Erasmus: A Flexible and Scalable Administrative Tool for Dublin Core Metadata

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Metadata tools require careful design. Poorly designed functionality and interfaces, and tools that do not represent metadata concepts in a clear fashion, can hinder metadata work (Crystal and Greenberg, 2005; Greenberg et al., 2003; Wilson, 2007), especially for users who are not trained metadata professionals. A user-centered approach to metadata tool design is therefore desirable. This presentation will describe the development of a metadata tool - ‘Erasmus’ - that supports non-specialists in the creation and editing of Dublin Core metadata for the online collections of the Internet Public Library (IPL). The IPL has been following a user-centered design approach to the development of Erasmus. The approach addresses both interface usability, and organizational usability.

Initial functional requirements were gathered in a master’s level “Introduction to HCI” class. The 20 students in the class were given a term-long group project to design a basic prototype for a metadata tool. The project required the students to apply in a practical fashion a range of the introductory HCI concepts that they were learning in the course. The students also had to research metadata, digital libraries, and metadata tools, and they were introduced to the IPL as the project client. Four student teams then each designed a paper prototype for a metadata tool. The prototype had to incorporate a basic record creation functionality. Each team’s paper prototype was tested in a round-robin series of face-to-face task-based usability tests in the classroom, in which each team alternated between users and testers. As users, they were required to complete sample tasks with the tool, and provide think-aloud commentaries. As testers, they were required to conduct the test, operate the paper prototype, and record notes and observations. Based on the testing data, the prototypes were refined and the results presented in team reports. This exercise generated a range of basic functional layouts for the tool, in which tool editing functions, and the resource to be cataloged, were integrated into a single user interface. A succession of HTML prototypes based on these projects was then developed and refined by a doctoral student member of the IPL team.

Interviews were then carried out to elicit the tacit and explicit organizational metadata knowledge of the IPL project members. The aim was to find out how metadata work was carried out in real life contexts, in order to develop Erasmus to suit the IPL’s specific organizational needs. The interviews were transcribed, and the transcripts were coded. The analysis revealed that the work of making and sharing metadata in the IPL was, in organizational terms, an example of complex and tightly-coupled work (Olson & Olson, 2000). That is, it was nonroutine, ambiguous, highly interdependent, and required significant organizational communication to be successful. The interviews showed that various dimensions of this communication had been missing in the IPL, not least because of an ongoing lack of documentation in the project. Consequently, a range of significant structural and content problems were encountered with the existing IPL metadata when it was crosswalked to Dublin Core.

It was therefore decided to support IPL organizational knowledge and communication processes in the Erasmus tool. This was done in several ways. First, an interface was created that allowed for easy schema creation by administrators. New schemas are created and edited in an
AJAX scripted front end that accesses a MySQL back-end database. An IPL administrator can set up, define and name, add vocabularies to, etc., a range of standard and qualified Dublin Core fields. (In the old tool, in contrast, the schema was created first and then a custom tool was built around it). Each schema configuration can be saved and edited. Second, a component is being developed to store tool and schema documentation, and user manuals. This latter component places explicit IPL organizational knowledge regarding Erasmus in a central place, where it can be easily accessed by administrators and users of the tool. Lack of access to such organizational knowledge was a serious impediment to IPL metadata work in the past.

Overall, the user-centered design of Erasmus supports administrators to build schemas for any ‘flavor’ of Dublin Core, including qualified and administrative metadata, with relatively little effort. All the components of the tool are standardized, modular and extensible. New schemas can be created easily, and new catalog records can be created within each schema. This ease of use is passed on to the actual users. When users access the tool, it will generates a front-end interface for that particular schema on-the-fly. The user searches to see if a site has already been cataloged; and if not, they can view the site, create a catalog record, and access help and tips, all in the same interface. A working prototype of Erasmus will be finalized over the summer of 2011. This will be made available for IPL interns to start using in initial usability testing, and we hope to have a stable beta/demo version available by the end of 2011. Based on these usability results, further iterations of the tool design could be made over the coming year.

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References

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2 Named after the Dutch humanist and philosopher Desiderius Erasmus, who in 1525 wrote of the potential of a new information technology, the printing press, to break down physical limitations to the spread of knowledge and to create a ‘library without walls’:

And although Ptolemy's library was confined within the narrow walls of his dynastic palace, Aldus toils so that his library shall be contained by no limits other than those of the world.
Desiderius Erasmus, Festina Lente (‘Make Haste Slowly’), 1525