MISQ Archivist

TheoryOn: A Design Framework and System for Unlocking Behavioral Knowledge Through Ontology Learning

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Abstract

The scholarly information-seeking process for behavioral research consists of three phases: search, access, and processing of past research. Existing IT artifacts, such as Google Scholar, have in part addressed the search and access phases, but fall short of facilitating the processing phase, creating a knowledge inaccessibility problem. We propose a behavioral ontology learning from text (BOLT) design framework that presents concrete prescriptions for developing systems capable of supporting researchers during their processing of behavioral knowledge. Based upon BOLT, we developed a search engine—TheoryOn—to allow researchers to directly search for *constructs, construct relationships*, *antecedents,* and *consequents*, and to easily integrate related *theories*. Our design framework and search engine were rigorously evaluated through a series of data mining experiments, a randomized user experiment, and an applicability check. The data mining experiment results lent credence to the design principles prescribed by BOLT. The randomized experiment compared TheoryOn with EBSCOhost and Google Scholar across four information retrieval tasks, illustrating TheoryOn's ability to reduce false positives and false negatives during the information-seeking process. Furthermore, an in-depth applicability check with IS scholars offered qualitative support for the efficacy of an ontology-based search and the usefulness of TheoryOn during the processing phase of existing research. The evaluation results collectively underscore the significance of our proposed design artifacts for addressing the knowledge inaccessibility problem for behavioral research literature.