SUSTAINING ACTIVE LEARNING IN AN ONLINE LEARNING ENVIRONMENT– REFLECTIONS IN OFFERING ONLINE BLENDED COURSES IN CIVIL ENGINEERING

Bandunee C. Liyanage

Abstract

Student contact with academic coordinators/tutors appears to be a crucial factor in student motivation and persistence for active learning. When student numbers increase unexpectedly, providing equal attention is necessary for sustaining student motivation, interaction, and collaborative learning. This was tested at the online environment available for final year undergraduates in the Civil Engineering stream at the Open University of Sri Lanka (OUSL).

Environmental Engineering is a course designed with several practical components, which is offered to final year students in the Bachelor of Engineering Technology programme. In engineering, it is necessary to gain knowledge through study, experience and practice, all of which require judgment. In this research, an online environment was created using the LMS at OUSL, focusing attention on interaction: with content, teacher and with other students.

The online environment allowed collaboration across time and location, and it was seen from students' posts to the discussion forums. This practice helped to raise an eligible number, notably, which increased from 59% to 69%. However, about 17% of students did not participate actively in discussion forums, nor did they upload the assignments given. Hence, to promote active participation and for sustaining motivation, steps need to be taken such as distributing the work load among the students, online assessment and assigning roles and responsibilities within the discussion.

Introduction

Open learning is a combination of two factors – a philosophy: a set of beliefs and a method: a set of techniques for teaching and learning. The most widely agreed beliefs are about opening up learning opportunities to a wide range of people and enabling them to learn more congenially and productively (Rowntree, 1992). In face to face (F2F) or an open distance learning (ODL) system, student contact with educators (academic coordinators/tutors/faculty) appears to be a crucial factor in student motivation and persistence for active learning. This is evident in online education as well; if the educators do not create an environment to promote interaction with their learners.

Providing equal attention is necessary for sustaining student motivation, interaction, and collaborative learning, when the student number is considerably large. This is critical in a teaching profession such as engineering.

In Open Learning, arrangements need to be made to enable people to learn at the time, place and pace which satisfy their circumstances and requirements. The emphasis is on opening up opportunities by overcoming barriers that result from geographical isolation, personnel or work commitments or conventional course structures, which have often prevented people from gaining access to the training they need (Marland, 1997; Simpson, 1999). Therefore, this study was aimed at investigating how effective the Learning Management System (LMS) is to empower students to become skilled at engineering by providing access to rich sources of information, encouraging meaningful interactions with content and bringing people together in their learning process. This was examined by offering a course as an online blended course in online Learning Management System (LMS) in the Open University of Sri Lanka (OUSL) for undergraduates in the Civil Engineering stream.

Environmental Engineering is a course with several practical components, and is offered to final year students in the Civil Engineering stream of the Bachelor of Technology programme. Due to revision of prerequisites in 2008, the number of students registered for the course in 2009 was 67, which was higher than the 35 enrolled in 2008. It was realized that the limited F2F activities such as 09 hours of lectures and 24 hours of laboratory components, were not adequate to maintain interaction with students in order to motivate them for active learning, especially when the student number is large. Hence, online LMS was used as a teaching tool in such circumstance. This case study focuses on how effective and appropriate online teaching strategies are to support, guide, and motivate students to learn actively in the online environment.

Methodology

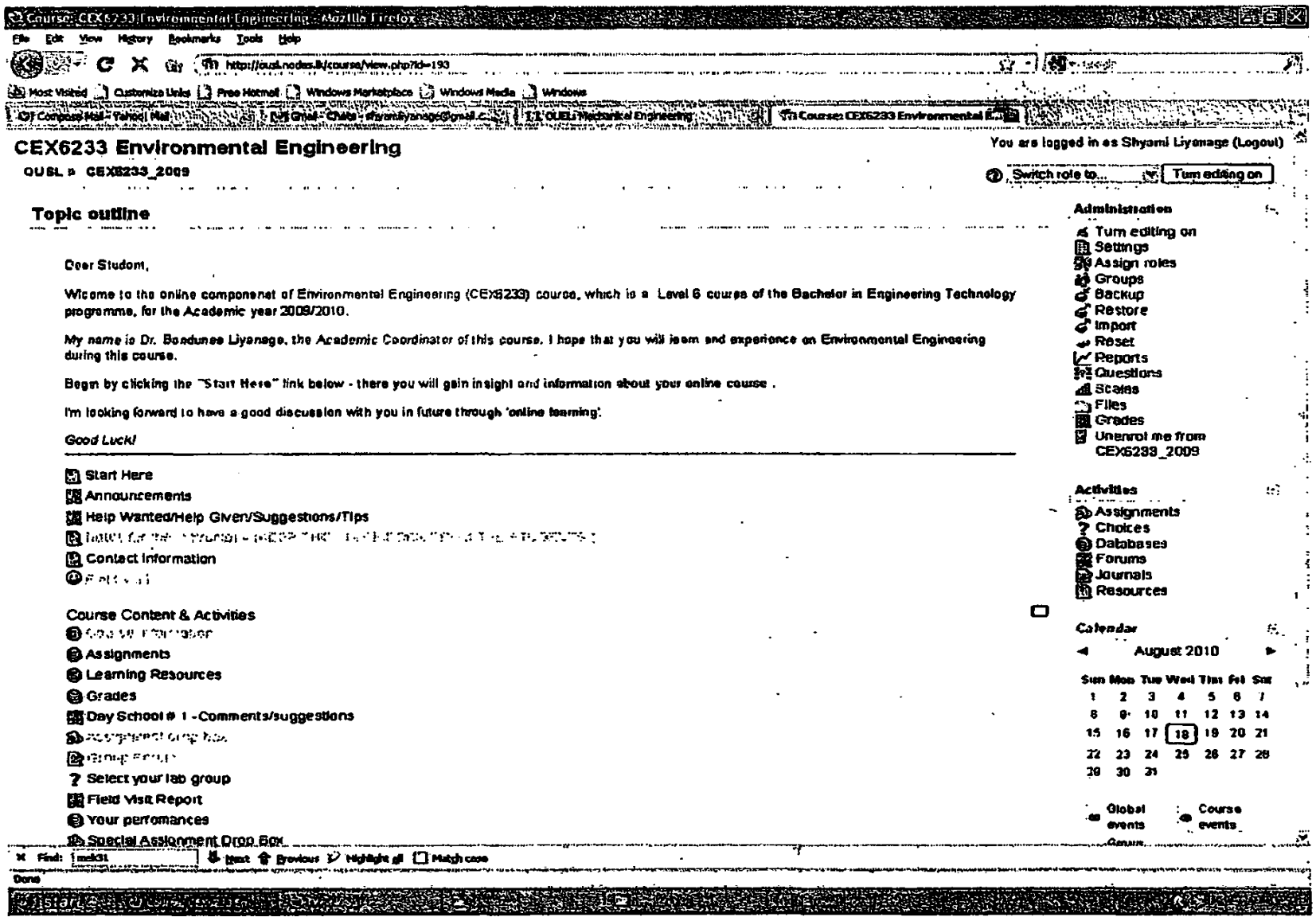
The Moodle LMS template, which was designed for OUSL courses, was modified and uploaded to offer an online blended course in Environmental Engineering. Each student was provided with a login name and a password, which was generated by the Information Management System, OUSL on request. A brief description of the course was displayed before logging-in to the course through LMS. Activities such as discussion forums, assignments, learning resources, messages, groups and grades etc were introduced using navigation guide lines.

Students were informed about online LMS through course information delivered at the registration. An orientation was provided to explain how learning online is different from learning in a traditional classroom. Students were given hands-on experience of "how to use online LMS" at the course introductory session and were asked to subscribe to discussion forums.

At the beginning, a welcome message was posted to guide students on how to get started in the online environment. During the course delivery, online teaching strategies such as addressing students by name, initiating discussions, asking questions, responding frequently and quickly for their postings, praising, demonstrating attentiveness helped to maintain student motivation. Techniques such as student-led discussions and allocating bonus points for postings were also used during the course delivery.

Introducing change into the traditional method of assessment, the third assignment was prepared based on the students' discussion topics. It was delivered online and students were instructed to submit an online report before closing the assignment box. The Moodle LMS was designed to facilitate such requirements and all messages were posted to the online notice board. Students' feedback on the present practice was obtained through a questionnaire and through interviews.

Figure 1. CEX6233 on Moddle LMS: Welcome message and navigation guidelines



Results and Discussion

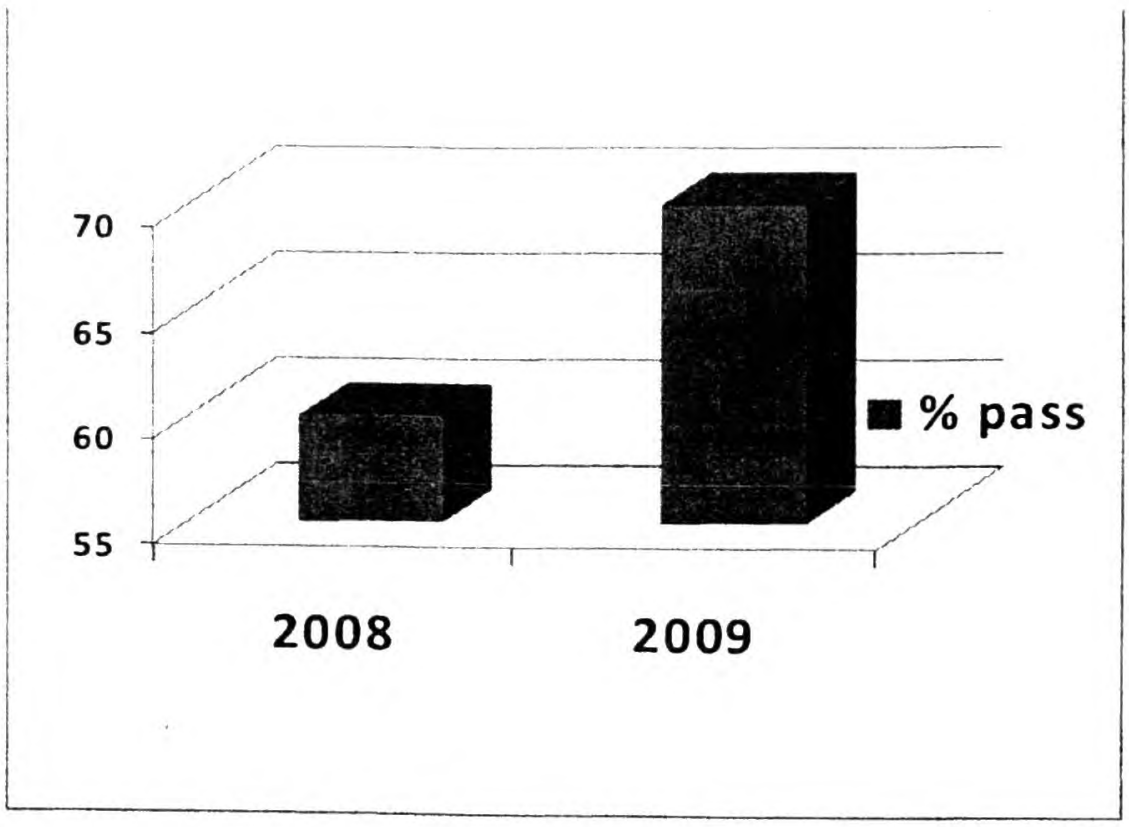
The online environment in this course was designed focusing attention on interaction: with content, with teacher and with other students (Figure 1). Sufficient orientation to the tools and navigation of the LMS was provided for students to gain familiarity with the terminology. However, at the commencement of the online blended course, students were somewhat reluctant to login to the Moodle LMS, because they were beginners at an online environment. This was overcome by grouping them online for laboratory activities, which was a compulsory act.

The online environment allowed collaboration across time and location. Online learning can be an isolating experience, if we do not intentionally design collaborative opportunities into the course. Collaboration can serve to build the social context absent in online learning and create opportunities for students to learn from one another. Collaboration also supports a more active approach to learning while promoting creativity and critical thinking processes (Restine, 2008). In this study, the assigned tasks were designed to develop and expand the students' view of the topic and what he or she thought they knew, allowing them to question previously held beliefs and explore new ones. This was reflected through students' posts on discussion forums. Students' contribution through posts to discussion forums is shown in **Table 1.** Since students are scattered all over Sri Lanka, this online environment provided them an opportunity to discuss or upload their own experiences through write-ups or through photographs of real situations into the discussion forums. Such opportunities ultimately enhanced active learning while still allowing them to work as individuals.

Table 1. Students contribution through online course

Regional/Study Center	No of students		No of posts to discussion forums
	Registered	Active	
Colombo	36	28	67
Kandy	13	12	50
Jaffna	03	03	09
Batticaloa	04	04	15
Rathnapura	04	03	03
Puttlam	01	01	01
Galle	02	01	02
Matara	03	03	04

Figure 2. Percentage eligible in year 2008and 2009



The technological tools in a LMS do not necessarily ensure students' learning; therefore, Lao & Gonzales (2005) suggested that the faculty of online courses should know how to motivate their students in an online environment. According to Restine (2008), many researchers (Moore, 1989; Jiang and Ting, 2000) also identify interaction as important for successful distance courses. They have suggested that interaction with students is connected to student learning as well as quantity and quality of student postings on the discussion forums. In this study, the faculty (academic coordinator) responded to each and every post of the students to maintain interaction and motivate them, which made the students feel connected with the teacher.

Students' perception was obtained through the feedback forms and through interviews. All students unanimously mentioned that they have actively learned the subject due to online delivery. They also added that sharing experiences, learning resources, uploaded pictures, and discussion forums helped them to participate actively and think critically on the subject matter with practical applications. Figure 3 shows selected sample postings of learners to the CEX 6233 Moodle platform. These postings explicate how the teaching and learning process takes place at an online environment. At the beginning of the online course, the learners explored their surrounding and became aware of their physical environment. This was followed by their attitudinal changes which brought them towards active learning. They uploaded learning resources, shared with their colleagues, commented on others postings, and appreciated each other and the teacher, while learning, experiencing and practicing what they learnt. The set online design facilitated such endeavors.

Figure 3. Sample postings of learners to the CEX 6233 Moodle platform explicate how teaching and learning process takes place at online environment

Re: Deposal Solid Waste in Kandy
by D.S WANIGARATNE - Tuesday, 29 December 2009, 10:55 am

Nice work!
In all cities of Sri Lanka same story Disposal methods always harming the environment. Humans, Animals as well as the society around the area.
I think we should propose a method that we can use for disposal the solid waste with out harming the society & environment around the place of disposal as students of CEX 6233.

Show parent | Edit | Split | Delete | Reply

Ratings: 1 / 10 Rate...

Re: Deposal Solid Waste in Kandy
by M.D.A.A. RANASINGHE - Tuesday, 5 January 2010, 01:25 pm

yes my friend.

we were live in kandy for long time more than 20 years.

but we did not have a problem about this solid waste in kandy. because we didn't think about this matter. since we start to study the environmental engineering and try to look in environmental engineering point of view, we can see lots of problems in solid waste managment in kandy district. now we can see this problem is commen to all of the districts in sri lanka.

Re: Deposal Solid Waste in Kandy
by FARHAN MOHAMED - Friday, 5 February 2010, 03:29 pm

Dear Friend Maduranga,

I dont know that how long we will be able to access moodle of cex 6233.Because we are now at the end of the course of 6233.I think we should provide a solution or a guide for each and every problem by these days posted by others. At least for some extent. I'm very proud to say that this subject led us to go for a wide area of knowledge through moodle.Lets start the discussion to go for a solution.I welcome all the other students too.

Show parent | Edit | Split | Delete | Reply

Ratings: 1 / 10 Rate ..

Please save WATER.....
by A. RIFAI - Friday, 12 February 2010, 12:08 pm

SHOCK-1.pps

please see this
This mail sent by a friend, i think this is the right place to publish this mail. thankyou.

Edit | Delete | Reply

Rate..

Re: Please save WATER.....
by M.D.A.A. RANASINGHE - Friday, 12 February 2010, 10:16 pm

thank you my friend Rifai,
we are very much lucky to live in this paradise. we can use our environmental engineering knowledge to find solutions to these problems and we will do it practically by our self's when we became professionals.

Show parent | Edit | Split | Delete | Reply

Further, it was noted that the number of eligible students for final examination has risen notably, from 59% in 2008 to 69% in 2009. However, about 17% of the students did not participate actively in discussion forums nor did they upload assignments given online. This may be due to the lack of online access.

The eligible students' performance of the final examination was remarkably better than the re-sit students from the past. The number of students who passed the final examination was 72% of the number who sat for the final exam. Out of the eligible students who sat for the final examination, only two students had to re-sit next year. It was also noted that those students had not actively participated online. Hence, to promote active participation and for sustaining motivation, distributing the work load among the students and assigning roles and responsibilities within the discussion area and online assessment are critical.

Conclusion

The online blended course helped to raise the eligible number notably, from 60% in 2008 to 75% in 2009. However, 17% of the students had not participated actively in discussion forums nor had they uploaded assignments given. At the final examination, those inactive students' performances were poor, when compared to the active students. The online blended course offered in the Civil Engineering stream of B. Tech programme was very successful and if this program is to continue, active interaction between students and faculty are needed for sustaining active learning.

Acknowledgement

The author acknowledges Ms Geetha Kulasekara, Educational Technology Division, OUSL, for her support on delivering the course through Moodle LMS.

References

Lao, T. & Gonzales, C. (2005). Understanding online learning through a qualitative description of professors and students' experiences. *Journal of Technology and Teacher Education, 13(3),* 459-474

Marland, P (1997) Towards more effective open and distance teaching, Kogan Page Ltd, London

Restine, K. "Promising Practices in Online Teaching and Learning." Connexions. August 11, 2008. http://cnx.org/content/col10559/1.2/.

Rowntree, D (1992), Exploring open and distance learning-How to develop open learning materials, Revised edition, Kogan Page Ltd, London, UK

Simpson, S. (1999) Supporting students in online, Open and distance learning, Open and Disance learning series, Kogan Page Ltd, London, UK