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Validation of the learning ecosystem metamodel using transformation rules

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Abstract

The learning ecosystem metamodel is a platform-independent model to define learning ecosystems. It is based on the architectural pattern for learning ecosystems. To ensure the quality of the learning ecosystem metamodel is necessary to validate it through a Model-to-Model transformation. Specifically, it is required to verify that the learning ecosystem metamodel allows defining real learning ecosystems based on the architectural pattern. Although this transformation can be done manually, the use of tools to automate the process ensures its validity and minimize the risk of bias. This work describes the validations process composed of eight phases and the results obtained, in particular: the transformation of the MOF metamodel to Ecore to use stable tools for the validation, the definition of a platform-specific metamodel for defining learning ecosystems and the transformation from instances of the learning ecosystem metamodel to instances of the platform-specific metamodel using ATL. A quality framework has been applied to the three metamodels involved in the process to guarantee the quality of the results. Furthermore, some phases have been used to review and improve the learning ecosystem metamodel in Ecore. Finally, the result of the process demonstrates that the learning ecosystem metamodel is valid. Namely, it allows defining models that represent learning ecosystems based on the architectural pattern that can be deployed in real contexts to solve learning and knowledge management problems.

Keywords

Metamodel, Model Driven Development, learning ecosystems, information systems, software engineering, Ecore, software ecosystems, technological ecosystems

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