offer enough clues to the media professionals that allowed them to 'check' the information. It was not evident where the information was coming from and why it was presented to them. Particularly, participants needed more transparency on the following aspects:

- How are relationships between entities generated
- What is the rationale behind the labels given to entities
- Metadata and information that describes individual entities

Another limitation of DIVE+ mentioned by the media professionals was the limited amount of control they could exercise to tailor the search tool to their specific needs. Filtering options were missed and more control was requested concerning the exploration path. Most prominently, the fact that they could not filter on the type of media and the collection was considered as a drawback. These filtering requirements also closely reflect the work-related constraints of media professionals discussed previously. Particularly, the type of program (e.g. Youth news or Evening News) affects the type of material that is sought for, and media professionals wanted to have more options in DIVE+ to tailor to these needs, even in this initial stage of search.

3.3 Events, Narratives and Serendipity

The previously described findings relate to the events, narratives, and serendipity in DIVE+ in the following ways. First of all, how events and their interrelations are presented to the users is not clear, due to the transparency issues. This has negative consequences for the usefulness of narratives and events. Second, media professionals were most critical of all studies groups concerning the suggested narratives. Still, the potential of the exploration path and narratives is noted, for example for sharing stories and the search path with colleagues. Last, the relevance of search results is difficult to assess (due to the aforementioned problems), which limits the potential for serendipitous findings.

4 RECOMMENDATIONS

The previous discussion shows that DIVE+ currently is limited in its ability to facilitate understanding and interpretation of archival collections to its users. Regarding the media professionals, the requirements that they have for searching are not fully supported by the different features in DIVE+. Their requirements for an exploratory search tool can be summarized as follows:

- It should be time-efficient to use
- There should be enough information available that describes collections and objects
- The information should be transparent and verifiable
- There should be options to tailor the search to the specific (needs of the) media professional.

Some of these demands can easily be solved by implementing small changes in the user interface of DIVE+. Other demands, such as that it should be time-efficient to use, are more difficult, or even undesirable, to meet. After all, the aim of DIVE+ is not to provide quick solutions to information problems, but rather to support users in their exploration of cultural heritage collections. In adapting the search browser to new user groups, developers should keep this in mind. Still, we think that a lot of the issues can, and should, be solved so that DIVE+ is better able to fulfill its potential.

5 CONCLUSION

In investigating the search practices of media professionals, we found a set of requirements, relating to their work practices, that they have for searching: a tool should be time-efficient, there should be enough information available in the tool and this should be transparent, and there should be enough options to tailor the search. These requirements could not be fulfilled by the exploratory search browser DIVE+. Particularly, the way in which events and event entities were presented provide users with too little means to understand and grasp why it was presented to them in this way. This results in a lack of trust and a skeptic attitude, which is problematic as it has negative consequences for the usefulness of the constructed narratives and the serendipitous findings. All in all, this let us conclude that currently, narratives, events and serendipity in DIVE+ do not optimally support the exploratory search needs of media professionals. Right now, the main challenge that lies ahead for the DIVE+ research community is to increase the transparency of the tool, so that users are better able to understand what is presented to them, and why it is presented to them. Recommendations proposed in this research should be implemented and tested with users. This allows DIVE+ to better support users in their explorations through cultural heritage.

REFERENCES

[1] M. Cheng. 2017. DIVE+: User Interaction Design with Digital Humanities. In *Master's thesis, Universiteit van Amsterdam, Amsterdam*.

[2] A. Collijn. 2016. DIVE+: DIVE+: An exploratory search system for Humanities scholars. In *Master's thesis, Vrije Universiteit Amsterdam, Amsterdam*.

[3] M. Kruijt. 2016. Supporting exploratory search with features, visualizations, and interface design: a theoretical framework.. In *Master's thesis, Universiteit van Amsterdam, Amsterdam*.