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Don't go for different! Designing specialized information services

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Introduction

Usability is defined as the “extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use” (DIN ISO 9241-11, 2010). Digital services such as digital libraries, repositories or virtual research environments, thus, reach a high usability level if their design is very much adapted to its major user group and their major task(s). In consequence, most usability studies focus on distinctive user groups and their needs, most notable on evaluations according to different subject domains.

This paper questions the dominant user evaluation approach to focus on differences and suggests instead to design specialized library information services by explicitly not going for differences between groups. The paper suggests to focus on similarities in users' information behaviors and to design for universal and interdisciplinary use first and individuality second.

Theoretical framework & Research questions

It is a recurring theme in the last 25 years of digital library service research that there are significant differences in scholars' information discovery and use of information sources. For example, Covi & Kling (1996) discovered major differences between two subjects in the use of digital libraries, as did Nicholas et al (2010) and Arshag & Ameen (2021). All studies have in common that the starting point is the hypothesis of existing differences and that the research design thus seeks to validate those differences.

Few studies in this research area, if any, seek the similarities. Marchionini et al (2003) commented already 20 years ago that in their opinion it “is axiomatic that designing for universal access is much more difficult than designing for specific populations”. Their assumption for the design of a national digital library service has been that it will “likely lead to multiple system solutions”. Their prediction was both wrong and right: it was wrong, because large national and international digital library services serving many different communities were successfully build, most notably

Europeana. They were right, because digital services for specific populations are, today, the dominant form so the multiple system solution designed is the most common approach.

This contribution presents case studies from four different specialized subject information services from Germany. During World War I and II, the German government realized that German scientists were cut off from international research and started building state-financed information and documentation services (Bibliotheksportal, 2022). In 2014, the German Research Foundation started funding “Fachinformationsdienste für die Wissenschaft” (DFG, 2022), that are specialized services for subjects (shortened FID), such as library and information studies, German literary studies, ethnography studies and others.

The aim of those FID is to have access to information and library services for German researchers independent of the researchers’ current location. This means, for example, German philosophical researchers, can request access to all services from their FID independently if they work at a department of philosophy, at one of the state funded institutions such as Fraunhofer or Max Planck or, if they live abroad. In 2022, there were 42 different specialized services funded by the German Research foundation, each addressing a different research group, all of them offering some sort of digital portal as an entry point to specialized services.

According to the funding guidelines, the specialized subject services, FID, are required to fulfill the information needs of their user community. In consequence, all FIDs conduct various forms of user studies, from information need assessment surveys to usability evaluations. This paper reports on four usability studies in different portals. The research question of the paper is: How similar are researchers’ needs in regard to the usage of the specialized information service portal?

Methodology

This article is based on four usability studies of specialized information services, which were conducted independently to each other. The earliest study, “HSP”, of the portal of medieval and early modern manuscripts took place in 2020 (Greifeneder & Bressel, 2021a), followed by the study of the portal “FID GiN”, Germanistik im Netz (Bressel & Greifeneder, 2021b), the portal avldigital.de for literature studies (“FID AVL”) early 2022 (Bressel & Greifeneder, 2022a) and the last project, which will end in December 2022, “FID DK”, the portal for performing arts.

The researchers in this project conducted asynchronous remote card-sorting tests using the software Optimal Workshop for the HSP study and KardSort for FID GiN (Greifeneder & Bressel, 2022b). For a follow-up study within HSP and the two most recent studies FID AVL and FID DK, the authors conducted think aloud protocol studies using Zoom. For the focus group, Zoom and additionally Miro boards for a synchronous card-sorting activity were used.

The asynchronous card-sorting studies had 56 (HSP) and 92 (FID GiN) participants, the think-aloud protocols were each between 6-12 participants and the focus group included 6 participants.

For the think-aloud protocols and the focus group, structured interview guides following the SPSS-approach by Helfferich (2019) were used. All participants were researchers from their respective area, including researchers in the early career stage and senior researchers. Table 1 shows the type and distribution of methods that were applied. This paper uses a comparative approach, where the individual results of the four case studies are combined and examined under the lens of the above research question. A limitation of the project is that it only examined a small number of available FID and that, at present, no specialized service from the natural science area was included.

Table 1. Methods in four usability studies.

	HSP	FID GiN	FID AVL	FID DK
Remote asynchronous card-sorting	X	X		
Online Think-Aloud	X		X	X
Focus group				X

Research Results

The think-aloud tests and focus groups focused on concrete experiences within researchers' subject area. Participants were asked to describe how they used the portals, to demonstrate their information seeking process using a current research question that they have and to express needs towards the services. Based on previous studies in the field, it was expected to discover subject specific usage patterns. However, those were rarely visible.

The librarian perspective and argument for specialized services is that the data types are very different. Researchers from performing arts are more likely seeking visual data such as illustrations from theatres while the German linguistics are more likely to seek large text corpora. If the data are very different, the information infrastructure must be very different. Yet, while the backend must adapt to different data types, it may not be necessary to mirror this to the front end.

Despite very different data and services offered on the four specialized service portals, the participants showed nearly the same usage behavior: they all started with a search request instead of browsing the multiple services offered on display on the main page. Additional services such as newsletter, third party project documentations or event calendars were, in all studies, seen as a nice add-on but were rarely used, if they had been noticed at all.

Participants commented that they used multiple resources and thus prefer similar if not identical usage practices of those services. They want to be able to identify the structure at a glance and to know immediately where they can do what on the site. This may not sound innovative, because it is at the heart of what user experience design does, but it still is not fully implemented in the digital library world. Participants criticized that each library service – in their words - reinvented the wheel instead of designing one system that works.

The card-sorting tests demonstrated another important similarity. For the HSP project about the manuscript portal, participants came from various subject areas – all with an interest in manuscripts, of course. Again, despite large participant numbers (56 for HSP & 92 for GiN) there was no evidence of a statistical difference between behaviors within the participant group. What united them were issues with unclear terms. Participants from all subjects sorted cards very similar and therefore expect to find the information on a website at similar places. The moment the information service used specialized terms, participants sorted those cards without any obvious pattern and it was clear that they had no idea what those terms mean and in consequence what would happen if they clicked on this subpage on the portal.

Discussion

The results of those four studies showed that users of specialized digital library services may express how different they are when it comes to getting funding or keeping positions within university structures, but that their information needs and information usage behaviors are very similar.

Participants express that they are (no longer) willing to learn how to use services and expect that library services implement standard user experience practices. They prefer similar systems instead of specialized systems created only for them. This was also visible in the understanding issues of unfamiliar vocabular. A good specialized service is characterized by the fact that the similar functions work.

The reason for this change in behavior may be seen in an increase of interdisciplinary research. Researchers no longer just use the information resources of one subject, but have to seek information in two, three or even more sources. It is understandably that those researchers are reluctant to learn three times as many systems and specialized terms than their colleagues. With the increase of interdisciplinary work, this trend may become the norm and not the exception.

Conclusion

This paper examined how similar researchers' needs are in regard to the usage of specialized information service portals. Data from four usability studies on German specialized digital library services were collected between 2021 and 2022 and results were examined under the lens of similarities and differences between researchers from different subjects.

Previous studies(Covi & Kling (1996), Nicholas et al (2010), Arshag & Ameen (2021)) showed large differences in usage behaviors between subject domains when seeking information. The results of the present study show the opposite: the seeking behaviors were very similar and participants criticized when digital services were too different. Participants explained this with their interdisciplinary background and the need to use multiple specialized services for their research purposes.

Libraries as the stakeholders in the backend receive grant funding to develop multiple services for specialized user groups. Each difference means the chance of extra funding. Going for similarity in design and services steering towards some form of universal design may on the long run reduce funding income.

Future developments of digital services ought to discuss how this act can be best balanced: offer distinct services to the information needs of specialized researchers and striving towards a unified model of design.

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