

## **Evaluating effectiveness of concept maps for ontology conceptualization: a quantitative study**

### **ABSTRACT**

Over the passage of time different techniques for conceptualizing ontologies have been presented. Conceptualization comprises a simplified vision of the objects, concepts, and other entities that are assumed to exist in some area of interest and the relations among them. The use of graphical knowledge representation formalisms with a representational vocabulary agreement of terms of conceptualization of the universe of discourse is a new high potential approach in the ontology engineering and knowledge management context. Initially, concept maps were used in the field of education and learning but soon it got popular in other areas because of its flexible and intuitive nature. It has also been proven as an effective tool to increase communication in corporate environments. In the field of ontologies, concept maps have been explored and used for facilitating different aspects of ontology development. An important reason behind this motivation is the structural resemblance of concept maps with the hierarchical structure of ontologies. This research intends to demonstrate quantitative evaluation of 2 different hypotheses related with the effectiveness of using concept maps for ontology conceptualization. Results demonstrate that concept maps instill the element of learning in the conceptualization process. Furthermore, they provide a platform for participants to resolve conflicting opinions and term ambiguities on immediate basis.

**Keyword:** Ontology; Concept maps; Binomial test; Domain conceptualization