Chapter 14

Computer Assisted Assessment Patterns for Different Target Users: The Case of Multimedia Questionnaires

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ABSTRACT

In e-learning, a large diversity of patterns are proposed for different types of target users (e.g. teachers, developers, etc.), although in some cases these potential users are not clearly defined. The context of study in this chapter is focused on Computer Assisted Assessment (CAA) processes. Within the large number of methods to assess learning, the use of eQuestionnaires that make use of technical assessment specifications such as IMS Question and Test Interoperability (QTI) are studied. We analyze how the design, creation and use of question items in a CAA process are structured in stages where different users are involved. According to each user and his/her problem, a specific good practice can be applied. This information can be organized in a pattern. In this chapter, three potential patterns addressed to three different target users who work in the integration of new opportunities on CAA using multimedia Web 2.0 services in an eQuestionnaire are addressed. Each pattern belongs to a different pattern language; however, they are complementary and dependent among them. This chapter includes a preliminary survey.
study to identify whether the use of patterns can improve the tasks and relations among users in CAA processes. The evaluation results indicate that users recognize the potential use of patterns to support the sharing of good practices.

**COMPUTER ASSISTED ASSESSMENT PATTERNS FOR DIFFERENT TARGET USERS: THE CASE OF MULTIMEDIA QUESTIONNAIRES**

Important research efforts in the e-learning domain are being currently made to enhance the possibilities of Computer Assisted Assessment (CAA) approaches based on eQuestionnaires. These research efforts are mainly focused on proposing new types of interactive questions (items) that enable an improved assessment of students’ knowledge and skills. A direct translation of paper-based questionnaires into eQuestionnaires has been proved to be an inappropriate strategy (Conole & Warburton, 2005). The creation of new items for eQuestionnaires implies an understanding of students’ learning experiences, teachers’ needs, and a study of the technological services and audiovisuals materials which can be used. Besides, the goal of using new types of assessment instruments does not mean using new types of questions to collect the same information than in traditional assessment. New forms of assessment allow creating innovative forms of answering questions that facilitates the collection of extensive information about the students’ learning outcomes (Cizek, 1995).

In this chapter we analyzed the different stages (assessment material preparation, specification conception, tool implementation, creation of the unit of assessment) and various users (teachers, designers and developers) involved in the process of designing, creating and using new question-Items. The processes explained are general and independent of subject matter and are meant to be useful for users in a similar context (e.g., a teacher who finds limitations with traditional test-based assessment approaches). Since patterns offer a useful method for sharing good techniques and solutions to recurrent problems in given contexts (Goodyear et al., 2004), we present those processes in the form of potential patterns. In the different stages of the creation of new question-Items each user has to play a role and make their own tasks. These tasks are complementary and dependent among them. Therefore, the patterns, though being addressed to different users/roles probably as part of different pattern languages (PL), are related somehow among them. The different types of users come from different communities (e.g., technology, education, interaction design…). They use different abstractions and concepts but their tasks are strongly influenced by the tasks done by other users of the process. Therefore, in this chapter we also propose a network of connections among patterns for different target users who work towards the same goal: the integration of new opportunities in CAA using eQuestionnaires.

In section 2 we provide a detailed description of our context of research. We analyze a process of creation of new question-Items. For understanding the context it is necessary to analyze its stages, and the users who are involved. We explore in section 3 the role of patterns in this context of study and the network of connections among patterns for different target users. A collection of patterns are also described in this section. The following section (section 4) presents a preliminary survey study which allows us to recognize the need of using patterns to provide experience-based information of users involved in a CAA process. We conclude with a summary of the ideas presented in this chapter and the directions of future work.