UPOU Resource-based Course Materials Development and Delivery: A Knowledge Management (KM) Measurement of a Distance Education (DE) Innovation

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ABSTRACT

An innovation in online course development and delivery resulting from a knowledge creation process at the University of the Philippines Open University was assessed as to its financial performance using a return on investment measure. The study proposed to estimate the cost of conceptualising the innovation by creating a metric that measures the expertise of the innovators and amount of time devoted to deliberations. Using ROI as indicator of the value of the innovation, recommendations were made at the conceptual and operational levels.

INTRODUCTION

The UP Open University (UPOU) is the fifth constituent university of the University of the Philippines (UP) System and is mandated to deliver its degree and non-formal courses using the open learning and distance education (OLDE) approach. As such, its academic and operational processes are different from its counterpart conventional campuses which are largely residential in nature characterised by face-to-face modes of interaction within the confines of the classroom.

A distance education institution, on the other hand, operates on an educational philosophy whereby the student and professor are separated in time and space. It is important, therefore, that a whole support mechanism is put in place to facilitate achievement of the goals of education characterised by "learning at your own time, at your own pace" and backstopped by information and communication technologies (ICT). In the Philippines, the UPOU is at the forefront of distance education and it continues to generate knowledge products as it fulfils its ascribed role of setting the standards for delivery of quality education.

This paper will focus on a singular innovation in the academic sphere and will propose a measurement approach to provide the basis for management decisions on continued

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adoption and institutionalisation of this innovation from a knowledge management (KM) perspective.

UPOU RB Approach to Material Development and Delivery

Since its inception, UPOU's faculty-in-charge (FIC) prepared course modules prior to offering/delivering a course and these modules served as the primary learning resource for students. With online learning, however, course development and course delivery as separate and sequential processes became less distinct. Moreover, Internet-based resources have become available to both students and teachers; the obsolescence of resources has been occurring at a faster pace; and updating print modules has become expensive and impractical from the management point of view.

Recognising these changes in its environment, UPOU conceptualised the resource-based (RB) approach to course development and delivery. It was premised on a fundamental orientation wherein student and teacher are considered as co-creators of knowledge in the learning process. The RB approach allows for greater flexibility in putting together course materials as opposed to the production of a structured course module prior to course offering. The FIC, after preparing a Course Guide in which course goals are articulated, takes on a facilitation role through a process of referencing, compiling, integrating and synthesising resource materials which the students can use and reuse in the learning process.

KM Measurement of a DE Innovation

Under a KM framework, the innovation was seen as resulting from a knowledge creation process wherein practitioners in distance education addressed the broader issue of delivery of quality education through development of teaching materials. The contribution of implementing this knowledge product to overall organisation performance was evaluated using measurements such as return on investment and savings for the organisation attributable to the implementation of the innovation.

Table 1 presents proposed measurements of costs and benefits computed based on assumptions as specified below. To measure costs involved in conceptualising the innovation, it was proposed that the experts' time and the value of expertise be computed. To measure costs involved in the implementation phase, the factors included in course development and delivery were calculated. Proposed measures of benefit included both financial and non-financial measures.

Table 1: Proposed Measurements for the Innovation

COST ITEM	**MEASUREMENT**	**METHOD**
Conceptualisation of the Innovation (Knowledge Creation Phase)		
Experts' time	% of time spent in regular meetings on the topic of RB approach measured in hours	Content analysis of minutes of meetings and other fora
Value of Expertise	Monetary value	Computation based on salary rate of those involved in the discussions
IMPLEMENTATION OF THE INNOVATION (Knowledge Application Phase)		
Payment to FIC using the RB approach in course development	Monetary value	Computation based on approved rate of RB course development on a per engagement basis
Payment to FIC using the full module approach	Monetary value	Computation based on approved rate of full course development on a per engagement basis
Payment to FIC/Tutor in course delivery	Monetary value	Computation based on approved rate for teaching the course on a per engagement basis
FINANCIAL BENEFITS	**MEASUREMENT**	**METHOD**
Revenue from course offering	Monetary value	Computation based on # of students*fee/credit unit*# of credit units per course offering
NON-FINANCIAL BENEFITS	**MEASUREMENT**	**METHOD**
Level of satisfaction of students	Scale value	Self-report perception survey, interview, course assessment instrument
Level of satisfaction of FIC/Tutor	Scale value	Self-report perception survey, interview
Level of satisfaction of UPOU implementing units	Scale value	Self-report perception survey, interview

Direct computations of financial measures are derivable for as long as these could be translated to money value. Kim (2006) cited McDermott's proposed way of determining value creation of a KM practice by asking people in the organisation "to estimate savings

in time and cost and financial benefits incurred by KM activities to come up with the value and benefits that the KM activities have created. Additionally, they can be asked to estimate what percentage of the benefits or savings can be directly attributed to the KM activities and how certain they are about that number" (Kim, 2006, pp363-364).

To complement traditional financial performance measures the balanced score card (BSC) has been developed to provide a balanced picture of performance measures to include a financial perspective, customer/client perspective, internal business perspective, and innovation and learning perspective (Kaplan and Norton, 1992). In the UPOU innovation, the level of satisfaction of students, FICs and implementers were proposed as non-financial measures but were not measured since perception measurements from students, FICs and management are still unavailable.

The greatest limiting condition in this case is the lack of over-time data since the innovation has been in effect for only one semester. Hence, only one data point was available. However, to illustrate the utility of the proposed metric, projections of costs and revenues were made. An assumption of three years consisting of two semesters per year was used to compute the ROI, three years being a reasonable shelf life of a given course before it is due for revision. A payback period was also projected under the above-specified assumptions. The ROI was expressed as the ratio of net returns over total investments

ROI = Net Returns/Investments

under the following assumptions:

Net Returns = [Number of students per class x cost per unit x number of units per course x number of semester per year x life span of the course] - Total cost

Investments = [(Course writer's fee + other course development fee) + (Salary of full professor / Total load per semester x Number of units per course x Number of semester per year x life span of the course) + (Tutorial Fee per section x Number of semester per year x life span of the course) + (Cost of conceptualisation)]

The cost of conceptualisation was estimated from the perspective of knowledge creation which argues that what is important in knowledge creation is the process of transforming tacit knowledge to explicit knowledge. Transformation here refers to the dual process of: (1) moving from information to knowledge and (2) that of extracting such tacit knowledge and making it explicit for it to eventually be incorporated in an organisational process.

It is argued that central to the process of moving from information to knowledge is the concept of expertise which consists of stock knowledge and experiences of those involved in knowledge creation. This could be measured in terms of the value given to one's position as reflected perhaps in a salary scale, among other things. The process of extracting tacit knowledge, on the other hand, involves the amount of time devoted to discussions that allow for articulation of what is in one's mind. Hence, one way to measure this is the number of hours spent in formal and informal discussions that result in new knowledge at the conceptual level.

In the UPOU case, knowledge transformation was measured using total hours spent multiplied by salary scale of all involved. Since the Execom or top level management was the innovator, a collective measure was derived for a group of distance education experts who came together in a series of formal meetings to look at a piece of information (use of online resources) and contextualise it in course module development and delivery of online courses.

The computed ROI for the RB approach is 1.16 times compared to the traditional approach. Projections of payback period put recovery at about a third of the time it will take for the traditional approach.

CONCLUSIONS AND IMPLICATIONS

At the operational level, analysis of the financials associated with the innovation points to its continued adoption. Based on the computed ROI and shorter payback period, the RB approach could be considered a worthwhile approach in course material development and delivery of online courses in the UPOU.

However, financial performance alone is not a sufficient measure of the value of new knowledge and practice in an organisation. Given the limitations of the study, it is recommended that non-financial measures be considered in the refinement of estimates of the value of the RB approach for UPOU before full adoption and institutionalisation of the approach is undertaken.

While the paper was able to demonstrate a way of valuing a singular innovation using financial measures, a more comprehensive valuation approach that considers the factors specified in a balanced scorecard should be utilised. Such factors may be included in the financial, internal business, customer and innovation and learning perspectives (Kim, 2006).

For instance and in the case of an academic institution, it would be appropriate to measure whether the stakeholders' expectations are met as in measuring the students', FICs' and implementers' level of satisfaction with the approach, timeliness and ease of obtaining the learning materials, efficiency of the approach for the implementing units, etc. Most importantly, these factors have to be linked with the penultimate goal of whether learning was achieved from the learner's point of view.

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