

Costing of a blended learning course at the Open University of Sri Lanka: An empirical study

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ABSTRACT

In a viable Open and Distance Learning (ODL) system, providing immediate access to learning resources and fostering effective teacher-learner interactions are essential components while balancing the cost of the course without compromising quality. Owing to the advancement of ICT across the globe, Open University of Sri Lanka (OUSL) has initiated integrating online components into its existing print-based courses and started to deliver as blended courses.

For this empirical study, costing was carried out based on the existing frameworks under four major cost categories; costs of overhead and infrastructure, costs of course material development, costs of course materials production and costs of course delivery. Course material development costs include common costs related to the development of both print and online materials and specific costs related to technology. Course material production costs include production of course materials, CDs/DVDs and online materials. Course delivery costs comprise of distribution of print course materials/DVDs, costs related to contact sessions, student evaluation and other related services. Overheads and infrastructure costs incorporate payments for all non-teaching staff, operational and maintenance costs and utility expenses relevant to all local centres where face to face sessions are conducted.

The 'Drama and Poetry' course in the Diploma in English Programme was selected for this empirical study. Findings indicated that the overall total costs of the course increased with the introduction of online component; that is 101% increase in course development, 6% increase in course material production and 124% increase in course delivery indicating that online tutoring as the most costly component of this blended course.

The outcome of this research study highlights the importance of instructional design where academic members need to prioritize the most crucial elements that foster learning and devote online tutoring only for constructing higher order skills.

Key words: cost structure, blended learning, unit cost

INTRODUCTION

The advancement of internet and computer technology (ICT) across the globe has made the pathway for online learning by providing a 'digital corridor' connecting all the citizens in the world enabling 'immediate access to learning resources' and 'increasing teacher-learner interactions' through the 'digital corridor'. According to Oakley (2000), online learning is 'a learning process in which learners can communicate with their instructors and their peers, and access learning materials over the Internet or other computer networks'.

Blended education models has become increasingly popular in a wide array of learning domains (Bates, 2000) and represents an eclectic blend of technologies and modalities enabling both synchronous and asynchronous teacher-learner and learner-learner interactions in a single course or a program (Lynch & Dembo, 2004) via distributed education.

However, developing and delivering online component of a course is not an easy task. On the one hand learners expect and demand anytime/anywhere access to courses. On the other hand, higher education institutions have to generate funds by offering demand driven courses as there is a gradual reduction of Government funds. Thus, it is a challenge for higher education institutions to become forward-focused and to remain competitive (Bartolic & Bates, 1999) in this rapidly changing world. As a result, determining the costs of a blended course has become critically important for ODL institutions to make judgments at the strategic planning and budgeting levels and to forecast its future developments. Therefore efficient cost estimation mechanism through a cost model is essential to provide accurate information on costing for both educators and decision makers of the institution to take right decisions at the right time.

Therefore, this paper reports on the empirical findings of the associated costs of a blended learning course.

WHY COSTING OF A BLENDED COURSE IS NEEDED AT THE OUSL?

The OUSL is the only national university which delivers its programmes through ODL methodology. It constituted under the University Act No. 16 of 1978 and is funded by two sources; government funds (60%) through the University Grant Commission (UGC) of the Sri Lanka and by charging nominal tuition fees (40%) from students.

It offers more than 40 study programmes through 600 courses. Print is the core medium of instruction with occasional face to face sessions. Having considered the global trend, the OUSL started to integrate online components into its print-based courses since 2003 (Jayatilleke, 2010). A steady increase in the number of online courses was pronounced with the assistance of the Distance Education Modernization Project (DEMP, 2003-2009) which was funded by the Asian Development Bank (ADB) under the Ministry of Education (Jayatilleke, 2010).

Though the technological developments put in ranges of tools available to the learner, still print plays a significant role in delivering ODL courses, especially in developing countries like Sri Lanka due to several challenges; for instance access to technology, social-cultural factors, readiness to use technology etc. Therefore, the OUSL has decided to offer courses through blended approach, combining online learning, still retaining print materials as the core medium of instruction. Thus, taking the 'best from both online and face to face instructional designs' as stated by Garrison & Kanuka (2008, p.19).

According to Abeyasinghe *et al.*, (2013) some costing studies have been carried out using different methodologies in the past 32 years of OUSL history. However, there were no costing studies carried out; neither for blended courses nor for online courses. Thus, this study attempts to cost all the components in a blended course including both print and online components.

CONCEPTUAL FRAMEWORK

Having reviewed several research studies on costing (Orivel, 1987; Curran, 1996; Rumble, 1997; Inglis, 1999; Whalen & Wright, 1999), Abeysinghe et al (2013) proposed a conceptual framework to calculate total costs for a blended course. Figure 1 illustrates the proposed conceptual framework in detail.

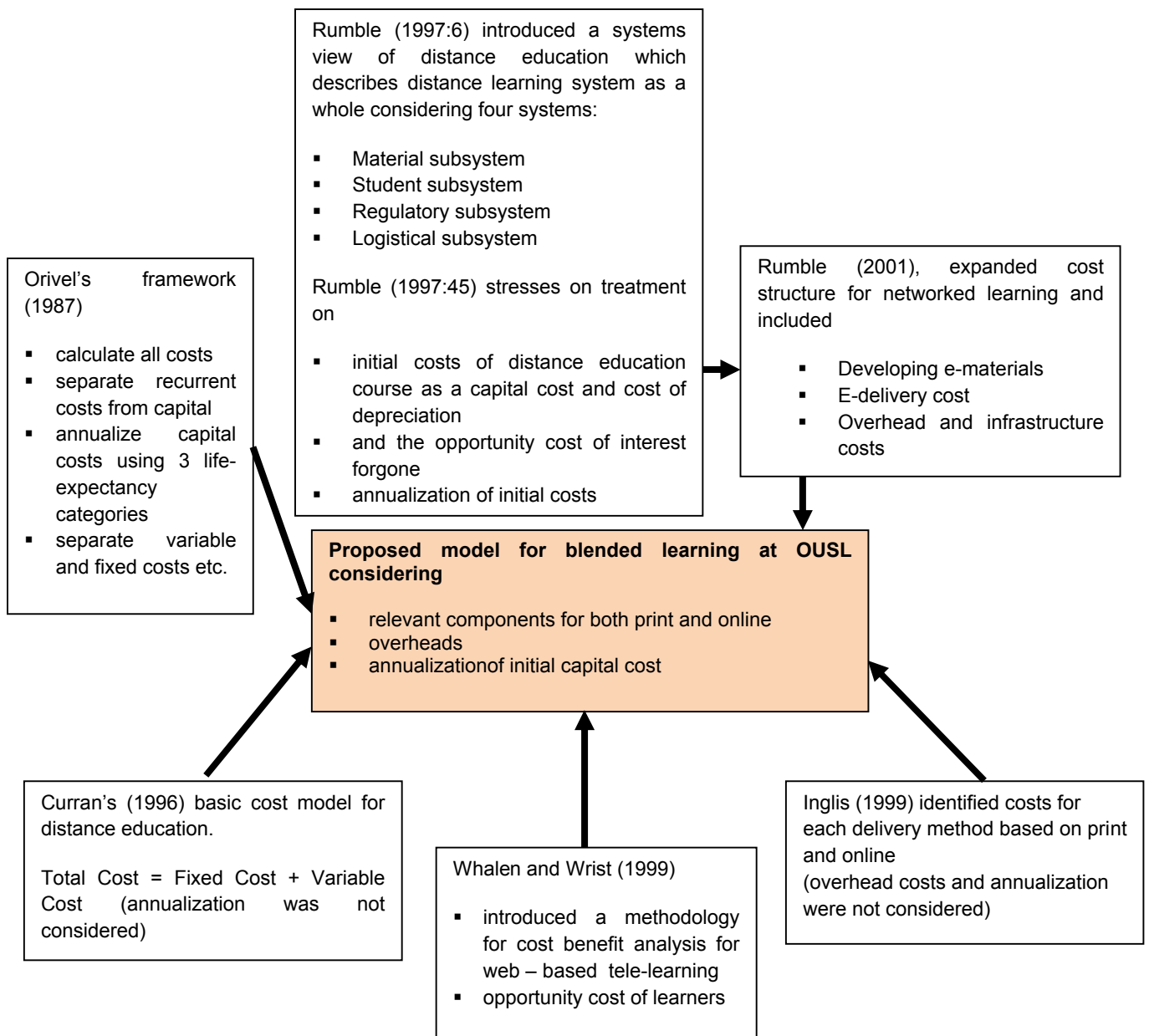


Figure 1 – Conceptual framework for developing the costing model for blended course at the OUSL (Abeysinghe et al 2013).

METHODOLOGY

Selection of a blended course

The 'Drama and Poetry' course (LSD1206) of the Diploma in English Programme was selected as it has been offering as a blended course for more than five years and teacher-students interactions were comparatively higher compared to other similar blended courses at the OUSL.

Collection of data

The costs for planning of the programme and course development activities were gathered from interviewing academic coordinator of the Drama and Poetry course, relevant academic and academic support staff. Production costs for print-based course materials were obtained from the OUSL Press and for production costs for online components were collected from relevant staff and multimedia/content developers. The costs for delivery of the course were gathered from academic and academic support staff of the department of language studies and from the staff from the local centres. Further, details relevant to student evaluation were gathered from interviewing Senior Assistant Registrar /examination, Assistant Registrar/ faculty of Humanities and Social Sciences and staff at the local centres of the OUSL. The details relevant to payments were obtained from interviewing bursar and relevant support staff in the finance division of the OUSL.

Data Analysis

The conceptual framework put forward by Abeyasinghe et al (2013) was used to calculate the costs for this course under the following broad categories.

- costs of overheads and infrastructure,
- costs of course material development,
- costs of course production and
- costs of course delivery including costs related to student evaluation.

The relevant costs drivers in each broad category were identified separately.

1. Course material development costs include
 - common development costs for both print and online,
 - specific costs related to online learning such as payment for multimedia developers, costs of multimedia equipment including software.
2. Course material production costs include
 - production of course materials,
 - audio, video, graphics and animations.
3. Course delivery costs comprise of
 - distribution of print course materials,
 - costs relevant to contact sessions and
 - costs associated with tutoring and student evaluation.
4. Overheads and infrastructure costs incorporate
 - payments for all categories of staff who are not directly involved with a particular course,
 - operational and maintenance costs for the networks, and
 - utility expenses of main campus and local centres, etc.

According to Abeysinghe et, al(2013),

Total costs for blended learning (TBL) = Total costs for print-based component (TP) + Total costs of online component (TO)

TP = Fixed costs for Print +Variable costs for Print

TP for one year = Annualized Fixed costs (Print) +Variable costs (Print–one year)

TO = Fixed costs (Online) +Variable costs (Online-one year)

TO for one year = Annualized Fixed costs (Online) +Variable costs (Online - one year)

The calculation of costs related to overhead apportionment and absorption has to consider the costs of all the OUSL courses along with the number of students in each course. So it is a very time consuming and tedious task. Thus, for this current study the calculation was based on the UGC report (2005).

Overhead costs comprise of average expenditure for General Administration + Maintenance + Welfare which is 25% of recurrent expenditure (other than academic service expenditure). Therefore, to get the total costs for any course, 25% of variable costs (recurrent cost for print and online) were added to the total costs.

RESULTS AND DISCUSSION

In this study calculation for print and online components were carried out separately and added to get the costs for a blended course (Table 1).

Table1 - Cost items in each broad category relevant to print and online components

Broad category	Item of expenditure	Print component	Online component	Blended course	
		Costs in LKR	Costs in LKR	Costs in LKR	Costs in US \$
Course material development	Need Survey costs(annualized)	20,697.41		20,697.41	179.98
	Curriculum development costs(annualized)	1,484.03	593.61	2,077.64	18.07
	Course content development(annualized)	14,302.90	5,058.00	19,360.90	168.36
Course material production	Reproduction according student enrolled (107 students)	119,340.31	25,350.00	144,690.31	1,258.18
Instructional Delivery/Student support	Visiting Academic payment, Non Academic involvements , premises chargers for face-face session	52,200.00	117,060.00	169,260.00	1,471.83
Student evaluation	costs for 3 CATS and final examination	11,520.00	3,940.00	15,460.00	134.43
Overheads	Administrative support, General Administration Utility chargers, LAN handling chargers etc. (25 % of variable costs)	46,460.80	36,867.00	83,327.80	724.59
Total costs		266,005.45	188,868.61	454,874.06	3,955.43
Costs per student (Total students enrolled=107)		2,486.03	1,765.13	4,251.16	36.97

All the values are in local currency. Sri Lankan Rupees (LKR) and US \$ conversion is given in the last column. These values are based on the Rupee value of 2012.

Values related to course material development were annualized as these costs should be treated as initial capital costs. This course has been offering continuously for 5 years without amendments. Therefore, the following standard formula for calculating the annualization factor based on Rumble (1997:45) was used to calculate both depreciation and the opportunity costs of interest forgone.

$$a(r, n) = \frac{r(1 + r)^n}{(1 + r)^n - 1}$$

where $a(r, n)$ is the annualization factor,
 n is the life of the capital investment, and
 r is the prevailing rate of interest.

To substitute the value for 'r' usually, interest of a risk free investment is taken. In Sri Lanka, investing in Government Treasury Bills (11% in 2012) is regarded as the safest option.

By substituting $r = 12.5$ and $n = 5$, to the formula $a(r, n) = 0.281$ was obtained.

The initial capital costs with respect to the course development for both print and online were multiplied with 0.281 and obtained the annualized value (Table 1).

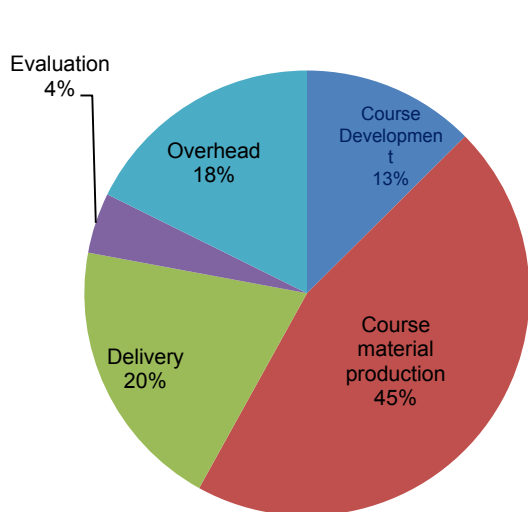


Figure 2 - All cost categories for the print component of the course

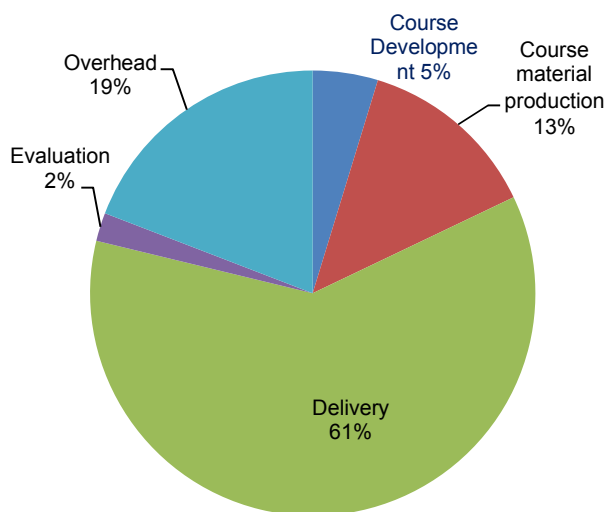


Figure 3- All cost categories for the online component of the course

Figures 2 and 3 show broad cost categories for print and online components. The course material production costs were highest in the print component (45%) whereas the delivery component was highest in the online component (61%). Costs for course development were comparatively higher in the print than the online component (print – 13%, online – 5%). This is because there are common components used in both print and online.

The costs for print and online components were LKR 262,555.88 (US \$ 2283.09) and 192,318.18 (US \$ 1672.33) respectively. Therefore, the total cost for the blended course was LKR 454,874.00 (US \$ 3955.43)

for 107 students in 2011/2012 academic year. Therefore, cost per student was LKR 4,251.16 (US \$ 36.97). Cost per student for print component was LKR 2453.76(US\$21.34) whereas for online component was LKR 1,797.37(US \$ 15.63).

If the course was delivered only through print media, total cost would be forecasted by adding 20% to the total costs and would be Rs. 315067.00. As such transformation of a course from print-based to blended learning, the course development costs increment ratio changed to 101 % and course delivery costs increment ratio from print to blended would be 124 %. Therefore, total costs including both development and delivery, the increment ratio from print to blended learning would be 71 %.

The findings of this study indicated that costs incurred for blended learning was higher compared to print-based courses due to the high delivery costs in online learning. This supports the view expressed by Inglis (1999) where he argued that shifting from print-based to online delivery is not a cost saving mechanism. However, argument can be made that blended learning provides more benefits to students by reducing opportunity and travel costs. In addition, students have more learning opportunities for individualized learning and their active engagement throughout the learning process may result in meaningful and rewarding learning experience.

The outcome of this research study also highlights the importance of instructional design in maximizing costs without comprising quality of the courses. Academic members need to prioritize the most crucial elements that foster learning and select the appropriate media considering student numbers and the nature of the discipline. Since online delivery is the most expensive item, the inclusion of online tutoring need careful planning; may be at the stage where facilitating the development of higher order skills of students.

CONCLUSION AND RECOMMENDATIONS

Findings indicated that the overall total costs of the course increased with the introduction of online component; that is 101% increase in course development, 6 % increase in course material production and 124 % increase in course delivery indicating online tutoring as the most costly component of this blended course. Therefore, prioritizing of the most crucial elements of learning is very crucial and adjusting the ratio of print, face to face and online components accordingly.

Since maintaining records related to costing is very important to predict the cost estimates, it is recommended to establish cost centres at each key department of any organization, with a dedicated staff member who can maintain a pool of proper cost data so that predictions/estimates for programme/courses could be carried out effectively and efficiently.

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