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Technology Induced Innovation in Teaching and Learning System of Bangladesh Open University: A Shift of Paradigm

Sub-theme: Teaching and Learning

Abstract

This paper examines how Bangladesh Open University (BOU) – the only open and distance learning provider in Bangladesh has shifted its ODL system by using technology oriented innovative programmes. The study assesses how the ICT oriented learning management system helping BOU to change the paradigm in the context of teaching and learning through ICT. In analyzing the technology oriented educational system, the study examines the role of interactive virtual system in introducing and expediting the effective teaching and learning of ODL. The study indicates whether the self-learning materials (SLMs), BOU Tube, BOU Facebook, Twitter, and Video Conferencing Facilities etc. provide easy access and affordability to the teaching and learning of ODL. The paper highlights how BOU has introduced innovative technologies in its different academic programmes. It further analyzes the implications of recently introduced Enterprise Resource Planning through comprehensive university management software. Moreover, it assesses the impacts of Commonwealth of Learning (COL) supported certain academic programmes with the introduction of certain innovative technologies. The study assesses the effects of COL introduced self-assessment of the quality of BOU programmes under the COL-RIM project which is apparently based on dynamics technology oriented academic exercise. The study finally tries to recommend specific policy implications whether BOU management has been very effective in sustaining of all academic programmes, including the teachers and learners through ICT.

The study follows the combination of both quantitative and qualitative methods. The quantitative method includes the reasonable sample respondents from various categories of representatives like teachers, students, field administration, BOU management, and relevant stakeholders. On the other hand, the qualitative method includes case study, focus group discussion, KII etc.

1.1 Introduction

The continued growth of distance education at Bangladesh Open University (BOU) has much to do with the advent of radio, television, and other media, which allowed for learning at a distance.

Although the overall growth has accelerated globally significantly during 1990s (Phipps and Merisotis, 1999; Ponzurick et al., 2000; Sherry, 1996; Setaro, 2000), BOU has started this process in the year 2012 and onward with the help of computer-mediated learning technologies, e.g., two-way interactive video; two-way audio and Web-based asynchronous communication; and online or offline Internet Web-based instruction.

Increasingly use of flexible technology have enabled BOU to facilitate Web's visual, interactive nature to transform the traditional campus classroom-instructor system into a variety of different and innovative forms of instructional dissemination and to decentralized locations of Bangladesh through its regional and sub-regional offices and infrastructures.

As the effectiveness of open and distance education is depend on many domains like creating students attitude and satisfaction regarding delivery of soft course materials; interactions of students and faculty during delivery of electronic course materials; student outcomes in open and distance education through online course materials; and faculty satisfaction with delivery and online course materials (Gallagher and McCormick, 1999, Spooner et al. (1999) BOU has recently introduced ICT oriented learning management system, helping BOU to change the paradigm in the context of teaching and learning through ICT.

Bangladesh Open University (BOU) offers a wide range of formal academic programmes starting from secondary to post-graduate levels through ODL. In terms of enrolment of the students, BOU is the largest public university in Bangladesh. Horizontal and vertical expansion of BOU's academic programmes in the recent years has increased its enrolments significantly. The experiences, opportunities and demand of ODL programs in building human resources

has emphasized significantly by the management of BOU and accordingly many technology based innovative programmes have been introduced at BOU with the help of ICT. Moreover, the contribution of ODL to the human skill development efforts in BOU has been introduced recently. The BOU has also introduced some quality ICT interventions for making ODL more effective in enhancing the human capital and human resources in the country. The potentials of cross border cooperation in ICT based open and distance education has also explored through bi-lateral and multi-lateral MOU, ultimately reinforced the capacity building efforts of BOU.

1.2 Objectives

The broad objective of this study is to investigate the experiences, opportunities and challenges of ODL programs in building human capacity in Bangladesh.

The specific objectives are:

- To overview the ODL programs of BOU;
- To investigate the contribution of the ODL programs to develop the human skill in Bangladesh;
- To identify some quality tips and scope of ICT interventions for making ODL more effective in enhancing the human capital in the country; and
- To discuss the potentials of cross border cooperation in education to reinforce the capacity building efforts of the country.

2 Methodology

In the study, both primary and secondary methods have been used. The student support service division and the examination division of BOU are the major sources of primary data. Also, BANBEIS data have been browsed to have a statistical overview on the on-campus education in Bangladesh. For primary data, a cross sectional survey has been conducted on the learners of Commonwealth Executive MBA, MPA, BOU regular MBA, BBA and BED program through a structured questionnaire and interviewing method. Moreover, the perceptions of the learners have been analysed in the study to assess the role of ICT for ODL education. Apart from these, the ERP and COL RIM process were also taken as the important sources of data and information. In addition, the role of ICT in the ODL was also critically analyzed and highlighted in this study. Some case studies were also taken and analysed for assessing the role of ICT in developing ODL based educational programmes at BOU.

3.0 Overall Educational Scenario in Bangladesh

The education system in Bangladesh is mostly dominated by the on-campus system, though the capacity is limited. Started in 1956, distance education system was running side by side with on-campus system; however, it got wider scale since the establishment of Bangladesh Open University in 1992.

3.1 ICT based ODL Practices in Bangladesh

3.1.1 Evolution of ODL in Bangladesh

Distance education in Bangladesh started its journey in 1956. It began with distribution of 200 radio receivers throughout the country, which led to the creation of an Audio-Visual Cell (AVC) and later the Audio-Visual Education Centre (AVEC) in 1962. In 1978-1980, a pilot project entitled 'School Broadcasting Programme (SBP)' was undertaken. In 1983, the SBP and EVEC were merged to form National Institute of Educational Media and Technology (NIEMT). In 1995, Bangladesh Institute of Distance Education (BIDE) was established and NIEMT was incorporated into BIDE. In 1989, as per the request of the Government of Bangladesh, Asian Development Bank (ADB) sent a 'fact finding mission on open university' to Bangladesh. Then a feasibility study on open university has been conducted through a 'Technical assistance Project (TAP)' under the assistance of ADB. At the end, Bangladesh Open University (BOU) was established in 1992 by an Act passed in the Bangladesh National Parliament (BOU Act, 1992, No. 38). BIDE merged with it. BOU came under government budget in 1999 with a condition that it will generate sufficient revenue for its survival.

Bangladesh Open University is the only public university in Bangladesh which offers mainly ODL programs. The aim of the ODL is to transform the country's vast human resources into an educated and trained work-force by extending to them a wide range of academic programs both formal and non-formal. BOU's programs targets at every citizen who is interested to learn, particularly working people and women and the socially disadvantaged

groups who cannot enroll into the academic and training programs offered by the on-campus universities. BOU has already set up 12 Regional Resources Centers (RRCs) and 80 Sub-regional Centres (SRRCs) in different parts of the country. There are about 1100 study centers all over the country.

3.1.2 Academic Schools and Study Programmes Supported by ICT based Information Technology since 2015

- BOU website based uploading of information
- E-Books, over 600 text books/study guides, downloadable from BOU website
- Video and Audio lectures uploaded in BOU Tube, You Tube, Facebook, Twitter (www.bouTube.com, www.youtube.com/user/bdopenuniversity; www.facebook.com/bdopenuniversity)
- Audio/video lectures
- Education Apps for academic programs
- Interactive virtual classrooms (ICVTR)
- E-Learning Platform/Learning Management System (LMS) for complete learners management
- Dedicated E-Platform for online Training for third parties as well as BOU field staff)
- Video Conferencing by using Skype and UGC’s BdREN infrastructure
- Video supported online classes from the main campus
- Internet-based web TV and Web Radio (live classes through “OpenBanglaWebTV” and “OpenBanglaWebRadio”)
- Online academic program for post-graduate program Online degree program for Bangladesh Diaspora (who are migrant in other countries)
- ICT-based English Learning through video presentations University-wide technology
- Comprehensive University Management Software
- OER Repository of BOU
- Online ELT Program
- Online Admission and Result Management System

3.2 Capacity building through ICT-based ODL

3.3 Development of Human Skills through ICT Supported Graduate and Post-graduate Program at BOU

A number of BOU programs are directly related to human skill development with the support of ICT. Others like certificate and diploma programmes are somehow help in building capacity. Table 3.1 shows the list of the programs against the target skills and capacity building:

Table 3.1: Selected BOU programs for developing target skills and capacity

Program	Level	Target skills
BBA: Bachelor of Business Administration	Undergraduate	Skills for managing business at mid level
MBA: Master of Business Administration	Graduate	Business management – top level
Commonwealth Executive MBA	Graduate	Business management – top level
Commonwealth Executive MPA	Graduate	Skills for the public service management
Master of Business Administration (evening)	Graduate	Business management – top level
BEd: Bachelor of Education	Undergraduate	Teaching skill
MEd: Master of education	Graduate	Educational management and leadership
CEd: Certificate in Education	Certificate	Teaching skill
Diploma in Education	Diploma	Teaching skill and capacity development
BSc. In Computer science and Engineering	Graduate	Skill development
MSc. In Environmental and Sustainable Development	Masters	Skills in the area of environment and sustainability

DCSA: Diploma in Computer Science and Applications	Undergraduate	Computing skill
BSN: Bachelor of Science in Nursing	Undergraduate	Nursing skill
BAGEd	Undergraduate	Skill in agricultural teaching
Diploma in Primary Health care	Diploma	Practitioners will acquire relevant skills and practical knowledge
Diploma in Ultrasound	Diploma	Practitioners will acquire relevant skills and practical knowledge
Master of Science in Agriculture and Rural development	Post-Graduate	Skills and practical knowledge in agriculture and rural development
Masters in Sustainable Agriculture and Rural Livelihood	Post-Graduate	Skills and practical knowledge in agriculture and rural livelihood
Bachelor of Science in Agriculture	Graduate	Skills and practical knowledge in agriculture
CLP = Certificate in Livestock and Poultry	Certificate	Skill in livestock and poultry farming
CPFP = Certificate in Poultry and Fish Processing	Certificate	Skill in fish and poultry processing
DYDW = Diploma in Youth in Development Work	Certificate	Self-employment skills
Secondary School Certificate (SSC)	Certificate	Entrance
Higher secondary Certificate (HSC)	Higher Certificate	University Entry Stage
Bachelor of Business Studies	Graduate	Able to gather practical knowledge about business studies
Masters of Development Studies	Post-graduate	Critical knowledge in the area of development
Masters of Business studies	Post-graduate	Specialized knowledge in the area of business studies
Bachelor of Arts and Social Sciences	Graduate	Qualification for job search
Bachelor of Arts and Social Sciences with honours in Sociology, Political Science, Philosophy, History, Islamic studies	Honours Graduate	Specialized Professional degree
Bachelor of Law with honours	Honours graduate	Specialized Professional degree

Source: BOU Students Support Services, 2016

3.4 Learners' perceptions regarding capacity building through ODL programs: Some Case Studies

The perceptions of the learners of two major categories of ODL programs have been studied to identify the capacity building features of the ODL programs in Bangladesh.

3.4.1 Capacity building through ODL supported business education programs

In our survey on the enrolled learners of business education programs, it has been found that most of the learners in BBA program enrolled into the program mostly for acquiring knowledge, skills, abilities and competencies required to have a good job; whereas, the learners of other business education programs shows slightly different reasons of pursuing the programs. Table 2 shows the results found in the survey.

Table 3.4.2: Perceptions of the learners of business education programs

Expectations, preferences and access	BBA learners	MBA learners	CEMBA learners	CEMPA learners
Gain Knowledge	60%	60%	70%	60%
Gain skills	70%	50%	70%	60%
Improvement of abilities and competencies	60%	60%	80%	80%
Career advancements	60%	80%	60%	70%
Pursuing further study	70%	20%	15%	20%
Self-satisfaction	20%	15%	25%	25%
Liking of current print-based delivery	40%	45%	20%	25%
Access to ICT	70%	95%	98%	99%
Preferred mode of delivery	Print + Online	Print + Online	Print + Online	Print + Online

Source: Survey, 2015

In Table 3.4.2, it is clearly observed that in all the programs, the learners emphasize on their skill development through the programs. In the case of MBA programs as most of them are already in job, the learners think that the skill and competencies they are getting from the program will help their career upliftment such as promotion, better posting, assignment, etc.

3.4.2 Capacity building through ODL supported teacher training programs

3.4.3 Table 3.4.3 shows the opinion of the learners of teacher training programs. In the case of teachers training programs, it has been found that the learners of Certificate in Education (CEd) and Bachelor of Education (BEd) are mostly pursuing the programs to acquire skill, ability and competencies in teaching methodologies which will help them deliver the knowledge among the learners systematically and effectively. Most importantly, they will get a rise in salary if they got these degrees.

Table 3.4.3: Perceptions of the learners of teacher education programs

Expectations, preferences and access	CEd learners	BEd learners	BEd (TQI) learners	MEd learners
Gain Knowledge	50%	40%	50%	60%
Gain skills	65%	60%	65%	60%
Improvement of abilities and competencies	70%	80%	85%	80%
Career advancements	80%	60%	60%	50%
Pursuing further study	20%	10%	15%	10%
Getting rise in salary	95%	90%	90%	5%
Self-satisfaction	10%	10%	10%	30%
Liking of current print-based delivery	80%	70%	75%	65%
Access to ICT	50%	65%	60%	65%
Preferred mode of delivery	Print + Online	Print + Online	Print + Online	Print + Online

Source: Survey, 2015

One thing is interestingly found in both the cases that all the learners got access to ICTs and they like to have education in more flexible way. That is why, they prefer a mix of print and online media in the delivery and administration of programs. Especially, the learners of CEMBA/CEMPA as they got high access to ICTs expect more online courses and learner supports than the 1st generation print-based delivery and face-to-face learner support system.

4. ICT Supported Enterprise Resource Planning (ERP) of BOU

4.1 Role of Enterprise Resource Planning (ERP) for scientific Management of Administration and Finance

For Smooth Management of Administration and Finance, ERP is a scientific package for making resources of Bangladesh Open University (BOU). With this package BOU has been able to operate and manage all departmental functions like Finance and Accounts, General Administration (HR), Engineering and Estate, Library and Procure Section etc. With the support of this ICT based system, BOU has got comprehensive MIS which has been helping management to take crucial decisions both scientifically and timely. Some of the key benefits of the system identified through research and initial assessment are as follows:

- ✓ Help of saving of working time in preparing documents related to monetary transaction and informative monthly reports with excellent format.
- ✓ Maintaining Integrated Accounts system where Journal Vouchers are passing through the system as well as Final Accounts reports like Balance Sheet, Profit and Loss accounts, Revenue accounts, maintain ledger book etc. will generate automatically through the system.
- ✓ Controlling and maintaining all kind of procurement records.
- ✓ Quick access to the documents for maintaining departmental integration with underwriting departments like Co-insurance, claims, commission, Re-insurance and Accounts department.
- ✓ Controlling and maintaining the Store Inventory (Central Store with individual departmental store)
- ✓ Maintaining automated Accounts.
- ✓ Monitor the entire relevant document with the help of software.
- ✓ Significantly reduce paper works resulting savings of time, energy and efficiency.
- ✓ Consist and eliminate all financial mismanagement and misappropriation.
- ✓ Save valuable time of the management by allowing them to access to the ready instant and aggregated information.
- ✓ Preparation of salary statements for all the staff.
- ✓ Generation of various Status Reports as required by the management.
- Software will be Run in Windows7, Windows8, Windows10, Windows XP, Vista & Other Compatible Operating System;
- Online Operation Option;
- Integrated System with Finance , Accounts & Payroll Management Software;
- Menu Based Operation;
- Multiple User definable Multi Tasking Operating System i.e. 0001 To 1000 Concurrent Users on a LAN or WAN;
- Audit Objection Amount/Audit Objection Expended Amount Auto Allocation System to the User Define Name/Group/Cost Centre as per User Defined Ratio;
- Auto User System Error Log Print and Reconstruction Capability;
- Flexible Option for Printing Requirements i.e. "Print What User Sum";
- Auto Periodical Backup System;
- Auto Upgrade System of the “Software Languages” Under Vendor/ Developer License;

5. The Contribution of COL RIM process at BOU

Bangladesh Open University recently introduced a performance review mechanism based on COL RIM process which followed meticulously the method, i.e, the quantitative dimension in the staff survey covering dozens of quality indicators. Testing the indicators scientifically, it was found that some significant areas of BOU is progressing well towards high quality while rest areas scored relatively low scores which were considered in the self-review process.

The self-review is a qualitative process and was conducted at BOU in 15 areas with a focus on providing evidence-based judgment about the findings that lead to some recommendations and improvement strategies.

5.1 The ICT supported Key Strengths of BOU was Identified through COL RIM Process are as follows:

The vision and mission of the institution reflect national and community goals and the identified interests, needs and expectations of its stakeholders.

Policies and procedures support lifelong learning goals, e.g., inclusiveness, access, progression, credit transfer, non-formal learning opportunities, transparency and flexible delivery

Finances are managed to support the institution to achieve its goals

The institution has formalised local and international partnerships

Appropriately qualified and experienced educators are effectively attracted, recruited and integrated into the institution

The institution meets stakeholder expectations, and public perception of the institution is positive

Progression data show that learners persist with their studies and progress steadily

6 Conclusions and Policy Recommendations

The ICT supported ODL at BOU is undoubtedly very important means of developing human skill in the resource constraint country like Bangladesh. The ODL programmes offered by BOU, have significant contributions to the capacity building and skill development efforts in the country. However, for the optimizing of human capital formation, the quality of the ODL programs is very much crucial. In our study, it has been found that with the active support of ICT, the scope of intervention has been widened for enhancing the quality of ODL programs in BOU. Even, some policies at governmental levels has been formulated and implemented for promoting ICT supported ODL at BOU. Below are some recommendations for further enhancement of ODL quality, efficiency and sustainability:

6.1 Using ICT as an Effective Means of ODL

For ensuring flexibility and quality in the ODL delivery, use of ICT is a must and BOU has already incorporated ICT in its educational delivery. It seems that the BOU now in a better position in terms of access to ICT. A significant increase in the use of cell phone, internet and computer has already been occurred in last few years. However, more effectiveness and appropriateness should be judged for better implementation of ICT to avoid the unexpected mismatch in the academic programmes.

6.2 Development of Human Skills through ICT Supported Graduate and Post-graduate Program at BOU

A number of BOU programs are directly related to human skill development with the support of ICT. Others like certificate and diploma programmes are somehow help in building capacity. The academic programmes must be supported with the ICT in near future so that most of the programmes can have the on line provisions of teaching and evaluation techniques.

6.3 Effectiveness of ERP

For smooth management of administration and finance, ERP is a scientific package which already introduced at BOU. But with the support of this package, BOU must make the administration and finance most effective and dynamics so that more ICT based scientific management system can be introduced at BOU.

6.4 Effectiveness of COL RIM Process

It is the high time for BOU to strengthen its capacity as an effective institution.

For doing that the vision and mission of the institution must reflect the national and community goals and BOU need to identify the interests, needs and expectations of its stakeholders. Moreover, the policies and procedures need to be effectively support the lifelong learning goals, e.g., inclusiveness, access, progression, credit transfer, non-formal learning opportunities, transparency and flexible delivery etc. And for better implementation, BOU must be supported with ICT based management system.

6.5 Effective Implementation of OER and E-Learning Policies

For enhancing the quality and efficiency of the ODL programs, sharing of the educational resources and introducing effective learning management system is a must. Although BOU has already designed and implementing the OER and E-Learning policies these systems must be supported by ICT so that the study materials and teaching-learning methods can be accessible to the students and learners

6.6 Promoting ODL Culture

Although BOU has already built-up a significant number of partnership regionally and globally, efforts must be continued for developing partnerships with various public and private organizations, might create a collective ownership in ODL system, which will encourage the concerned stakeholders to work for ICT supported ODL and thereby, the ODL will get a general popularity and acceptance.

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