Modelling Text File Evaluation Processes

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Abstract. Text file evaluation is an emergent topic in e-learning that responds to the shortcomings of the assessment based on questions with predefined answers. Questions with predefined answers are formalized in languages such as IMS Question & Test Interoperability Specification (QTI) and supported by many e-learning systems. Complex evaluation domains justify the development of specialized evaluators that participate in several business processes. The goal of this paper is to formalize the concept of a text file evaluation in the scope of the E-Framework – a service oriented framework for development of e-learning systems maintained by a community of practice. The contribution includes an abstract service type and a service usage model. The former describes the generic capabilities of a text file evaluation service. The later is a business process involving a set of services such as repositories of learning objects and learning management systems.

Keywords: e-learning, SOA, interoperability.

1 Introduction

The majority of e-learning systems include the automatic evaluation of quizzes as a feature. Quizzes have the advantage of being generic and usable in any learning domain. However, the most effective types of exercises in any learning domain, both for knowledge acquisition and for student grading, are seldom quizzes. For instance, it is hard to imagine learning computer programming without actually programming. An attempt to solve a programming exercise is written in a specific language (a programming language) that cannot be evaluated simply by comparing it with predefined answers, as in quiz evaluation.

Text file automatic evaluation differs significantly from quiz evaluation based on the IMS Question & Test Interoperability (QTI) specification. QTI describes a data model for questions and test data and, since version 2.0, extends the IEEE Learning Object Metadata (LOM) standard with its own meta-data vocabulary. QTI was designed for questions with a set of pre-defined answers, such as multiple choice, multiple response, fill-in-the-blanks and short text questions. It supports also long text answers but the specification of their evaluation is outside the scope of the QTI. In