
Semantic Lifecycles: How to create and utilise meaningful data for technology-enhanced learning approaches

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Abstract: The Semantic Web, as introduced by Sir Tim Berners-Lee, has had a deep impact on web technologies, evolving the ‘web of data’ to an ‘intelligent information space’ which is responsive to both humans and computer systems. Consequently, semantic technologies have been developed and experienced in many application areas, primarily to provide intelligent IT systems even beyond the single-purpose paradigm. Semantics, therefore, is considered to be the kind of information required for systemic intelligence. In this presentation, we present three examples of ‘semantic lifecycles’ within the scope of technology-enhanced learning, each one describing the creation and utilisation of semantics which is used to improve standard learning technology in terms of responsiveness to learners. First and foremost, we highlight the different phases of a concept-based context model which is used to provide background knowledge on course topics through retrieval-based instruction. Second and consequently, we outline the lifecycle of a learner state model applied to adapt the learning process automatically. Third and finally, we deal with good practice sharing in PLE-based, collaborative activities, whereby we demonstrate how learning experiences can be externalised within a short hands-on exercise.

Keywords: Semantic Technologies; Semantic Modelling; Information Retrieval; Adaptation Systems; Data Mining; Technology-Enhanced Learning; Personal Learning Environments.

Bibliographical notes: Felix Mödritscher received a M.Sc. in Computer Technics (2002) and a Ph.D. in Computer Science (2007) from Graz University of Technology. Since November 2003 he has been participating in several research projects, namely AdeLE (funded by the Austrian ministries BMVIT and BMBWK), APOSDLE (IST FP6/IP), iCamp (IST FP6/STREP) and ROLE (IST FP7/IP). In the scope of these projects, he has been dealing with personalisation and adaptive behaviour in e-learning systems, technological infrastructures and services for technology-enhanced learning, as well as personal learning environments and learning networks. Currently, Felix is postdoctoral fellow at the Institute of Information Systems of the Vienna University of Economics and Business Administration.
