Usage of Supplementary Online Courses: To What Extent Are We Successful? A case study with An Undergraduate Chemistry course

Theme - Formal education

Sub theme - Technologies for scaling up ODL programmes

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One of the goals of the Distance education Modernization project (DEMP) launched at the Open University of Sri Lanka (OUSL) in 2003, with the assistance of the Asian development Bank (ADB) was to utilize ICT as an effective way of teaching and learning. For this purpose OUSL developed and delivered three types of online courses with varying degrees of compulsion. Delivery of the courses is being carried out through the National Online Distance Education Service (NODES network. In order to access NODES several Nodes Access Centres (NAC) were established around the country.

This paper presents a case study on the usage of online supplementary component developed for the first year undergraduate Chemistry course. The course was offered over the last three academic years and only a very few students have accessed the supplementary online component. Analysis of its usage raveled that the students do not show much interest in participating in interactive forums but have shown interest in practicing quizzes The knowledge gained in this case study will be useful in future development of online supplementary courses.

INTRODUCTION

The Open University of Sri Lanka currently caters to a student population of around 25,000 through different programmes/courses of study offered by its four faculties. These Programmes/courses are offered through several well established Regional centres and study centres scattered throughout the island. Until up to the year 2003, majority of the Programmes and courses offered by the OUSL have been heavily dependent on print based material supported by the use of audios, videos and CDs.

It is well known that one of the inherent characteristics of the ODL methodology is the limited interaction of learners with their peers and teachers (Keegan (1990). Moore (1989) has discussed three types of interactions in distance education: learner-content, learner-instructor, and learner-learner. Hillman et al. (1994) has identified interaction between the learner and the technologies used to deliver instructions as another form of important interactions, especially in relation to on line course delivery.

Sometime back, OUSL initiated the use of virtual class room in an attempt to overcome the problem of interaction with their learners. Virtual classes gave an opportunity to the OUSL learners to interact with their teachers to some extent. In addition, this also provided an opportunity for some students who have different types of difficulties in expressing their ideas/ interact with their teachers due to other reasons. No detailed studies have been carried out to ascertain the success of this activity.

In the recent past many educational institutions in Sri Lankan have realized the importance of ICT based education. This is also aligned with the governments' efforts to popularize the usage of ICT among Sri Lankan population. Due to its many advantages, online learning is also considered as one of the important new approaches of improving teaching (McGorry, 2003). Research studies have shown that among the higher educational Institutions in the country, 54 % use ICT based education to teach the students (Pandora -Distance Education Technology in Asia report 2009).

The use of ICT has been given high priority in the course development at OUSL through its capacity enhancement project (OUSL-CE project) launched with the assistance of the Asian development Bank

(ADB). One of the objectives to be achieved through the project was to build an OUSL team to develop quality and relevant distance education instructional materials conforming to current ODL principles and well accepted ICT practices. In order to achieve this, a group selected staff members from different faculties worked with experts in the field of Instructional design to learn on how to adopt new pedagogical methods in teaching and learning in designing course material. The author too had been one of the representatives from the Faculty of Natural Sciences who underwent the training. During the training four courses from different Faculties were selected and converted them to on line courses. Along with the experts the staff also identified the requirements and the way forward for the Open University in respect to preparing courses for online delivery.

It was identified that OUSL should have three types of courses for online delivery; namely, supplementary online, blended online and online plus. These courses have different degrees of online compulsion. MOODLE open courseware was identified as the LMS. The team along with the experts also identified the process to be followed by any staff member in developing online courses. The features of these three types of courses that were identified is shown in Table 1.

Table 1: Web-base course types for online delivery (extracted from Instructional Design, Development and Delivery Process Manual 2007)

Features of the course	Supplementary	Blended	Online plus
Online student to student interaction is a required part of the course	N	Perhaps but not necessary	Y
Teacher communicates to students through online means	Perhaps but not necessary	Y	Y
Teacher provides feedback to students within online course	Perhaps but not necessary	Perhaps but not necessary	Y
What % of assessed activities occur online or are based upon online content	0%	<20%	>20%
Number of students registered in course	Doesn't matter	Depends upon interactivities included in the course	Maximum50 & ideally ratio of 1 tutor to 30
Types of activities in your course-labs, practicals activities requiring f2f interaction) etc.	Y	Y	Rarely

CURRENT STATUS OF ONLINE COURSES AT OUSL

The DEMP has given a boost to the development of online courses at OUSL. The process and the procedures for the development of all types of online courses is now in place and the Educational Technology division (ET) is carrying out regular training programmes to educate and encourage staff on the development of online courses. All courses are developed in the MOODLE development site in the OUSL server. As the final step of the course development all courses undergo a quality assurance process before they are uploaded to the National online Distance Education Service (NODES).

Currently there are about 104 online courses developed under different programmes of study. Figure 1 summarizes the current status of the online courses at OUSL.

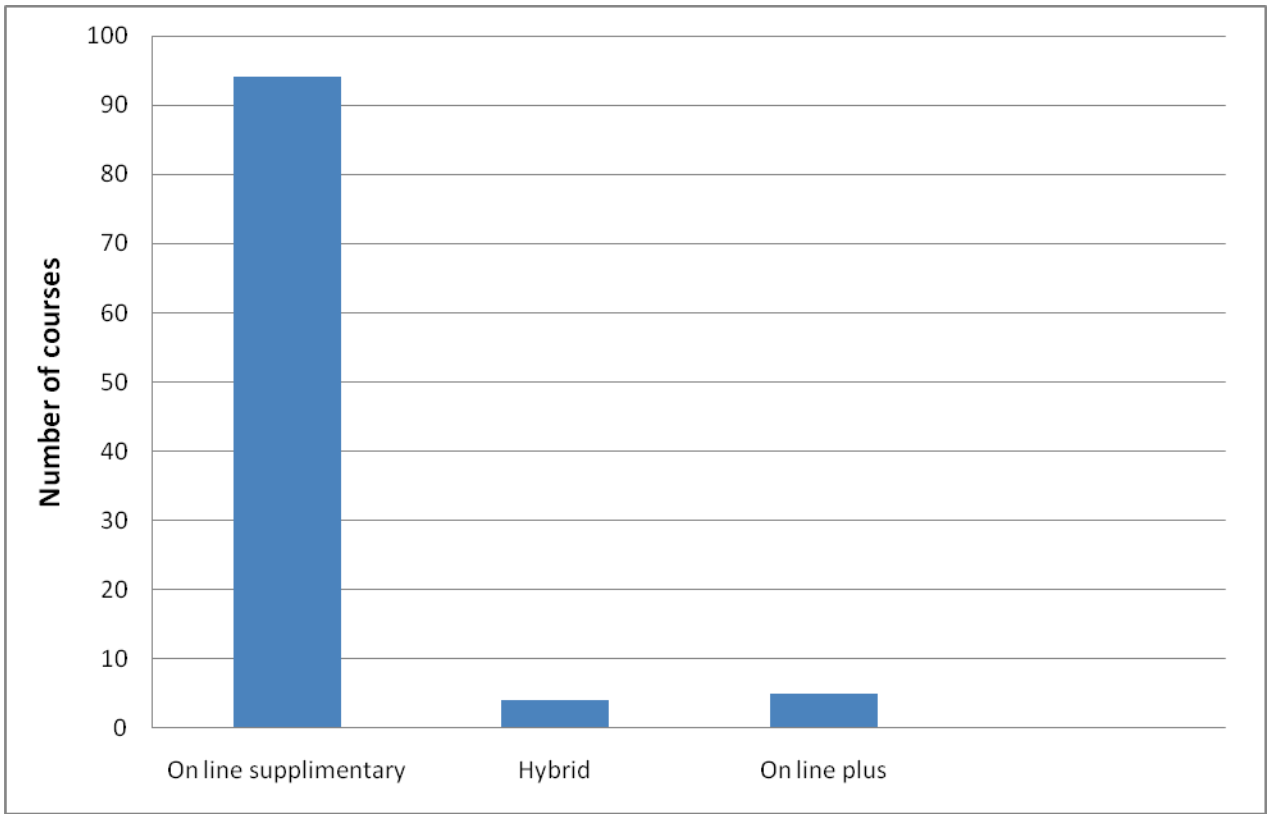

Figure 1 – Current Status of online course at OUSL

So far little research has been carried out related to online course development and delivery at OUSL. However, through personal communication with staff who have uploaded their courses to the NODES it was revealed that in general, access of supplementary online courses by students is on the low side.

SUPPLEMENTARY ONLINE COMPONENT OF THE 1ST YEAR UNDERGRADUATE CHEMISTRY COURSE

The first year Chemistry course, Basic Principles of Chemistry (CHU1221/CMU1220) teaches basic concepts in Chemistry which provides the pre-requisite knowledge that will be useful in understanding courses at higher levels**.** It is a compulsory course for any student who takes a subject combination with Chemistry in their first year. The course is delivered through six course books. Students following the course are evaluated through formative and summative evaluations conducted at Regional centres. On average around 300-350 students register for this course every academic year. Out of this number majority are registered at the Colombo regional centre.

The objectives of having of an online component for the first year Chemistry course are given below.

1. To strengthen student – teacher interaction and create a friendly online atmosphere that will facilitate student learning.

2. To use the online atmosphere to consolidate students' subject knowledge through interaction with their teachers and also by using the identified relevant resources produced elsewhere with similar objectives.

3. To provide an opportunity for students to engage themselves in modern trends in learning practiced elsewhere in the world and build their confidence in using online learning for their higher level courses.

The supplementary online course component for the Chemistry course was developed within the framework prepared by the manual mentioned earlier. Some features of the course offered during the academic years 2007/08, 2008/09, and 2009/10 are given in Table 2.

Table 2: Some important features of the online supplementary course Basic Principles of Chemistry

Feature	2007/08	2008/09	2009/10
All information related to the course and course delivery	Provided	Provided	Provided
Announcements related to the course	Allocation of practical groups	Allocation of practical groups	Availability of course material which were delayed in issuing
Student forum/s	Expected students to Initiate a forum on general issues related to the course	One forum was initiated by the teacher on general issues related to the course Students were requested to initiate a forum on any topic relevant to the course	One forum initiated by the teacher to discuss the general matters pertaining to the course Students were requested to initiate forum on a topic of their choice from course material One forum was Initiated by the teacher on a specific topic from a session in the course.
Sessions summary	Provided	Provided	Provided
Quizzes with explanatory answers	Not included	Included	Included
Structured type assignment and facility to upload the answers	Provided	Provided	Provided
Links to relevant resources for learning	Provided	Provided	Provided

All students registered for the course were informed of this additional help at the time of registration. They were given a “pass word” to login, a list of addresses of NAC’s (Nodes Access Centres) and instructions on how to access the course. Faculty guidebook also provides information regarding this facility. In addition, in 2008/2009 academic year students were shown on how to access and use this facility at the first compulsory day school conducted for the course. In 2009/10, in order to give an opportunity for the students to practice this facility, one hour of computer time in the regional centre laboratories were reserved for them.

This study on student usage of the online supplementary course was conducted after three years of conducting the course. In addition, a simple questionnaire was sent to a randomly selected sample of 75 students who have not accessed the online component of the course to find out the reasons for not doing so.

It is expected that this study will provide answers to the following research questions.

1. How successful is the supplementary on line component of the course in terms of its usage?
2. What are the lessons teachers can learn for the future development of such courses?

RESULTS AND DISCUSSION

The overall student participation in supplementary online component for the course CHU1221/CMU1220 in the academic years 2007.2008,2008/2009,2009/2010 is tabulated in the Table 3. Table 4 is the student participation in relation to different features in the three academic years mentioned above. Table 5 gives the main reasons given by the students for not accessing the course.

Table 3 Percentage of student participation over three academic years

Academic year	**2007/2008**	**2008/2009**	**2009/2010**
Student participation	4	11	31
Percentage	1	4	10

Table 4 Type of responses to Features accessed by the students

Feature	**2007/2008**	**2008/2009**	**2009/2010**
Quizzes	Not given	11	31
Forum/s	0	03	03
Feedback to Structured type assignment by way of uploading answers	0	02	03
Announcements		01 request for a change in practical session	02 messages
Resources	0	0	0

Results show the extremely poor participation in the course where a large number of students (nearly 300) register each academic year (Table 3). Initial student participation has been very low level but has improved in a very small way over the next two academic years. It was noted that majority of the students who have accessed the course are from urban areas.

The low access may be due to several reasons. One important reason may be due to the non compulsion of the supplementary component as mentioned. The results of the feedback questionnaire also revealed that this is very true. Although we assumed that students will access with very little guidance the results show that accessing the course without proper practice had been a major barrier. As Hillman et al.1994 has described this illustrates the importance of learner-interface interaction in online learning.

Considering the features accessed by students (Table 4) it is noted that the majority have tried out the quizzes where explanatory answers were also given. In fact many students have tried quizzes several times. It is also noted that there is a slight increase in this number from 2008/2009 academic year to 2009/2010 academic year. This result also indicates that the students are more inclined to be successful at the examinations rather than using the online opportunity to interact with their teachers and build up a relationship. This is also justified by the fact that only a very few out of those accessed have uploaded their assignments for the teacher to give them a feed back.

Teachers had put in considerable effort to surf the web to link appropriate resources for the course. However students have not taken this opportunity to use these resources to update their knowledge. Once again this may be due to the non acquisition of the skills needed to participate effectively in an online atmosphere.

As Holmberg (1995) postulated, distance students enjoyed and benefited from interactions with their teachers. The importance of student –teacher interaction has also been hypothesized by Moore (1989). In fact encouraging the students to establish this interaction has been one of the objectives in designing this supplementary online component for the first year Chemistry course. However, student-teacher interaction in this case had been very poor.

Informal discussions with the students revealed several reasons for the reluctance in participation in forums. Some of which are given below.

1. Students' lack of understanding of the purpose of having forums.
2. Their uneasiness in having a dialogue with the teacher on a given subject topic.
3. Students reluctance formulate a questions on a given topic.

It is of interest to note that although students did not participate in forums some have started communicating with their teachers through e- mail and some of the questions asked were those related to subject matter.

Only 21 students (28%) responded to the questionnaire to get the feed back regarding the reasons for not accessing the course. Table 5 tabulates the five main reasons for not accessing the course.

Reason for not accessing the online supplementary course	**Student number**	**Percentage**
Not confident in working in MOODLE environment	18	85
Problems in accessing the course	12	57
Uneasiness in handling computers	8	38
Not aware of the facility	4	19
NAC centres are at a distance form where the students live	12	57

The above results show that one of the main problems faced by the students is not getting sufficient exposure to working and using MOODLE LMS for study purposes. Majority of the students seems to be aware of the facility but distance to the NAC centres has kept them away. Although we assumed that many students are familiar in working with computers the results show that our assumption is not 100%. Problem related to accessing the course faced by 57 % of students probably due to technical problem which need to be investigated in detail and rectified.

Lessons Learned

Although the outcome of this study is not very encouraging it gave the author an insight into the problems related to offering online supplementary courses.

It seems that the learner-interface interactions are very much relevant and important for OUSL, where a heterogeneous student population enters different programmes of study. A good training on MOODLE including several “mock sessions” which expose students to different features of online courses should be given to them at the early stages of their OUSL student carrier. However it has to be noted that there will be practical difficulties in implementing this suggestion in courses where the student number is high.

As indicated earlier, students have shown greater interest in attempting quizzes. This interest can be used as a means of attracting the students towards online supplementary courses by having more and more properly designed quizzes in a creative manner. Later this interest may be diverted towards other features such as forums. Also, it is worthwhile seeking ways of giving some recognition to the students who participate in the course in spite of it being supplementary.

Teachers developing online supplementary courses have to master new instructional design strategies that will facilitate the learner participation. It will be interesting to study the outcome of an online course which has taken in to consideration the above suggestions.

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