

## Abstract

Lifelong learning is one central paradigm of the 21<sup>st</sup> century. Computer supported learning is considered to be one way to support lifelong learning. It is often criticised that the creation of interactive learning material is expensive and despite this, the material is often not reusable in different contexts. The goal of this thesis is to develop standardized descriptive schemes for so called learning objects in terms of systematization as regards content and structure. The example domain is Operations Research/Management Science (OR/MS). The content structure of learning objects is described semantically and thus presentation neutral. Learning objects are categorized regarding their granularity. A mechanism for composing and decomposing learning objects is designed taking their granularity into account. Learning objects are categorized according to domain specific concepts of OR/MS via an established taxonomy (MSC 2000). This taxonomy is integrated into an ontology which is extended by adding further relations. Thus, the ontology describes the concepts of the domain OR/MS in a formalized manner.

The validation of the concept is carried out by implementing and embedding it into a hypermedia learning environment. Only practical experiences eventually can show whether the theoretical reusability of learning objects can be fully realized.