Re-Purposeable Learning Objects Based on Teaching and Learning Styles

Jeremy Dunning, Department of Geology, Indiana University, Bloomington, IN, USA & Arjuna Learning Designs, USA & Open University of Malaysia, Kuala Lumpur, Malaysia
Kellie Donoghue, Department of Geology, Indiana University, Bloomington, IN, USA
Abtar Kaur, Open University of Malaysia, Kuala Lumpur, Malaysia
David Daniels, Pearson Learning Solutions, Indianapolis, IN, USA

ABSTRACT

The interactive, multimedia learning object has become an important part of high quality online education. The cost of producing such learning objects can be prohibitive. Re-purposeable learning objects made with learning object templates allow instructors with little or no programming experience to produce highly interactive and immersive learning objects. These learning object templates are based on key styles of teaching and learning and can be used to create and customize new learning objects within those styles, without creating new source code. The templates allow instructors to create learning objects simply by inserting text, and media (images, movies, etc.) because they closely mimic specific teaching strategies.

Keywords: Interactive, Multimedia, Online Education, Re-Purposeable Learning Objects, Teaching Strategies

INTRODUCTION

Web-based distance learning is hampered in many cases by a failure to deliver material in a manner consistent with the ways in which students learn and instructors teach best in traditional environments (Samorski, 2002). Excellent teachers are successful because of the ways in which they mediate content and place the content within the context of the subject matter. It is not the specific content or images the successful teacher presents, but rather the manner in which they are presented and framed within the scope of the topic area. Excellent teachers teach by presenting the content and then providing the students with substantive opportunities to apply the content to real-world problems in an effort to promote critical thinking on the part of the student. This is a highly interactive process with much

DOI: 10.4018/ijwnbt.2012100101
information being transmitted between the student and the instructor. The interchange between the instructor and the student helps the student build a knowledge base with the assistance of the instructor’s experience and expertise in the topic area. The exact nature of the interchange is not predetermined and depends to a great extent on the creativity and breadth of experience of the instructor. The successful instructor adjusts his or her interaction with the students to the learning styles best suited to them. How do we provide the learner with this important component of traditional classroom education in asynchronous distance education or technology-mediated traditional classes? Web-based instruction is rapidly becoming the preferred mode of distance education, and we must adapt our instructional interaction styles to this medium. Our students now expect more interactive and immersive materials in Web-based learning than that typically provided in the traditional classroom or correspondence distance education (Samoriski, 2002). The implementation of technology-mediated instruction is particularly promising in large, general education courses in which there is limited substantive interaction between instructor and student. It is apparent that although technology appears to be successful in engaging students in a way not possible by an instructor in a large class, it is important that the manner in which the material is presented in interactive digital format is consistent with the students’ styles of learning. Carl Wieman, Nobel laureate and science advisor to President Obama, has recently completed a study comparing a traditional section of a physics class with an interactive multimedia section, which concludes that “it’s really what is going on in the students’ minds rather than who is instructing them. This (sic technology-mediated instruction) is clearly more effective learning. Everybody should be doing this…” Another conclusion of the study is that the manner in which the material is presented is critical, not just how it is delivered (Wieman, 2011).

The TALON learning object system was the first suite of re-purposeable learning object templates based on styles of teaching and learning, as described by Dunning et al. (2002). These Flash-based templates allow instructors to design and execute interactive learning objects in approximately 10% of the time required to create them from first principles, because the use of them requires little or no alteration of existing source code or writing of additional code (Abtar et al., 2004, Dunning et al., 2004). The fact that the learning objects are based on the successful learning styles experienced in the traditional classroom ensures that the student is both engaged and allowed to build a knowledge base about the content being covered. In the years since the development of TALON numerous other Flash-based template systems have been developed. Online learning has shifted from computer-based instruction to mobile and computer-based instruction, making Flash ineffective for some mobile devices. The authoring language of choice today is HTML5 because it is accessible on any mobile device. Dunning et al (2012) developed a system of HTML5 templates, based on teaching and learning styles, with simple pathway reporting to the instructor so that the student’s end result in the learning object and the pathway taken through the exercise are available to the instructor.

BACKGROUND

The overall online course design process can be classified broadly into four phases: analysis, development, delivery, and results. The development phase is collaborative in nature where the actual course gets designed and constructed; the delivery phase is where the instructor interacts with the students via the online course; and the third phase is where outcomes translate into learning competencies.

Retention and attrition issues in an online course are often attributed to the level of interest the course generates. The immersive nature of a course depends on its engaging features. Often, complex concepts or phenomena can be taught better through interactive models that encourage the student to explore and learn. Appropriate design of a distance education course
Related Content

Analyzing Online Reviews to Measure Augmented Reality Acceptance at the Point of Sale: The Case of IKEA
www.irma-international.org/chapter/analyzing-online-reviews-to-measure-augmented-reality-acceptance-at-the-point-of-sale/138354/

Secure Node Localization in Mobile Sensor Networks
Rachit Mittal and Manik Lal Das (2014). International Journal of Wireless Networks and Broadband Technologies (pp. 18-33).
www.irma-international.org/article/secure-node-localization-in-mobile-sensor-networks/104628/

Wireless Transport Layer Congestion Control Evaluation
www.irma-international.org/article/wireless-transport-layer-congestion-control/62088/

Towards Semantic Mashups: Tools, Methodologies, and State of the Art
www.irma-international.org/chapter/towards-semantic-mashups/138205/

Authentication in Next Generation Network
www.irma-international.org/chapter/authentication-in-next-generation-network/139432/