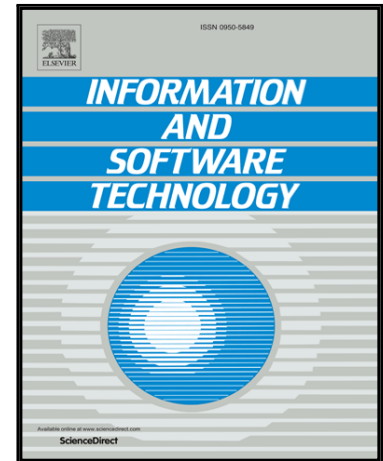


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# An Experiment on an Ontology-Based Support Approach for Process Modeling

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## Abstract

*Context:* Recent research discusses the use of ontologies, dictionaries and thesaurus as a means to improve activity labels of process models. However, the trade-off between quality improvement and extra effort is still an open question. It is suspected that ontology-based support could require additional effort for the modeler.

*Objective:* In this paper, we investigate to which degree ontology-based support potentially increases the effort of modeling. We develop a theoretical perspective grounded in cognitive psychology, which leads us to the definition of three design principles for appropriate ontology-based support. The objective is to evaluate the design principles through empirical experimentation.

*Method:* We tested the effect of presenting relevant content from the ontology to the modeler by means of a quantitative analysis. We performed controlled experiments using a prototype, which generates a simplified and context-aware visual representation of the ontology. It logs every action of the process modeler for analysis. The experiment refers to novice modelers and was performed as between-subject design with vs. without ontology-based support. It was carried out with two different samples.

*Results:* Part of the effort-related variables we measured showed significant statistical difference between the group with and without ontology-based support. Overall, for the collected data, the ontology support achieved good results.

*Conclusion:* We conclude that it is feasible to provide ontology-based support to the modeler in order to improve process modeling without strongly compromising time consumption and cognitive effort.

*Keywords:* business process modeling, process of process modeling, ontologies, activity labels, cognitive load

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