The other side of the LMS: Considering implementation and use in the adoption of an LMS in online and blended learning environments

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Introduction

There are more similarities than differences among learning management system (LMS) software products. One side of the LMS represents its face validity, that is, the raw functionality of the system. Most LMSs consist of fairly generic tools such as quiz/test options, forums, a scheduling tool, collaborative work space and grading mechanisms. In fact, the Edutools Web site lists 26 LMSs that have all of these features (2006). Many LMSs also have the means to hold synchronous meetings and some ability to use various templates for instruction. Beyond these standardized features, LMSs tend to distinguish themselves from one another with micro-detailed features such as the ability to record synchronous meetings or the ability to download forum postings to read offline. These capabilities may be helpful, but they only represent improvements to basic functions that are part of every LMS. In a recent study, Carriere, Challborn, and Moore (2005) compared a variety of LMSs and went as far as to suggest that the only real differences between systems lie in marketing approaches. Feldstein (2006) asserts that despite the fact that learning management systems are getting better at performing basic functions, they are still pretty much one-size-fits-all (Feldstein, 2006).

McConachie, Danaher, Luck, and Jones (2005) propose that the selection of an LMS brand is the central deciding factor in a university’s online success. Though a factor of a university’s online success, the LMS hardly qualifies as the crucial element. When the importance of the decision to choose the right LMS is magnified, the discomfort of making that choice is also exaggerated. In reality, market standardization has alleviated much of the institutional discomfort involved in this decision. Because LMSs have almost become akin to Eli Whitney’s interchangeable parts, those wishing to introduce and integrate LMSs to their educational institution must focus less on which LMS to use and more on LMS adoption and implementation or what we refer to as the “other side of the LMS.” In this paper we 1) briefly differentiate between LMSs and content management systems (CMSs), 2) define the “other side of the LMS” in terms of adoption and implementation considerations, 3) discuss several factors that promote adoption and implementation of an LMS, and 4) suggest ways

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for change agents to navigate the often troubled waters of LMS adoption and implementation.

What is a Learning Management System (LMS)?

The majority of LMSs are web-based to facilitate anytime, anywhere access to learning content and administration. They utilize synchronous and asynchronous technologies to facilitate access to learning materials and administration. According to Ceraulo (2005) the relative advantages of an LMS when compared to a content management (CMS) are “…its emphasis on learning management rather than course management, its ability to store educational content so that it can be referenced by many courses, and its ability to streamline a distance or, elearning, instructor’s tasks (p. 7)”. LMS software is also better suited to managing multiple sections of a large course (Ceraulo, 2005).

Existing research into these software applications focuses on comparisons of product features offered (Clements, 2003; EduTools, 2006) and strategic uses of features available within a specific software package (Koszalka & Ganesan, 2004). In addition, research highlights the fact that there are few, if any, distinguishable technical applications or tools that allow for product differentiation in the LMS market. Thus, it makes sense to focus efforts away from LMS selection and toward the “other side of the LMS” or issues related to adoption and implementation of the systems.

Adoption and implementation: The other side of the LMS

Pain is an overriding factor that influences adoption of LMSs. As with any new technology, factors that accompany adoption, namely the discomfort of initial implementation, cannot be fully removed. LMS adoption may be particular painful because while standardization among LMSs reduces institutional pain during the selection process, this standardization does not alleviate pain associated with individual adoption and implementation. In fact, it exacerbates the pain because LMSs are essentially standardized products designed to support a non-standard user base of university faculty with different content areas, teaching philosophies and instructional styles.

This creates challenges for the individuals or change agents who support LMS adoption and implementation, but an extensive body of research on diffusion of innovations provides some guidance. The diffusion of innovations literature (Rogers, 2003) demonstrates that innovations with certain attributes are more likely to be adopted. Change agents need to understand how such factors can be applied to LMS adoption and implementation. By doing so they will be able to alleviate some of the discomfort associated with LMS adoption and increase the likelihood of full-scale adoption and implementation.

Addressing the “other side of the LMS”: Increasing the likelihood of LMS adoption and implementation

First published in 1962, Everett Rogers’ Diffusion of Innovations has described the correlation of five attributes to the adoption and implementation of innovations throughout different disciplines, time zones, socio-economic classes and innovations. Next, we discuss these attributes – compatibility, relative advantage, trialability, complexity, and observability – within the context of LMS adoption and implementation and provide suggestions for how change agents can increase the likelihood of LMS adoption and implementation.

Compatibility

Compatibility refers to “the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters” (Rogers, 2003, p. 15). Indeed, institutional and instructional support is a critical factor for adoption of an LMS (Bower, 2001; Gold, 2003a). The adoption of a learning management system can effectively stall if it is not integrated into the current culture. For example, in a university environment, faculty will be much less likely to adopt an LMS for their courses if there is evidence that the LMS has weak backing (Bower, 2001). Some institutional measures of support, such as the number of employees dedicated to the support and operation of the LMS and available technology and resources, play a part in determining whether the individuals will support the adoption of the LMS (Gold, 2003a). In addition, institutions implementing an LMS should have a strategic vision for how the software will support their needs for the next five years (Chan, Chan, & Tang, 2000). Without
a specific formula that anticipates growth and changes, most organizations are more likely to stumble before finding successful outcomes.

The LMS must also cater to multiple pedagogical styles in order to garner support from the instructional staff. Today’s LMSs are not customizable for instruction aimed at a specific audience with specific content. Thus, change agents must show faculty how the LMS can be used in tandem with third party modules or other online tools to support their content area, teaching philosophy and instructional style. For example, the ability to add a note to a diagram is helpful to an architecture professor, a virtual dissection laboratory is beneficial to a biology instructor, the ability to hear real-time dictation is valuable to foreign language professors, peer editing tools enhance instruction for writing professors, and interactive maps bring content alive for geography professors. Learning management systems should have more elasticity than a face-to-face classroom. Unfortunately, they currently have less, and the technical design philosophy of today’s LMS is substantially slowing progress toward the high quality, flexible online and blended virtual classrooms (Feldstein, 2006). Thus, change agents must explicitly address issues of compatibility by taking into account the content area, teaching philosophies and instructional styles of those considering LMS adoption.

Relative advantage

Relative advantage refers to the superiority of an innovation when compared to its predecessor (Rogers, 2003). If an innovation is perceived as better, more efficient or more effective it is more likely to be adopted. In our context, LMSs need to offer some type of financial, pedagogical, administrative, or other advantage, compared to similar products, in order to be adopted. Pain factors that interfere with or minimize the relative advantage of the LMS are often faculty related. Excessive preparation time to create and implement a course (Ansorge & Bendus, 2004; Merryfield, 2006), a lack of compensatory salary for time spent (O’Quinn & Corry, 2002) and conflict over intellectual property rights (Passmore, 2000) all contribute to the minimization of the LMSs relative advantage and have led to a lack of adoption and implementation in an LMS. While some change agents will be in a better position to address these issues than others, all must be aware of them and lobby for conditions that promote adoption and implementation.

Cost is also related to relative advantage. Managing Training and Development (2005) reports that implementation of an LMS for a college or university could range from as low as $60,000 to as high as $6 million for a 3-year license. Change agents seeking to maximize the learning potential per dollar expended need an accurate understanding of the influences an LMS may have on classroom environments and students. According to Sessums (under review) the high cost associated with an LMS can quickly negate the benefits of the technology. Open source initiatives including Sakkai, Moodle, and OLAT provide an alternative to traditional software vendors; however, change agents must recognize that open source is not synonymous with free (Wang & Wang, 2001).

Trialability

Rogers defines trialability as the degree to which an innovation can be tried on a limited basis before full scale adoption (2003). Conducting a comprehensive product test in which users at all levels (support staff, instructors, learners) interact with the technology on a trial basis is impractical for a multitude of reasons, including cost, logistics, training and time; however, rolling out an LMS in phases and beginning in the places where success is most likely increases the chances of wide scale adoption down the road. In addition, change agents can encourage faculty to try the LMS in a blended environment prior to implementing it in completely online environments. The ability to interact with students using the LMS in a face-to-face environment provides faculty with a layer of security that is absent when a class is completely online.

Observability

Chawner (2005) contends that user satisfaction is the primary ingredient for successful LMS adoption. User satisfaction emulates Rogers’ notion of observability (2003), which represents the degree to which the successes and failures of an innovation are visible to others. The idea that innovators and adopters frequently communicate and discuss their pleasure and displeasure with a product is paramount to Rogers’ theory of diffusion of innovation. Chawner (2005) suggests that user influence, user-developer communication and user participation in the decision making process reduces the pain of
adoption and thus increases the probability that the system will succeed. Intentionally setting up opportunities for faculty to showcase successful work within the LMS, facilitating positive communication among adopters, and working with institutional news organizations to disseminate success stories about the LMS are all strategies change agents should consider to increase the likelihood of wide scale adoption.

Another strategy is to minimize user-reported problems, an important measure of user satisfaction (Morgan, 2003). Often user-supported problems become very visible and adversely influence adoption. For example, one of our colleagues used an LMS for final exams and several student responses were lost and never recovered. Many faculty observed her frustrations during this time and LMS adoption was impeded.

Keeping user-reported problems to a minimum and thereby increasing user satisfaction is directly related to support. Support constitutes a crucial yet under appreciated aspect in the adoption cycle of an LMS (Bersin, 2005). The implementation of a new or overhaul of an existing LMS has major consequences for every participant in an educational institution. Academic, administrative, university development, and student populations are all impacted by the process (Black, Dawson, & Ferdig, 2006; Sturgess & Nouwens, 2004). Evidence of support must be factored into comprehensive campus-wide technology plans. It is critical that change agents adequately evaluate and prepare for the degree of support that will be needed in order to efficiently and effectively initiate and administer new LMSs.

User satisfaction (i.e. positive observability) is also directly related to technical challenges such as version changes of an LMS software which can result in a vendor’s abandonment of earlier versions, effectively leaving users of the application without services and technical support for the despondent software (Sturgess & Nouwens, 2004). According to Bersin as quoted in Whitney (2005): “One of the biggest factors that effects overall satisfaction is not satisfaction with the product features themselves, but whether they are getting the right level of support, technical support, service … (p.1)”. Inadequate technical support and funding for support are primary reasons for failed adoption of e-learning technologies (Barnard, et al., 2001). Hence, high levels of user satisfaction (i.e. positive observability) as measured by low numbers of user-supported problems should be a goal of change agents throughout the LMS adoption process.

The complexity of the LMS implementation

Innovations that are viewed as simple to use and implement are more likely to be adopted (Rogers, 2003). Unfortunately for change agents, integrating a learning management system is inherently complex. This complexity is often magnified because many institutions hesitate to expend significant resources or expend resources in places other than support. Both missteps can greatly affect whether the LMS is fully adopted within an organization (Gold, 2003b).

Unfortunately, the technical inefficiencies of the LMS industry have hindered integration, as vendors provide little in the way of easy, plug and play systems that can be implemented with little effort (Egan, 2002). LMSs hold enormous potential for learners, however, getting LMSs to work efficiently can be time-consuming, frustrating, and expensive. Change agents are tasked with navigating the complexity while simultaneously shielding the user from more complexity than absolutely necessary.

Navigating the future: Charting a course for LMS adoption/implementation

LMSs are essentially standardized products. This makes the LMS selection process relatively straightforward and focuses attention on “other side of the LMS” or issues of adoption and implementation. A primary challenge for change agents rolling out an LMS is to convince potential users to adopt the LMS and support them as they implement it. In this article we reviewed the five attributes of successful innovations (Rogers, 2003) and how they relate to LMS adoption and implementation. Specifically, we discussed how compatibility, complexity, relative advantage, trialability, and observability may support or impede LMS adoption. We conclude by offering the following recommendations to change agents struggling with the “other side of the LMS”.

**READ:** Read as much as possible on LMSs. This will help provide a proper perspective on the relative importance of the decision you are making. It will also help to build a change agent’s credibility within his/her institution, thus increasing the likelihood of institutional support. Product sites are good resources but
tend to present their own creation in a biased manner. The EduTools website (http://www.edutools.info) is free and provides a comprehensive breadth of information. Corporate sites like Brandon Hall Research: Training Best Practices and E-learning Technology (http://www.brandon-hall.com) and Gartner, Inc (http://www.gartner.com) provide in-depth analysis and consulting services but come with a hefty price tag. It is important to acquire a breadth and depth of knowledge that will provide a well-balanced understanding of the issues involved in adopting an LMS (and, of course, avoiding/limiting pain in adoption). It will also help to develop a list of hindering factors specific to one's institution that will most likely be encountered.

GO: Go on fact-finding missions to other universities, corporations and non-profit groups who have already adopted an LMS. It’s hard to remove oneself from one’s own culture, but universities need to observe other institutions that are successful at adopting LMSs. These institutions are not necessarily limited to educational institutions. An exploration of non-university settings should be conducted with the purpose of doing more than just observation. This exploration should attempt to synthesize information from different institutions and environments into an effective case model for adoption. A comprehensive case model will counter the financial, pedagogical, and administrative pains that affect relative advantage.

ASSESS: Once the case model is established, reassess the LMSs place within the institution’s vision of the future. Be wary of parts of the case model that are not backed by strong, supporting factors. At the same time, do not discard them if they relate to a unique aspect of your institution’s goals.

ADOPT: The information-gathering and analysis phases of an adoption could proceed indefinitely. Each phase within the adoption cycle should have a finite aspect to it. The establishment of a calendar to guide the adoption and implementation process will greatly assist the entire process. The reality is that taking too long will only increase the pain of adoption.

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