

Practices of Metadata Use in Research Information Management Systems

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ABSTRACT

This poster reports on a study that examines the practices of metadata use in a research information management (RIM) system ResearchGate. Understanding these practices can help institutional repositories to better align their RIM metadata models with researchers' needs and priorities. The study identified three categories of RIM system users. The study's preliminary findings suggest that *community members* are more willing to share their personal information and provide full-texts of their works on ResearchGate compared to *readers* and *personal record managers*.

Keywords

Research information management, metadata, ResearchGate, institutional repositories.

INTRODUCTION

Many institutions actively develop and implement their local research information management (RIM) systems for various purposes. RIM systems support various stakeholder groups, including researchers, funders, university administrators, librarians, and aggregators (Smith-Yoshimura et al., 2014; Wu, Stvilia, & Lee, 2016). Each of these groups can use RIM metadata for different purposes and assign different levels of importance in different activities. Thus, to facilitate research identity data use and to engage researchers in its curation, it is important to identify the stakeholders' value structures and priorities for different research identity data elements, and align RIM data structures and quality assurance activities with those priorities. The purpose of this study was to examine researchers' practices of using metadata elements in RIM systems. The findings can be used to develop a value model of RIM metadata elements (Stvilia & Gasser, 2008), which can help institutional repositories to better align their RIM metadata models with researchers' needs and priorities.

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ASIST 2017, Washington, DC | Oct. 27-Nov 1, 2017

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METHODOLOGY

This poster reports on part of a larger study, which examined researchers' use of and engagement with RIM systems. The study's design included 15 qualitative semi-structured interviews and a survey completed by 412 researchers representing 80 universities in the US classified as high research universities in the Carnegie Classification of Institutions of Higher Education. Detailed reports of findings from the interviews and survey can be found elsewhere (Wu, Stvilia, & Lee, 2017). The findings of this poster were based on a content analysis on metadata elements of ResearchGate and an empirical analysis where the authors analyzed the use of metadata elements in the ResearchGate profiles of 126 researchers (see Figure 1), sampled from the survey participants. Based on their participation levels in ResearchGate, the sample consists of 26 *readers*, 50 *personal record managers*, and 50 *community members*. One of the authors manually examined ResearchGate to assemble an aggregate set of metadata elements provided there. This study addressed the following research questions: (1) *What metadata elements does ResearchGate provide to support researchers' activities?* (2) *What metadata elements do researchers use in their ResearchGate profiles?*

FINDINGS

The analysis of ResearchGate's metadata elements produced an aggregated set of user-editable metadata elements typified by nine different categories representing researchers' academic-related activities (see Figure 3). To answer the second research question, the authors examined 126 researchers' ResearchGate profiles from the sample. Figure 2-A presents the frequencies of uses of metadata categories in the sample. Most researchers' ResearchGate

Participation Levels	Freq.
Readers. They may or may not have a profile in a RIM system, but do not maintain the profile if they have one and do not interact with other members of the system or contribute to the system.	26
Personal Record Managers. They maintain their profiles in a RIM system, but do not contribute to the system beyond that and do not interact with other members of that system directly or indirectly.	50
Community Members. They not only maintain their own profiles, but also are willing to engage in curating the research information of other members by endorsing them for skills, or share their knowledge and information via messages, emails, or Q&A forums.	50

Figure 1. Distribution of the sample by participation level.

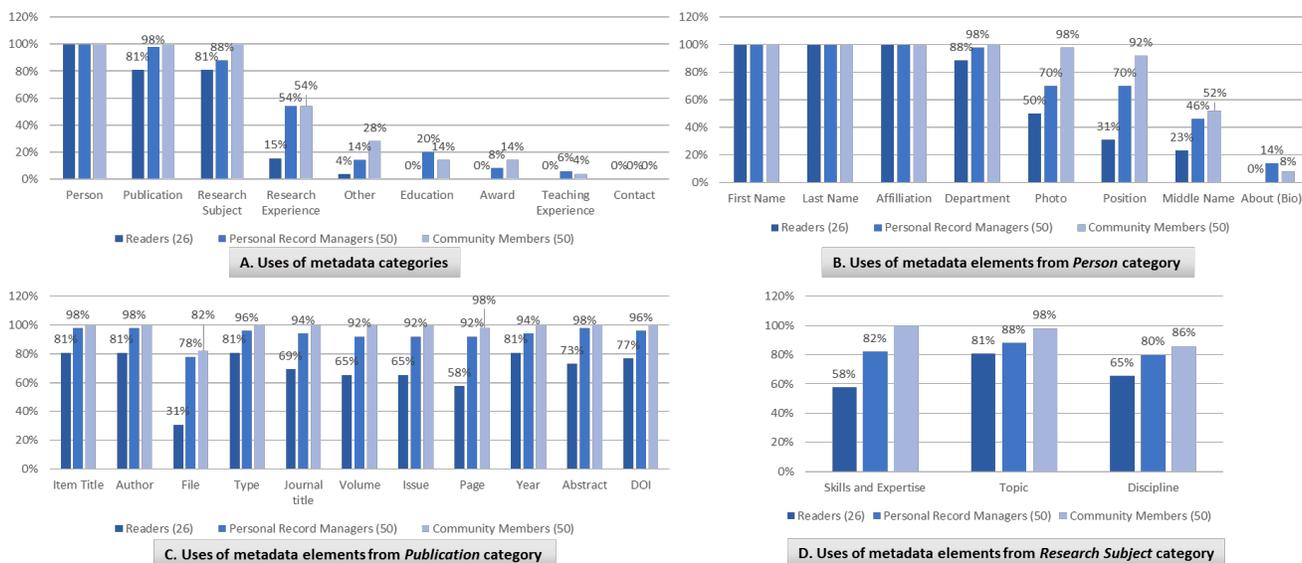


Figure 2. Use of metadata categories and metadata elements from different categories.

profiles used at least one element from the categories of *person*, *publication*, and *research subject*. Since almost all researchers' profiles used metadata elements from the *person*, *publication*, and *research subject* categories, the authors next investigated the use of individual elements within these categories. Figure 2-B summarizes the uses of specific metadata elements from the *person* category. More than 90% of the community members' profiles included *first name*, *last name*, *affiliation*, *department*, *photo*, and *position*. This indicates that they are more willing to share their personal information than readers and personal record managers. All of the elements from the *publication* category were highly used except that *file* was occasionally used by readers (see Figure 2-C). This indicates that compared to readers, community members and personal record managers are more willing to provide full-texts of their works (downloadable files) on ResearchGate. Similarly, community members are more likely to share

their disciplines, research topics, and skills and expertise on ResearchGate (see Figure 2-D).

CONCLUSION AND FUTURE RESEARCH

This poster presents researchers' use of metadata elements in a RIM system. The findings can be used to develop a value model of metadata elements for RIM. Future research will conduct interviews with researchers to learn about their motivations for using specific metadata elements in RIM systems and their perceived values of those elements.

ACKNOWLEDGMENTS

This research is supported by an OCLC/ALISE Library and Information Research Grant for 2016 and a National Leadership Grant from the IMLS of the U.S. Government (grant # LG-73-16-0006-16).

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Categories	Metadata Elements
Person	First name, Middle name, Last name, Alternative first name, Alternative middle name, Alternative last name, Degree, Institution, Department, Position, Time period, Gender, Email address, Profile photo, Time zone, About
Publication	Publication title, Author, File, Type (i.e., book, chapter, code, conference paper, method, patent, poster, proposal, technical report, thesis, working paper), Journal referee, Volume, Issue, Page, Day, Month, Year, Topic, Abstract, DOI, Publisher, Editor, Edition, ISBN, Chapter, Book title, Description, Language(s), Repository link, License, Ref. Number, Ordinal, Grant number, Report number, Supervisor, Degree, Version number, State
Research subject	Topic, Skills & Expertise, Discipline
Research experience	Position, Institution, Department, Research group, Time period, Location, Description
Teaching experience	Position, Institution, Department, Time period, Location, Description
Education	Institution, Field of study, Degree, Time period, Location
Award	Type (i.e., award, grant, scholarship), Title, Start date, End date, Amount, Funding agency, Grant reference, Principal investigator, Research institution, Co-investigator, Secondary institution
Contact	Location, Website, Phone, Mobile, Fax, Twitter, Skype, Instant messenger, Birthday,
Other	Language(s), Scientific society, Journal referee, Other interest, ORCID

Figure 3. User-editable metadata categories and elements used in ResearchGate.