

Using LiMS (the Learner Interaction Monitoring System) to Track Online Learner Engagement and Evaluate Course Design

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Abstract. This poster will describe the Learner Interaction Monitoring System (LiMS), designed to capture data demonstrating learner online engagement with course materials. The poster presentation will explain how the LiMS ‘event capture model’ collects detailed real-time data on learner behavior in self-directed online learning environments, and interprets these data by drawing on behavioral research. We believe that LiMS offers education and training managers in corporate contexts a valuable tool for the evaluation of learner performance and course design. By permitting more detailed demonstration of ROI in education and training, LiMS allows managers to make the case for web based courseware that reflects appropriate and evidence-based instructional design, rather than budgetary constraints.

1 Introduction

Businesses are increasingly recognizing the need to support continuous professional development in their workforce, and many have recognized the benefits of online training and education. Well-designed online training courses promise to make education and training available in ways that fit the busy work and life schedules of employees, and almost two decades of research into online learning has demonstrated that there is no measurable significant difference in learning outcomes between face to face and online learning modalities [1]. In the corporate context, where exam results and course grades rarely exist as measures of learner achievement or effective online course design, it falls to training and education managers to identify reliable and valid approaches to evaluating both course design and learner performance, in order to demonstrate a significant return on the sizable investments needed to implement high quality online learning.

Unfortunately, few easily implementable approaches exist. As [2] notes, “in spite of the best efforts of organizations and the professional trainers’ associations, there are significant problems in evaluating the true impact of [online] training”. Similarly, while the value of feedback from and to learners in educational settings is well-established (see, for example, [3]), most corporate training departments lack the tools to gather accurate learner feedback (direct or indirect) about their online learning experience or activities. Such information is critical in evaluating whether training courses are meeting corporate educational needs and goals. In the absence of evaluative tools that return meaningful and easily interpretable data, corporate training departments are most likely to deliver web based courseware that simply reflects budgetary restrictions.

2 Description

To meet this need, we have developed the LiMS application. LiMS is a two-part web-based plug-in application that can interface with any web-based course delivery platform to transform the online learning environment into an active observer of learner engagement with course materials. Unlike the minimalist tracking tools packaged with standard Learning Management Systems (LMSs), LiMS purposely captures fine-grained data on learner activity and behaviors within the learning environment, turning the course itself into an active receiver of indirect learner feedback. By collecting user course engagement events, such as mouse clicks or movements acting upon individual page elements such as buttons, checkboxes and lists, LiMS ensures that a learner's detailed course interaction data is captured. Going far beyond the capture of simple event sequencing, LiMS also captures data reflecting the variable behavioral characteristics of those actions such as duration, timing and response latency. Importantly, LiMS implementation and continuing development builds on existing research to permit pedagogically meaningful interpretation of captured data. At the completion of each online training experience, LiMS assigns a 'behavioral grade' to the learner reflecting their approach to the training material when compared to a standard established by LiMS itself. LiMS adjusts the learner's grade using an algorithm that computes a final assigned 'grade' reflecting their behavioral approach to online training materials. A descriptive profile of the learner is generated based on the course grade and the behavioral data, and is posted on the student's report page. LiMS implementation can then be customized to allow educational designers to ask targeted questions about learner choices within a course, or to track learner behavior in relation to key course material items or events of interest. In relation to learner behaviors, for example, educators may wish to ask questions such as: Are learners spending sufficient time reading particular core course text materials? Do my learners display differential response latency to key questions, and can this provide insight into comprehension or decision making style? Additional comparison measures permits benchmarking against peers or course norms.

LiMS therefore offers education and training managers in corporate contexts a valuable tool for the evaluation of learner performance and course design. By allowing more detailed demonstration of ROI in education and training, LiMS allows managers to make the case for web based courseware that reflects appropriate and evidence-based instructional design, rather than budgetary constraints.

References

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