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A PRELIMINARY STUDY ON COSTING AN ODL COURSE AT THE OUSL

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INTRODUCTION

Rapid technological changes and shifting market conditions in the world significantly influence on annual national budget on both general education as well as higher education. In Sri Lanka, also the same trend was observed that the public funds on education were 3.1 % of GDP for the year 2001 (UNESCO, 2003) has been drastically reduced to 1.9% GDP for the year 2011 (Central Bank of Sri Lanka, 2011). Therefore, it is a challenge for higher education institutes in Sri Lanka for their survival. Many professionals including governing authorities tend to view that Open and Distance Learning (ODL) is a viable option to address this issue by providing education at a low cost. The ODL system could achieve economies of scale by enrolling substantial number of student for a course and can recover the costs incurred (Bramble & Panda, 2008).

Freeman (1999) explained three models of ODL; class-based traditional system, brought–in model and material creation model where all the materials are produced in-house. He emphasized that the material creation model is a high-risk model where the initial investment is high but has the potential of generating high profits with offering courses for several cycles. According to Daniel (2001), the higher education is always tied up with three vectors such as access, cost and quality as the vectors of an eternal triangle. He further elaborated and showed that the quality could be maintained while increasing access and, lowering cost in Mega Universities such as Open University of United Kingdom (OUUK) in which the student enrollment is over hundred thousand. However, the small scale ODL institutions, like the Open University of Sri Lanka (OUSL) which reached its current learner enrollment over 33,500 may find it difficult to lower the cost per student in one cycle and has to offer several cycles using the same course materials. This study attempts to identify the main cost drives which are essential elements in a cost structure and to find out the economies of scale in a small scale ODL institution like OUSL. This will enable the institution to make efficient and effective management decisions related to costing of an ODL course.

A variety of tools and approaches have been used by researchers to study the economics of ODL systems (Rumble, 1997, Freeman, 1999, Bramble and Panda, 2008). The most widely used framework for costing of ODL courses is proposed by Rumble (1997). According to Rumble (1997:6) any distance education system involves two major operating systems; materials subsystem and student subsystem. Material subsystem includes design, production, distribution and reception of course materials. Student subsystem mainly deals with all the student related activities from student enrolment to organize graduate ceremonies and to provide transcripts and references after graduation. Logistical and regulatory subsystems support these two major operating systems. Logistical subsystem deals with human and financial resources and infrastructure facilities while regulatory subsystem plans and manages the overall system.

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RESEARCH OBJECTIVES

The objectives of this study were to:

- identify the main cost drives of an ODL course
- calculate the total cost of a course for one academic year including annualized course development costs, material production costs, course delivery costs, course evaluation costs and overheads costs relevant to the course
- determine unit cost (cost per student) of a print based course

METHODOLOGY

Research design

Rumble's framework was used to identify the cost drives and all the cost categories related to the selected course.

Selection of the course

The OUSL offer different types of courses depending on the media (print, audio-visual and online), types and number of contact sessions (day schools, laboratory sessions, field trips etc.) and medium of instruction (Sinhala, Tamil and English). Some of these courses are delivered in many centres; both in Regional Centres (RCs) and Study Centres (SCs).
The Pure Mathematics course (MPZ2310) was selected for this preliminary study as it has the highest number of activities (Activity Diary Engineering Technology, 2010/2011) catering to nine hundred seventy five enrolled students. This course is conducted by the Department of Mathematics and Philosophy of Engineering of the OUSL.
The description of the course selected is given below.

- The course is level 2 foundation course minimum study time is 225 hours
- Print course material – two blocks (Block I and II) in each medium, (English-374,427, Sinhala-407,462 and Tamil-375,667 pages)
  - o Delivery method: Twenty face to face sessions (3 hour duration) at four regional centres and six study centres in Sinhala medium, at four regional centres, and, one study centres in Tamil medium, at two regional centres in English medium
  - o Assessment and Evaluation: four Tutor Marked Assignments (TMAs), two Continues Assessments Tests (CATs) with 1.25 hours duration and final examination papers (part I -1 hour duration, part II -3 hour duration)

The study used interviews as the main method of collecting data from different key personnel by employing different interview schedules. The data relevant to the cost drivers of course material development were gathered from interviewing the academic coordinator and responsible academic support staff of the Pure Mathematics (MPZ2310) course.the data relevant to the cost drivers of production of course materials were gathered from interviewing the printer and assistant bursar of the press at ousl. The production costs for material were calculated assigning the costs for relevant quantity of materials, labour charges, apportion of overheads as cost of machineries by applying depreciation value and repair charges of the relevant machines and water and power consumption.

The data relevant to the cost drivers of student subsystem were collected from various staff categories such as relevant academic staff, academic support staff, administrative staff, clerical staff and staff at RCs and SCs. The summative evaluation costs were estimated from the records available at relevant RCs and SCs applicable to the tutor marked assignments (TMA) and continues assignments tests (CAT) communicated through e-mail as the answers to the sent questionnaire.
The data relevant to the cost drivers of conducting examinations were obtained from the Senior Assistant Registrar/examinations and the staff, Heads of RCs and SCs. Director/Information Technology (IT) and staff. Details were obtained from the Bursar, Assistant Bursar/payments and the staff for the data relevant to the cost drivers related to

logistical subsystem and Director/Operations and Director/Regional Educational Services (RES) were interviewed to gather information related to the regulatory subsystem.

Data analysis

The costs for relevant subsystems were calculated using relevant cost drivers. The total course development costs were annualized for five year periods (with 12.5% interest rate) with actual numbers up to 2012 and projected number for 2013/2014 of students. The costs for course material production costs were calculated by using data collected from the press of the OUSL and by using number of pages of the two blocks in three languages for the enrolled 975 students. The course delivery cost was calculated by using identified cost drives relevant to the activities such as conducting day schools at relevant local centres, distribution of course materials to the students. The evaluation cost was calculated by identified cost drivers relevant to the conducting TMAs, CATs and two final examination papers at regional level.

RESULTS AND DISCUSSION

The costs relevant to the regulatory subsystem and logistical subsystem were identified as service department costs. These costs were treated as overhead costs as pointed by Rumble (1997:52). Table-1 illustrates the calculated costs for all the sub-systems.

Table -1: Variable costs of course delivery, evaluation and overheads, total cost for the course

Cost type	Cost(Rs.)
Print course material development	914145.00
Annualized development costs- 5 years with 12.5% interest rate	257788.89
Course delivery	1030862.36
Production of course material	892048.50
Evaluation of the course	210943.75
Sub total -I (course delivery +production+ evaluation): student subsystem	2133854.61
Overheads -I (for variable costs =20 % of sub total -I): logistical system	426770.92
Total variable costs for the course	2560625.53
Average variable cost (cost per student (V)= 2560625.53/975)	2626.28
Fixed costs(Annualized course development costs)-material subsystem	230990.35
Overheads –II (for fixed costs =20 % of fixed costs)- regulatory system	46198.07
Total fixed costs for the course (F)= 230990.35+46198.07	277188.82
Average fixed cost (277188.82/975)	284.30
Total cost for the course (T= F+V*S)	2837811.82
Average cost (2837811.82/975)	2910.58

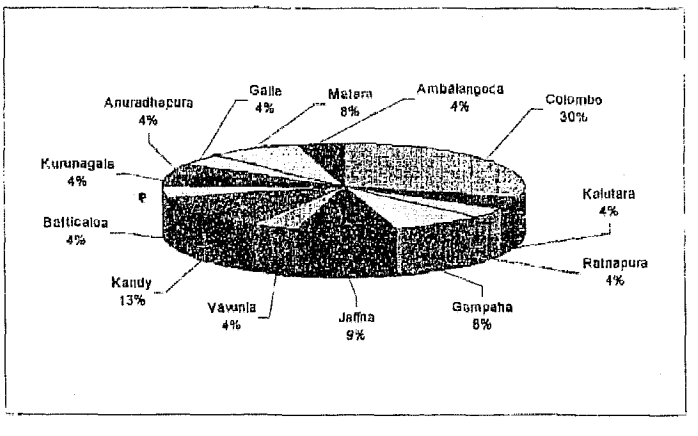

Figure-1: Centre-wise cost structure of MPZ2310 course as percentage for the academic year 2010/2011

In this preliminary study the costs related to logistical system which procures and replenishes the resources required by the system (eg. human resources, finance, buildings and equipments) have not been calculated because the cost relevant to the this system have shared across number of courses. Further, the cost related to regulatory subsystem (eg. planning and managing the overall system relating operational activities and the activities of

the organization as whole) also have not been considered as those shares across number of courses. In management accounting systems these shared costs often relate to overheads (Rumble, 1997: 51). At the OUSL it is general practice to calculate overhead costs as a percentage (10% to 30%) of the direct costs. Therefore, this study has also adhered to the same and estimated the overhead costs relevant to the logistical and regulatory subsystems as 20% of direct costs considering the median of the given percentage. However, more precise values could be obtained by gathering detailed information which consumes time.

The calculated total cost of the course was Rs. 2837811.82 for the total number of registered students 975. The unit cost (cost per student) Rs. 2910.58. However, the tuition fee in 2010/2011 for MPZ2310 was Rs. 2403.00. The results show that the average fixed cost is very low compared (Rs. 284.30) to the average variable cost (Rs. 2626.28). The reason would be many registered 975 students scatter not only all over the country but also in 3 languages. This leads loss of economies of scale relevant to course delivery part. However it is clear that for the course development part is in line with economies of scale.

Figure-1 shows all the cost drives contributed to the course delivery cost at local centres as percentage-wise. The cost structure clearly shows that the highest course delivery cost is for Colombo Regional Centre (30%) while lowest cost is with several study centres. It is envisaged that course delivery cost mainly depends on number of students and number of instruction languages.

CONCLUSIONS AND RECOMMENDATIONS

The findings of this study indicate that the calculated cost per student for tuition of the following course MPZ2310 is greater than its tuition fee. Therefore, in order to achieve cost efficiency, either to be increased the student number to offer the course continuously for more than 5 years without changing the development cost of the course. Because trend of registering student for the course has been decreased (Eg: 1197 in 2011/12; 1143 in 2012/13). Further, by employing enhanced cost analysis it would be easier to identify the ways to reduce cost per course and cost per student.

Distance education has passed through embraces many applications including open education/ open learning, distributed learning, flexible learning, virtual / online learning and blended learning (Bramble and Panda, 2008:1). It has also been argued that if universities do not want to face the fate of the dinosaurs, they need to go beyond conventional methods of teaching and learning, and their hierarchical and bureaucratic academic structure, and adapt to alternative educational provisions. In this context most of the leaders and academics in ODL institutions hope to move from print based course material environment to online environment to provide instructions to get at low costs and easy interaction. Decision of whether to invest in money for online education could be taken with comparing the results of this study and cost of online learning which has to be calculated by a similar study.

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