

Chapter 6

T-SCORM:

An Extension of the SCORM Standard to Support the Project of Educational Contents for t-Learning

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ABSTRACT

Interactive Digital Television (iDTV) has facilitated and expanded the communication and interaction in activities of knowledge acquisitions, entertainment, and recreation in the distance learning field. This new way of teaching and learning has been called t-Learning. In this context, the Learning Objects (LOs) have an important role in assisting in the electronic courses' development. Due the fast progress of e-Learning, some efforts toward standardization have appeared in order to enable the reusability of educational contents and interoperability among systems, and one of these standards is the Sharable Content Object Reference Model (SCORM). Therefore, the main goal of this work is to present an extension of SCORM aiming to adapt it to improve the search and navigation of LOs with educational content for t-Learning. This is done through an authoring tool named T-SCORM ADAPTER, which is able to apply this extension in a fast and efficient way.

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INTRODUCTION

Nowadays, the appreciation of knowledge influences the way in which people acquire skills by making a particular person search for alternative and flexible ways of learning. According to (Girardi, 2002), this appreciation of knowledge makes that each individual always is looking for new ways to improve and increase their learning level constantly. Having the television as Brazil's most popular media, it appears as a solution for disseminating quality and interactive content.

This happens because of the digitization process, which enables audio and video applications to be executed (Monteiro, Prota, Souza, & Gomes, 2008). The Interactive Digital Television (iDTV) is becoming a reality in the world, due mainly to the advances in telecommunications. The Brazilian government with the development of (SBTVD)2, short for Sistema Brasileiro de Televisão Digital (English: Brazilian Digital Television System) has also contributed to this aspect (SBTVD, 2007).

According to Naidu (2006), e-learning is mostly related to the intentional use of information and communication that are technologically connected in order to benefit the teaching-learning process. In other words, it refers basically to educational process using Information and Communication Technology to mediate both asynchronous and synchronous learning as well as the teaching activities. Naidu (2006) also mentions some other terms that are also used to describe this modality, such as: virtual learning, distributed learning and network-web-based learning.

A major challenge nowadays is the computerized support to this activity. An important point in teaching attendance is the group activity. The students interaction in order to develop some pedagogical task is very important in the learning process (PONTES, 2010). Currently, the advances in information and communication technologies have accelerated the Distance Education development, enabling the use of didactic content structured and more organized. According to Gazzoni

et al. (2006), these contents may be available on the Web in different formats, such as: hypertexts, videos, animations etc.

Due to the fast progress of e-learning, many standardization efforts have emerged in order to enable the reusability of educational contents and interoperability among the systems developed (REY-LOPEZ et al., 2009). According to Shih, Yang and Tseng (2011), in order to share and reuse teaching content, many standards have been proposed recently, being Sharable Content Object Reference Model (SCORM) the standard most used for learning content, since that brings in its context many standards of different standardization institutes in many fields of the electronic learning.

Based on this reality, there is the problem in how to adjust educational contents, so as to better support the search and navigation mechanism to make them available in the iDTV platform in order to present an effective and personalized learning. An other problem that arises in this context is how to make the Learning Objects (LOs) become more suitable through their specification in SCORM, aiming at the proper presentation for iDTV.

To fill this gap, this paper proposes an extension to the SCORM standard in order to better support in an effective manner the search, navigation and visualization of LOs with educational contents for t-Learning.

Besides this introductory section, the chapter provides first, a description of the main features of iDTV, Distance Education and t-Learning. Next it presents the definitions of LOs as well as the standards for their development and description. Then, it exposes the details of our proposal and the authoring tool T-SCORM ADAPTER. Following it presents a Case Study with the technologies and languages used, also the final results of tests conducted and an analysis of the results found. After that, it presents and discuss similar approaches. Finally, it draw some conclusions and motivation for future work.

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