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Do students and lecturers actively use collaboration tools in learning management systems?

Abstract: In recent years there has been a large emphasis placed on the need to use Learning Management Systems (LMS) in the field of higher education, with many universities mandating their use. An important aspect of these systems is their ability to offer collaboration tools to build a community of learners. This paper reports on a study of the effectiveness of an LMS (Blackboard) in a higher education setting and whether both lecturers and students voluntarily use collaborative tools for teaching and learning. Interviews were conducted with participants (N=67) from the faculties of Science and Technology, Business, Health and Law at a major Australian university. Results from this study indicated that participants often use Blackboard as an online repository of learning materials and that the collaboration tools of Blackboard are often not utilised. The study also found that several factors have inhibited the use and uptake of the collaboration tools within Blackboard. These have included structure and user experience, pedagogical practice, response time and a preference for other tools.

Keywords: Collaborative learning, Blackboard®, Online learning, e-learning

Introduction

In recent years, the necessity for Higher Education Institutions (HEI) to invest in learning management systems (LMS) that provide a platform for e-learning (electronic learning) has increased. This has often been seen as an attempt for these institutions to be more competitive and to capture a larger market share of students [35; 41]. Initially the idea of using e-learning systems was focused around the ability to connect with external and distance education students and provide greater access and flexibility to these students [2; 25]. However, e-learning has now become a core component of the education experience for many students in higher education and an ever-increasing combination of face-to-face (F2F) learning and e-learning is now occurring [5; 20; 27]. This learning, referred to as blended learning, uses technology to expand the physical boundaries of the classroom, providing access to learning content and resources and enhancing the instructor's ability to receive feedback on learners' progress [22].

In creating this blended learning environment in higher education, an LMS (such as Blackboard® or Moodle) is often used to access inbuilt collaboration tools such as blogs, wiki's and discussion forums. These tools, often referred to as web 2.0 or e-learning 2.0 tools, are most common to these environments and touted as having the ability to empower educators to facilitate a sense of community through the possible interactions that could occur in these environments. Consequently, it is this buoyant relationship between the use of Internet collaboration tools and people that has the potential to create powerful online learning communities [8; 16].

In an attempt to further explore the relationship between current research into the benefits of using online collaborative tools to create a sense of community, this paper will describe and report on a small scale study (N=67) of the use of these collaborative tools within a higher

education environment. This study is specifically based on the collaborative tools available as default within the learning management system, Blackboard, used at the university where the study was undertaken.

1. Blended Learning and Collaborative Tools

Blended learning (or hybrid learning) combines e-learning with other, usually more traditional forms of teaching and learning [22]. Bielawski and Metcalf [3] described it as “blending classroom, asynchronous and synchronous e-learning, and on-the-job training” (p. 71). It is generally held that blended learning “combines the advantages of two learning modalities [36], (p.157) with Bowles [6] suggesting that “when classroom instruction is combined with self-paced instruction via the Internet, for example, the face-to-face contact makes for easy social interaction and allows for instant feedback” (p. 47). The advantages of blended learning may be summarised as follows:

... the effect of these combined e-learning experiences with stand up instruction is potent; participants praise the curriculum in ... evaluations, citing the sense of heightened teamwork and camaraderie. The blended learning approach helps to create a shared understanding of concepts important to the learning culture and provide opportunities to reinforce them in a live classroom setting. Leveraging the convenience and accessibility of online components with traditional classroom instruction also expands the curriculum without increasing programme completion time.

[36]

It is this strong relationship between the F2F interactions and online collaborative tools in a blended learning environment that has the potential to move educators from a didactic approach of teaching and learning to an approach that is based on building a sense of community through computer mediated communications (CMC). CMC is a term referring to the interpersonal discourse between users with computer-based media. CMC extends from discussion boards/forums through to contemporary Web 2.0 applications [39] and is said to enable collaborative reflection, which, in turn, prompts the conceptualisation and re-conceptualisation of ideas [10; 26]. It is these conversations and interactions between students that strengthens their deeper understanding of the topic [31].

Learning management systems within the higher education sector provide educators with an environment containing inbuilt collaborative tools (e.g. discussion forums, blogs and wiki's) to use for their teaching purposes. These collaborative tools can be used for computer mediated communication where communities of practice can be supported and envisaged. When these tools are coupled together with F2F teaching the notion of blended learning can be realized. In realising this notion of blended learning, a widely used LMS such as Blackboard is often used in the higher education sector [29]. Blackboard is a commercial product that is also widely used within the school education system.

The Blackboard website publishes a number of case studies which further highlights the possible advantages of using the Blackboard LMS within higher education. According to Blackboard [4], the University of Cincinnati (Cincinnati, Ohio, USA) has been a Blackboard customer since 1999 and uses their LMS for distributing learning resources, podcasts of recorded lectures and announcements while the University of North Carolina at Greensboro (Greensboro, NC, USA) has also provided customized library content for students using their LMS [29]. However, despite the large number of clients using Blackboard, Heaton-Shrestha [17] found that learning resources and announcements are the

most valued tools of Blackboard used by students and lecturers of the Kingston University, not collaboration tools. Current literature highlights the importance of these tools, however, further research [12; 21; 23] identifies a lack of active participation by students and teaching staff with these tools in the Blackboard learning environment.

While there is little empirical research surrounding the lack of use of these tools in this environment, Alexander and Boud [1] claim that the potential for online learning is not being realised due to traditional didactic approaches being transferred to the online environment. This approach merely mimics the traditional classroom with lecture notes and resources being placed online and the LMS is seen as a web-based delivery of course resources or as a communication tool. The need to understand the issues surrounding the limited use of these collaborative tools within an LMS such as Blackboard is essential for a blended learning environment to exist. One of the major issues facing researchers is the rapid advancement of technology used within these environments and the ability for research to keep abreast of it [15; 30; 38].

According to Greenagel [13] the development of collaborative learning systems that ignore users learning styles could be one contributing factor to their failure to engage students and staff in their use, while Everson [11] and Wallace [37] argue that the user friendliness and interface design need to be considered. Everson [11] advises not to “waste valuable time preparing tools that will only frustrate and disenchant your students”. Romiszowski [31] further claims that these systems should focus attention on efficient learning materials and not just deal with indexing, coding and tagging teaching objects to facilitate using digitized learning materials.

These factors of design and usability may contribute to some reluctance by students and teachers to use the systems, however other factors such as increased workload may also contribute to the lack of their use [28; 32; 34]. The administration of students and the monitoring of their interactions can contribute to an increased workload for an educator. This additional workload was previously not present in environments that included only F2F interactions. The issue of workload was not only evidenced by educators, but also students, who often complained when asked to use the collaborative tools as part of their learning experiences [32]. In contrast to this, Jones, Blackey, Fitzgibbon and Chew [19] claim that students with individual interests attempted to use the available collaborative tools when afforded to them.

Given that collaborative tools within learning management systems such as Blackboard offer a means by which blended learning can occur, current research highlights the challenges that educators within higher education institutions face in actively using these collaborative tools effectively. Consequently, the following study reported on here investigates the use of collaborative tools within Blackboard at a large university that encourages blended learning across all disciplines.

2. Research Design

2.1 Research Objectives

The main purpose of this small-scale study was to investigate how collaborative tools are being used within Blackboard for teaching and learning at a major Australian University, and to explore the factors that influence their usage. Blackboard is a conventional learning

management system used for a period of five years at the university where the study was conducted.

2.2 Research Methodology

The study employed a mixed methods approach that combined both qualitative and quantitative strategies. Simultaneously using both approaches allows for a holistic view of the problem to be generated and provides a 'comprehensive analysis of the research problem' [9]. Open-ended interviews were conducted of participants and usage data pertaining to the use of collaborative tools in Blackboard were collected and analysed. The open-ended interviews cater to more substantial information being generated by allowing respondents to state their own perceptions with their own expressions [33], while the combined usage statistics build a more holistic view of the study.

2.3 Participants

The participants (N=67) of the study consisted of both teaching staff (n=9) and students (n=58) from the faculties of Science and Technology, Law, Business and Health all studying at the university where the study was conducted. The participants were informed of the study through emails sent to each of the faculties and they individually volunteered and gave full consent to participate in the study. Participants who volunteered to be a part of the study were of varying ages and of mixed sex.

2.4 Interviews

Interviews were focused on the way students and lecturers use the collaboration tools of Blackboard and were open ended in nature. The number of participants interviewed was brought to an end once a saturation point had been reached where no new data was collected from participants. Guest [14] demonstrated that saturation often occurs within the first twelve interviews and that this is sufficient to obtain a reliable conclusion. The participants interviewed in this study were 67.

3. Research Findings and Discussion

The two main sources of data were the responses to the interviews and the Blackboard usage statistics of the collaborative tools. This section will be present the findings in each of these areas.

3.1 Interviews on the use of collaborative tools

The participant interviews (N=67) revealed that 33% staff interviewed used collaborative tools within Blackboard while 51% students interviewed indicated that they had used collaborative tools as part of their learning experience. Moreover many of the students that had used these tools, employed them just for few times and even just for one time. Given that the aim of the research was to identify the factors that affected the use of collaboration tools within Blackboard at a Major university in Australia, the staff and students who did not actively use the collaboration tools were the focus of the research findings.

An analysis of student (n=58) and staff (n=9) responses from the interview on factors pertaining to why they did not use collaborative tools in Blackboard could be grouped under six main categories; structure and user experience, availability of time, preference for other

tools, lack of knowledge about tools, pedagogical practice and response time. A discussion of the findings and analysis are presented in the following sections.

3.1.1 Structure and User Experience

The structure and user experience of collaboration tools within Blackboard accounted for one of the major reasons why collaborative tools were not used. Over two thirds of student participants (67.35%) indicated that this was an issue while 67% of lecturers also found structure and user experience to be a factor. Structure and user experience related to the ease at which participants could easily navigate and find functions and use the collaborative tools. General consensus from student participants is that Blackboard is hard to navigate and it is not user friendly while staff participants also found complicated procedures associated with using the tools.

3.1.2 Availability of Time

The availability of time was highlighted as a contributing factor by 13% of the student participants and 55% of the staff participants. Student participants indicated that they struggled to find time to keep up with the other requirements of the unit and learning how to use the tools or to participate online was seen as another burden on time. Supporting this finding one of the students stated that “*I have no time to do this, because you have to spend a lot of time to understand how to set up them [the forums]*” (S-6). Lecturers were also concerned about the time needed to structure the use of the tools and be actively involved with either synchronous or asynchronous discussion.

3.1.3 Preference for other tools

A preference for other tools that students (39.5%) were already accustomed to was indicated as another factor in the student use of collaborative tools in Blackboard. While students indicated a preference for other tools such as Skype or MSN Messenger to discuss issues or topics pertaining to their study or a particular unit, no lecturers indicated a preference for other collaborative tools. One of the students questioned “*why you would learn something new when there is already something else available just as good ... is wasting time*” (S-5).

3.1.4 Lack of Knowledge about Tools

Lack of knowledge about the functionalities of the various collaborative tools or their existence within Blackboard was identified as another factor affecting their use. This was identified as a factor by 48.2% of students and 75% of lecturers. A number of students referred to Blackboard as merely a platform to access learning materials and receive announcements. It is within this context that research conducted by Bradford et al. [7] supports these findings in associating complexity and knowledge of LMS tools as a limitation of these environments.

3.1.5 Pedagogical Practice

The pedagogical practices of 50% of lecturers were seen as a factor impinging upon the use of collaborative tools in their teaching. These lecturers indicated that they were comfortable with their traditional approaches and that shifting to new practices was difficult and time consuming. This approach is reiterated by Alexander and Boud [1] who claim that these

environments are not being used to their full potential and that didactic teaching practices have become a part of these online environments.

3.1.6 Response Time

Response time refers to the length of time students had to wait to receive a response using asynchronous collaboration tools within Blackboard. This was indicated as a contributing factor to why 48% of students did not use these tools. This confirms findings of a number of studies [24] where a lengthy response or no response discourages the student to use the collaboration tools in Blackboard.

3.2 Statistical Usage Data

The interviews conducted in this study provided qualitative data on factors pertaining to why participants did not use the collaborative tools in the Blackboard environment. The statistics presented in this section demonstrate the average time that students in the entire university spent engaged with Blackboard (Figure 1) and further confirmed that the Blackboard LMS is mostly used as an online repository for teaching resources (Figure 2).

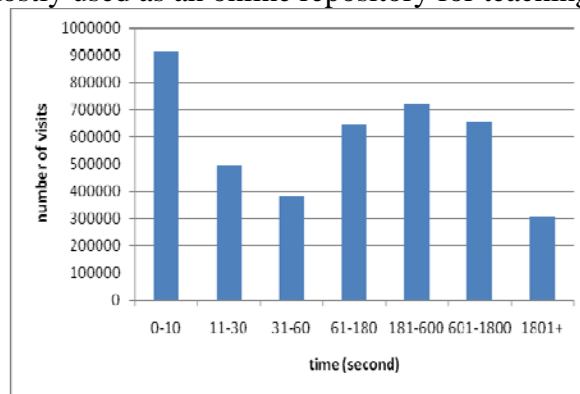


Figure 1: User engagement

Figure 1 shows the rate of university-wide user engagement in Blackboard for one semester. This user engagement does not distinguish between a user reading and viewing learning resources or creating resources and the use of collaborative tools. The data discards visits less than 30 seconds as this is seen as too short a time to indicate a collaboration attempt. A normal distribution of visit durations is observed.

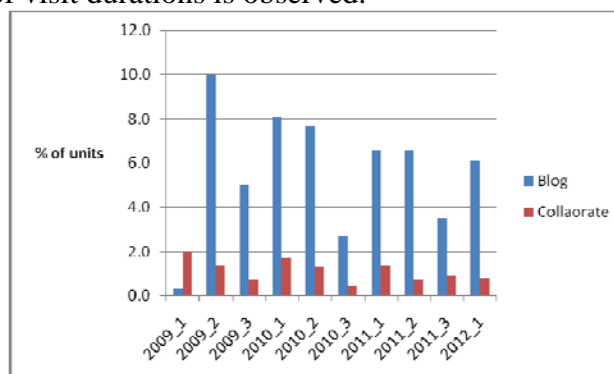


Figure 2: Percentage of courses that use at least one collaborative tool

Figure 2 displays the percentage of units that used Blackboard collaboration tools in the university. These statistics are captured over a three year period for each teaching semester (three semesters a year) and indicate that 10% or less of the units offered at the university use some form of collaborative tools.

The data presented in Figure 2 not only demonstrates a low percentage of units using Blackboard collaboration tools but also indicates a decline in the use of these collaboration tools. These findings further support and confirm the results of previous studies [12; 17; 18] and beliefs that learning management systems such as Blackboard are used mainly as a content delivery mechanism and not used to their full potential.

The most prominent factor contributing to the lack of use of the collaborative tools in Blackboard resulted from a negative user experience with the tools with over two thirds of both students and lecturers indicating that this was an issue. The next most important factor for all participants was related to an understanding of the available collaboration tools, followed by availability of time for lecturers and response time for students. While literature [8; 16] touts the importance of using these tools for building communities of practice, it is evidenced in these findings that there would be 10% or less units in the university with the ability to build these powerful learning communities within Blackboard, due to the absence of students and teaching staff actively using collaborative tools.

4. Conclusion

There is no doubt that e-learning is a significant part of higher education teaching and learning, however it is vitally important that it is used in ways that promote and encourage positive learning experiences for all. The mere existence of collaborative tools in an LMS such as Blackboard does not automatically equate to them being used for teaching and learning purposes. While the study presented here is a small-scale study of one university and one learning management system, the study demonstrates the need to address the key factors that act as barriers to the use of collaboration tools in higher education. Of most significance in the study was that of structure and user experience. It highlights the need to design computer supported collaboration tools that encourage student interaction to produce collaborative knowledge building through communities of practice.

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