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How do we use search engines for learning? New interdisciplinary project on “search as learning”

We can hardly imagine life without the internet as a search tool: whether at school, at work or for recreation. If it were a library, the internet would be the largest library in the world – with millions of shelves stacked with endless amounts of books, texts, CDs and films. And yet how can we get to grips with all of this if we want to learn something? How do we search for information when we want to know something and learn about it? What type of search process leads us to which goal? What action do we take when we want to find certain information on a particular topic, and what significance does information search have when learning? Search engines, link lists, wikis and video portal all offer search assistance.

Tübingen, December 8 2017. In recent years, this field of research has become highly popular under the heading “search as learning” (SAL). The interdisciplinary research project “SALIENT: Search as Learning – Investigating, Enhancing, and Predicting Learning during Multimodal (Web) Search” will enable the cooperative partners from the areas of computer science (Technische Informationsbibliothek (TIB) – German National Library of Science and Technology – Leibniz Information Centre for Science and Technology in Hannover and L3S Research Centre) and psychology (Leibniz-Institut für Wissensmedien (IWM)) to explore in the future the factors that make such search processes work and develop recommender systems that recommend additional learning content to users that may be appropriate for them. The research project seeks to determine how multimedia online resources, such as texts, images and videos, are used to meet information needs. One example is the use of web documents retrievable via web search engines when tackling learning tasks.



A winner of the “Collaborative Excellence” Leibniz Competition: Technische Informationsbibliothek (TIB) – German National Library of Science and Technology – Leibniz Information Centre for Science and Technology, L3S Research Centre and the Leibniz-Institut für Wissensmedien (IWM) undertake collaborative research into learning processes on the web

Acting on the recommendation of the “Senate’s Competition Committee (SAW)”, the Leibniz Association Senate approved the SALIENT research project under the “Leibniz – Collaborative Excellence” funding line at the end of November 2017 with a €961,000 grant. The aim of the funding programme is promote the collaborative networking of excellent research at different institutes – within and outside of the Leibniz Association. Besides the lead applicant – Hannover’s TIB, represented by Professor Dr. Ralph Ewerth and Professor Dr. Sören Auer – the project also involves L3S Research Centre at Leibniz Universität Hannover (Dr. Stefan Dietze and Professor Dr. Wolfgang Nejdl) and Tübingen’s Leibniz-Institut für Wissensmedien (IWM) with its Knowledge Construction Lab (Dr. Peter Holtz and Professor Dr. Ulrike Cress) and Multimodal Interaction Lab (Dr. Yvonne Kammerer and Professor Dr. Peter Gerjets).

“In addition, the project is one of the first collaborative projects undertaken by TIB and L3S in the context of the “Data Science and Open Knowledge” joint lab of TIB and Leibniz Universität Hannover, established this summer to deepen the cooperation,” emphasise Professor Dr. Sören Auer, Director of TIB, and L3S’s Professor Dr. Wolfgang Nejdl. IWM’s Dr. Peter Holtz and L3S’s Dr. Stefan Dietze are particularly delighted about the possibility of continuing beyond 2018 the initial successful cooperation in exploring complex learning and knowledge construction processes on the web, which is currently being undertaken under the EU project “AFEL – Analytics for Everyday Learning”. “The insight gained by combining the different forms of expertise is greater than the sum of insights produced by each individual project partner,” stated Holtz. In the SALIENT project, the L3S team, led by



Dr. Stefan Dietze, will build on interdisciplinary work currently being undertaken in the area of Learning Analytics (for example, in AFEL) and will involve the results of other priority initiatives in the context of Digital Education. The project's spokesperson, Professor Dr. Ralph Ewerth, hopes that the results of the interdisciplinary project will make a contribution to tomorrow's innovative library services in the form of virtual learning environments: "Our vision of the future is that, one day, we will be able to provide learners with precise passages from recordings of lectures, as required, such as from TIB's AV-Portal (<https://av.tib.eu/>) or to recommend further teaching material on the web." The research project, which is set to start in 2018, will be funded for a period of three years.

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The Leibniz-Institut für Wissensmedien

The Leibniz-Institut für Wissensmedien (IWM) in Tuebingen analyses teaching and learning with digital technologies. In a multidisciplinary environment, around 80 scientists from cognition, behavioural and social sciences work on solving research questions concerning individual and collective knowledge acquisition in media environments. Since 2009, the IWM and the University of Tuebingen jointly run Germany's first Leibniz-WissenschaftsCampus "Informational Environments". Internet address: www.iwm-tuebingen.de.

The Leibniz Association

The Leibniz Association connects 89 independent research institutions that range in focus from the natural, engineering and environmental sciences via economics, spatial and social sciences to the humanities. Leibniz institutes address issues of social, economic and ecological relevance. They conduct knowledge-driven and applied basic research, maintain scientific infrastructure and provide research-based services. The Leibniz Association identifies focus areas for knowledge transfer to policy-makers, academia, business and the public. Leibniz institutions collaborate intensively with universities – in the form of "Leibniz ScienceCampi" (thematic partnerships between university and non-university research institutes), for example – as well as with industry and other partners at home and abroad. They are subject to an independent evaluation procedure that is unparalleled in its transparency. Due to the importance of the institutions for the country as a whole, they are funded jointly by the federation and the federal states, employing some 18,100 individuals, including 9,200 researchers. The entire budget of all the institutes is approximately 1.64 billion EUR.