

## DOES A LEARNING MANAGEMENT SYSTEM DISCOURAGE STUDENT ATTENDANCE AND INTERACTION?

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### ABSTRACT

*Widespread use of Learning Management Systems (LMS) continues as part of the classroom delivery experience, for both online and face-to-face courses. LMS provides greater information and ease of access use to course content material, student interaction, assignments and exams, and recording of grades. Initial research at two universities, where faculty taught traditional face-to-face courses utilizing the D2L LMS, experienced a lack of student engagement and declined attendance as more content was provided in the D2L LMS. Conversely, student engagement and attendance improved as less course assignments, exams and content was provided in D2L as the course term got closer to completion. The data results from a convenience sample noted that face-to-face education with attendance requirements might be marginally more effective than a technology focused LMS. Technology oriented LMS, while value added in its offering, and also tends to miss out on the “soft skills” in the student experience in areas such as observation, listening and interactive group dynamics. Also, the applicability of accreditation requirements concerning course content, student contact time, teacher training and student needs assessment may be impacted with lower student attendance in face-to-face courses. The overall conclusion from the findings alerted the authors with respect to how to effectively design a course, especially in the use of LMS technology, to meet both the overall course objectives while providing a worthwhile student experience. While the research provides initial insight on findings, future research in this area could support how faculty could become better teachers in the use of LMS, especially in a face-to-face classroom environment.*

**Keywords:** Learning Management Systems, Course Management Systems, Educational Technology, Student Engagement, Content Management Systems, Blackboard, Desire to Learn and Blended Learning

### INTRODUCTION

Since the widespread use of Learning Management Systems (LMS) started to appear in colleges and universities, it has become the backbone of both online and face-to-face classrooms. Many universities use LMS as an assistive technology to manage course content and resources. In addition, they are used to create efficiency while reducing costs due to using less paper in order to create a “greener” access to course materials [13]. In addition to creating efficiency and centralizing course content, the LMS extends outside of the classroom by using tools such as Discussion Boards, Gradebooks, Quizzes, E-mail, posting of information and announcements and Surveys [8]. Many instructors may find the LMS helpful with large class size. This is especially helpful in administering quizzes since the tool provides the ability to track student performance, provide feedback on answers, and provide results in a timely manner, [12]. In his research on LMS success, Al- Busaidi cautions that “The success of a technology is a multidimensional issue; it may be affected by various technical and nontechnical factors,” [1].

There are numerous Learning Management Systems being used, such as, Blackboard, Desire2 Learn (D2L), Angel, Sakai, and Moodle, to name a few. According to the 2010 Campus Computing Survey by Green, 2010, the ongoing use of Learning Management Systems is increasing with 57.1 percent of participating campuses using Blackboard, 10.1 percent using Desire2Learn, 16.4 percent use Moodle (open source) , and 4.6 percent using Sakai, another open source product, [6].

While Learning Management Systems are initially related to online course offerings, there are many applications to face-to-face courses. There are many reasons why faculty adopts the use of LMS. For some, it may provide better class organization. For others, it may provide the ability for increased interaction with students in class, since students who are normally frantically taking notes are now interacting with the professor. Whatever the motivation, it is expected that the LMS should provide greater information, student interaction and an overall improved learning environment [9]. Due to increasing class sizes at various universities caused by cost constraints and increasing revenue expectations, many faculty who teach traditional courses are forced to incorporate increased use of an LMS as a repository of course content, administration of quizzes and recording of grades. The LMS provides faculty the ability to manage the administrative portion of the course including the housing of PowerPoint presentations, worksheets, homework assignments, quizzes, class notes and additional materials. This environment creates a common place for easy access to all course related materials and information. "Instruction in large classroom settings provide faculty with a unique challenge in the realm of education. Things that seem simple or common sense, in the small classroom setting may pose huge problems in the large classroom setting" [5]. Faculty can still provide the face-to-face instruction, but combine the conveniences of an online environment [3]. The LMS helps to provide consistency and ease of access for course content. However, the fact that course content is generally provided electronically to enable greater accessibility, students may have a tendency to disengage with the face-to-face aspect of the class.

The millennial generation, which makes up the majority of today's students, has grown up with technology, so incorporating technology into learning provides a comfort zone for these "Millenials." It is difficult enough to motivate students in class, even with access to technology. In addition, even while in class, students are tempted by the many technology distractions in the form of smart phones, Facebook, Twitter, and *Pinterest*. There is an assumption that when interacting with this generation of students, there is an expectation of using technology. Salazar (2010) confirms by stating, "Students now expect to use technology in all aspects of their life, including education" [16]. In their study of the use of the Blackboard LMS, Little-Wiles & Naimi find that students request that the LMS contains specific components so that they can guide themselves and monitor their own progress [10].

While faculty uses an LMS to support the traditional course, students interpret the use of technology as an online engagement. As a result, student engagement and interaction resembles an online experience. This may be misleading to the majority of students since online courses do not require attendance, or in-class interaction. As a result, problems in the form of class attendance, student motivation and engagement may occur. Francis adds that "Simple class size and access to technology can lead to students having a greater opportunity to be off-task and disengaged in the classroom. "This type of situation can have an adverse impact on student learning and student performance in the classroom" [5]. An additional finding from Little-Wiles & Naimi's study identifies several key issues. One of these issues is the concern with "How to measure the extent to which Blackboard or another LMS may facilitate and/or promote student learning and progress when used in conjunction with classroom instruction" [10].

Lowerson, et al, 2006, noted in their study that the use of technology with a traditional classroom, or what they termed, "Mixed Mode Delivery," was viewed favorably by students because of their comfort level with past online courses and with technology in general [11]. What this indicates is that students will immediately engage with the technology if presented with the opportunity. They will go into an online mode where engagement in class is replaced with online content thus providing them greater flexibility, less structure, and convenience. An unexpected or unpredictable event described by Hannon, 2009, indicates that the use of a LMS does not always guarantee a successful outcome of student behaviors. One of the faculty interviewed in the study stated that "The combination of face-to-face classes and the use of the LMS brought a different notion of attendance. "This is the second year I've had students voice that they shouldn't have to go to all the classes, but instead be allowed to pick 'n'mix" [7].

It is believed by one source that technology can accommodate the needs of a variety of students by providing a greater understanding of information [14]. However, the biggest challenge to teaching in a traditional classroom is motivating students to come to class regularly. It is worth mentioning that in the study conducted by Lavin, et.al, that removing technology from a course, may provide a positive impact on student behavior. In fact, the research has shown that it may result in students spending additional time studying, as well as increased class attendance [9].

### **Technology in the Classroom**

The current trend at most universities is to encourage the use of technology in the classroom to facilitate educational delivery. This technology includes Smart boards, PowerPoint presentations, real time internet access and projection capability, YouTube videos, and learning management systems. Learning management systems, while designed primarily for online education delivery, incorporate features that are perfect as a repository for course materials including syllabi, lecture notes, PowerPoint presentations, and videos. They also have included features to allow for the dissemination of assignments, the collection of assignments, the administering of exams as well as a command center for communication like bulletin boards, discussion forums, chat rooms, and email. This environment may compliment student engagement by providing additional opportunities for discussion and collaboration with classmates, while providing the instructor with additional insight on student learning and engagement [2].

As the contemporary student population has become increasingly technologically literate and inadvertently dependent, the transition to the technology supported classroom has been seamless and without significant roadblock. In fact, it can be argued that student familiarity with technology, as a byproduct of having been raised with it, has made it their educational media of choice. With this infusion of lifelong technological immersion comes a challenge to traditional time proven pedagogical basis for mainstream education. While technology has been demonstrated to be an effective tool for online education for select student populations (i.e., motivated adult learners), current university experiences with students of the “technology age” seem to blur the lines as what is considered effective mainstream educational delivery. Virtually all the literature consider the traditional university student population as being 18-22 year olds in a predominately residential face-to-face bricks and mortar campus environment. With technology added to the educational mix, it becoming apparent that much is unknown about the impact of such technology with respect to its use, its effectiveness, and its overall value added in terms of socialization, negotiation, and tolerance. Technology changes the structure of the traditional classroom, as well as forces changes in the roles of educators [15]. Watson and Watson, 2007, adds that it is important to know the role that an LMS and its related technologies play, while keeping future approaches to instruction of learners in mind, [17]. The challenge is to understand the dynamics of technology and how to use it to support, supplement, and enhance the educational experience—not necessarily to replace what has been the norm.

### **Two Tales at Two Universities—The Case**

Over the past year, the authors, faculty members at two universities—one public and one private—teaching courses in CIS and business that were primarily lecture and discussion with a learning management systems (LMS) as technological support at each university, had observed similar student behavior.

The mid-sized (9,000 students) public university in southwestern Pennsylvania involved two sections of a required business organizational behavior course. Class size was 45 students. Support technology was a learning management systems (LMS) called Desire to Learn (D2L). The 5,700 student private university, also in southwestern Pennsylvania, involved three computer information systems course sections averaging around 22 students each. One course was the Global, Ethical, Legal, Social and Economic Dimensions of Information Systems. The other courses involved were Knowledge Management and the Impact of New Technology. The course support LMS technology was BlackBoard. In both universities, all course materials including lecture notes, PowerPoint

presentations, videos, exercises, and supplements were provided both in class and on the LMSs (Desire to Learn and BlackBoard). Both universities, as a matter of departmental and accreditation monitoring, require class attendance to be taken.

Most of the course materials were posted online, including syllabus, PowerPoint presentations, and assignments, with the idea of providing easy access to materials to aid in the engagement of the content. The LMS provided a Dropbox to submit the assignments and grades were posted and maintained electronically. Exams were taken in person in the classroom. Though there was an enforced policy, attendance declined. Dziuban, et al, reinforces by stating that students must take greater responsibility in their learning when participating in a “Blended” learning environment. “In a sense, they must relearn how to learn,” [3].

Soon after the term began, a shift in student behavior became apparent. The more course material that was put into the course technology LMS shell, the fewer students attended class. With more than 30 years teaching experience as an interactive active learning and discussion driven instructor—never before had class attendance been a problem. As a result, student attendance and grades data were analyzed. Particular attention was given to the grade differentials between the students who regularly attended class and those that regularly skipped class. Exams were distributed and administered through the LMS. The exams were both objective and open ended questions. Assignments were posted in the LMS environment and submitted online. With significant surprise—there was no significant statistical difference between the two groups. The grade distribution was very much the same.

A few weeks later in the term, as an experiment, when an advance announcement was made that course materials were not going to be posted for the following week, attendance jumped to near perfect attendance. The following week, when class materials were posted as usual into the LMS, class attendance dropped by an average near 30%. This pattern persisted for the classes of two sizes, for different subject matter at two distinctly different universities. Table 1 shows the average class attendance per section at both universities at various select benchmark dates. The first series of numbers reflects the attendance on the first day of class which typically has near 100% attendance. The second row lists the average attendance once all the course materials are posted and the students realize that is the case. The third row reflects the attendance the week in which the LMS materials have been taken down and are not posted. The last entry reflects the attendance once the materials have been re-posted and made available on the LMS. All the classes involved a text book, reading articles, watching numerous YouTube videos related to the subject matter, mini-cases, short papers, and at least two exams involving both objective and open ended questions. Again, course material nearly duplicated the face-to-face class material—with the one exception of live discussion. The data in Table 2 compares the average exam and assignments grade per section for both universities. As can be seen for each of the sections the exam and assignments average was virtually identical for all the sections studied. The exams and assignments were designed and developed to meet the educational outcome objectives of the course—with no punitive or forced contrived “you had to be in class material” as part of the assessment.

**Table 1** Average class attendance per section

Average Class Attendance					
	Organizational Behavior (Section A) Class size 45	Organizational Behavior (Section B) Class size 45	Knowledge Management Class size 22	Global, Ethical, Legal, Social, Economic Dimensions of IS Class size 22	Impact of New Technology Class size 24
1st Day of Class	45	45	22	22	24
After Materials on LMS	30	29	16	15	18

No LMS Posting of Assignments	44	43	22	21	23
Materials Re-Posted on LMS	29	30	15	16	17

**Table 2** Average exam and assignments grade per section comparison

	Organizational Behavior (Section A) Class size 45	Organizational Behavior (Section B) Class size 45	Knowledge Management Class size 22	Global, Ethical, Legal, Social, Economic Dimensions of IS Class size 22	Impact of New Technology Class size 24
<b>Attended 90%</b>	<b>88</b>	<b>83</b>	<b>93</b>	<b>89</b>	<b>93</b>
<b>Missed more than 33%</b>	<b>85</b>	<b>81</b>	<b>92</b>	<b>87</b>	<b>93</b>

### CONCLUSIONS

From a convenience sample, the data presented suggests that it can be argued that face-to-face education with attendance requirements is marginally more effective than a technologically focused learning management system. However, this discourse leaves out the long debated discussion regarding the softer measures of education such as social skills, cross learning, networking, negotiation, observation, and listening.

While the data results are initially insightful, the findings do not relate particularly to individual student learning styles. As an example, a highly motivated, driven student would normally excel in a face-to-face classroom no matter what content is shared in a LMS, while a less motivated, less driven student might not excel based on the LMS offerings provided by the instructor. Learning styles for the student tend to be at an individual level, possibly no matter what content is provided in the LMS. Further research is needed in this area to relate to the student's personal style, motivation and desire to learn as it relates to using a LMS.

This study essentially also questions the applicability of a number of accreditation requirements for organizations such as ABET and AACSB. Outcome assessments and measurables concerning contact time, teacher training, audience needs and personality, limitations on the implementation and use of technology in the classroom are attributes to monitor and access in the use of LMS.

While there is consensus with respect to the influence of technology on all of us - - - especially those who have grown up with it - - - there is little knowledge of what it will do to us in the future. Certainly this data alerted the authors to pay attention with respect as to how to effectively design a course, use technology, and differentiate value added could be provided by face-to-face as well as technology, and how to be a better teacher. Our overall conclusion from this effort confirmed that further research is needed and to expand the data sets results to include modifications to the LMS delivery methods.

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