

International Workshop

Information Interactions

October 17th
Bratislava

2017

Information behaviour of researchers, digital scholarship,
information literacy

Abstracts

Editors

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Information Interaction 2017 – International Workshop

Main topic

information interactions - information behaviour of researchers, digital scholarship, information literacy

Topics

human information behaviour, information ethics, information literacy, intelligent systems, cultural identity, memory practices, altmetrics

Objectives

present research results, discuss theory, methodology and practice, presentations of doctoral student's projects, discuss of methodological problems of information science

Content

research papers, PhD. student's research projects

Audience

researchers, doctoral students, computer scientists, collaborators, practitioners, managers of libraries and information institutions

*The international workshop is realized within the project VEGA1/0066/15 **Modeling of the information environment of digital scholarship** and APVV 15-0508 **Human Information Behavior in the Digital Space (HIBER)**.*

Organizing institutions

Department of Library and Information Science, Faculty of Arts, Comenius University in Bratislava and University Library in Bratislava.

Program chair

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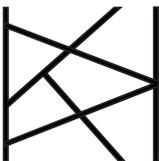
Place

Conference hall of University Library in Bratislava
Ventúrska 11, Bratislava, Slovakia

Time

17th of October 2017, from 9:00 until 18:00

Linguistic and stylistic editing is responsibility of the author of the abstract.



Katedra knižničnej
a informačnej vedy



univerzitná knižnica
v bratislave

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Martijn van Otterlo

The ethics of artificially intelligent algorithms in society, public libraries and archives

Our society is increasingly controlled by artificially intelligent, pervasive software systems that feed on our neverending growing heap of data traces that represent our characteristics, our wishes, our desires, our beliefs, and even our darkest secrets. Well-known examples are giant tech-firms like Google, Twitter, and Facebook, but there are numerous digital parts of our society where algorithms are being employed to monitor us, predict us, manipulate us, and to control us. Such systems increasingly replace interactions that were once purely physical. For example, Amazon's Kindle e-reader now intermediates aspects of buying, browsing, reading, and marking up, books. The dating app Tinder replaces aspects of finding, meeting and looking at potential partners. Facebook mediates many once-physical activities, such as talking with people, showing photographs, commenting on the quality of a friend's outfit, and so on. Physical interactions that were once fire-and-forget events are now being turned into a data memory and can be analyzed indefinitely by intelligent algorithms that can generalize over behavioral patterns, link data to other data, and predict the likelihood of future events to happen. Ethical norms that were once established for the physical world are now being challenged by many kinds of novel situations in the digital world. It is often unclear whether new technologies are only creepy, or that they are possibly illegal, or that they require new laws and regulations. The emerging field of "ethics of algorithms"¹ studies the ethical aspects of the algorithmic transformation of our society.

In this talk I will discuss the ethics of algorithmic developments such as machine learning and artificial intelligence and outline general ethical aspects of algorithms with increasing agency. I will additionally employ the domain of public libraries, and that of archival practices, to illustrate potential effects of digitalization [6] and algorithmization. I will draw upon my research in sensor-based digitalizations of public libraries and the potential of user monitoring and manipulation [3] in the BLIIPS project [1,5,7,8], research into the ethics of access in archival practices and how human ethical codes of conduct could be utilized to gain insight in how to provide intelligent algorithms with ethical behavior [9], and our recent empirical, qualitative studies with both public library professionals as well as archivists, aimed to map out the perceived threats and opportunities of algorithms in these professions. My aims in this talk are i) introducing the new field of ethics of algorithms and why it is important, ii) illustrating how different algorithms,

with different capabilities and levels of agency, create particular ethical issues, iii) zooming in on public libraries and archives as particularly interesting examples of digitalization and algorithmization because they represent vital societal functions, iv) sketching the contours of solutions to ethical challenges induced by algorithms, for example by employing adaptive [2] capabilities of algorithms themselves to learn from human ethical value systems, and v) generally increase algorithmic literacy [4].

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- [9] van Otterlo, M. (2017) From Intended to Intentional Archivists: Ethical Codes for humans and machines in the archives, to appear in Archives in the Infosphere, Smit, F., Gludemans, A. and Jonker, R. (eds.) 1 In 2017 I taught the first edition of my course on “ethics of algorithms” at the Vrije Universiteit Amsterdam, The Netherlands, see <http://martijnvanotterlo.nl/teaching.html>

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Tibor Koltay

Library support to Research 2.0 in the age of data literacy

The appearance of Research 2.0 (Science 2.0, or eScience) brought to the forefront openness and being data-intensive. Therefore, the support to researchers working in the sciences, the social sciences and the humanities, offered by academic libraries must be aligned to these needs. The related tasks and roles that academic libraries need to fulfil may contain elements of data science, but are not identical with it, even if being a data scientist has been labelled as “the sexiest job of the 21st century”. The librarian does less and offers more than the data scientist. While touching on the differences between the tasks of a data librarian and that of a data scientist, this paper will focus on research data services, data literacy education and supporting individual teaching staff members.

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Pavla Kovářová, Nikola Hálová and Tereza Pojezná

Information literacy of students at the Masaryk University and its development by the Course of work with information

Information literacy should become an integral part of higher education. The opportunities offered by online courses available from anywhere, anytime, are used to deepen knowledge and skills. The Course of work with information is a distance course of information literacy and it is intended primarily for students of Masaryk University. This article introduces results of evaluation research of this course.

The research was carried out on the first two levels of Kirkpatrick’s four-level model. The level of satisfaction was verified by a questionnaire, the level of learning by pre-test and post-test. In both cases, the pre-course needs were surveyed (883 students from various faculties of Masaryk University), followed by post-course changes (103 graduates for the questionnaire, 397 graduates for the post-test). Data collection, with the exception of a post-test, was done electronically in the SurveyMonkey tool, the post-test being a part of the students’ assessment were filled in by PAPI (Paper and Pencil Interviewing).

The research results demonstrated the efficiency of the course at both measured levels. In the case of the questionnaire, both the form and the content of the course were positively evaluated. The course would be recommended by more than 80% of the graduates. The Facebook group was identified as the best way to communicate in the course. The respondents had minor comments about confusion in task assignment and final test. According to the entry questionnaire, the students were motivated for the enrolment in the course especially by the gain of new skills, but also the credit benefit played a significant role.

Regarding the efficiency of the course at the level of learning, all questions have been marked by a statistically significant improvement in knowledge after completing the course. While the most difficulty was found in the pre-test in the field of creation, the least problematic was the processing of information. There has been a significant improvement in knowledge and skills in the post-test, however, in some topics the results remain insufficient (below 50% of the right answers), in the search query, errors in text (language and typography), argument resolution and type of a professional text.

Keywords: evaluation research, information literacy, Kirkpatrick's four-level model, tertiary education

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Szabolcs Dancs

Supporting cultural identity and common historical narratives via digital library tools – a humble proposal

Constructing cultural identity is of high importance in libraries according to various IFLA and UNESCO declarations, but how does it influence our daily activities? And what does the concept 'cultural identity' cover at all?

As Stuart Hall states in one of his articles: "identities are constructed through, not outside, difference. This entails the radically disturbing recognition that it is only through the relation to the Other, the relation to what it is not [...] that the 'positive' meaning of any term – and thus its 'identity' – can be constructed". In my presentation I use a very similar, structuralist approach. As it is suggested by Ferdinand de Saussure, linguistic units (such as words) gain their value or meaning through binary oppositions. In the

same way: people tend to define themselves against other individuals. So do communities.

One might suppose that all identities have an aggression element. It is far from being necessarily so. Cultural identity should be regarded as something complex, dynamical, a thing that changes in time. It can also be seen as a set of attributes traditionally linked to a community, something that occurs in TV commercials built upon (quite simplified) stereotypes, but identity could be very sophisticated as well depending on the quantity and quality of information one happened to acquire through his or her socialisation.

There is no doubt that complex individual identities have a collective part too, it consists of a set of values shared among the members of the society and considered to be the basis of cultural belonging. What we need is to define the golden means between two aspects: the one regarding cultural identity as something very typical and (mainly or exclusively) roots in tradition and history, and the other for which cultural identity does not bear any importance at all.

It is a key issue if we can keep our humanity when meeting people of different background. Cultural identity plays here a role not to be underestimated. As it was phrased by Vilmos Csányi: "Humans possess all the necessary biological tools to keep in check aggression within the community they regard as their own. At the same time, there are practically no biological checks on aggression against groups regarded as foreign. What they do have is cultural checks, provided these have been acquired through individual development and socialization."

Constructing identity based on common cultural references and consciousness of values is not just crucial but it is the only intellectual, European response to the events (such as terror attacks) appealing to our darkest inclinations and aiming to divide our community. Libraries, encouraged by IFLA and UNESCO documents, need to find ways and methods to implement in order to support constructing cultural identity and foster intercultural dialogue. As for V4 countries, projects could be designed and run to create a commonly accessible digital corpus processed via using cooperatively built metadata sources (namespaces, authority databases, multilingual thesauri). Developing a complex methodology to create common historical narratives exploiting digital tools also could be a field for collaboration.

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Jolanta Szulc

Semantic information vs. library services

The article aims to present areas of application, acquisition and processing of semantic information in library and information activities. In the first part of the article the definitions of semantic information in the context of semantic information theory was discussed. Various theories of (semantic) information are currently being developed. These are, among others, Bar-Hillel and Carnap's theory of semantic information, Dretske's semantic information theory and Floridi's theory of semantic information. In the second part of the article selected projects and research results were discussed.

- (1) Building a model of semantic information retrieval based on co-occurrence analysis. Semantic information retrieval research leads to finding common features between co-occurrence analysis and ontology. Ontology and co-occurrence analysis have strong similarities in theoretical ideas, data types, expressions, and applications.
- (2) Visualizing the OPAC thematic headlines. Semantic information encapsulated within OPAC subject headings can be visualized. Subject headings and their relationships constitute the nodes and arcs respectively of the graph. Such a structure may be encoded in a variety of semantic technologies implementing subject-based classification.
- (3) Analyzing the syntactic differences between the structure of classification systems and the structure of categorization systems. These distinctions lead to significant differences in contexts in which information can be apprehended. Structural and semantic differences between classification and categorization are differences that influence the semantic information available to the user and the information system.
- (4) Developing the Semantic Digital Libraries. These studies include, among others, semantic web-related aspects of current digital libraries activities, and their functionality. They show examples ranging from general architectural descriptions to detailed usages of ontologies and semantic technologies.
- (5) Preparing the conceptual model of the organization of user needs information in the big data environment. The Web of Needs model based on Linked Data techniques. This model has three layers: the Data Layer, the Semantic Layer and the Application Layer. This model allows to organize semantic knowledge resources more efficiently in the big data environment.

The summary and conclusions were presented in the last part of the article. New trends in the semantic information research, including the creation of semantic memory models or the Luciano Floridi's theory of semantic information, were emphasized.

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Michaela Melicherová

Altmetrics: tools and challenges

The aim of this conference contribution is an overview and analyze the research in the field of altmetrics and its tools. Describes an altmetrics as an alternative and complementary approach for assessing of science within bibliometrics. Defines alternative indicators, typology of alternative indicators and related terms. Evaluates negative characteristics and limits of altmetrics, then reacts to deficiencies by pointing on the potential and positive contribution of this complementary method of science evaluation. Provides a brief overview of the targets and results of the various research in this field. The conclusion is devoted to defining of aims of author's future research.

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Eduard Petiška

Usage of Open Educational Resources (OER) by Students of Environmental Disciplines in the Czech Republic

Open educational resources are important innovations in educational technologies. Their proper use can have a number of benefits for both higher education and environmental disciplines. Conversely, poor work when using these resources can have a negative impact on students' knowledge. On the basis of previous findings, we developed a method, and conducted research in the form of a questionnaire-based survey. The aim of the research was to answer the research question: "What are the environmental students' OER usage patterns?" Questionnaires were distributed in the environmental courses at five universities in the Czech Republic; 233 ques-

tionnaires were evaluated. The results showed that most students use OER often, especially Wikipedia, both its Czech and English versions, although many of the students also have experience with the storage of illegal materials. Resources are especially used as a supplement and secondary resource, as a signpost to other resources, to prepare for a test, or when writing an attestation work. As a quality resource, students especially value Wikipedia. Most students were also able to identify at least some criteria which they use when assessing the quality of a resource.

Keywords: Open education resources; higher education; environmental disciplines

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Jakub Fázik

Identity of information literacy

Although the term information literacy has been in use only since 1974, nowadays this concept is interpreted very widely. Andrew Whitworth presents in his book *Radical Information Literacy* several most important areas, where the concept of information literacy is used most often and distinguishes four basic vectors. Our tendency is to extend the sight on information literacy and to identify others vectors of information literacy according to different models, definitions, frameworks of information literacy and too according Whitworth's work: the political vector, the cognitive vector, the social-phenomenological vector, the technological vector, the pedagogical vector, the practical vector, the labor vector and others. Because of variety of this concept some authors suggest in information literacy discourse to use this term in plural information literacies. Our chosen approach to identify the identity of information literacy concept consist of analyzes the concept of literacy and the concept of information, like proposed Ch. S. Bruce.

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Tomáš Gál

Researching the mental states beyond information behavior

The objectives of cognitive psychology studies are mental processes, particularly cognitive functions associated with memory, perception, rationalization and problem solving, creativity, working with language and attention. Currently, cognitive psychology is the mainstream of a scientific approach to psychological subprime, especially psychology of personality, developmental psychology or behavioral economics.

Cognitive psychology is based on a functionalist paradigm of cognitive science. Cognitive psychology has a high explanatory potential as well as predictability in analyzing the behavior of people in different environments. This opens an important deal of connections between the cognitive approach and analysis of ways, people access information. There is explanatory potential of design and re-engineering of user interfaces, as well as analyzing the structures of acquiring information, and last, but not least, the expected result of information gathering.

The aim of this contribution is to present case studies that have already been made by co-operation and cognitive psychology and UI/Ux informatics. Then there will be analyzed the known cases of cognitive explanations of design deficiencies. Thirdly, since cognitive psychology comes with a new conceptual apparatus that is new in field of computer science or informatics, some of most important terms will be introduced. Therefore, this contribution also serves as an introduction of the possibilities of overlapping research of users behavior in terms of both their mental processes and their actions.

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Jakub Šimko

User behavior analysis using eye-tracking

The Centre of User Experience and Interaction (UXI) at Slovak University of Technology in Bratislava dedicates itself on exploring new ways of behavior analysis of users in digital environments. In particular, we give emphasis to automated (and quantitative) analysis of user logs, including

also recordings from unusual sensors and most prominently: eye-tracking. Eye-tracking is traditionally used for qualitative studies and the analysis of eye-gaze data requires a great deal of manual expert activity. If an automated analysis is possible, it requires well crafted and/or too constrained study designs and implementations, mostly to account for environment complexity. At UXI, we have the infrastructure to support large scale collection of gaze-behavior, which makes the need for manual analysis even more severe. This motivates one of the main research goals we pursue at UXI, to make the analysis of eye-tracked data more automated. In this presentation, we will briefly cover the issues we are dealing with in this field and present current or recently finished examples of performed studies and methods developed.

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Jela Steinerová

Information environment and information behavior of scholars in Slovakia: challenges for digital scholarship

Purpose

The paper reports on selected results of a qualitative study of scholars in Slovakia, namely their perceptions of publishing, open science, values, barriers of research work and research creativity. We focus on how scholars engage with information and how they perceive information work.

Methodology

We applied the methodology of semi-structured interviews with 19 scholars in Slovakia. The design of the study is represented by a concept map and includes research process, information process, information infrastructure, and factors of influence. The methodology of concept mapping represents categories and contexts of the discourse.

Findings

Two types of discourses about digital publishing and open science were identified, namely the supportive discourse (citations, speed), and the critical discourse (commercialization, gaps in coordination). The perceived barriers were categorized into the system, social, individual, technological, administrative, and financial factors. Open science factors included transparent methods, open access, relations with public. Values are determined

on individual and social levels. Research creativity is perceived with the use of such categories as research process, creative personality and creative research products.

Originality/value

Results of the study are represented by concept maps which visualize strategies of publishing, gaps in information infrastructure, values of research work and research creativity. Research information interactions are determined as adaptations and information use in the research process.

Conclusions

An ecological model of research information interactions for digital scholarship is presented, composed of factors of open science, methodology and expertise. We propose recommendations for academic libraries, publishers, and research institutions, including quality education, international contacts, attractive ecosystem for young scholars, and integrated digital services in centres of excellence.

Keywords: information behaviour, Slovak scholars, information infrastructure, values, research creativity, digital scholarship

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Michal Lorenz

From platforms to infrastructure: barriers to memory practices

The prerequisite for successful research in E-science is the research Infrastructure. In our paper we will focus on identification of research platforms at the Faculty of Arts of Masaryk University in Brno and barriers that complicate their effective integration and full use in the large research infrastructure - DARIAH. We pay attention to memory practices interacting with infrastructures that fundamentally transform our understanding of the relationship between data, information and knowledge (DIK pyramid).

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