

# Building an online environment for usefulness evaluation

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**Abstract.** In this paper we present a methodological framework for usefulness evaluation of digital libraries and information services that has been tested successfully in two case studies before developing a corresponding tool that may be used for further investigations. The tool is based on a combination of a knowledge base with exploitable and modifiable questions and an open source tool for online-questionnaires.

**Keywords:** Digital Libraries, Usefulness Evaluation, Quality metrics

## 1 Introduction

Recent years have seen a considerable increase in evaluating the usability of digital libraries and several methods (e.g. heuristic evaluations, user acceptance testing) have been established. Unfortunately the matter of usefulness, which has the same importance in the realm of online libraries and information services, is less investigated. In the context of a research project named PECE (= Plateforme d'Evaluation pour les Centres d'Information) a framework that allows an adjustable elaboration of a survey concerning usefulness was built. Persons interested in evaluating the usefulness of a digital library or its content will be able to quickly create a survey without having to consult an expert.

## 2 Case studies

Tsakonas and Papatheodorou [1] developed a model named interaction triptych framework on which the work presented in this paper is based upon. This framework investigates the relationship between three major components: system, user, and content provided, whereas the relationship between the user and the content defines the evaluation axis of usefulness.

Based on this model, two case studies were executed, one for infoclio.ch, the Swiss portal of the historical sciences ([www.infoclio.ch](http://www.infoclio.ch)), and one for the Swiss national sound archives ([www.fonoteca.ch](http://www.fonoteca.ch)). In both cases, all services are digital and there is no direct contact between the institution and the users. The study concerning infoclio.ch was based on an online survey (with incentives for participants) in order to evaluate the usefulness of the information portal's components. The study concerning the Swiss National Sound Archives was focused on listening spots for copyrighted audio files and started with ethnographic interviews in three institutions housing a listening spot. In addition to the interviews, an online survey was made, which contained questions focusing on the usefulness and the usage of the listening spots and questions regarding the satisfaction of the content provided on the website of the Swiss National Sound Archives.

The usefulness dimension of the Interaction Triptych Framework contains five attributes: relevance, format, reliability, level and coverage. As it is rather rare to obtain the questions used in other usefulness studies, it has been decided to develop new questions going into detail for every attribute. These questions were then discussed with the stakeholder who added new ones or deleted some of them. After discussions with the stakeholders, the model developed by Tsakonas et al. has been extended and two more attributes have been added in order to correspond to their expectations, namely satisfaction and competition. Satisfaction was added because whenever a digital library is of use to a user and when there are no major problems with the usability, it should positively and measurably influence the user's degree of satisfaction. Therefore, the attribute of satisfaction represents an indirect way to measure the usefulness of a system. In the case of a non-satisfactory attitude of a user, it is very important to identify the source of this non-satisfaction. The attribute of competition provides knowledge about competitive services which may be consulted by a user. This attribute allows going beyond the hermetic view of a system in order to not only compare it with the users' needs and preferences, but to take its environment into account in the analysis. Any given system is always exposed to competitors, as competitive services influence the users' expectations and model their behavior. Questions about competition allow as well comparing the proposed contents and services with similar systems.

In order to make the concept usefulness as visual and understandable as possible, a mind map was created (see: [http://campus.hesge.ch/id\\_bilingue/doc/Usefulness\\_en.bmp](http://campus.hesge.ch/id_bilingue/doc/Usefulness_en.bmp)) containing

usefulness as the core concept, followed by the dimensions (or attributes), which are detailed in simple and general questions that could also show up in a survey. This concretization of parameters helped the stakeholders to understand the concept of usefulness and to see which aspects of usefulness could be explored and as a consequence made it easier for the stakeholders to decide what aspects are to investigate and what aspects are to ignore. The stakeholders were invited at several points of time to modify, add or delete questions according to the specific objectives of their evaluation. Finally, the questions were transferred into an online questionnaire and disseminated. The evaluation process finished with the analysis of the data obtained and further explanations on them together with some recommendations for improving the service and a last meeting with the stakeholders involved in the evaluation process. To make similar evaluations easier, the whole evaluation process, which can be interpreted as an assessment process, was subsumed in an eleven step approach as described in detail in [2].

### **3 Practical Implementation**

One of the main objectives of this study was the transfer of the gained knowledge to librarians. As a consequence, the study was supposed to develop a framework which librarians can follow in order to conduct their own usefulness evaluation. Based on the case studies, we built a framework for the whole evaluation process that allowed us to extract mesoscopic question on the base of the specific questionnaires, which represented the most difficult undertaking. The mesoscopic approach tried to respond the demand to keep the questions specific enough so that their purpose is still understandable and adaptable to every one's own context with minimum effort.

In order to make the process and the collection of mesoscopic questions available to the public, an online platform has been developed to provide a usefulness evaluation tool (usefulness.ch). This tool is based on the open source web application LimeSurvey which is dedicated to the creation of questionnaires and the conduct of online surveys. LimeSurvey is mainly based on PHP and MySQL and currently the most complete open source software concerning surveys with an active community [[www.limesurvey.org](http://www.limesurvey.org)]. LimeSurvey provides an enormous amount of functionalities and allows parameterizing surveys in detail. This leads inevitably to a high complexity within the interface. As many of the provided functionalities of this software

were not used for the usefulness.ch platform, a new interface which works as a layer on top of the software has been created.

The platform usefulness.ch provides in addition to the online survey software a template questionnaire which contains all mesoscopic level questions. After the creation of an account on the platform, the user has access to the template questionnaire. The user can choose from this template questionnaire the questions which are to be integrated in his own questionnaire. In a further step, he may then modify the chosen questions to the context of his evaluation purposes and add his own questions. After having completed the questionnaire, it is possible to either conduct the survey directly on the usefulness.ch platform or to export the survey. If the survey is conducted via the online platform, a link is provided which can be sent to potential participants or integrated on a website for example. The responses are collected on the platform and may be exported once the survey has ended. The results can be downloaded in the .lsv format which is readable by any table processing program like Excel. The usefulness.ch platform is available in German and French and its use is free of charge.

#### **4 Conclusions**

It seems clear that after decades of putting emphasis on the evaluation of a system's usability, the exploration of its usefulness, i.e. the usefulness of a digital library's content is about to gain more and more interest. There is still much work to be done to establish this relationship and to build a solid methodological fundament. The work described in this paper shall be considered as a contribution for a further step in this process.

#### **5 References**

1. Tsakonas, G.; Papatheodorou, C.: Analysing and evaluating usefulness and usability in electronic information services. In: *Journal of information science*, vol. 32, no. 5, pp. 400-419 (2006)
2. Birri Blezon, R., Hügi, J., Schneider, R.: "Sieht gut aus, aber was bringt es mir?": zur Evaluation der Nützlichkeit digitaler Inhalte. In: Bekavac, B., Schneider, R., Schweibenz, W. (eds.) *Benutzerorientierte Bibliotheken im Web*. pp. 55-73. de Gruyter, Berlin (2011)