

Learning Outcomes Design Authoring Tool: The Educator is Not Alone!

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ABSTRACT

Creating a course is a demanding process that presupposes the scientific knowledge and various technical skills on effectively delivering content. Contemporary Learning Management Systems (LMSs) do not adequately support the structural appropriateness of content, despite being able to provide the lesson. Moreover, they are not readily capable of determining learning outcomes – the essential factor against which the effectiveness of a lesson is validated. The authors propose and describe the Learning Outcomes Design Authoring Tool (as of now LeODAT), which is a web-based tool conceived and constructed to support correct coding and authoring of a course by additionally creating descriptors for its learning outcomes. Furthermore, LeODAT comes along with a number of pedagogical theories, organized as Taxonomies of Learning Domains. LeODAT is designed to be used as a standalone application or as a service into worldwide popular LMSs, such as Moodle, LAMS etc.

Keywords: Course Creation, Intelligent Tutoring Tool, Learning Management System, Learning Outcomes, Learning Taxonomies

INTRODUCTION

Educational approaches have been decisively enhanced by applications of e-Learning, the multiple benefits of which have been extended in every educational level, predominantly assisting with adult learning experiences. As a result, Learning Management Systems (commonly abbreviated as LMSs), i.e., the contemporary means of delivering this type of educational provision, are constantly enriched with new

capacities in order to support more, and qualitatively richer services.

While LMSs are advancing, educators advance too in creating numerous courses, more or less based on educational specifications and standards, most popular among them, IMS 0and SCORM. Such standards contribute to high quality lessons. However, even the most well-designed, inspirational, edifying lesson may not lead to the desired educational results inasmuch as its comprehension, absorption and functional incorporation in the user's cognitive repository is concerned. Most often, lack of sufficient psycho-pedagogic knowledge on the

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part of educators themselves is the prevailing factor causing course inefficiency.

We claim that if the tutor, during the course-authoring process, had a template that would guide him/her through the steps s/he should follow to achieve an efficient course, the authoring process would totally improve.

A visible solution to this is the creation of courses on the basis of prepared templates for constructing lesson modules.

A considerable number of e-learning tools have been presented so far in order to support educators create learning plans. Some of the well known are: Phoebe, London Pedagogy Planner, LearningMapR, Compendium, QUT's Learning Design Templates and the LAMS Activity Planner.

Nevertheless, these tools propose course construction designs that do not cover for obtaining meaningful learning outcomes.

Previous research (Kerkiri & Palaiologou, 2009; Papadakis & Giglione, 2009) shown that the existing LMSs lack capabilities that meet these needs. A focused effort is here presented, with an aim to fill this gap: the Learning Outcomes Design Authoring Tool (LeODAT), a web tool, based on taxonomies of learning domains initially introduced by White and Gagné, (1974). LeODAT is based on emergent web technologies and novel practices applied in web application design. The role of this tool is twofold: firstly, it comes to aid the educators in writing clear/measurable learning activities and secondly, it intends to augment the accessibility of the learning theory.

The rest of this paper is organized as follows. Initially, some theoretical concepts, along with the problem that (non-specialist) educators usually face in explaining the design rationale are presented. Consecutively, the architecture of the proposed Learning Outcomes Design Authoring Tool (LeODAT) that comes to support this task is described. Finally, a meta-level part of LeODAT, developed as an add-on service in current LMSs, is described, along with its use and its future perspectives.

THEORETICAL FRAMEWORK

LMSs are web-based applications of various built-in capabilities facilitating online distanced educational interventions. Contemporary LMSs:

- i. Support provisions of educational modules in a variety of forms (e.g., docs, html, ppt presentations, video/audio files, different types of survey and questionnaire- investigations, etc.), with respect to the individuality and idiographic preferences of users;
- ii. Hold up a collection of tools multifariously assisting with course construction and apt modular assemblage. Such tools include chat rooms, e-mail exchange sites, file sharing, teleconferencing, electronic support of student progress, surfing history archives, student group coordination, estimates of group learning outcomes, etc).

A closer inspection of the LMSs capabilities, however, tends to reveal that their current components do not satisfactorily cover for educator support in a psycho-pedagogically correct fashion and this tends to prove detrimental for especially inexperienced educators in the e-learning processes; educators are still burdened with the difficult task of orchestrating the entire learning activity without necessarily having access or being familiar with a host of theoretical tenets that would enhance, accelerate and optimize their creation both conceptually and contextually. They decide upon the content, they plan the method, and they assess the learning outcomes—a crucial multitask process which would ideally be also one of LMSs assignments relieving educators and freeing up their time for deepening their scientific insights on the subjects at hand.

An important element for efficient course construction is for the author to obtain learning outcome milestones beforehand. One such learning outcome milestone that is unwaveringly defined is twofold: it enlightens the edu-

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