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Who needs to do what where?: Using learning management systems on residential vs. commuter campuses

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ABSTRACT

Learning Management Systems (LMS) are web-based systems allowing instructors and/or students to share materials and interact online. This study compared differences in LMS use between instructors and students at a large residential campus with students at a smaller commuter campus. Responses to an online survey about LMS activities and tools were categorized by three different interaction types: Learner–Instructor (LI), Learner–Content (LC), and Learner–Learner (LL). Aggregated log data was also analyzed to see if students' use was consistent with their beliefs. Respondents from both campuses rate highly all activities and tools within the LMS. Findings suggest that residential students value activities and tools supporting LC interaction more than commuter students, while commuter students value activities and tools fostering LL interactions more than residential students. The aggregated log data was consistent with the survey data showing a higher level of activity in the most heavily used LC-oriented tools for the residential campus and higher activity in the LL-oriented tools for the commuter campus.

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1. Introduction

Research on the vast array of learning technologies widely available in higher education has clearly shown that tools themselves do not determine whether learning happens; rather, it depends on how these technologies are used by instructors and students (Roschelle, Pea, Hoadley, Gordin, & Means, 2000). When these technologies become part of the basic infrastructure for teaching and learning, an analysis of their use becomes particularly important for judging the value of these systems. This study examined Learning Management Systems (LMS) because they have become ubiquitous in higher education throughout the US (Arroway, Davenport, Xu, & Updegrove, 2010; Smith & Caruso, 2010), South America (e.g., Silvio, Rama, & Lago, 2004), Australia (Coates, James, & Baldwin, 2005), Asia (e.g., Hedberg & Ping, 2004), and Europe (e.g., Browne, Jenkins, & Walker, 2006). Unfortunately, the existing literature on LMS have largely been conducted by instructors conducting research on their own courses (Means, Toyama, Murphy, Bakia, & Jones, 2009). However, the pervasiveness of these systems calls for larger studies across courses, disciplines, and institutions where the “lessons learned” can be generalized and more widely disseminated. Such lessons can help improve how LMS are implemented and utilized in university-level teaching and learning activities to move beyond research that is merely “documenting the obvious” (Morris, Finnegan, & Wu, 2005, p. 229).

When LMS first began to gain popularity, the early adopters cited gains in efficiency when using the technology over changes in teaching and learning activities (Morgan, 2003). Other survey-based studies have similarly found that instructors and students value materials management and housekeeping activities over more interactive uses of LMS (e.g., Ansoorge & Bendus, 2003; Herse & Lee, 2005; Holm, Röllinghoff, & Ninck, 2003; Yohon, Zimmerman, & Keeler, 2004). However, a study by Hanson and Robson (2004) suggests that connecting perception with actual use is not easy. They examined the use of two commercial LMS (WebCT and Blackboard) and found that more students than faculty reported that these systems “improved learning”. When asked to select the specific benefits of using these systems, however, both instructors and students chose “saves time” more often than “improves learning”. Therefore, it is important to examine both perceptions of use and actual use of these systems.

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Typical LMS provide a number of specific tools that support diverse functionality ranging from “materials management” to organize interactions between the student and the course content (e.g., syllabus, course readings, lecture slides), “interactive teaching” to organize interactions between the instructor and students (notifications, assignments, quizzes), and “peer learning” to organize interactions between students (peer review, group projects, student wikis) (Lonn & Teasley, 2009). With the diversity of tools available within these systems, investigations about how LMS can impact teaching and learning must clearly specify functionalities and particular instructional uses of those functionalities. In order to more effectively categorize these functionalities beyond our previous work (Lonn & Teasley, 2009), this investigation was structured around a consideration of how instructors and students value and use LMS organized into three types of use: Learner–Content interactions (LC), Learner–Instructor interactions (LI), and Learner–Learner interactions (LL) (see also Bernard et al., 2009; Moore, 1989). This evaluation was conducted using data from two very different campuses, a large residential campus and a smaller commuter campus, both using the same Learning Management System.

The specific research questions addressed in this study are as follows: (1) Do instructors and students at the two campuses differ in their perceptions of different types of interactions supported by LMS? (2) When other factors, such as number of courses using the LMS, are taken into account, do differences between campuses persist? (3) How does actual LMS use compare to users’ attitudes and perceptions? An online survey designed to gauge attitudes and perceptions of various LMS activities was used to investigate these research questions. Further, we aggregated log data from the Learning Management System to see if system use was consistent with beliefs established in the survey results.

2. Theoretical framework

2.1. Comparing and contrasting residential and commuter students

Researchers investigating commuter and residential students have suggested that differences between these populations are important to consider when investigating how to successfully implement new educational practices. Prior research has found that commuter students tend to be the first generation to attend college in their family, their parents are more frequently “blue collar” workers with less education than residential students, and, overall, commuter students are less prepared for the academic demands of college (Chickering, 1974). Despite these differences in background and preparation, Chickering found that commuter students tend to perform academically as well as residential students. Later studies have demonstrated that where students live (on campus vs. off campus) greatly impacts educational experiences in higher education: residential students, compared with commuters, participate in more extracurricular activities, interact more frequently with faculty and peers, are more satisfied, are more likely to graduate from college, and exhibit greater gains in educational outcomes (Pascarella, Terenzini, & Blimling, 1994). Overall, while some research in this area posits that commuter students are at a disadvantage and face several challenges in creating experiences comparable to residential students (Smith, 1989), other researchers argue that the most important factor affecting what students gain from college is the quality of effort they exert in academic and social activities, regardless of their residential status (Pace, 1979, 1984).

While researchers who focus on commuter students and their experiences note that information and communication technologies are a significant force affecting the nature of student interaction with each other and with their instructors (Krause, 2007), there continues to be little scholarly exploration about the nature of the commuter student experience (Pascarella, 2006; Pascarella, Duby, & Iverson, 1983) particularly with respect to the role of IT in their educational experience.

2.2. Interaction within LMS

Gilbert and Moore (1998) utilize the term “interaction” to describe two-way communication among two or more people within a learning context intended for task/instructional competition or to support social relationship building. In addition to simple communication, “interaction should involve complex activities by the learners, such as engaging and reflecting, annotating, questioning, answering, pacing, elaborating, discussing, inquiring, problem-solving, linking, constructing, analyzing, evaluating, and synthesizing” (Liaw & Huang, 2000, p. 43). Northrup (2001) analyzed student interaction in web-based courses and divided student interaction into two main categories: content interaction and social interaction. Content interaction is any activity that is focused on the course content. Social interaction helps students learn about their peers and also combats the isolation and frustration of an individual student that are common hazards in web-based courses. Northrup’s results suggested that in blended courses, which have both face-to-face and online components, the concern about student isolation is dramatically reduced. Even in blended courses, social interaction between students is still important because it provides learners with the opportunity to engage in interaction about content (Gilbert & Moore, 1998; Liaw & Huang, 2000). In their study of student participation in LMS, Hamuy and Galaz (2010) reinterpreted Northrup’s distinction between content and social interaction as a division of interaction at informational and communicational levels and found that there was a greater emphasis on information delivery rather than communication for the use of the online tools.

While Northrup (2001) used two categories to describe student interaction, Moore and Kearsley (1996) argued that interaction within educational contexts can usually be extended into three categories: Learner–Content interactions (LC), Learner–Instructor interactions (LI), and Learner–Learner interactions (LL). LC interaction refers to the interaction that a student has with the subject matter presented by the instructor or other students. Recent technological innovations that have expanded this type of interaction go beyond text-based forms of content to include audio and video recordings, computer software, and a variety of interactive multimedia technologies. LI interaction captures when instructors demonstrate skills, model attitudes and values, and coach students on how to interact with content. Through their interaction with students, instructors stimulate learners’ interest and help students utilize course content. This form of interaction can also include affective aspects of instructor-to-student interactions, such as counseling, support, and encouragement. Finally, LL interaction refers to any two-way communication among two or more students with or without the presence of an instructor. Students learn to interact with one another as they negotiate meaning from text and control their own learning in peer-led discussions (O’Flahavan, 1989). Peer interactions are “extremely valuable as a way of helping students to think out the content that has been presented and to test it in exchanges with their peers” (Moore & Kearsley, 1996, p. 132). Interactivity between the students and the instructor and with other students has been shown to be an essential component in blended learning environments (Ozkan & Koseler, 2009). By adding effective LI and LL interactions to

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