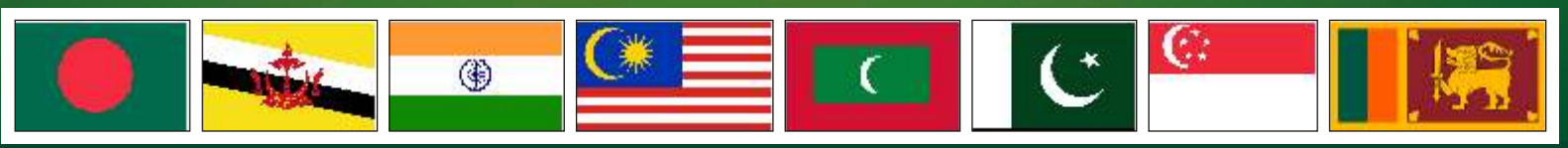




e Learning in Commonwealth Asia 2013



Commonwealth Educational Media Centre for Asia
New Delhi



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eLearning in Commonwealth Asia 2013

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List of Acronyms/Abbreviations

ADB	Asian Development Bank
ADIT	Advanced Diploma in Information Technology
AIOU	Allama Iqbal Open University
ALCAPS	Automated Lecture Capture and Publishing System
BBC	British Broadcast Corporation World Service
BdOSN	Bangladesh Open Source Network
BIT	Bachelor of Information Technology
CEMCA	Commonwealth Educational Media Centre for Asia
CLASS	Computer Literacy and Studies in Schools Project, India
COL	Commonwealth of Learning
DEF	Digital Empowerment Foundation
DEMP	Distance Education Modernisation Project of Sri Lanka
eLAP	eLearning Association of Pakistan
FOSS	Free and Open Source Software
GDP	Gross Domestic Product
GESCI	Global eSchools and Community Initiatives
GOI	Government of India
HDI	Human Development Index
ICDE	International Council for Open and Distance Education
ICT	Information and Communication Technology
IGNOU	Indira Gandhi National Open University
LEARN	Lanka Education and Research Network
LMS	Learning Management System
MIT	Massachusetts Institute of Technology
MLA	Media Lab Asia
MOE	Ministry of Education, Government of Brunei
MOOC	Massive Open Online Course
MyICMS 886	Malaysian Information, Communication and Multimedia Services 886 Strategy

NIIT	National Institute of Information Technology, India
NITC	National Information Technology Council, Malaysia
NKC	National Knowledge Commission, India
NKN	National Knowledge Network, India
NMEICT	National Mission on Education through ICT
NPTEL	National Programme on Technology Enhanced Learning
NTU	Nanyang Technological University
NUS	National University of Singapore
OER	Open Educational Resource
OUM	Open University Malaysia
PERN	Pakistan Education and Research Network
PGCMMR	Post Graduate Certificate Programme in Participatory Management of Displacement, Resettlement and Rehabilitation
PGDEL	Post Graduate Diploma in eLearning
SCORM	Sharable Content Object Reference Model
SEMP	Secondary Education Modernisation Project
SMA	The Singapore-MIT Alliance
SMS	Short Message Service
SPN21	National Education System for the 21 st century, Brunei
STRIDE	Staff Training and Research Institute of Distance Education
TAPOS	Transcript Analysis Protocol for Online Support
U21Global	Universitas 21 Global
UBD	Universiti Brunei Darussalam
UCSC	University of Colombo School of Computing
UGC	University Grants Commission, India
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Education Fund
UNITAR	Universiti Tun Abdul Razak
USP	Universal Service Policy
VOISS	Virtual Online Instructional Support System
VSAT	Very Small Aperture Terminal
VUP	Virtual University of Pakistan
VUSSC	Virtual University for Small States of the Commonwealth

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S K Pulist



Executive Summary

eLearning in Commonwealth Asia 2013

Introduction

eLearning is a broad term generally used to refer to web-based learning, online learning, blended learning, networked learning, distributed learning, flexible learning, etc. However, it is still emerging as a specialized field of education.

Analyzing the various definitions of eLearning, for the purpose of this study, eLearning has been defined *as use of online technologies for performing teaching and learning in any of the three manners such as:*

- *completely online,*
- *blended learning (mix of face-to-face and online), and*
- *use of online as supplementary to face-to-face for some activities.*

Rationale of the Study

Educational institutions are attracted towards use of ICT that provides them with more flexibility and options to reach the students in various ways. Judicious mix of different tools and strategies with use of ICT can enhance the learning experiences of the students. ICT has the potential to transform the way teaching and learning

happens in the classroom setting. So much is known about use of ICT in education. However, there is no study available in the context of Commonwealth Asian countries on eLearning. How is eLearning doing and whether the institutions, teachers and students are really interested in and beneficiary of eLearning? How are different activities pertaining to eLearning being managed by different institutions? What are the challenges and opportunities faced by institutions for effective implementation of eLearning across disciplines and subjects? To find answers to all such questions, a systematic study was undertaken to track the growth and development of eLearning in Commonwealth Asian countries i.e. Bangladesh, Brunei Darussalam, India, Malaysia, Maldives, Pakistan, Singapore and Sri Lanka.

Objectives

The specific objectives of the study were:

- To compile eLearning country profiles of Commonwealth Asian countries;
- To review the growth and development of eLearning programmes in Commonwealth Asia;
- To identify the nature of programmes offered through eLearning;

“eLearning is a broad term generally used to refer to web-based learning, online learning, blended learning, networked learning, distributed learning, flexible learning, etc.”

- To identify the policy initiatives undertaken by educational institutions to promote eLearning, giving special reference to open licensing policy;
 - To identify the eLearning policy adopted for people with disabilities to join online courses;
 - To find out the measures adopted by the institutions to maintain quality of eLearning courses and e-content; and
 - To analyse technologies and pedagogical practices used in eLearning programmes in Commonwealth Asia.
- The major roles performed by the respondents were those of teachers (76 per cent), e-content developers (32 per cent) and eLearning system administrators (16 per cent).
 - The programmes pertaining to Social Sciences (24.1 per cent), Science (13.3 per cent), Engineering & Technology (10.3 per cent) and Medicine & Health (9.4 per cent) are popularly run through eLearning mode.
 - Number of male students (52 per cent) outweighed the number of female students (48 per cent) in eLearning programmes.

Methodology, Sample and Tools for data collection

To collect necessary data, an online survey was conducted. The questionnaire was sent to administrators, coordinators, e-content developers, teachers and other functionaries associated with Electronic Learning Management Systems (eLMSs). In all 220 responses were received, of which 211 were usable. The data was subjected to descriptive analysis and interpretation. Besides the primary data gathered through the online survey, published reports, articles, and websites of different institutions were also used in this study.

Findings

The following are the findings drawn from the analyses of the responses received through the filled-in questionnaires comprising of different aspects of eLearning in Commonwealth Asian countries:

- The ‘blended’ mode of eLearning (50.8 per cent) was most popular among the institutions though online components were also being used to support ‘face-to-face’ mode in varied proportions (26.3 per cent) leaving behind the ‘completely online’ programmes at just 22.9 per cent.
- Majority of institutions (54.1 per cent) had adopted an ‘eLearning’ policy which focused on training and staff development (64.7 per cent), eLearning management mechanism (63.2 per cent), content development (61.8 per cent), assessment (58.8 per cent), quality assurance (50 per cent) and copyright/licensing issues (45.6 per cent).
- The eLearning policy, where available are implemented by the institutions through a specific unit (91 per cent) with centralised budgeting (80 per cent) though individual functional units are also given functional autonomy (66 per cent).

- The budget for eLearning includes software procurement /development/ up-gradation of the system (93 per cent), conducting training programmes for eLearning functionaries (94 per cent), purchase of physical infrastructure and its development (94 per cent), system development and improvement of eLearning platform (91 per cent), e-content development and its outsourcing (80 per cent), hardware procurement, its development and up-gradation (92 per cent), research and development activities (86 per cent), revision of e-content (85 per cent), consultancy service charges (67 per cent) and maintenance and troubleshooting (96 per cent).
- Majority of institutions (67.3 per cent) held copyright of the e-content with them followed by faculty (10.2 per cent).
- Only 8.2 per cent institutions released e-content under open licensing policy. 3.6 per cent adopted *Creative Commons* Open License.
- As many as 28 per cent institutions have adopted a differently-abled friendly policy for eLearning programmes.
- Majority of institutions (31.7 per cent) maintain quality of eLearning through advisory/monitoring body/committees followed by 22.8 per cent institutions where individual functional units are responsible for maintenance of quality of their programmes.
- The quality of e-content is the responsibility of individual developers (37.9 per cent) followed by institutions (28.4 per cent) where a quality control unit handles this activity.
- The eLearning activities are coordinated by specified/designated unit (36.1 per cent) followed by committees at central level (30.9 per cent).
- ‘Moodle’ is the most popular Open Source LMS among the institutions (46.2 per cent) though 9.9 per cent institutions have also developed their own LMS.
- The most used tools of the LMS are communication tools (86.7 per cent), assessment tools (68.9), content uploading tools (68.9 per cent), navigation tools (60 per cent), collaborative tools (58.9 per cent), news and social forums (56.7 per cent), calendar of activities (54.4 per cent), presentation tools (54.4 per cent), administrative tools (42.2 per cent), editing tools (37.8 per cent) and search tools (37.8 per cent).
- 84.6 per cent students accessed the LMS from home, 78 per cent via computer labs on the campus and 31.9 per cent through designated tele-Learning centres /hot spots/access points.
- The design for eLearning programmes include assignments (80 per cent), e-content available on the LMS (66 per cent), working on projects (57 per cent), quizzes (49 per cent), group discussion (48 per cent) and printed reading material (44 per cent) among others.
- 47 per cent of institutions reported use of video conferencing tools to interact with students. The most used

applications are Skype (41.7 per cent), Adobe Connect (18.8 per cent) and Google+/Google Hangout (16.7 per cent).

- The e-content is provided to the students in variety of ways, including LMS (77 per cent), downloadable from the web or links to OERs (61 per cent), printed books (57 per cent) and through USB pen drive or CD (41 per cent).
- The most popular file formats for sharing content, audio, video, and images with the students are pdf (88.3 per cent), ppt (67 per cent), doc (56.4 per cent).
- Most e-content is developed in-house by teachers (77.8 per cent).
- The evaluation system used in eLearning programmes include continuous evaluation through LMS (83 per cent), paper based term end examination (83 per cent), paper based continuous evaluation (78 per cent) and term end examination through LMS (64 per cent).
- Tools used for evaluation of student performance are multi-choice questions (92 per cent), short answer questions (84 per cent) and essay type questions (73 per cent). However, 38 per cent institutions used all the above tools. Some other tools used for student evaluation were: written assignments (92 per cent), projects (87 per cent), quizzes (71 per cent), term papers (63 per cent), field work (43 per cent), audio/video presentation (47 per cent) and online presentation (36 per cent).
- Motivating factors supporting eLearning are:
 - ♦ Institutional emphasis on promotion of eLearning (78.8 per cent);
 - ♦ User-friendly eLMS (65 per cent);
 - ♦ Emergence of new ICT culture in the wake of technological revolution globally (58.8 per cent);
 - ♦ Highly motivated faculty and staff (55 per cent);
 - ♦ Gradually increasing interest of students in eLearning (47.5 per cent);
 - ♦ Easy access/availability of e-content on relevant topics for teaching (46.3 per cent);
 - ♦ Excellent technical support (45 per cent); and
 - ♦ Appropriate and effective training (45 per cent).
- Challenges for implementation of eLearning programmes include:
 - ♦ Technical problems (57.3 per cent);
 - ♦ Work overload on teachers (56.1 per cent);
 - ♦ Lack of proper training for those involved with eLearning (41.5 per cent);
 - ♦ Financial/Budgetary constraints (40.2 per cent);
 - ♦ Inadequate programme development facilities (39 per cent)
 - ♦ Non-tech-savvy persons (37.8 per cent); and
 - ♦ Too much involvement of teachers with other face-to-face/ ODL activities (34.1 per cent).

- Future plans of educational institutions cover:
 - ♦ Introduction of more eLearning programmes in the existing disciplines/areas (80 per cent);
 - ♦ Diversification of eLearning programmes in new disciplines/ areas of specialization (56.3 per cent);
 - ♦ Updating and modernisation of existing eLMS (56.3 per cent);
 - ♦ Integration of social media with the existing eLMS (55 per cent);
 - ♦ Use of mobile technology for imparting instruction/ sharing information with students in order to provide them enhanced mobility (53.8 per cent);
 - ♦ Introduction of intelligent tutoring techniques to accommodate the heterogeneous learning styles of the students (38.8 per cent); and
 - ♦ Geographical expansion of existing eLearning programmes (in case of island countries).

Conclusions

The above findings indicate that the implementation of eLearning in Commonwealth Asian countries is an increasing trend. Though institutions are facing different challenges, the enthusiasm among the faculty and staff is high. Institutions are integrating ICTs and online technologies in their programmes. eLearning programmes are largely offered in blended mode, and completely online

programmes are not many. The study is expected to provide an overview to the policy-makers, planners, implementers and leaders in educational institutions to think about use of learning for providing increased access to quality education in a holistic manner through appropriate use of ICTs.

Limitations

The study focuses on the eLearning scenario in the Commonwealth countries of the Asian region. While lot of efforts were made to get detailed information about institutions offering eLearning programmes through web searches and review of published documents, the survey may not have captured data from all possible respondents. Limited availability of published research work pertaining to the countries covered was also one of the constraints. There is a lot of disparity between the status of education in general and eLearning in particular in these countries with regard to infrastructural, social, cultural and economic factors among others. While the countries like Maldives and Bangladesh are at the nascent stage of implementation of eLearning in higher education, Malaysia and Singapore are making extensive use of eLearning technologies for dissemination of education and training at different levels. In spite of best efforts, no filled-in questionnaires could be received from Brunei Darussalam. The study is reflective of the current situation of eLearning in Commonwealth Asia in the context of the data gathered through the survey and should be seen within its limitations.

1

Introduction

The Internet has paved the way for an array of web-based services for the mankind. It has completely revamped the way information is received, processed, presented, preserved and recalled for contextual use and reuse. Globally this technology has propelled cooperative and collaborative movement. The field of education is also undergoing several transformations due to the new information and communication technologies, predominantly the Internet and its World Wide Web. Thus, the system of education has been on the move from class-room education to distance education and now to e-education/eLearning. The online or e-platforms offer a myriad of services that make learning more interactive, challenging, authentic and meaningful to the learners.

The efficient and effective use of technology in education in the form of eLearning not only helps in democratizing the education by enhancing the reach and flexibility on account of time, space and pace ensuring inclusive growth, but also contributes substantially to the knowledge economy of a country. With this potential of e-learning in view, several institutions are effectively using eLearning in order to provide cost effective, need-based, customized and contextualised, self-paced and barrier free education. A student sitting at one place can register for an

academic/training programme in any part of the world through eLearning.

eLearning

eLearning is a broadly used term generally referring to web-based learning, online learning, blended learning, networked learning, distributed learning, flexible learning, etc. It is increasingly being seen as a tool to widen the access to education and developmental opportunities not only at the institutional level but nation as a whole (Sharma & Mishra, 2008). The judicious use of eLearning can definitely reach the people hitherto un-reached. When we discuss ‘un-reached’ we generally mean the people who are marginalized and are not able to access education due to their limitations on account of geographical, financial, religious, ethnic or other social constraints. But in spite of better resources and having sound financial positions, there are people who are not able to spare time in normal daytime for studies. These people may be employed at senior and responsible positions in government, multinational and local organisations (public and private). The segment of such people can be effectively reached through eLearning mode of education. While establishment of virtual universities and eLearning opportunities in different tertiary level institutions help increasing access to

“The field of education is also undergoing several transformations due to the new information and communication technologies, predominantly the Internet and its World Wide Web”

education, it is necessary to develop relevant knowledge, skills and attitude in the online learners in order to make the online learning endeavour successful (Sharma & Parveez, 2005). eLearning provides the opportunity of self-paced, repetitive, flexible, cost-effective and self-directed method of learning (Rao, 2011).

eLearning mode of training has been found to be economical and cost saving. IBM was reported to have saved USD 50,000 for every 1000 days of face-to-face training of their employees using online learning (Allison, 2007). Face-to-face training programme has to bear the overhead charges on account of different fixed and variable factors like remuneration to the resource persons, hiring of venue and equipment, dislocation of employees and their travel and hospitality, opportunity cost on account of their keeping away from the job, etc. Most of these costs can be avoided or reduced in the eLearning context. Falling in line with the above findings, almost 60 per cent of the organisations in US are using eLearning platform for organising training programmes for their employees deployed in different parts of the globe (Kopf, 2007).

Defining eLearning

'eLearning' as a specialized field of education is continuously emerging. New developments are taking place every now and then that influence the domain of eLearning in different ways. The eLearning refers to "teaching and learning method mediated by a computer, but presupposes that there should be a connection to a computer system at place which is different from learner's personal computer system"

(Ghosh & Kanjilal, 2003). Viewing the dynamic nature of eLearning, Abel (2005) pointed out that eLearning can derive different meanings to different people and therefore, defining eLearning is important. Different scholars define 'eLearning' in different ways focusing on different constructs of the concept. Jenkins and Hanson, (2003) define eLearning as "learning facilitated and supported through the utilization of information and communication technologies". To Armitage and O'Leary (2003), eLearning is "the use of digital technologies and media to delivery, support and enhance teaching, learning, assessment and evaluation". eLearning can be taken as a continuum as described by Bates (2001) – full face to face and full online being the two extreme ends. With this view point, the programmes may be considered with a mix of both the ends in a judicious way as per pre-defined instructional strategy.

Majority of the definitions emphasize on use of ICT to support pedagogical activities. Naidu (2003) on the other hand defines eLearning as "systematic use of networked information and communication technology in teaching and learning". The Sloan Consortium defines "eLearning programme as having at least 80 per cent of the course content delivered online" and a programme with course content delivered online only to the extent of 30 to 79 per cent, falls in the category of '*blended learning*' (Allen, Seaman & Garrett, 2007). Mehra and Omidian (2011) pointed out that the distributed learning mode of education is slowly progressing with a mix of face-to-face teaching and learning.

Lee, Yoon and Lee (2009) define eLearning as "web-based learning which utilizes web-

based communication, collaboration, multimedia, knowledge transfer and training to support learners' active learning without the time and space barriers". Puteh and Hussin (2007) treat eLearning as a "platform or environment that offers interactive learning and teaching using electronic tools that can stand alone and can be networked".

Analysing the various definitions of eLearning Mishra and Sharma (2005) summed up the different perspectives of eLearning keeping in view the institutional usage as follows:

- Classroom integration as supplementary to the face to face teaching,
- As a mix to complement the face to face teaching, and
- Replacement to face to face teaching as an independent mode.

For the purpose of this study eLearning is defined as use of online technologies for delivery of teaching and learning in any of the three manners such as:

- completely online,
- blended learning (mix of face-to-face and online), and
- use of online as supplementary to face-to-face for some activities.

Rationale of the Study

Educational institutions are attracted towards eLearning for various reasons. Gunawardana (2010) points out that successful implementation of eLearning

can prove to be an additional advantage to the reputation of the institution. It is important to analyse the use of eLearning in different institutions in different countries to understand how information and communication technologies (ICTs) are used, what kinds of pedagogical designs and approaches are implemented, what are the courses of studies available, and how and why the programmes are managed in the way they are managed currently. Such an understanding will foster developmental thinking to promote the use of eLearning for improving access to education and training opportunities. Embi (2011) looked into the status of implementation of eLearning in Malaysia focusing on effectiveness, problems and challenges in its implementation and gave a picture of what, why and how of eLearning in Malaysia.

No other studies have been reported from the Asian Commonwealth countries in such great details. This current study is exploratory in nature to prepare a trend report and track the growth and development of eLearning in Commonwealth Asian countries.

Objectives

The general objective of this study was to develop a status report on the eLearning scenario in the Commonwealth Asia to understand the progress, opportunities, and models, and to assist policy and decision-makers to take appropriate steps to further enhance the use of eLearning in higher education institutions.

The specific objectives of the study were:

- To compile eLearning country profiles of Commonwealth Asian countries;

- To review the growth and development of eLearning programmes in Commonwealth Asia;
- To identify the nature of programmes offered through eLearning;
- To identify the policy initiatives undertaken by educational institutions to promote eLearning, giving special reference to open licensing policy;
- To identify the eLearning policy adopted for people with disabilities to join online courses;
- To find out the measures adopted by the institutions to maintain quality of eLearning courses and e-content; and
- To analyse technologies and pedagogical practices used in eLearning programmes in Commonwealth Asia.

Key Terms

The key terms used in the study are defined as under for the purpose of this study:

eLearning: eLearning is the use of online technologies for teaching and learning in any of the three manners such as

- completely online,
- blended learning (mix of face-to-face and online), and
- use of online components as supplementary to face-to-face for some activities.

Asian Commonwealth Countries: The study focuses on eight Asian countries which are part of Commonwealth, i.e. Bangladesh, Brunei Darussalam, India, Malaysia, Maldives, Pakistan, Singapore and Sri Lanka.

Methodology

To collect necessary data, a survey was conducted among the educational institutions of the eight Commonwealth Asian countries. Descriptive and documentary methods of research were used for this study. A questionnaire was designed and administered to administrators, coordinators, e-content developers, teachers and other functionaries associated with LMSs. The data was subjected to descriptive analysis for interpretation.

Determining the Population of the Study

Since the study focuses on the eLearning initiatives taking place in the Commonwealth Asian countries, it was considered appropriate to search the Internet to find out the institutions which are using eLearning in any of the ways within the scope of the study. At the second level the email IDs of the faculty and IT/ICT professionals associated with eLearning activities were gathered one by one. An inventory of 7600 email IDs of various functionaries associated with eLearning was prepared which formed sample for the population of the study, and all were administered the questionnaire to respond through an online survey.

Tools for the Study

A study entitled “e-Learning in Malaysian Higher Education Institutions: Status, Trends, & Challenges” conducted by Embi (2011) on behalf of Ministry of Higher Education, Malaysia used three different questionnaires as tools for data collection.

These three questionnaires were modified and adapted (with permission) into one so as to suit the objectives of the current study. The questionnaire was subjected to content validation by experts in eLearning and pilot test with 10 participants involved with eLearning activities at Indira Gandhi National Open University (IGNOU) to assess the clarity of the items. Certain vague questions were dropped or modified as per the comments of the experts and participants. In all 46 items were retained in the final tool. The items can be broadly categorised as given in Table-1.

mass mailing system. In the first instance, only 90 responses were received. Two reminders were sent with an interval of one month to the individuals who had not responded to the previous communication. In all 220 responses were received online, of which only 211 were usable that formed the basis of the analysis and interpretation of this report.

Besides the primary data gathered through the online survey, published reports, articles, and websites of different institutions were examined for data gathering.

Table 1: Category-wise distribution of items in the Tool

Items	Description
01-07	Information about individual, affiliation and nature of involvement (demographic)
08-13	Details about the programme and delivery mechanism
14-21	Institutional policy on eLearning, Open Educational Resources (OERs), differently-abled, and budget
22-35	Quality aspects, LMS and delivery of content/instruction
36-39	e-Content development and incentive schemes
40-43	Evaluation of student performance
44-46	Institutional enablers/boosters, challenges and future prospects.

Data Collection

An online survey was developed to collect the data. To host this survey, an account for three months was subscribed on *SurveyMonkey*. The expected time required to fill in the online survey was approximately 15 minutes. The link of the survey was sent to the email IDs identified beforehand. The survey was also sent to the Asian contacts in the database of the Commonwealth of Learning through a

Limitations

The study focused on the eLearning scenario in the Commonwealth countries of Asia. There is a lot of disparity between the extent of use of ICT in education in general and eLearning in particular in these countries on account of infrastructural, social, cultural and economical, among others. While the countries like Maldives and Bangladesh are at the initial stage of implementation of eLearning in higher education, Malaysia and Singapore are

making extensive use of eLearning technologies for dissemination of education and training at different levels. In spite of best efforts made by the researcher, no response (to our survey instrument) could be received from Brunei Darussalam. Therefore, the data shown in the tables and figures do not show Brunei Darussalam.

In addition, the prospective subjects were contacted through email and in many cases

they were also reached through common friends. In spite of all these efforts the rate of response to the survey is low. The study is also limited to certain aspects of eLearning only and, therefore, the results should be studied and interpreted in the context of the data gathered and the limitations. While comparisons can be made, it should be in the light of the educational and technological developments of the countries compared.



2

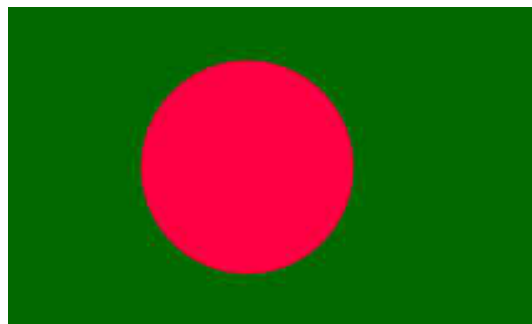
Commonwealth Asia: Country Profiles

The necessity of introduction of eLearning programmes by the institutions in different countries arises due to various factors. While some of the institutions are using online delivery of their programmes to promote access to learning opportunities, others see the use of online delivery as an additional way for revenue generation and beat competition from other institutions in the field. Some find it easy to integrate technology in their instructional design due to well-placed technology infrastructure, financial resources and trained human resource. However, extent of use and integration of ICT depends on various factors such as technological, institutional, administrative and pedagogical ones.

The Asia and the Pacific region houses some of the world's wealthiest economies as well as some of the poorest economies (Dutta, Bilbao-Osorio & Benat, 2012) with huge variation in ICT penetration. Use of ICT in education depends on availability of and access to ICT infrastructural resources to the masses. Some of the challenging factors are: investment in ICT infrastructure, basic ICT skills and conventions of education system. Due to these challenges, among others, the impact of ICT in education remains limited. Keeping in view the preparedness of different institutions in Commonwealth Asian Countries (Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, Singapore and Sri Lanka) for use of ICT in

general and eLearning in particular, an attempt has been made here to portray the 'country profile' of these countries highlighting the major achievements and milestones.

Bangladesh



The People's Republic of Bangladesh is located in the Bay of Bengal apex in South Asian region. It shares its boundaries in the north, west and east with India and Myanmar. The name 'Bangladesh' means 'Country of Bengal'. Bangladesh is one of the highest population density countries in the world. Population-wise it is at the eighth number in the world. An area of 147,570 sq km is being shared by 152.4 million people (UNDP, 2013). The city of Dhaka with a population of 7,033,075 is the capital of Bangladesh. Most of the Bangladeshis (98 per cent) speak Bengali which is their official language. The expenditure on education in Bangladesh is 2.4 per cent of GDP. The adult literacy rate is 56.8 per cent (UNDP, 2013).

The Government has limited resources to spend on improvement of quality of education (Raihan, 2009). The education system in Bangladesh is suffering from poor ‘quality of teachers, content and environment’ (Asad, 2010). The people living below the poverty line constitute the vast majority in Bangladesh. The higher education opportunities for the aspirants are extremely limited in the country (Sadeq, 2003).

Bangladesh has a dynamic system of non-formal education. The Bangladesh Open University was instituted in 1992 with the financial assistance from Asian Development Bank. The computer penetration in the country got a boost in 1998 when computer and accessories were exempted from tax by the government (A & J Consultants, 2004). The Bangladesh Open University enrolls higher number of students than the cumulative strength of other universities in the country (Islam & Selim, 2006).

The English in Action (EIA) project launched in 2008 in collaboration with The Open University, UK and The British Broadcast Corporation World Service Trust envisages improving the English language skills of over 25 million people in Bangladesh. The project uses BBC ‘Janala’ to provide people of Bangladesh affordable education in English language. The project is expected to provide opportunities of professional development for 90,000 teachers by the year 2017 (Walsh, 2011).

¹ <http://www.clp.net.bd/>

ICT Penetration

Bangladesh has 37 Internet users per 1000 inhabitants (UNDP, 2013). The Internet access is very low in the country due to high cost of the services. This may be a reason that the use of ICT in education in Bangladesh is limited to the area of tertiary education. The US-based Bangladeshi group “Volunteers’ Association for Bangladesh New Jersey Chapter”¹ has sponsored a ‘computer literacy programme’ in collaboration with D.Net. The project aims at establishing 1000 school based learning centres in the country. The Internet in Bangladesh is used more for social networking and accessing the websites related to entertainment. This is probably due to inadequacy of relevant content available in education and Internet based assignments from teachers which is further due to lack of research based activities in education.

Bangladesh Open Source Network (BdOSN) has established an open source support centre to promote and facilitate the use of open educational resources in the country. The software industry in Bangladesh is booming now and the export of software is increasing every year. The country exported software worth USD12.68 million during the year 2004-05 alone (Raihan, 2009). Various organisations are involved in development of learning material based on ICT for non-formal education system.

eLearning

In order to introduce the eLearning system in the schools, Government of Bangladesh initiated a project ‘Teaching Quality

The Bangladesh Open University enrolls higher number of students than the cumulative strength of other universities in the country.

Improvement in Secondary Education Project'. Mobile ICT labs under the project provide eLearning opportunities to the under-privileged students of rural secondary schools. There is a strong need for enhancement of ICT skills of teachers and providing IT based Mathematics education to rural students (The Daily Samakal, 2010).

The Government of Bangladesh declared a vision statement 'Digital Bangladesh 2021' to transform the country and move towards extensive use of ICT. The vision envisaged a 'digital government, digital education, digital business and digital citizen'. This vision focuses on restructuring of the education system that could propagate equity towards access to quality education (Raihan, 2009).

The extensive use of ICT in education is a priority for Government of Bangladesh. However, low per capita income, increasing population, globalization, lack of political commitment and limited content in terms of relevance and language pose a great challenge before the government (Akbar, 2005).

Brunei Darussalam



Brunei Darussalam is a Malay Sultanate country. The literary meaning of the Arabic word 'Brunei Darussalam' is 'The

Abode of Peace'. It is located on the northern shore of Borneo Island (world's third largest island) in South-Eastern Asian region bordering the South China Sea and Malaysia. The country occupies a total of 5,765 sq km out of which 5,265 sq km is land and the remaining 500 sq km is water (Universiti Brunei Darussalam, 2013). The country shares a land boundary of 381 km with Malaysia. The coastal line is spread over 161 km (Central Intelligence Agency, 2013). Bandar Seri Begawan is its capital city. Separated into two constituents, the country has an area of 5,765 sq km and a population of 0.4 million (UNDP, 2013). The majority of people (64 per cent) are Muslim followed by Buddhist (9 per cent) and others. The Malay racial group (64 per cent) is in majority followed by Chinese (6.20 per cent) and others.

The adult literacy rate in Brunei is 94.7 per cent (male 97 per cent and female 95 per cent) (Ministry of Education, Brunei, 2010). The total expenditure on education in Brunei is 2.46 per cent of the GDP. The population density is quite high around the capital city of Bandar Seri Begawan (UDB, 2013). English is the main language for business; however, the official language of Brunei is Malay. Brunei Darussalam is an oil-rich country, and has one of the highest per capita GDP in Asia. The citizens do not pay any tax and enjoy one of the highest standards of living in the world (ICDE, 2013).

ICT Penetration

The number of Internet users per 100 inhabitants in Brunei is 80.76. However, approximately 46 per cent of the households have access to Internet in the

The number of Internet users per 100 inhabitants in Brunei is 80.76. However, approximately 46 per cent of the households have access to Internet in the country.

country². Technologically, the education system has undergone many changes in Brunei. The ICT infrastructure is now provided to the schools and colleges and they are encouraged to use it to facilitate teaching and learning. Online learning is seen as a major component of educational initiatives in the country which is supposed to cover human development, enterprise information system, e-library and education network. The following strategies have been set for eLearning implementation by the Ministry of Education in Brunei (Karim & Dih, 2005) which are relevant even in the current situation:

- create a change by strategically positioning the educational system
- create multiplier effect
- enable potential collaborations among institutions
- promote a blended learning environment that will increase efficiency, creativity, stimuli and productivity
- encourage and promote IT applications and use of computers in learning and teaching

The 8th Five Year Development Plan 2001-2005 of Brunei laid emphasis on utilization of IT for development of human resource in the country and, therefore, eLearning was perceived as an integral part of the IT development strategy in the country (Asian eLearning Network, 2002).

Till mid-1980's Brunei did not have a university. The students desirous of getting higher education used to go to foreign universities for studies. In 1985, the Universiti Brunei Darussalam³ (UBD) was established with cooperation from Universities in Malaysia and United Kingdom. The country has, at present, four universities imparting education in different areas of specialized education and making use of e-resources for educational purposes. The education in public institutions is free. The students of rural areas enjoy special arrangements on account of their tuition, books, transport, stay in hostel, etc. The gross enrolment rate in tertiary education in Brunei is 21.5 per cent (Ministry of Education, Brunei, 2010). There is a commitment of the government to enhance the student enrolment in higher education up to 30 per cent by 2014. While general education is the responsibility of Ministry of Education, the religious education in the country is directly controlled by Ministry of Religious Affairs.

The country has also devised a plan namely National Education System for the 21st century (SPN21⁴) which focuses on building a sound ICT infrastructure in schools to meet this challenge. The initiative also emphasizes the development of 'digital literacy skills' to meet the challenges of the new environment (Yong, 2009). The major thrust areas of the initiative are 'the education structure, the curriculum and assessment and technical education'. The system allows brilliant students to select programmes as per their

² http://www.icde.org/projects/regulatory_frameworks_for_distance_education/country_profiles/brunei/

³ <http://www.ubd.edu.bn/>

⁴ <http://www.moe.edu.bn/spn21>

'capabilities, interests, inclination, growth and development' which could meet their requirements. This way, the students could complete a five year programme in just 4 years.

eLearning

Brunei has formulated a long term plan - 'Wawasan Brunei 2035' aiming at taking all such steps which would transform the country to achieve international standards and make it a vibrant and sustainable economy by 2035 (Yong, 2009). The country's '2035 National Vision' envisages transforming Brunei into a country of highly educated and skilled people. Under the 'Vision', the Ministry of Education has initiated different steps. The following strategic objectives have been identified to be achieved through these initiatives:

- Enhance the quality of service providers
- Increase relevance and more balanced curriculum
- Improve teaching and learning initiatives
- Enhance conducive environment and culture
- Increase the level of partnership in community and industry
- Strive for administrative excellence
- Provide alternative choices of education
- Enhance effective policy development
- Provide more school financial autonomy
- Strengthen international relations in education

The Ministry of Education is mandated to promote the eLearning initiatives and development and use of e-content (Yong, 2009). Under the initiative of the Ministry of Education, the universities and institutions have started using customized LMS which helps them in uploading the content and share the same with students and teachers. In order to support the above initiative, the launching of institutional design portal aims at helping the content development activities at a large scale.

The Knowledge Management System Project was launched in 2006 in Brunei to cover examinations tips, event management, crisis management and ICT in education. The project on "ICT in Education" among others helps the teachers in sharing their experiences through the platform in use of ICT in classroom situation in different disciplines (Yong, 2009). The eLearning system project of the government was initiated in 2008 with the objective to extensively use Internet to enhance the pedagogical processes. The 'Developing Innovative Online Teaching-Learning Material Programme' announced by the government for 2011-12 is an initiative for developing eLearning competences not only in teachers but also in students so that they are able to use ICT for eLearning in addition to accessing social networking sites (ICDE, 2013).

The 'UBD Strategic Plan 2006-2015' is active in development of information systems and ICT infrastructure in Brunei. The 'Automated Lecture Capture and Publishing System' (ALCAPS) under the eLearning initiative was launched by the Universiti Brunei Darussalam (UBD) in

2009 that facilitated recording of the lectures so that the students could later view them by logging into the Ministry of Education website (ICDE, 2013).

India



The Republic of India is the world's largest democracy. The Himalayan range separates the Indian Peninsula from the mainland Asia. The total area of the country is 3.3 million sq km. India shares its borders with Afghanistan and Pakistan in the north-west, China, Bhutan and Nepal in the North, Myanmar in the east and Bangladesh in the east of West Bengal. India is separated by a narrow channel of sea from Sri Lanka. The coastline of the country is spread over 7,517 km including the mainland, Lakshadweep island and the Andaman and Nicobar islands (GOI, 2013). Divided into 28 states and 7 union territories, India has its national capital at New Delhi. There are 22 languages as recognized by the Constitution of India. English continues to be used for official purposes (GOI, 2013).

The population of India is 1,210,193,422 as on 1st March, 2011 (623.7 million

males and 586.4 million females. It is the most populous country of the world after China. The sex ratio is 940 females per 1000 males (Government of India, 2011). The literacy rate in India as per provisional results of Census 2011⁵ is 74.09 per cent (82.14 per cent males and 65.45 per cent females). While the computer penetration in the country is 3.2 per 100 inhabitants, the number of Internet users per 100 inhabitants is 7.5 (UNDP, 2013).

India has one of the largest education systems in the world (second after USA) based on the number of institutions, students registered and faculty deployed to handle educational work load. The number of universities in India has increased to 523 during the year 2010-11 (43 central, 265 state, 80 state private, 130 deemed to be universities, 5 institutions under state legislation) and over 33,023 colleges (UGC, 2012). The distance education system contributes to one fourth of the student enrolment in higher education system.

In 1984, Computer Literacy and Studies in Schools (CLASS) project was initiated by the Government of India to spread computer literacy at senior secondary school level. The National Institute of Information Technology (NIIT), a private body established in 1981, to provide computer training initiated an online programme in 1996 as Netversity (Chandwani, Lihitkar, & Anilkumar, 2010). In 1998-99, Indira Gandhi National Open University (IGNOU), India launched its Virtual Campus Initiative to offer Bachelor of Information Technology (BIT) and Advanced Diploma in

India has one of the largest education systems in the world (second after USA) based on the number of institutions, students registered and faculty deployed to handle educational work load.

⁵ <http://censusindia.gov.in/2011-common/CensusDataSummary.html>

Information Technology (ADIT) programmes through online mode (Sharma, 2001).

ICT Penetration

In 1998, a National Taskforce on Information Technology and Software Development was constituted with the mandate to develop 'long term national policy on IT'. The Taskforce recommended that India should achieve 100 per cent IT literacy at 10+2 education level in next 10 years (Sharma, 2001). There are a number of organisations working in the area of ICT development and implementation in India at national level. A few of them are - Global e-Schools and Community Initiatives⁶ (GESCI) founded by UN ICT Task Force, Quest Alliance⁷ and Digital Empowerment Foundation⁸ (DEF). Some of the public and private institutions which have taken initiatives for the promotion of eLearning in India are:

University of Mumbai⁹, Amity University Online¹⁰, Birla Institute of Technology and

Science (BITS)¹¹, Educomp¹², Everonn Education Limited¹³, Tamil Nadu Virtual University¹⁴, Gurukul Online¹⁵, YCMOU Online¹⁶, Indian Institute of Science Bangalore¹⁷, Institute of Management Technology¹⁸, Symbiosis Centre for Distance Learning¹⁹, MedVersity²⁰, Indian Institute of Technology (IIT) Mumbai²¹, IIT Delhi²², IGNOU²³, Punjab Technical University²⁴ (Sharma, 2013).

In India online courses in different areas are offered by different institutions. Some are non-credit tutorials on special topics or skill development programmes. The NetVersity²⁵ - an initiative of National Institute of Information Technology (NIIT) offered more than 300 in-house developed courses focusing on different areas related to IT (Sharma, 2005). Tata Interactive Systems²⁶ started eLearning programmes as back as in 1990 (Bhattacharya & Sharma, 2007).

The National Broadband Policy promulgated in 2004 in India paved the way for adoption of broadband technology

⁶ <http://www.gesci.org>

⁷ <http://www.questalliance.net/>

⁸ <http://www.gyanpedia.in/>

⁹ <http://www.mu.ac.in/>

¹⁰ <http://amityelearning.com/amityelearningweb/webforms/AmityOnline/>

¹¹ <http://vu.bits-pilani.ac.in/about.asp>

¹² <http://www.educomponline.com/home.aspx>

¹³ <http://www.everonn.com/index.html>

¹⁴ <http://www.tamilvu.org/>

¹⁵ <http://www.gurukulonline.com>

¹⁶ <http://ycmou.digitaluniversity.ac/>

¹⁷ <http://www.iisc.ernet.in/>

¹⁸ <http://www.iimtonline.com/>

¹⁹ <http://www.scdl.net/>

²⁰ <http://www.medvarsity.com/index.aspx>

²¹ <http://www.iitb.ac.in/>

²² <http://www.iitd.ac.in/>

²³ <http://www.ignouonline.ac.in/>

²⁴ <http://www.ptu.ac.in/>

²⁵ <http://www.netvarsity.com>

²⁶ <http://www.tatainteractive.com/>



in the country. The National Knowledge Commission²⁷ (NKC) was established by the Government in 2005 to focus on India's competitive advantage in Knowledge-intensive Service Sector (Sharma, 2013). The National Knowledge Network (NKN) established on the recommendation of NKC "is a state-of-the-art multi-gigabit pan-India network for providing a unified high speed network backbone for all knowledge related institutions in the country". The network is envisaged to create a pool of qualified professional while establishing quality institutions with excellent research facilities. The UGC-Infonet 2.0 (University Grants Commission, India, 2012) launched on April, 2010 uses the fibre backbone of Bharat Sanchar Nigam Limited (BSNL). It has paved the way for strengthening the NKN which has plans to provide 1GB Internet connectivity to the universities in the country.

Government of India has initiated the National Mission on Education through ICT (NMEICT)²⁸ where the focus is on creation of infrastructure and generation of re-usable digital content. Recently the IIT, Mumbai and Amrita University in association with Ministry for Human Resource Development have developed an online interactive platform 'Amrita Virtual Interactive eLearning World'²⁹ under NMEICT Project to be used for capacity building of teachers in the country.

²⁷ <http://knowledgecommission.gov.in/>

²⁸ <http://www.it.iitb.ac.in/nmeict/home.do;jsessionid=8F1B7BD743D14DB421B64EF3A72FDDAB>

²⁹ <http://aview.amrita.ac.in>

³⁰ <http://www.egyankosh.ac.in/jspui/>

³¹ <http://www.sakshat.ac.in/>

³² <http://nptel.iitm.ac.in/>

³³ <http://www.medialabasia.org/>

eLearning

The e-GyanKosh³⁰ is a national digital repository developed by IGNOU for sharing learning content. It houses over 2200 video programmes in addition to e-content related to different subjects. The *Shakshat*³¹ Portal launched under the NMEICT Programme of Government of India houses all types of e-resources at the national level. It provides a host of free educational e-content, e-journals, e-books and other digital material in different fields and supports self-learning through virtual classes. The National Programme on Technology Enhanced Learning³² (NPTEL) is another national initiative started by seven Indian Institutes of Technology and Indian Institute of Science for development and generation of e-content and provides eLearning through web and video courses in Engineering, Science and Humanities. All the resources under NPTEL are now available under Creative Commons licences.

The Media Lab Asia³³ (MLA), promoted by the Government following a not-for-profit approach, was created as a research organisation with the primary funding from Government of India in collaboration with Massachusetts Institute of Technology (MIT) to "focus on the development of technologies that address the needs of the citizens of developing nations in Asia, Africa and Latin America" (Sharma, 2005).

It is mandated to initiate different projects on ICT for development.

The Digital Empowerment Foundation³⁴ (DEF) is working for promotion of infrastructural development related to digital content. The DEF's 'Gyanpedia'³⁵ portal with MLA is a dynamic virtual platform for content exchange across the country among school students and teachers. The Azim Premji Foundation³⁶ (a non-profit organisation) is working for integration of ICT in education at all levels in 14 states in India.

The Indian Institute of Technology (IIT), Kanpur has launched 'Brihaspati'³⁷ - an in-house designed and developed LMS using open source for delivery of eLearning programmes and management of content (Manzar & Kazi, 2009).

The ICT initiatives launched from time to time show that India is prepared to reap the benefits of Internet (Sharma, 2005a). However, meeting the requirement of the e-content in different Indian languages is a challenge in India.



³⁴ <http://www.defindia.net>

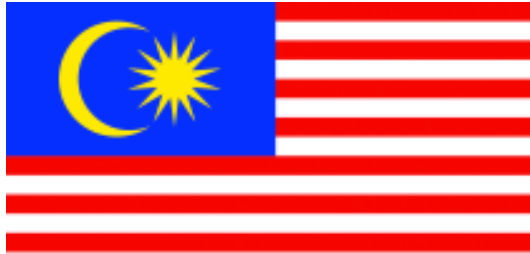
³⁵ <http://www.gyanpedia.in/>

³⁶ <http://www.azimpremjifoundation.org>

³⁷ <http://www.iitk.ac.in/doaa/DOAA/brihaspati.htm>

³⁸ <http://en.wikipedia.org/wiki/Malaysia>

Malaysia



Malaysia is a Constitutional Federal Monarchy in Southeast Asia³⁸. The population of Malaysia is 29.3 million (UNDP, 2013) which resides over an area of 329,847 sq km. The South China Sea separates Malaysia into two regions - Peninsular Malaysia and Malaysian Borneo. Thailand, Indonesia and Brunei share their borders with Malaysia. The City of *Kuala Lumpur* is the capital of Malaysia. The Bahasa Malaysia is the official language of Malaysia though many languages are spoken in different parts of the country. It is a multi-ethnic and multi-cultural nation (ICDE, 2013a).

The adult literacy rate in Malaysia is 93.1 per cent (UNDP, 2013). The total expenditure on education in Malaysia is 4.6 per cent of GDP (2008). In 2012 around 60.7 per cent of the population had access to Internet. The rate of computer penetration in Malaysia is 22.7 per 100 inhabitants. There are 56.3 Internet users per 100 inhabitants in the country (UNDP, 2013).

ICT Penetration

The use of Internet in education is gradually increasing in Malaysia. During 2003-07, steps were taken to promote eLearning, use Learning Management System (LMS) and improve IT

infrastructure in Malaysia (Charmonman, 2008). The National Higher Education Strategic Plan 2007-2020 formulated by the Ministry of Higher Education embarks on “widening the access and increasing equity in higher education, improving the quality of teaching and learning, intensifying research and innovations and enculturation of lifelong learning” (ICDE, 2013a).

eLearning

The virtual university initiatives in Malaysia saw the beginning by the establishment of the Multi-Media University³⁹ in the year 1996, Universiti Tun Abdul Razak⁴⁰ (UNITAR) in the year 1998 and Asia-e-University⁴¹ (AeU) in 2005/06. The later was established with the help of Asia Co-operation Dialogue Countries as the dual mode multi-national university (Charmonman, 2008). The consortium of eleven public universities was also established to promote eLearning programmes known as METER in 1998 which later gave birth to Open University of Malaysia in 2000. The eLearning centres have been established by all the major universities in Malaysia (Asirvatham, 2009). The University of Malaya launched first LMS in the country with the help of which it started online programmes in 1999. In 2005, National E-learning Centre was established as ‘one stop point’ to promote eLearning. It also took the

initiative to develop faculty for eLearning programmes (Asirvatham, 2009).

The Government of Malaysia launched “Malaysian Information, Communication and Multimedia Services 886 Strategy⁴²” (MyICMS 886) in 2006 for enhancement of “advanced information, communication and multimedia services” (International Telecommunication Union, 2006). The Malaysia Education Online initiative⁴³ launched in 2011 has 10 institutions partnering for providing eLearning programmes in collaboration.

With the establishment of National Information Technology Council (NITC), the commitment of the Government of Malaysia became formalized to promote the use of online technologies for education. In 1996, the NITC provided the framework for utilization of ICT through National IT Agenda (NITA) to achieve the objectives of ‘Vision 2020⁴⁴’ (Rozhan & Sharma, 2008). It has been revealed from the survey of the researches made during the past years that during the early years of Internet use, the eLearning projects concentrated primarily on technical aspects of creating eLearning environment. However, recently the focus has shifted to methodology and pedagogical aspects of eLearning (ICDE, 2013a). The Government has given more autonomy to the public institutions in Malaysia during the recent times which entails more responsibility and

With the establishment of National Information Technology Council (NITC), the commitment of the Government of Malaysia became formalized to promote the use of online technologies for education.

³⁹ <http://www.mmu.edu.my/>

⁴⁰ <http://www.unirazak.edu.my/>

⁴¹ <http://www.aeu.edu.my>

⁴² http://nitc.most.gov.my/nitc_beta/index.php/national-ict-policies/myicms_886

⁴³ <http://www.medo.my/index.php>

⁴⁴ <http://www.wawasan2020.com/vision/p2.html>

accountability on the part of administration and faculty in these institutions.

The Malaysian Public Sector Strategic Plan launched in 2003 identified eLearning as one of the thrust areas among others which aimed at ‘*utilization of ICT for service delivery*’. The Malaysian Government is promoting use of ICT to minimize the digital divide and, therefore, encourages the use of free and open source software (FOSS) in the country. To extend necessary help in this direction 1670 tele-centres have been established by the government to address issues arising out of this situation (Norizan, Zaki, Zaini, Rosini, & Kemboja, 2007).

Maldives



The Republic of Maldives is an archipelago of 1190 small islands spread over 9,00,000 sq km in the ocean. Approximately 200 islands have population on them. There were only three islands in addition to Male which had population of 5000 or more (Ibrahim and Ahmad, 2008).

The country is grouped naturally in 26 atolls. However, for the administrative and governance purposes, these are grouped into 20 atolls by the government. The total population of Maldives is 3,00,000 (UNDP, 2013). The Capital of Maldives is Male and almost 80 per cent of the population of the country lives in the Capital itself. Dhivehi and English are the extensively used languages in Maldives.

The main source of transport between the islands is by sea, since a major portion of the country (99 per cent) is sea only. Tourism accounts for 20 per cent of the GDP in Maldives (Ibrahim & Ahmad, 2008). The expenditure on education is 7.2 per cent⁴⁵ of GDP. Developing infrastructure in areas inhabited by less number of populations is a major challenge for the country.

The literacy rate in Maldives is 98.4 per cent (UNDP, 2013). However, the people with higher educational level are less in number (Saeed & Moreira, 2010). About 66 per cent of teachers in Maldives have at least 10 years of basic education and only 40 per cent of the local teachers have undergone formal teacher training programmes (Saeed & Moreira, 2010), though, lack of trained manpower in use of IT in education has been noted. The United Nations Children’s Fund⁴⁶ (UNICEF) sponsored project on ‘Teacher Resource Centre’ envisages providing necessary skill training to the teachers in the island-based schools (Ibrahim & Ahmad, 2008).

⁴⁵ <https://www.cia.gov/library/publications/the-world-factbook/geos/mv.html>

⁴⁶ <http://www.unicef.org/>

ICT Penetration

The availability of computers in Maldives is 20 per 100 inhabitants. Due to inability of the country to take advantage of economies of scale, the access to Internet is only 28.3 per 100 inhabitants (UNDP, 2013). The uneven population spread across different atolls poses a challenge in reaching the people with mass drive for use of IT (Shareef & Kinshuk, 2004).

Saeed and Moreira (2010) observed that online learning is a democratic way to enhance access to knowledge following the concept of social inclusion. The Government of Maldives considers eLearning as an important stimulus to enhance the living standards of the people and improve digital literacy. It can help the people to satisfy their learning needs in the 21st Century (Alison, 2013). The online learning possibilities are being explored by establishing the required IT infrastructure in different parts of the islands. The Asian Development Bank (ADB, 2001) provided the aid to the Government of Maldives to establish Internet kiosks in atolls for use by the public (Shareef & Kinshuk, 2004).

The Internet through broadband is available in 13 islands including the capital city of Male. Mobile telephony is good, with 166 mobile phones with every 100 persons in Maldives (UNDP, 2013). The total number of Internet users in the country was 134,860⁴⁷ (in June, 2012). For the places where the Internet is not directly accessible, the same is made available through ‘small tele-centres’ and using

mobile phones. The Very Small Aperture Terminal (VSAT) is used to link the islands. The Internet radio system developed in collaboration with Commonwealth Educational Media Centre for Asia⁴⁸ (CEMCA) and Open University Malaysia⁴⁹ (OUM) was launched in 2009 in Maldives in order to provide ‘*access to quality learning material in different atolls of the country*’.

eLearning

The Maldives National University⁵⁰ is running a post-graduate certificate programme in eLearning in order to enhance the eLearning skills of the people in the country. The programme aims at providing necessary skills to the learners in order to enable them to handle and launch more eLearning programmes in different subjects (Maldives National University, 2013). Maldives is an active participant of ‘Virtual University for Small States of the Commonwealth’⁵¹ (VUSSC) initiative. The salient features of the initiative are:

- Develop a collaborative Network of Commonwealth Small States
- Develop capacity in the use of ICT
- Create and share learning material at post-secondary level
- Establish a transnational qualifications framework that would enable the transfer of credit and qualifications

Maldives is at the initial stage of using ICT for educational purposes. Due to geographical spread of the country, introduction of eLearning initiatives could be viable.

The Government of Maldives considers eLearning as an important stimulus to enhance the living standards of the people and improve digital literacy.

⁴⁷ Internet World Stats [<http://www.internetworldstats.com/stats.htm>]

⁴⁸ CEMCA [<http://cemca.org.in/>]

⁴⁹ <http://www.oum.edu.my/oum/v3/>

⁵⁰ <http://www.mnu.edu.mv/>

⁵¹ <http://www.vussc.info/>

Pakistan



Islamic Republic of Pakistan is located in the Southern Asian region bordering China in the north, Arabian Sea and India in the east, and Iran and Afghanistan on the west. The total area of Pakistan is 796,095 sq. km. The coastline of Pakistan spread through the Arabian sea is 1,064 km⁵². The population of Pakistan is estimated to be 180 million (Board of Investments, 2013). The adult literacy rate in Pakistan is 54.9 per cent (UNDP, 2013). The city of Islamabad is the capital of the country. Urdu is the official language of Pakistan. However, English, Punjabi, Sindhi, Pushtu, Balochi, Hindko, Brahui and Saraiki are also used for communication and interaction purposes. The Government expenditure on education is 2.4 per cent of GDP (UNDP, 2013).

The Internet users in Pakistan are 16.8 per 100 inhabitations. The number of Internet users in June, 2012 was 29,128,970 (UNDP, 2013). The Government of Pakistan has devised the Universal Service Policy (USP) as part of its 'ICT for Development Plan'. The objective of the initiative is to provide access to

telecommunications to the poor and the under privileged. Pakistan has a mobile phones penetration of 62 per 100 inhabitants (UNDP, 2013) which comprises not only the urban areas but also the rural areas. Therefore, mobiles can play an important role in expansion of eLearning opportunities in Pakistan.

ICT Penetration

Almost 43 per cent of the people use the Internet on daily basis to contact social networking sites and maintain their social connections. Almost 53 per cent of the people including students, researchers and workers access Internet to get global knowledge (Javed, Pasha, Khan, & Khan, 2012).

The concerns of quality, cost of higher education and lack of educational opportunities have forced the educationists in Pakistan to think for sustainable alternatives and eLearning is, therefore, seen as one of the potential areas which can help in democratizing education in the country. The Government is enthusiastic to promote ICT application in education and consequently the Pakistan's Virtual University has come to existence in 2002. Like many developing countries, Pakistan is in the transition phase of conversion of its educational content into digital re-usable format so as to use it for enhancing access to education.

eLearning

The Virtual University of Pakistan (VUP) and Allama Iqbal Open University (AIU)

Almost 43 per cent of the people use the Internet on daily basis to contact social networking sites and maintain their social connections.

⁵² <http://data.un.org/CountryProfile.aspx?crName=PAKISTAN>

are the leading institutions making use of eLearning resources and offering online programmes in different disciplines. The eLearning platform used by Allama Iqbal Open University is based on Moodle LMS and is named as ‘Open Learning Institute of Virtual Education’. The VUP uses the modern information and communication technologies to reach its students. The VUP and AIOU are catering to 3 times the combined population of students in all other universities in the country.

The Pakistan Education and Research Network (PERN) hosts the mirror site of MIT Open Courseware to enable open access to e-content in almost 914 courses (Ansari & Saleem, 2009). The initiative has a provision of Digital Library Programme in order to provide easy access to free and open source learning material to the students of Pakistan in the form of international journals and e-text books. Pakistan has also introduced a National Testing Service⁵³ that uses the e-marking software to evaluate the sheets using OMR technology which has helped in reducing the marking time and manual effort in testing while at the same time ensuring the objectivity of the evaluation process.

The *IT-TRACK*⁵⁴ initiative was established in Pakistan in 1999 with an objective to bridge the gap between the job requirements and the technical education imparted in the institutions and groom the students with practical knowledge suited to the industry requirements. The U2Test⁵⁵ is an online interactive training and skill

testing portal designed to provide technical and vocational skills to the users with a combination of interactive learning and professional exposure. *ApnaFuture*⁵⁶ is an online initiative to help the students in using the Web. It provides learning skills along with tips for enhancing vocabulary (Mujahid, 2001).

The eLearning Association of Pakistan⁵⁷ (eLAP) is committed to “set the standard for eLearning in Pakistan, to support and promote the concept of a virtual classroom using 21st Century technology”. The objectives put forth by the Association among others are: to provide and facilitate quality education including technical and vocation education and set benchmarks in the light of international standards.

eLearning is considered as a dynamic tool for enhancing the access of education to the masses in Pakistan. The initiatives taken at different public and private levels strengthen the base for the country to use ICT for democratization of education.



⁵³ <http://pakistan.gov.pk/gop/index.php?q=aHR0cDovL3d3dy5udHMub3JnLnBrLw%3D%3D>

⁵⁴ <http://www.pide.org.pk/pdf/psde%2018AGM/Digital%20Opportunity%20Initiative%20For%20Pakistan.pdf>

⁵⁵ <http://www.u2test.com/>

⁵⁶ <http://www.apnafuture.com>

⁵⁷ <http://www.elap.pk/>

Singapore



The Republic of Singapore is a city-state located in Southeast Asian region between Indonesia and Malaysia. It is a group of 63 islands. The total area of Singapore is 697 sq km (land 687 sq km and water 10 sq km). The population of the country is 5.3 million and the total adult literacy rate is 96.1 per cent (UNDP, 2013). The majority of population is Chinese (75 per cent) having also the Malays and Indians in significant numbers. English, Chinese, Malay and Tamil are the official languages here. The country's expenditure on education is 3.3 per cent of the GDP (UNDP, 2013). The computer penetration per 100 inhabitants in Singapore is 74.3 while the Internet users per 100 inhabitants are 71.1 (UNDP, 2013).

The Government of Singapore has initiated *iN2015*⁵⁸ Master Plan envisaging to convert Singapore into a global city supported by 'Infocomm by 2015'. This initiative would enhance the economic competitiveness of Singapore in comparison to other developed countries. Under this plan the government would enhance the Internet

network capacity of the country and act on the roadmap to enhance the competencies of the human resource in the country (Bashar & Khan, 2007). Singapore has adopted pro-competition approach which is technology neutral. For instance, the 'Open Source Collaborative Innovation' project by 'Red Hat' focuses on enhancing the number of Linux-based application for the business world in Singapore (Hiong, 2009).

ICT Penetration

In 2006, '*e-learning week*' was launched by Singapore Polytechnic which aimed at ensuring the readiness of the institutions for use of IT infrastructure. The institutions would be closed for a week's time and all learning activities would happen through the web-based technology. The other higher institutions followed the suit and repeated the same exercise. Some institutions chose to close only one wing of the department while others switched over all teaching activities online for a week's time. The main objective of the mission was to empower the faculty in IT tools while testing the IT capabilities of the institutions (Chandran, 2011). The '*e-learning week*' successfully met the objectives set for it (Hoofd, 2011). The faculty felt more engrossed with eLearning activities and recording online lectures and tutorials. They dedicated more time in acquiring competence in use of IT and thus acquired expertise in its multifarious use. The students equally appreciated the effort and actively participated in the initiative.

The Government of Singapore has initiated iN2015 Master Plan envisaging to convert Singapore into a global city supported by 'Infocomm by 2015'. This initiative would enhance the economic competitiveness of Singapore in comparison to other developed countries.

⁵⁸ <http://www.ida.gov.sg/Infocomm-Landscape/iN2015-Masterplan>

eLearning

There are four universities operating in Singapore. The National University of Singapore⁵⁹ is the largest university which was established in 1980 as a result of merging of University of Singapore and Nanyang University. The U21Global⁶⁰ (Universitas 21 Global) - an international joint educational venture, is a Consortium of various universities from different part of the world. The Consortium offers online programmes at different levels of certification. Some 1000 private educational institutions are involved in imparting education through distance, blended and online modes in Singapore. The trend of online education in Singapore is increasing and the polytechnic institutions are also intensively progressing towards use of eLearning technologies in their delivery mechanism. The Government of Singapore aims at corporatising the public universities and institutions in the country. Under this endeavour, universities are encouraged to seek external funding for their operations and gain more autonomy in developing academic entrepreneurship (ICDE, 2013b).

National University of Singapore⁶¹ (NUS), Nanyang Technological University⁶² (NTU) and Massachusetts Institute of Technology⁶³ (MIT) have collaborated to make 'The Singapore-MIT Alliance⁶⁴ (SMA)'. It was founded in 1988 to

promote engineering education and provide access to teachers of both the countries through synchronous and asynchronous tools (ICDE, 2013b). The alliance has an active involvement with the Open Courseware of MIT since 2005. The 'iSHARE Content Management System'⁶⁵ is an initiative at school level which facilitates the teachers and students to develop and share the content with others. The National University of Singapore and Nanyang Technological University have been ranked among the top 100⁶⁶ universities in the world.

Sri Lanka



The Democratic Socialist Republic of Sri Lanka is an island country located in the Indian Ocean. The country is spread over an area of 65,610 sq km out of which 64,630 sq km is land and the remaining 980 sq km is sea. The coastline of Sri Lanka is spread over 1,340 km. The total population of the country is 21.2 million as per 2010 Census⁶⁷. The adult literacy rate in the country is 91.2 per cent (92.6

⁵⁹ <http://www.nus.edu.sg/>

⁶⁰ <http://www.u21global.edu.sg/Education/home>

⁶¹ <http://www.nus.edu.sg/>

⁶² <http://www.ntu.edu.sg/Pages/index.aspx>

⁶³ <http://www.mit.edu/>

⁶⁴ <http://web.mit.edu/sma/>

⁶⁵ <http://poerup.referata.com/wiki/Singapore>

⁶⁶ <http://en.wikipedia.org/wiki/Singapore>

⁶⁷ <https://www.cia.gov/library/publications/the-world-factbook/geos/ce.html>

per cent males and 90 per cent females) (UNDP, 2013). In Sri Lanka, 83.7 per cent people live in rural areas and the remaining 16.3 per cent people live in urban areas. Hence, there is a growing need for the government to work for access and equity issues while improving on quality (Suraweera, Liew & Cranefield, 2012).

ICT Penetration

Due to lack of resources and infrastructural facilities, only 13-15 per cent of the eligible candidates are able to seek admission in higher education in Sri Lanka (Thowfeek & Hussin, 2008). The education system in Sri Lanka has a limited capacity and due to which there is a lack of IT professionals having good communication skills. Therefore, eLearning is seen as a viable and potential alternative to the conventional system of higher education in Sri Lanka which could provide equal educational opportunities to the masses.

In Sri Lanka, computer penetration is 3.7 per 100 inhabitants. The Internet usage per 100 inhabitants is 12 (UNDP, 2013). The IT literacy was reported to be 20.3 per cent with 31 per cent at urban level and merely 19.3 per cent at rural level (Dept. of Census and Statistics, Sri Lanka, 2009). The ICT awareness programmes launched at various levels along with literacy projects have helped the country in improving this rate of growth.

The Distance Education Modernisation Project⁶⁸ (DEMP) in Sri Lanka was launched by the Government with the

assistance from Asian Development Bank in 2003. The Project provided for development of online distance education programmes which paved the way for introduction of eLearning in the Island country. Under this initiative, the University of Colombo launched its first eLearning programme i.e. e-Diploma in Business English (Somananda, 2012). The universities and institutions in Sri Lanka were given assistance under this project to launch their eLearning programmes. Consequently, National Online Distance Education Service⁶⁹ became active to help the institutions in offering eLearning programmes through its access centres. In 1999 the Open University of Sri Lanka started transforming its traditional programmes into eLearning delivery format.

The year 2009 was declared as the year of “English and IT” by the Government of Sri Lanka. With this announcement, several initiatives were launched to boost the empowerment of human resource base in the country. The government websites were made to be mandatorily in three languages namely ‘*Sinhala*’ (the language of the majority in the country), *Tamil* and *English*.

eLearning

The Secondary Education Modernisation Project (SEMP) launched by the government envisages using Information Technology to facilitate learning. The bandwidth of the Lanka Education and Research Network⁷⁰ (LEARN) - a network

*The 'EnSiTip'-
a dynamic
translation tool
developed by
University of
Colombo,
School of
Computing
(UCSC)
facilitates in
addressing
the problem of
non-
availability of
the course
content in the
major
language
'Sinhala' used
in Sri Lanka.*

⁶⁸ <http://www.depp.lk/demp.php>

⁶⁹ <http://www.nodes.lk>

⁷⁰ <http://www.learn.ac.lk>

of all state universities and research institutions in Sri Lanka, has been enhanced from 2 mbps to 10 mbps. The MIT Open Courseware – pioneering and prestigious repository of course content in engineering and technology programmes is linked to LEARN network. The ‘*EnSiTip*’- a dynamic translation tool developed by University of Colombo, School of Computing (UCSC) facilitates in addressing the problem of non-availability of the course content in the major language ‘*Sinhala*’ used in Sri Lanka. This software is available as a plug-in to the FireFox web browser (Lanka Business Online, 2006).

The Sri Lanka Software Foundation⁷¹ instituted by a Sri Lankan IBM researcher is proving to be a pioneering work in providing access to Free and Open Source Software (FOSS) in the country. The universities in Sri Lanka have created their own Linux user groups which help in

promoting participatory learning and using FOSS by the people (Weerasinghe & De-Silva, 2009).

The e-BIT⁷² and *Shilpa Sayura*⁷³ are other innovative initiatives of the Government of Sri Lanka that use ICT in education. The e-BIT is a full-fledged interactive online eLearning platform. The UCSC has started e-testing service for this programme. The ‘*Shilpa Sayura*’ is an award winning LMS developed in-house by UCSC to create and manage e-content in different streams of specialisation for high school subjects.

Sri Lanka is on the threshold of extensively using the eLearning technologies for educational purposes. The country has got encouraging response to the preliminary launch of the initiatives discussed above. The UCSC is vigorously working on how to make optimum use of online learning in reaching the un-reached.

⁷¹ <http://www.opensource.lk>

⁷² <http://www.bit.lk>

⁷³ www.shilpasayura.org



Table-2: Comparative Chart of Profiles of Commonwealth Asian Countries

Countries	Bangladesh	Brunei Darussalam	India	Malaysia	Maldives	Pakistan	Singapore	Sri Lanka
HDI Rank ⁷⁴	146	30	136	64	104	146	18	92
Population (in millions) ⁷⁴	152.4	0.4	1,258.4	29.3	0.3	180	5.3	21.2
Population density per sqkm ⁷⁵	1,098	68	1,357	79	1,319	221	6,787	328
Adult Literacy rate ⁷⁴	56.8	95.2	62.8	93.1	98.4	54.9	96.1	91.2
Public spending in education ⁷⁴	2.2	2.0	3.1	5.8	8.7	2.4	3.3	2.1
Satisfaction with education quality ⁷⁴	81.6	..	74.8	91.4	..	60.5	91.8	77.9
Number of English language speakers ⁷⁶ (per cent)	18	39.07	10.35	20.54		49	80	9.9
Major languages ⁷⁷	Bangla, English	Malay, English	Hindi, English	Bahasa Malaysia, English, Chinese	Dhivehi, English	Punjabi, Sindhi, Urdu, English	Mandarin, English, Malay	Sinhala, Tamil, English
Per capita income ⁷⁴ (USD)	7,854	5,690	3,285	13,676	7,478	2,566	52,613	5,170
Gender Inequality Index ⁷⁴	111	..	132	42	64	123	13	75
Youth unemployment rate ⁷⁴	13.6	..	11.5	11.3	30.5	10.5	6.7	24.7
Global Innovation Index rank ⁷⁸	130	74	66	32	..	137	8	98

⁷⁴ Human Development Report 2013 <http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf>

⁷⁵ GeoHive 2000-2013 http://www.geohive.com/earth/population_now.aspx

⁷⁶ Wikipedia http://en.wikipedia.org/wiki/List_of_countries_by_English-speaking_population

⁷⁷ Central Intelligence Agency <https://www.cia.gov/library/publications/the-world-factbook/index.html>

⁷⁸ The Global Innovation Index 2013 <http://www.globalinnovationindex.org/content.aspx?page=gii-full-report-2013#pdfopener>

Table-3: Comparative Chart of ICT Profiles of Commonwealth Asian Countries

Countries	Bangladesh	Brunei Darussalam	India	Malaysia	Maldives	Pakistan	Singapore	Sri Lanka
ICT Policy	Yes	Yes	Yes	Yes	No ⁷⁹ S&T Master plan	Yes	Yes	Yes
ICT in Education Policy ⁸⁰	Included in ICT policy	Included in ICT policy	Yes	Yes	S&T Master plan includes ICT in education	Yes	Yes	Yes
Computers per 100 inhabitants ⁸¹	2.5	9.1	3.2	22.7	20	0.5	74.3	3.7
Fixed line telephone per 1000 inhabitants (2011) ⁸²	6	197	26	147	75	32	389	171
Mobile telephone 1000 inhabitants (2011) ⁸³	560	1,090	720	1,270	1,660	620	1,500	870
Internet users per 1000 inhabitants ⁷⁹	37	500	75	563	283	168	711	120
Number of Internet users (in June 2012) ⁸⁴	8,054,190	318,900	137,000,000	17,723,000	134,860	29,128,970	4,015,121	3,222,200
Network readiness index rank ⁸⁵	113	54	69	29	..	102	2	71

⁷⁹ Ministry of Education, Government of Maldives <http://www.moe.gov.mv/archives/89>

⁸⁰ GESCI <http://www.gesci.org/assets/files/Knowledge%20Centre/country-policies.pdf>

⁸¹ Human Development Report 2013 <http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf>

⁸² World Bank <http://search.worldbank.org/data?qterm=telephone%20users&language=EN>

⁸³ World Bank <http://data.worldbank.org/indicator/IT.CEL.SETS.P2>

⁸⁴ Internet World Stats <http://www.internetworldstats.com/stats.htm>

⁸⁵ World Economic Forum http://www3.weforum.org/docs/WEF_GITR_Report_2013.pdf

3

eLearning Practices in Commonwealth Asia: A Review

The implementation of ICT in education in Commonwealth Asian Countries, currently, is at different levels of the spectrum as it has been documented in the previous chapter. Various factors have influenced the implementation and acceptance of ICT across nations. There is a scarcity of reported empirical studies on different aspects like design, development and delivery of eLearning programmes in Asian Pacific region (Seyal, Ali, Mohamed, & Rahman, 2010). While in case of Brunei, the majority of the studies focus on the basic issues associated with implementation of eLearning; in the Indian context, much emphasis of research has been on the issues and challenges in implementation of eLearning. Very few studies are available regarding the attitude of teachers and students towards eLearning, teaching and learning styles, pedagogical aspects, impact of eLearning on the performance of the learners and on similar research themes. Though ICT has been accepted in India as a potential tool for enhancement of the learning experience of the students, the review of literature shows little research on various aspects of pedagogy for eLearning.

In the Sri Lankan context, the researches on use of ICT in education generally focus on digital literacy only (Gunawardana, 2010). The situation in Maldives is also similar and implementation of eLearning there is at a very elementary level. This

review of published literature in Commonwealth Asia on eLearning provides an overview of the use of ICT in education with focus on online technologies for delivery of teaching and learning.

ICT Infrastructure

The Government of Maldives envisages eLearning as an important stimulus to enhance the living standards of the people and improve upon digital literacy. It can facilitate fulfilment of the learning needs of its citizens in the 21st Century. The online learning possibilities are being explored by establishing IT infrastructure in different parts of the islands (Alison, 2013). Anand, Saxena & Saxena (2012) reported lack of suitable infrastructure for implementation of eLearning in India, though the Government of India has initiated National Mission on Education through ICT (NMEICT) with focus on creation of infrastructure and e-content (Umrani-Khan & Iyer, 2009).

Singapore has the necessary infrastructure related to eLearning and the young students are IT savvy (Chew, 2004). The adequate IT setup, exponential growth of ICT, increasing demand of knowledge and government initiatives supported by globalization have helped Singapore in implementation of eLearning initiatives at a fast pace (Bashar & Khan, 2007). While

in Bangladesh, the lack of basic infrastructure and high cost of its acquisition have discouraged the implementation of ICTs in education (Islam & Selim, 2006; Raihan, 2009), support of the government has helped Singapore in introducing eLearning (Bashar & Khan, 2007).

Lack of IT infrastructure is one of the main obstacles in development of eLearning in Sri Lanka (Liyanage, Pasqual & Wright, 2010). In Malaysia, majority of higher education institutions have Internet access and IT infrastructure in addition to wireless capabilities (Hussain, 2004). Ali, Ahmed, Shaikh & Bukhari (2011) pointed out that the institutions do not have adequate ICT infrastructure in Pakistan, as a result, eLearners are not provided proper teacher help due to inappropriate use of ICT in course delivery. Despite efforts of several governments, the overall ICT infrastructure for eLearning is much to be desired, except in the case of Malaysia and Singapore.

e-Content Development and Availability

Andersson (2008), in the Sri Lankan context, raised the issue related to the 'content' like how to generate the learning e-Content, multimedia files, graphics etc. which could be effectively transferred to the students even with low bandwidth without compromising the quality. As part of the eLearning initiative in Pakistan, content is available either on the CD-ROMs or on the centralized server. The students access the material either through stand-alone computers or any other digital device including networked computers (Ali,

2004). Use of e-content provided through LMS in Singapore enhanced the performance of the students in the examination as compared to their counterparts who did not use e-content at all (Chew, 2010).

Gunawardana (2005) reported that learners in Sri Lanka take online courses more seriously when reading material was provided to them through books, CD ROMs that saved their online time. The e-content comprised static pages without animations in the context of Virtual University of Pakistan (Siddiqui, 2011). Wernet, Olliges & Delicath (2000) found that all the students in Brunei, who used WebCT in a 'social work' course, considered the e-content as beneficial to them in understanding the course. In another survey of Science students in Brunei, Shelter (2002, as cited in Seyal, Ali, Mohamed, & Rahman, 2010) revealed that the eLearning components had positive impact on student learning, problem-solving and critical thinking skills, though gender based difference in attitude was also reported.

eLearning Development Team

Development of eLearning usually requires multiple skill sets, and therefore, a team of professionals is required to design, develop and implement eLearning. Siddiqui (2011) pointed out that conventional teachers at Virtual University of Pakistan were developing e-content. The Universiti Tun Abdul Razak, Malaysia established a department to take care of content development (Hussain, 2004). The responsibility of development of instruction for eLearning in Malaysia is entrusted to the IT experts generally in

In Malaysia, majority of higher education institutions have Internet access and IT infrastructure in addition to wireless capabilities (Hussain, 2004).

Higher Education institutions though instructional technologists are also being involved in this activity. The services of web specialists, IT experts, graphic/visual artists and instructional designers are hired by the institutions for development of eLearning programmes (Hussain, 2004).

Instructional Design for eLearning

The earliest work in Commonwealth Asia to focus on instructional design for eLearning came from Parhar and Mishra (2000), who identified the competencies needed for web-based instructional designers through a global online survey. This study revealed that the instructional design skill sets are same as that of conventional instructional design, though the instructional designers required focusing on the features of the course management tools and the understanding of the multimedia capabilities of the Web. While designing India's first Social Science online programme (Post Graduate Certificate in Participatory Management of Displacement, Resettlement and Rehabilitation -PGCMRR) at IGNOU, Mishra (2002) developed an eclectic model of instructional design for online learning that covered the best features of behaviourism, cognitivism and constructivism, aligned with content, learner support and learning activities (Mishra & Jain, 2002). Different learning styles of the students need to be accommodated by the eLearning instructional design and different delivery methods need to be deployed to support students' learning styles (Somananda, 2012). Andersson (2008) opined that eLearning curriculum design in Sri Lanka

was not based on deep understanding of different learning theories and learning styles of the learners. In order to develop in-house LMS, Multimedia University, Malaysia constituted a team of IT experts and content experts. The role of instructional designer was considered important as the eLearning was meant for learner-centred learning (Hussain, 2004).

Begawan (2009) revealed that the Instructional Design Lab (ID Lab) project launched by the Government of Brunei envisaged for facilitating the teachers to create their own programmes focusing on extensive use of ICT applications. Riaz, Riaz and Husain (2011) in their study conducted in Pakistan recommended that e-content should be made available through the LMS which should be interesting and updated from time to time to enable the learners achieve the course objectives. The eLearning platform was found to be the most popular medium of instructional delivery followed by CDs, websites and DVDs by Anand, Saxena and Saxena (2012) in the Indian context. Students liked the features such as participation in discussion forum, course units written in conversational style, and online computer marked assignments, within the in-house LMS developed at IGNOU for the Post Graduate Certificate in Participatory Management of Displacement, Resettlement and Rehabilitation. The learners were also critical about the provision of the social chat, e-counselling and online diary features developed in the LMS to provide a wholesome learning experience that is reflective as well as to provide sufficient interaction with the peers and tutors to have the didactic communication targeted to reduce isolation (Mishra, 2005).

Instructional design skill sets are same as that of conventional instructional design, though the instructional designers required focusing on the features of the course management tools and the understanding of the multimedia capabilities of the Web.

eLearning Delivery Models

The eLearning programme in Maldives was started by the Centre for Open Learning, Maldives National University in a blended mode. The regular face-to-face students took advantage of eLearning components of the programme (Shareef, 2010). The Virtual University of Pakistan uses the 'Virtual Online Instructional Support System' (VIOSS) to run the hybrid eLearning programmes. In Malaysia, currently, almost 40 per cent programmes are imparted through face to face mode and the remaining 60 per cent through online mode (Puteh & Hussin, 2007). A study by Liyanagunawardena et al. (2011) revealed that in a Sri Lankan University despite entering into an eLearning programme, majority of students expected face-to-face classes and were not able to adapt to the new style of teaching/learning. Andersson (2008) observed high attrition rate in eLearning programmes than the traditional face to face programmes due to lack of understanding of the system of eLearning in Sri Lanka.

The study conducted by Khan & Jumani (2012) revealed that face-to-face classes were more difficult than the eLearning classes (which are at the disposal of the learners) and it was more motivating for students to go for eLearning programmes in Pakistan. However due to lack of availability of IT infrastructure in Pakistan, the eLearning platform was not suitable for education.

eLearning Implementation Tools

Initially most institutions that started web-delivery of courses developed their own platform. However, the scenario has fast

changed, and institutions are now using proprietary and open source LMS for delivery of eLearning. An LMS plays a crucial role in virtual delivery of educational programmes by providing students access to different learning activities (Toor, 2005). Anand, Saxena and Saxena (2012) found eLearning platforms to be the most popular method of eLearning delivery followed by other IT tools. The Open University of Malaysia is using in-house developed LMS — 'MyLMS' for online programmes.

Rahim (2008) reported that some of the institutions in Brunei use their own LMS. However, some of the teachers were not comfortable with the system and technology for teaching and learning purposes. The LMS provided an authoring tool that helped in creating SCORM compatible e-content for the students (Yong, 2009). While studying the student perception towards a LMS in Brunei, Buzzetto-More (2008) reported that the students found the system useful since they were able to find valuable information through the system.

The Virtual University of Pakistan developed its own LMS on active server page to house French programme after unsuccessfully trying WebCT and IBM LMS (Toor, 2005). In Maldives, use of LMS by the educational institutions is limited to urban areas only. The Centre for Open Learning, Maldives also experimented with integration of SMS with the learning platform (Shareef, 2010). Anand, Saxena & Saxena (2012) reported that the conventional learning tools (text reading, presentations, animated content, emails, videos, etc) were the preferred choice of the learners whereas they showed disinterest in the game based and role based learning.

Chew (2010) founded that in Singapore online quizzes were valued by the students more since they helped them recognize their strengths and weaknesses. The LMS developed by Virtual University of Pakistan (VUP) provided for schedule, email, discussion forum, guidelines for course, progress tracking system and technical help forum (Toor, 2005). Thowfeek and Hussein (2008) reported that students in Sri Lanka welcomed and took more interest in different eLearning tools when it was made compulsory for them to use those tools.

Pathan and Hassan (2005) reported that some of the teachers in Bangladesh were using their own websites for eLearning purposes like sharing the content, giving assignments to the students and using other applications created by them for managing learning activities. Buzzetto-More (2008) reported that students in Brunei take the online assignment very positively for their eLearning. Delvechhio and Lougney (2007) observed that when compared to conventional learning, class activities and assignment completion activities in eLearning consume more time.

Interaction in eLearning

The online tutor plays an important role in making an eLearning programme a success (Somananda, 2012) since it is highly dependent on the interaction of students with the tutor. A specially designed tool for interaction with mobile application was integrated with the LMS in Maldives (Shareef, 2010). Thus the mobile became

the major device of interaction between the teacher/institution and the students with the help of technology.

In Pakistan, while student-teacher interaction was managed via Internet, physical classroom and laboratories also formed an important part of delivery mechanism (Masood, 2006). Becta (2008) reported that students preferred the face-to-face interaction with their teachers which helped them in learning in a better way. The teachers were reported to believe that web-based learning enhanced student-student interaction whereas the students denied such a relationship between the web-based learning and student-student interaction (Jones and Jones, 2005). In 2008, the Commonwealth of Learning organized a blended online training for development of distance learning materials for the faculty and staff of Bangladesh Open University⁸⁶. In the same year, the Staff Training and Research Institution of Distance Education (STRIDE) at IGNOU offered an online training programme for development of self-learning materials⁸⁷. Both these programmes used the *WikiEducator* platform and *GoogleGroups* to impart training. Mishra (2008) developed a

Transcript Analysis Protocol for Online Support (TAPOS) that was used to analyze interaction in online learning in the *GoogleGroups*. This revealed the need for



⁸⁶ See http://wikieducator.org/OPEN_SCHOOL,BANGLADESH

⁸⁷ See http://wikieducator.org/IGSLM_Background

preparing the students for new learning environment, as the trainees were not able to use the interaction facility for reflections and critical thinking, and used the forum mostly for reporting task completion. Mishra and Juwah (2006) had also emphasized the need for staff development of online teachers to develop online facilitation skills to improve interaction in online discussions and develop reflective thinking and social construction of knowledge.

Perception/Attitude of Teachers and Students toward eLearning

For the success of eLearning, it is important that both student and teacher have positive pre-disposition towards teaching and learning in the online environment, and make effective use of the tools and pedagogy available. Golden, McCrone, Walker, & Rudd (2006) reported that the attitude and confidence of the teachers have a great influence on the use of eLearning in Sri Lanka than the personal background of the teachers or their institutional characteristics. Based on the 'Unified Theory of Acceptance and Use of Technology' propounded by Venkatesh, Morris, Davis, and Davis (2003), Umrani-Khan and Iyer (2009) devised an eLearning acceptance model identifying and explaining the factors of "performance expectancy, effort expectancy, social influence and facilitating conditions". The study revealed that attitude of an individual teacher and a student is central to the acceptance of eLearning.

Jones and Jones (2005) conducted a comparative study on attitudes of teachers and students on the use and effectiveness

of learning course management system. They reported that teachers were more likely to agree with web-based learning than the students. Karagiorg and Charalambou (2006) in their study conducted in Bangladesh reported that teachers' personal attitude and skills were greatly impacted by training. However, the teachers could not transfer the knowledge to the learning environment and therefore, did not have an impact on student learning and their achievement.

Panda and Mishra (2007) developed a tool to measure faculty attitude towards eLearning that has been adopted by several researchers around the world. Using the tool in a mega-university in India, Panda and Mishra (2007) observed that experience in computer and use of email by the teachers had an impact on the attitude of teachers towards eLearning. Thowfeek and Hussein (2008) in the study conducted on the teachers of South Eastern University of Sri Lanka reported that the attitude of teachers towards eLearning was very positive and they were optimistic towards using different eLearning tools in their teaching.

Seyal et al. (2010) in a study conducted in Brunei found that educational level influences the attitudes of students towards eLearning significantly. Cheng (2006) also reported the "positive attitudes of the students towards eLearning" irrespective of other variables like demographic, gender, computer skills and education system in Brunei. However, on the use of eLearning material, significant difference was seen in the attitudes of male and female students by him. Seyal et al. (2010) reported that the positive attitude of students in Brunei influenced the use of eLearning by the

individual learners, thereby enhancing the learning.

The major challenges in implementation of eLearning environment (Andersson, 2008) in Sri Lanka are: student's academic confidence, attitude towards eLearning, student support, access, flexibility, learning activity and localization of content. Mehra and Omidian (2011) reported that majority of the students had positive attitude towards eLearning and perceived eLearning to be useful. Therefore, they were ready to undertake eLearning programmes in future. Asan and Koca (2006) reported that attitude of students towards eLearning has positive relation with eLearning outcomes. The student's attitude towards eLearning helps the teachers in predicting the learning outcomes.

Andersson (2008) also pointed out that the students in Sri Lanka were not comfortable with eLearning environment. It is not regarded as a 'cool' tool for delivering education. It is less preferred as compared to the face to face education in Sri Lanka which may act as a demotivating factor if not addressed appropriately. In the context of Maldives, Shareef (2010) observed the positive attitude of students towards introduction of SMS service because it reduced the number of calls by them to the information centre. Lee, Yoon and Lee (2009) also indicated that perceived usefulness of eLearning is influenced a great deal by instructor characteristics and teaching materials.

Masrom (2007) in Malaysian context observed that there is a significant effect of perceived usefulness on the intention to use eLearning technologies by the students. Therefore, the application of eLearning

technologies which are beneficial to the students can be willingly adopted by them. The study conducted by Gururajan & Low (2004) in India revealed that the students preferred the information which they got through personal contact to that searched on the online system. The online search was graded as second priority after the personal contact to seek the desired information.

Training in eLearning

Anand, Saxena and Saxena (2012) reported that in India, the use of eLearning for training of persons involved in rural development programmes of states and central government would prove to be cost effective. Seyal et al. (2010) highlighted the training of the eLearning functionaries in Brunei as a bigger challenge for the country. A strong need for training was felt by the respondents in the absence of lack of eLearning policy in the institutions in Sri Lanka (Gunawardana, 2010).

The e-tutors in Pakistan felt themselves lacking in necessary attributes due to absence of proper training in pedagogical aspects of eLearning. It was probably due to the fact that eLearning was not yet considered as a comfortable alternative educational tool there (Siddiqui, 2011). However, Ndubisi (2004) observed that investment in IT infrastructure,



training of staff and content development are not adequate for implementation of eLearning in Pakistan. Therefore, training of e-tutors has been crucial in eLearning which needs to be addressed adequately in order to promote eLearning and bring qualitative improvement in education in Pakistan (Khan & Jumani, 2012).

Walsh (2011) found a noticeable change in the pedagogical practices of teachers in Bangladesh following a session of training on use of ICT for learning to the extent that they focused more on communication aspect of their pedagogy and could design interactive activities to engage the learners in a better way in learning. Lim (2007) found in the context of Bangladesh that the teachers would require continuous professional development in the form of training in ICT in order to enable them to effectively implement the same in teaching and learning activities.

Quality and relevance of eLearning components

Course structure of the eLearning programmes along with the quality of e-content also pose a significant challenge in Pakistan (Toor, 2005). Karmakar and Wahid (2006) reported that the faculty need to review the whole content available and find a way out to convert it into a reusable format in order to ensure the availability of quality content for eLearning in Bangladesh.

Liyanagunawardena (2011) reported the poor quality of tutors engaged in eLearning in Sri Lanka. Thowfeek and Hussin (2008) opined that though the people in Sri Lanka have a positive attitude

towards eLearning, they prefer a mixed mode of learning environment considering doubt on academic quality of the system in addition to its adaptability by the learners. Niwaz, Kayani and Kayani (2011) observed that the facilities for eLearning programmes and standards of student performance evaluation in VUP need improvement as per market requirement.

In Sri Lankan context, in addition to access to resources, quality of study material was a serious issue (Liyanage, Pasqual & Wright, 2010). Asad (2010) reported that challenges like quality of teachers, availability of content and learning environment need to be addressed to improve the education system in Bangladesh.

Effectiveness of eLearning programmes

Johnson, Gueutal and Falbe (2009) concluded that if meta-cognitive abilities play an active role in eLearning, individual learner's characteristics and technology characteristics enhance learning effectiveness. Regulation of an individual's cognitive process including individual's awareness and knowledge are the activities which are reflected by meta-cognitive skills (Flavell, 1979). Poon, Low and Yong (2004) opined that quality of lectures and characteristics of interactive technology applications play an important role in ascertaining effectiveness of eLearning. Hussain (2007) also concurred that "Virtual education enhances the level of performance of the students".

Liyanagunawardena et al (2011) observed that flexibility of the programme and

reputation of the offering institution play an important role in influencing the decision of a student to choose an eLearning programme. Tan (2002) through a study conducted on the use of ICT for training by various companies in Singapore revealed that almost 71 per cent of the companies found eLearning more effective than the conventional training methods. The implementation aspects of the technology influence the delivery of online programmes in a big way (Collis, 1995). Therefore, the role of instruction in implementation of technology cannot be understated (Thowfeek & Hussin, 2008). Umrani-Khan and Iyer (2009) also highlight that the eLearning effectiveness is the function of student and teacher style of learning and teaching respectively. Viewing the rapid growth of technological advancements in Singapore, Bashar and Khan (2007) recommended that technological innovations should be balanced with pedagogical innovations and use of eLearning platform in order to enhance the effectiveness of eLearning.

Social Acceptability of eLearning

Akhtar (2005) reported that Bangladesh has not yet been able to develop a reliable eLearning system in the country and local authorities also find it difficult to accept and accredit such eLearning facilities. However, Islam and Selim (2006a) suggested that since the ICT is rapidly expanding in Bangladesh for the last few years, there is a higher degree of acceptance among the people now which would boost the ICT integrated learning in the country. For this, the national strategy, connectivity, accreditation, acceptability, quality learning material and relevance of content are crucial for growth of eLearning

endeavour in Bangladesh (Akhtar, 2005). Shareef (2010) observed that due to various barriers, eLearning has not been accepted widely in Maldives.

Gunawardana (2010) noted a high level of acceptance of ICT in Sri Lanka and research on use of simpler technologies in education i.e. browsing the Internet, use of SMS and telephone. Lee, Hsieh and Ma (2012) saw individual, organizational and task characteristics as the main deciding factors for acceptance of eLearning system in Pakistan. The use of eLearning platform has also been found influenced by usefulness and perceived enjoyment in its use. Reputation of institute in Sri Lankan context has a great impact on eLearning implementation. Integrated study material is also an important factor for success of eLearning (Gunawardana, 2010). Conversely, at the institutional level, successful implementation of eLearning is an added advantage to the reputation of the institution (Gunawardana, 2010). This was also echoed by Stephen (2007) that successful implementation of eLearning enhanced the image of the university in the opinion of Sri Lankan students.

Student Satisfaction in eLearning

Majority of students were satisfied towards the website hosting the programmes in Singapore (Daniel, 2005). Schneckenberg (2010) emphasized that communities of practice and, social



and peer group networks have an impact on the student participation in eLearning. Wang (2003) reported that student satisfaction is also influenced by learning communities, learner interface and personalized content. Garavan, Carbery, O'Malley, and O'Donnell (2010) noted that the participation in eLearning can be well predicted by “self-efficacy, motivation to learn, learners characteristics, perceived barriers and enablers, and instructional design” for eLearning programmes.

With special reference to Pakistan, Malik (2010) reported that “facilitation of technical matters, attitude of students and instructors, their computer efficacy, teacher response during eLearning and friendly interface of the eLearning environment” were important variables that influenced student satisfaction in eLearning environment. Institutional incentives also play an important role in promoting eLearning on the part of the teachers (Garavan, Carbery, O'Malley & O'Donnell, 2010). Student satisfaction is also largely influenced by student-teacher interaction a great deal (Hong, 2002). Liaw (2008) emphasized behavioural intentions of learners for use of eLearning system can be well explained by perceived usefulness and student satisfaction.

Factors Motivating Use of eLearning

Gunawardana (2010) reported that integration of course material, strong management support and effective leadership are the push factors for success of eLearning in Sri Lanka. However, the crucial factors for success as pointed out by Hussain (2000) in Malaysian context are:

The institution's strategic plan for ICT use in teaching and learning; the specialized centre that translates the plans into reality and coordinates the strategies for eLearning success; the right combination of human resources balancing the academic know how with technology orientation; and sufficient infrastructure to enable the eLearning platform, staff development plans and strategies to encourage the adoption of IT for teaching learning.

In Indian context, Panda and Mishra (2007) observed that strengthening of motivating factors was as important for success of an eLearning initiative as removal of the possible barriers. They reported that teachers are motivated by personal interest to use technology, followed by intellectual challenge, provision and effective development of infrastructure (i.e., both hardware and software), and training on eLearning, in that order. Their study also revealed that incentives to use eLearning, credit towards promotion, and peer recognition were at the bottom of the list of motivator. Gunawardana (2005) described “supportive instructional material, motivational tutorial support, communication between the stakeholders and collaboration as the fundamental elements for success of the eLearning initiative” in Sri Lanka. Riaz, Riaz and Husain (2011) found that in the context of Pakistan the students who were using eLearning adequately are motivated for this environment and are comfortable in using computer and Internet.

Sharma (2001) reported in Indian context that the students of Bachelor in

Information Technology (BIT) and Advanced Diploma in Information Technology (ADIT) found it exciting to learn online at the tele-learning centres as compared to those who did not have any access to these centres, and therefore, faced difficulties in pursuing their programmes. The scalability of eLearning is considered to be a motivating factor, cost saving in its implementation is not that important motivator in institutes in Singapore (Tan, 2002).

Barriers in implementation of eLearning

Gunawardana (2010) identified inconsistent IT infrastructure and inappropriate software as the barriers in effective implementation of eLearning. In Brunei the faculty perceived poor access to Internet by students as the top-most barrier to effective implementation of eLearning. Liyanagunawardana, Adams, Rassool and Williams (2011) further concluded that lack of online infrastructure; competencies of the educators and online support to the students were some of the constraints before the eLearning system in Sri Lanka. Low Internet and computer spread have serious affect on the choice of learning programmes in Sri Lankan context (Liyanagunawardana et al., 2011). Similar concerns were also identified by Panda and Mishra (2007) who listed concerns over student access to technology as the primary barriers to use of eLearning, followed by lack of training to teachers, poor networking and Internet access, and lack of technical support at the time of need in the Indian context.

The lack of understanding of learner-centred approach to eLearning was one of the barriers in its effective implementation in Sri Lanka (Andersson, 2008). While studying the project on use of SMS in eLearning in Maldives, Shareef (2010) reported that one of the barriers to effective implementation of eLearning is the dispersed population. He pointed out that adequate number of students per teacher may also be difficult to find due to size of islands.

Khan (2003) emphasized the need to design an ongoing mechanism for timely update of e-content as a dynamic entity with reference to Bangladesh. Since the e-content developed in western countries does not suit the local contexts and language in Bangladesh, the development of localised e-content in national language needs to be emphasised (Akhtar, 2005). Non-familiarity with the eLearning system, English as the medium of instruction and lack of computing skills were some other constraints in Sri Lanka (Liyange, Pasqual & Wright, 2010). In Pakistan, interrupted power supply and English proficiency were the major barriers to eLearning (Qureshi, Ilyas, Yasmin and Whitty, 2012). Lack of knowledge of English among the students in Bangladesh as a hindrance in the use of e-content was echoed by Pathan and Hassan (2005) which is similar case for Pakistan since people prefer to study in their native language (Urdu), whereas majority of course content is developed in English language (Siddiqui, 2011). The Internet in Bangladesh is used more for social networking and accessing the websites related to entertainment which is probably due to inadequate availability of relevant content in education and Internet based assignments from teachers (Akhter, 2011).

Technical Issues in implementation of eLearning

Islam and Selim (2006a) reported that the Internet connectivity in Bangladesh is very poor and other constraints like quality infrastructure, networking facilities and proper training of faculty in ICT limit its use in education. Alam, Kabir and Elizabeth (2006), and Pathan and Hassan (2005) highlighted unavailability of online facilities at the work place, inadequate computer skills, low bandwidth, limited facilities and lack of opportunities to facilitate experiments and hands-on training for teachers, as the crucial issues in designing the eLearning framework for Bangladesh. Islam and Selim (2006) further reported that the digital literacy in Bangladesh is not up to the mark which is the very basis of spreading ICT awareness and accessing eLearning. Therefore, only a few privileged would be able to take advantage of this endeavour in Bangladesh (Islam & Selim, 2006). Mahmud and Gope (2009) reported that the challenges like unwillingness to change the educational ambiance, poor command over English, scarcity of funds and technical infrastructure in universities, and lack of confidence in use of ICT among others need to be urgently addressed for implementation of eLearning in Bangladesh. Raihan (2009a) reported that inadequate funding, lack of facilities for creation of e-content, novice faculty, low penetration of ICT and power interruptions are the major challenges in implementation of eLearning in Bangladesh.

Yong (2009) found harmonization of the technical standards, policies on data sharing, resource optimization and lack of skilled human resources to implement the

projects as the crucial issues in Brunei. Pulist (2000) reported acquisition of requisite equipment, skills of teachers and learners and their willingness to use eLearning platform as essential institutional issues to be addressed for effective implementation of eLearning in India.

Ahmed (2010) identified IT infrastructure, instructor characteristics and organisational and technical support as the critical factors which influence the learner of hybrid online courses in Pakistan. The major problems faced by the students in Pakistan as observed by Hussain (2007) are “computer vision syndrome, pain in hand finger joints, backache, head-ache and erratic power supply”.

Liyanagunawardena et al (2011) reported that access to eLearning resources, their quality and reliability/authenticity are the important issues in eLearning environment in Sri Lanka. Thowfeek & Hussein (2008) identified low bandwidth, poor computer maintenance, less server capacity and capability of system administrator as the crucial issues to be taken care of for eLearning environment. They further reported that senior management of the institutions play a significant role in eLearning implementation. The difficulties in implementation of eLearning in Sri Lanka arise due to limitations of space, time and scale related to the eLearning environment (Liyanage, Pasqual & Wright, 2010).

Challenges in implementation of eLearning

Bangladesh needs to address some more challenges like finances, skills and capacity for promoting eLearning (Akhtar, 2005).

...acquisition of requisite equipment, skills of teachers and learners and their willingness to use eLearning platform as essential institutional issues to be addressed for effective implementation of eLearning...

Embi (2011) found main challenges in governance of eLearning in Malaysia as shortage of human resource, lack of incentive policy, role clarity, IT skills in staff and good trainers among others. The top five challenges to be addressed for success of eLearning in Brunei as identified by Selim (2005) are “institutional support for eLearning, instructor’s attitude and learning style, student’s attitude, motivation and technical competence”.

The challenges like lack of instructional and technical infrastructure, cultural rigidity, computer literacy and limited access to technology have discouraged Pakistan from taking full advantage of ICT in education (Siddiqui, 2011; Reddi & Mishra, 2005). The learners were not able to utilize the e-resources fully due to lack of information literacy skills in Sri Lanka. The tutors did not know their role as facilitator, and therefore, could not effectively help the students in enriching their learning experience (Andersson, 2008).

The management support, tutorial support and students’ personal commitment to combat the constraints are other important factors in Sri Lanka (Gunawardana, 2010). The spread of population on such a vast area in Maldives itself is a major challenge for want of economies of scale before the government in making the ICT infrastructure available and implementing eLearning (Saeed & Moreira, 2010).

Summary of the Review of Literature

The Commonwealth Asian countries are passing through different phases of implementation of eLearning and very

limited amount of research is available. Most of the literature reported is anecdotal, descriptive in nature, has reflective opinions of expert stakeholders in the field and early pioneers working on eLearning. While the countries like Bangladesh, India, Maldives, Pakistan and Sri Lanka are involved in addressing the issues and challenges that discourage use of eLearning, Malaysia, Singapore and Brunei are using eLearning resources in their educational programmes in different ways and at different levels. India, though has huge IT enabled industry, has not really used the power of eLearning yet. Several recent developments including the NPTEL, and a bouquet of online programmes from IGNOU is proving to be a game changer. One of the programmes of IGNOU is Post Graduate Diploma in eLearning (PGDEL) offered in blended mode with only five days of face-to-face interaction using a variety of tools and techniques. This interaction provides a rich learning environment to the learners (usually prospective teachers or teachers interested in teaching online). The learners explore the different teaching and learning tools and engage in online discourse to have hands-on training, which has been identified as a major barrier in the literature.

It can be seen that the studies reported during the earlier years covered in this review highlight the basic issues of lack of funds, ICT facilities and even lack of infrastructure, while the studies reported during the last five years focus on the availability of content, training of teachers, and other pedagogical issues. Therefore, we can see a progressive move in eLearning scenario in Commonwealth Asian countries.

The review of literature reveals that the students and institutions prefer a blended mode of learning instead of dedicated online mode of imparting education. Malaysia is an excellent example of use of ICT for imparting education in a blended mode. Probably blended mode of learning is more accommodative and provides more flexibility to the educational institutions, teachers and students on different accounts and allows the institutions to offer to the students a variety of approaches and methodologies.

While the research studies are limited (and a comprehensive review is still to be achieved) to draw any conclusive view on the landscape of the issues discussed here, it definitely provides us a glimpse of the issues and concerns of students, teachers, and decision-makers in educational institutions in Commonwealth Asia. While there is a need to further augment the ICT infrastructure in educational institutions to

provide computer and network access to teachers and students, it is also true that educational institutions are now using either proprietary or open source LMS to provide better eLearning experiences, and are willing to experiment with new ways of providing interactions to the learners using email, *GoogleGroups*, discussion forum, SMS, etc. As in the case of open and distance learning, the issue of quality is also a matter of concern, and several researchers have articulated the need for quality indicators and standards. Not only the training of teachers and administrators but also training students is crucial for taking advantage of eLearning. Training also influences the quality of the programmes offered through eLearning.

The review also indicated that research into the effectiveness of eLearning, readiness of teachers, student interaction and satisfaction, and achievement of learning outcomes need further exploration in Commonwealth Asia.



4

eLearning in Commonwealth Asia: Survey Results

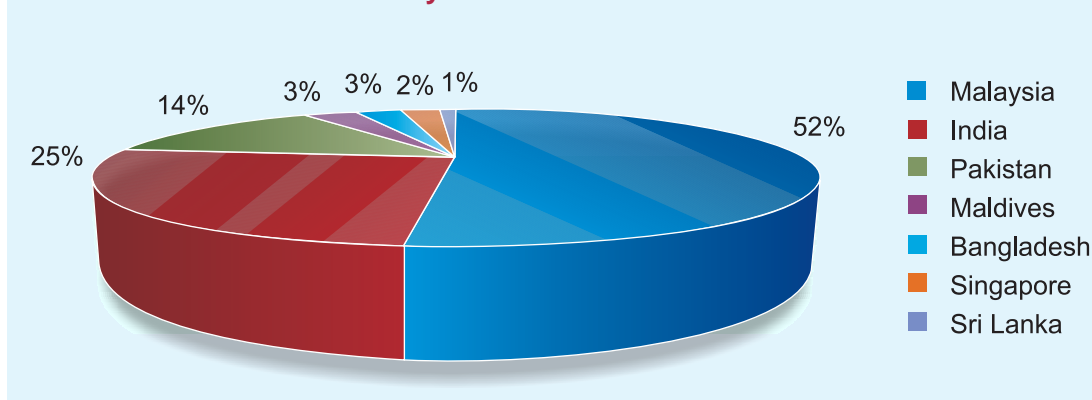
Data for the study was collected through an online survey in the form of a questionnaire. This questionnaire comprised dichotomous, multiple-choice, multiple-answers and open-ended items. All the items except the email ID, were kept optional to give the respondents autonomy to go to the next set of questions. The online questionnaire was divided into 11 pages. The first page contained the message from the researcher, purpose of the survey and a statement to guide and persuade the subjects to participate in the survey. The item on providing 'email ID' was kept 'compulsory' to capture the email ID of the respondents and make contact at a later stage, if needed with the purpose to elicit further feedback. Each page contained 2 to 6 items depending upon their length. Due to optional nature of the items, some of the respondents chose not to answer some of the items.

Nature of respondents, their affiliation and nature of involvement

Country-wise analysis of respondents

In all, 220 responses were received in the online survey. The preliminary analysis of the captured data revealed that some responses had either been received from countries beyond the scope of this study or did not provide any input to any of the items given in the questionnaire, and therefore, such responses were excluded from the database. Therefore, only the usable responses (N=211) were considered for the analysis. It was found that the highest number of responses was received from Malaysia (52 per cent) followed by India (25 per cent) and Pakistan (14 per cent). There was no response received from Brunei Darussalam as shown in Figure 1.

Figure 1: Majority of respondents were from Malaysia followed by India and Pakistan



It was observed that in many cases the participants were performing more than one role simultaneously. In certain cases even a single person was handling all activities of eLearning.

Institutional affiliation of respondents

Responses were received from 54 different institutions in the region. The details of the top three institutions from where the responses were received are given below:

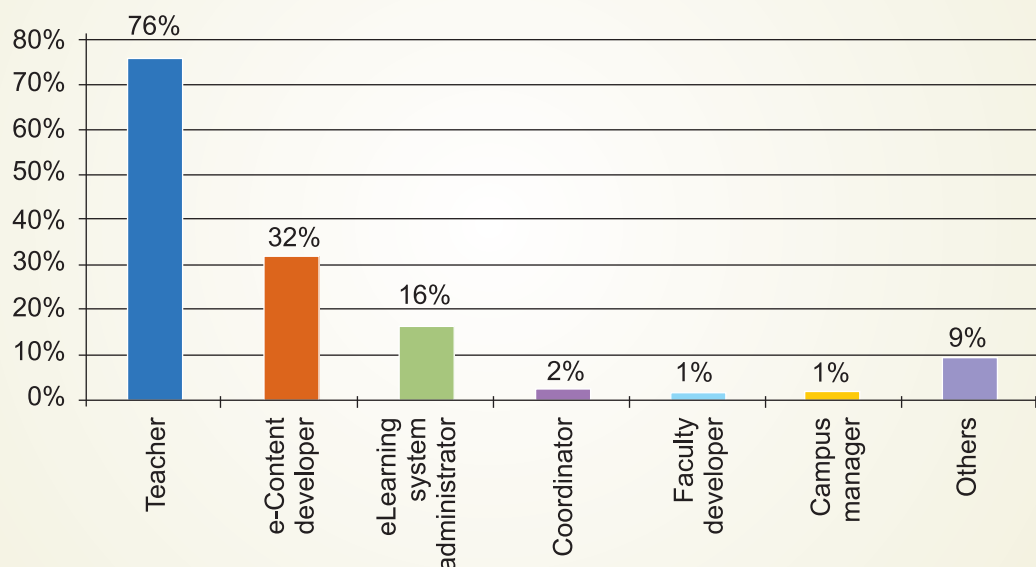
- Universiti Sains Malaysia (25.5 per cent). It was established in 1969 and initiated eLearning programmes in 1990.
- National University of Malaysia (9.5 per cent). The University was established in 1970 and launched its eLearning programmes for the first time in 1997.
- Indira Gandhi National Open University, India (7.5 per cent). The University came into being in the year 1985 and introduced its first eLearning programme in 1998.

The oldest institution from where the response was received was the Indian Institute of Science, Bangalore, India which was established in the year 1909 and started offering eLearning programmes in 2004.

Involvement of respondents

The respondents were asked to indicate nature of their involvement in eLearning programmes in their institutions. It was observed that in many cases the participants were performing more than one role simultaneously. In certain cases even a single person was handling all activities of eLearning. The analysis of data (Figure 2) reveals that 76 per cent respondents were involved as teachers, followed by e-content developers (32 per cent) and eLearning system administrators (16 per cent). Some other roles performed by the faculty were those of coordinator, faculty developer and campus manager.

Figure 2: Majority of respondents were involved with eLearning programmes as Teachers



Programmes and delivery mechanism

Details of programmes offered

The respondents were asked about the names of the programmes with which they were associated. The analysis of data revealed that there was a wide range of programmes starting from awareness/appreciation level programmes, first degree, post-graduate degree to doctoral level programmes in different streams and disciplines.

and Health (9.4 per cent). Some other disciplines included in bouquet of eLearning programmes are: Architecture, Built Environment, Commonwealth Youth Programme, Mass Media Management, Sustainability Science, Tourism Studies, etc.

Number of eLearning programmes

The number of eLearning programmes offered by different educational institutions in the Commonwealth Asian countries has been increasing at a smooth pace. While in 1992 there was only one programme, it

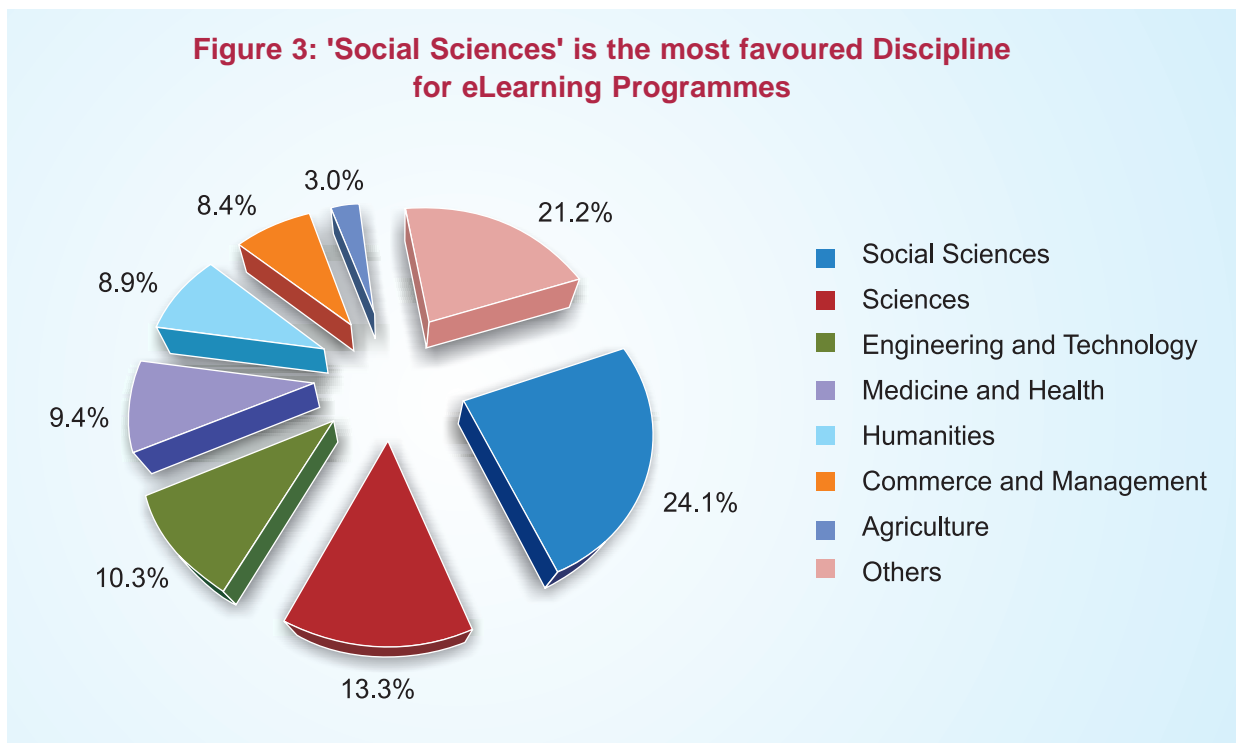
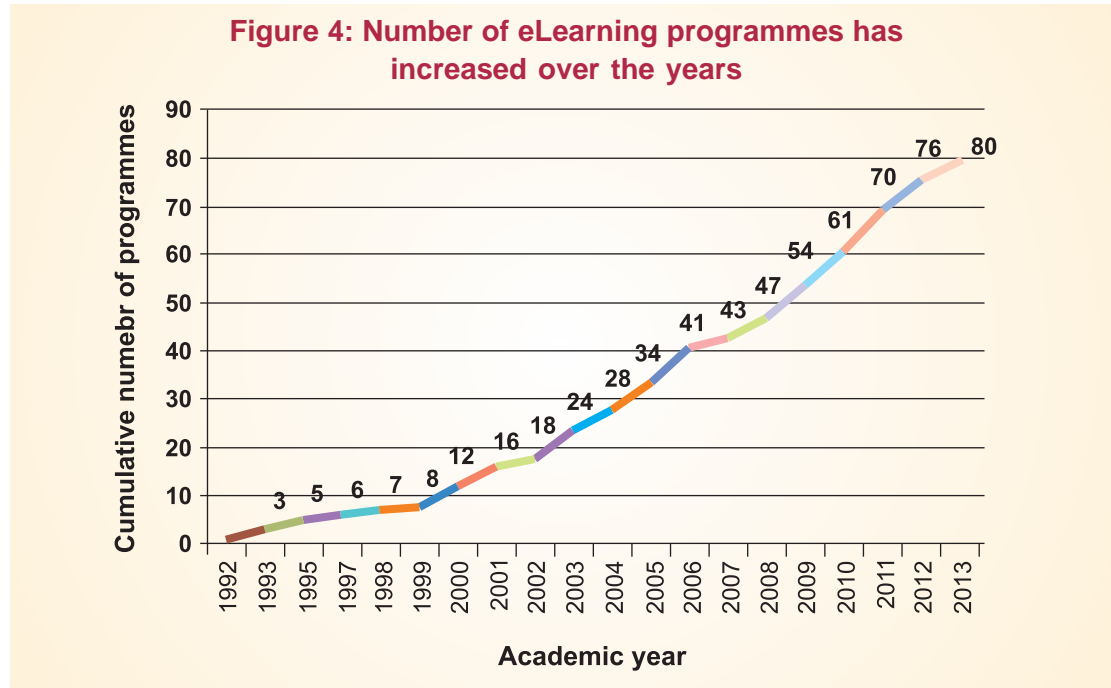


Figure 3 shows that eLearning is a popular delivery mode for Social Sciences programmes (24.1 per cent) followed by Sciences (13.3 per cent), Engineering and Technology (10.3 per cent) and Medicine

showed a forward and progressive trend with 80 eLearning programmes on offer by 2013. Figure 4 presents the cumulative growth of the eLearning programmes in the region.

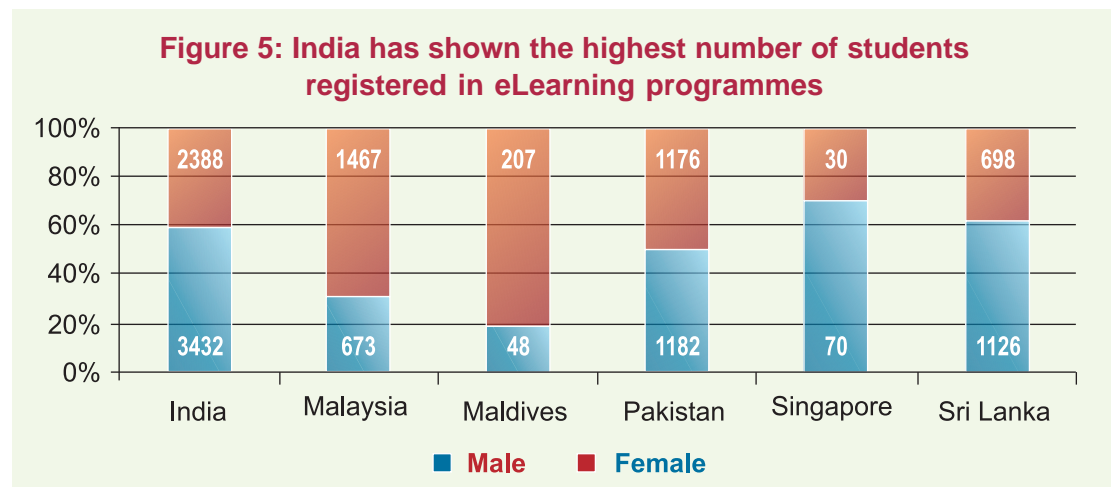


Student enrolment in eLearning programmes

In 35 instances the student enrolment as indicated by the respondents ranged from 2 to around 2,500. Male student enrolment was reported to be 52 per cent while female student enrolment is around 48 per cent. Average enrolment per programme is about 357 students. Country-wise student data based on gender is presented in

Figure 5. Extrapolating this to the number of responses, we estimate that number of students studying through eLearning in Commonwealth Asia is about 71,400. Considering the fact that this survey may not have covered all the online courses available, we can presume that the number of students enrolled in online programmes in Commonwealth Asia is less than 100,000.

Considering the fact that this survey may not have covered all the online courses available, we can presume that the number of students enrolled in online programmes in Commonwealth Asia is less than 100,000.



Student study hour- credit system adopted by institutions

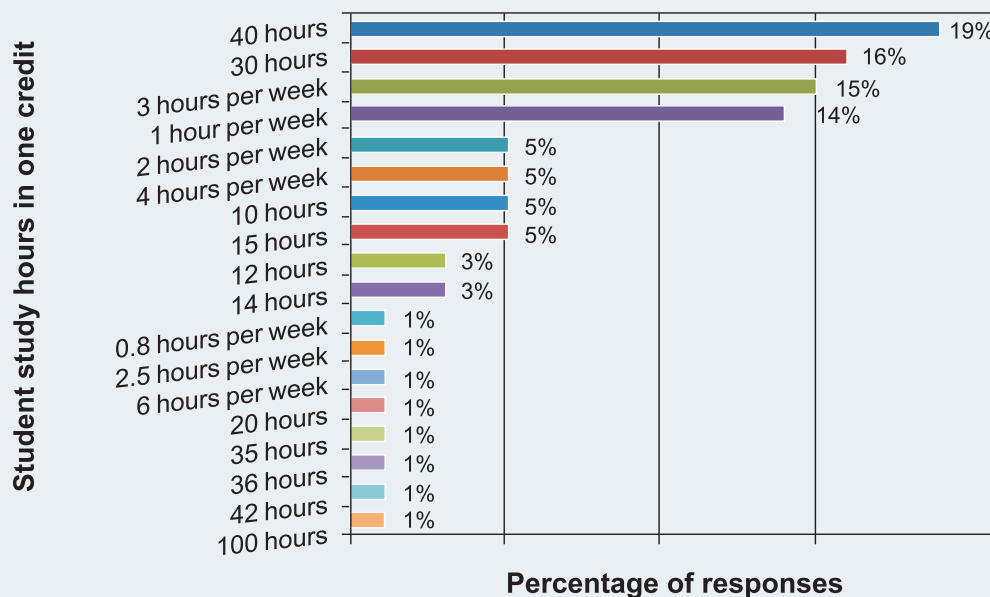
The respondents were asked to specify the ‘student study credit system’ being followed by their institutions in terms of hours of student study time including lecturing, classroom teaching/activities, field-based activities, watching any media or any other activity based on the pre-defined curriculum involving the student. The analysis of the data revealed that no uniform pattern/criteria is being followed by the institutions for specifying a study ‘credit’ for the students. While some institutions rely on 0.8 to 6 hours of

was observed that a student was required to study for 10 hours but was required to watch video for 90 hours thereby making a total of 100 hours spent by him/her for earning one ‘credit’. The frequently used criteria for deciding one ‘credit’ by the institutions were: 40 hours of student study (19 per cent), 30 hours of student study (16 per cent), 3 hours of student study per week (15 per cent) and 1 hour of student study per week (14 per cent) (Figure 6).

Mode of delivery of instruction

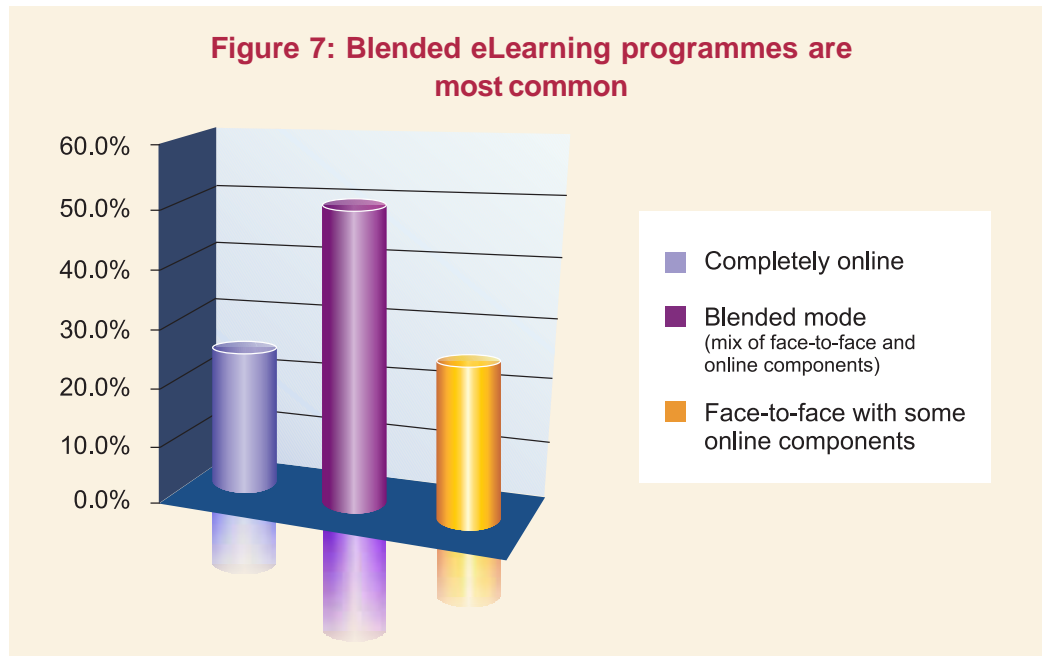
The eLearning for the purpose of this study, as defined in the beginning of this study,

Figure 6: A Credit worth 40 hours of student study time is popular among the institutions offering eLearning programmes



different activities involving the students in a week’s time, others consider ‘credit’ as absolute package ranging from 10 to 42 hours of ‘student study’ covering whole duration of the programme. In a case, it

could include programmes offered i) completely online, ii) through blended mode mixing the face-to-face instruction with some of the online components, and iii) major portion of the programme being



delivered face-to-face supplemented with online components. As shown in Figure 7, majority of the programmes are offered in ‘blended mode’ (50.8 per cent). The second category of ‘face-to-face with some online components’ received 26.3 per cent responses where online components had only a supplementary role followed by ‘completely online’ (22.9 per cent responses) with 100 per cent dependence of programmes on web-based technology including LMS.

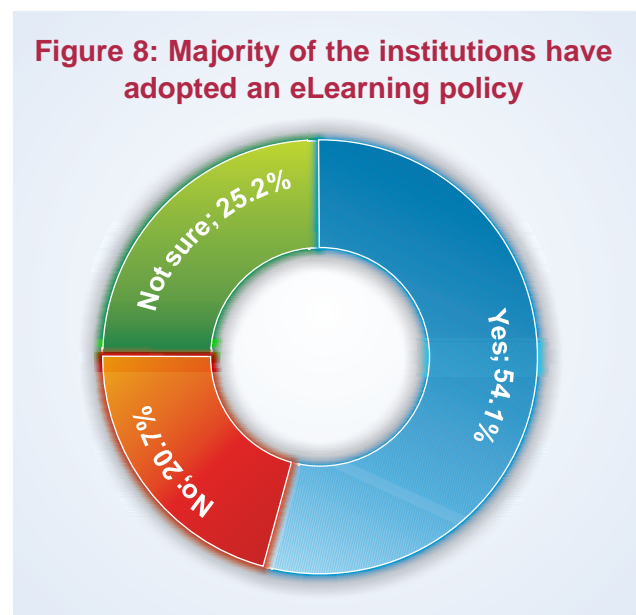
standardise the activities and put the relevant systems and procedures in place to deal with specific situations arising out of the context. Such a policy acts as a guide for the novice and sets a culture of its own in the institutions. Keeping this in view the respondents were asked about eLearning policy. The analysis of the

Policy on eLearning, OER, copyright, differently-abled and budget provisions

eLearning policy

In order to make the implementation of eLearning programmes successful, it is necessary for the institutions to adopt an eLearning policy,

Figure 8: Majority of the institutions have adopted an eLearning policy



responses (N=111) revealed that majority (54.1 per cent) of institutions had adopted policy on eLearning. While as many as 25.2 per cent respondents were ‘not sure’ about existence of a policy on eLearning in their institutions, 20.7 per cent indicated absence of any such policy (Figure 8).

Different provisions of the policy

The policy on eLearning adopted by an institution should have necessary provisions for different activities directly or indirectly connected with eLearning programmes. The respondents were asked to enumerate the salient points of the eLearning policy in case their institutions have adopted such a policy. It was observed, 64.7 per cent respondents agreed that the policy adopted by their institutions had a provision of training and staff development for the eLearning activities. The eLearning management mechanism (63.2 per cent) was another domain on which the eLearning policy focused, followed by content development

(61.8 per cent), assessment (58.8 per cent), quality assurance (50 per cent) and copyright/licensing (45.6 per cent) (Figure 9). It was specifically noted that only 23.5 per cent institutions had a provision of incentive/appreciation in the eLearning policy.

Implementation of eLearning policy

When eLearning programmes are launched for the first time, it is important to decide on issues like who would be implementing the policy, whether there would be a specific unit to monitor and handle the activities, whether autonomy would be given to the concerned units and whether budget would be handled centrally or it would be given to each of the units involved in launching/running of the programmes. As many as 91 per cent of the respondents who answered this question mentioned that the eLearning policy is implemented through a specific unit which takes care of all the related activities in an unified manner, as against the 9 per cent in

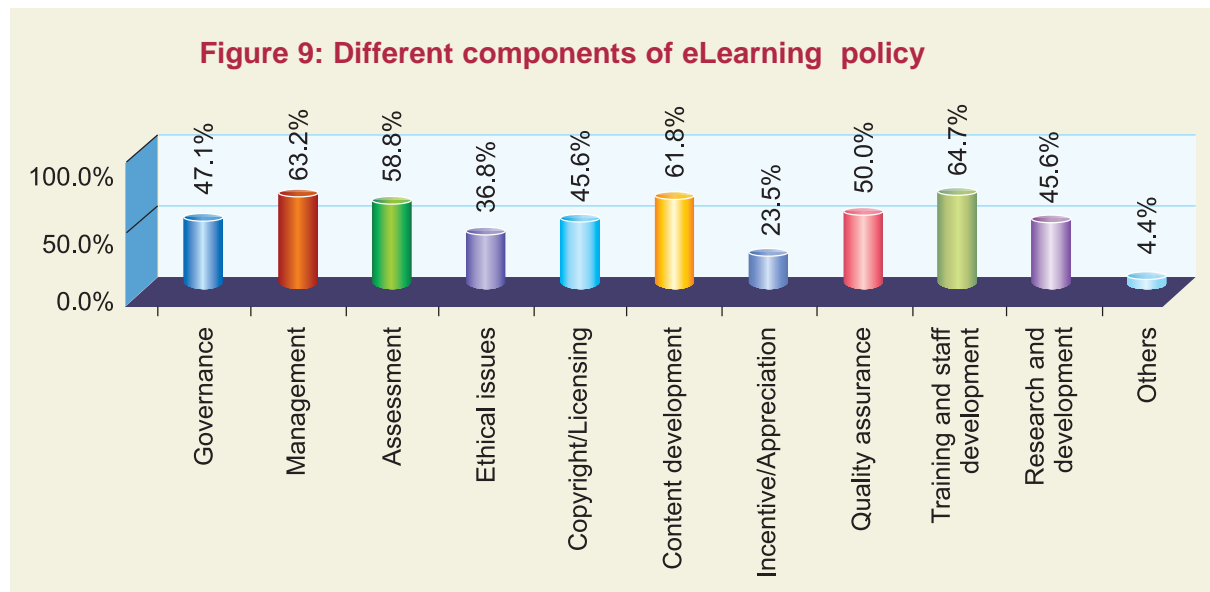
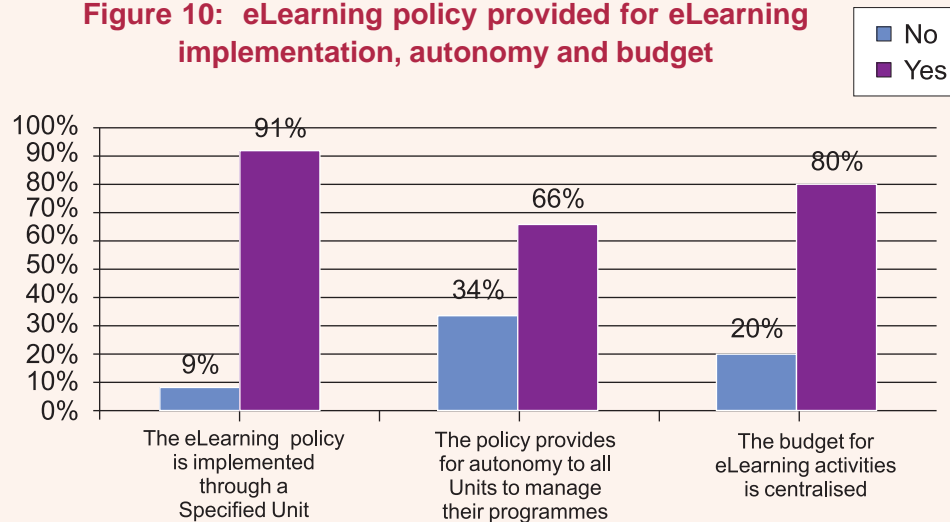


Figure 10: eLearning policy provided for eLearning implementation, autonomy and budget



an unified manner, as against the 9 percent in whose case the different units were handling their own respective activities. As many as 66 per cent of the respondents agreed that policy provided for autonomy to the units to manage their own eLearning programmes. Similarly, on the issue of budgetary provisions, 80 per cent of the respondents reported that the budget for

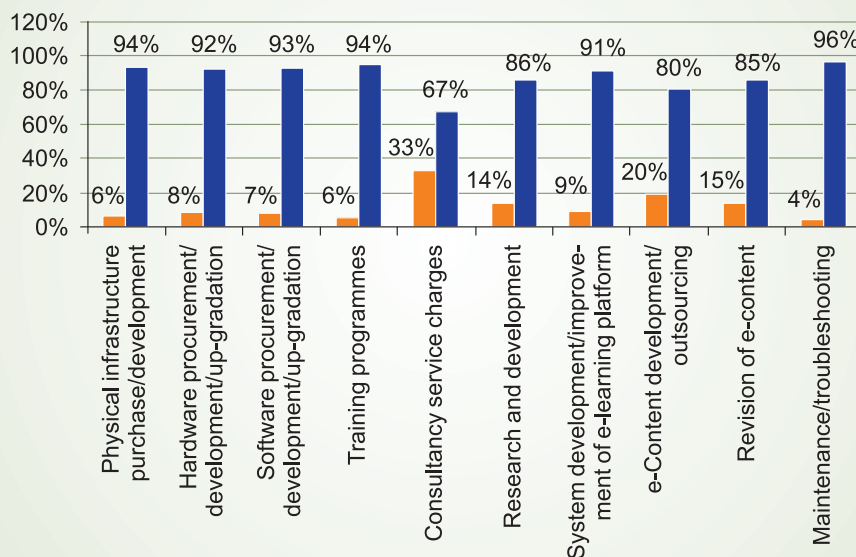
the eLearning activities was kept centrally with the specific unit that provided fund for performing different activities related to the programmes (Figure 10).

Provisions in the budget

To understand about budgeting of eLearning programmes, the respondents

were asked about the financial provisions by their institutions. The analysis of the responses revealed that the budget had provision for software procurement / development/up-gradation of the system (93 per cent), conducting training programmes for eLearning functionaries (94 per cent), purchase of physical infrastructure and its development (94 per cent), system development and improvement of

Figure 11: The eLearning budget has provision for different activities



eLearning platform (91 per cent), e-content development and its outsourcing (80 per cent), hardware procurement, its development and up-gradation (92 per cent), research and development activities (86 per cent), revision of e-content (85 per cent), consultancy service charges (67 per cent) and maintenance and troubleshooting (96 per cent). It was further noted that maintenance and troubleshooting (96 per cent) gained much importance among all other activities followed by ‘organising training programmes’ (95 per cent) and purchase/creation of physical infrastructure and its development in the budget (Figure 11). The respondents whose institutions did not have an eLearning policy mentioned that no separate budget was provided by the institutions and they managed various eLearning activities within the existing fiscal provisions.

Copyright

Launching of an eLearning programme for the first time has a serious concern of providing learning material to the

students. While some of the institutions manage their programmes relying on the Open Educational Resources (OER) available on the Internet, others preferred to create their own e-content and eLearning components based on the specific requirements of the curriculum. The copyright retention is one of the concerns in case of e-content developed in-house. Some institutions allow their faculty to retain the copyright for the content developed by them while others have an institutional copyright over all such content developed by the faculty. Results of data analysis revealed that 67.3 per cent institutions held the copyright of the content developed by the faculty. However, 10.2 per cent allowed the faculty to retain the copyright with them. Other 9.2 per cent had a joint copyright (both institution as well as individual). As many as 8.2 per cent respondents mentioned that the e-content was released as OER under open licensing policy (Figure 12).

OER and licensing policy

In the world of eLearning, OERs occupy a

Figure 12: In majority of cases institutions have copyright over the e-content developed in-house

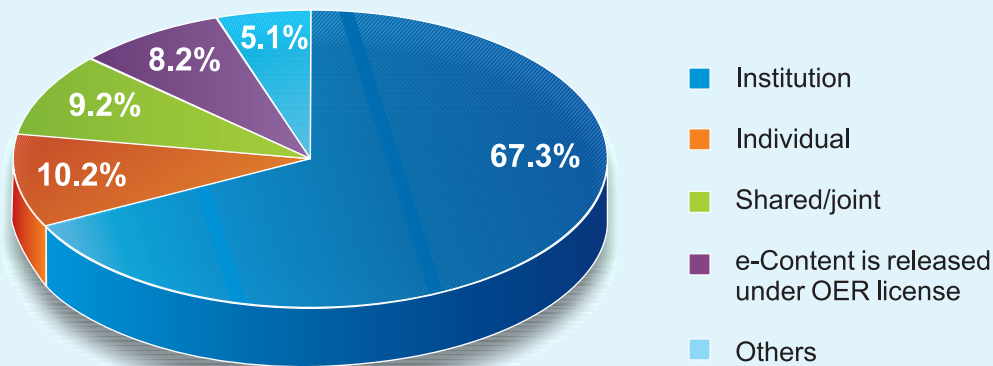
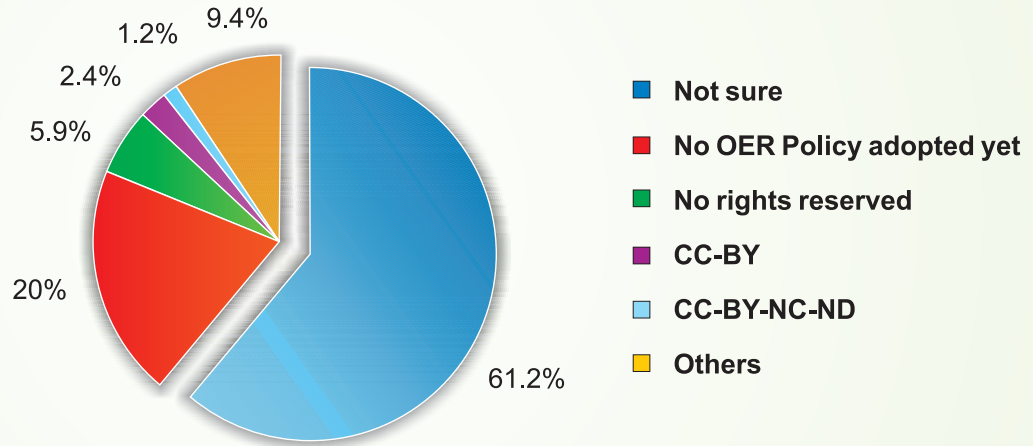


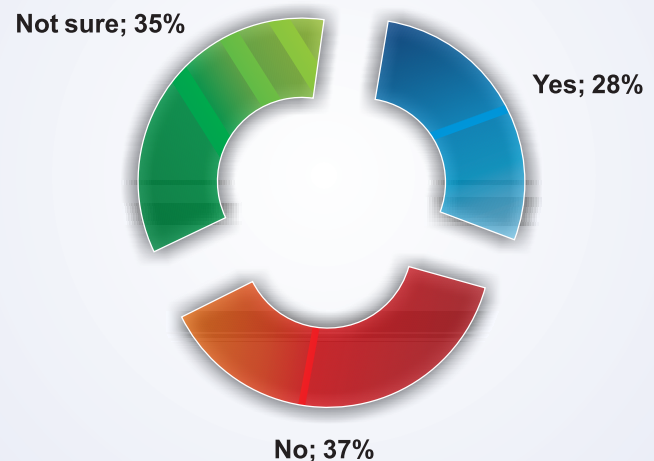
Figure 13: Lack of clarity about licensing of eLearning materials

prominent place by its virtue in making education borderless. These open resources help institutions that are not able to develop their own content, but are willing to start eLearning programmes. In such a case, it is imperative for an institution to adopt an OER policy while keeping the interest of the institution and the original content creator. The study revealed that 61.2 per cent of the respondents were not sure whether their institution has any OER policy. Twenty per cent of respondents indicated that their institutions have no OER policy. As many as 5.9 per cent respondents mentioned that 'no rights are reserved', while only 2.4 per cent and 1.2 per cent respondents mentioned that their institutions have adopted Creative Commons-Attribution (CC-BY) and Creative Commons-Attribution-Non-Commercial-Non-Derivative (CC-BY-NC-ND) OER policy respectively (Figure 13). The results show a wide gap as there

is lack of awareness about open licensing of educational materials amongst the respondents.

Policy for differently-abled

The data shows that 37 per cent institutions have no policy for supporting differently-abled in the eLearning programmes. As many as 35 per cent

Figure 14: Policy to support differently-abled students needed

respondents were ‘not sure’ whether any such policy existed in their institutions (Figure 14). Only 28 per cent respondents agreed that their institutions have adopted a differently-abled friendly policy for eLearning programmes to provide them the much needed support to enrich their learning experience.

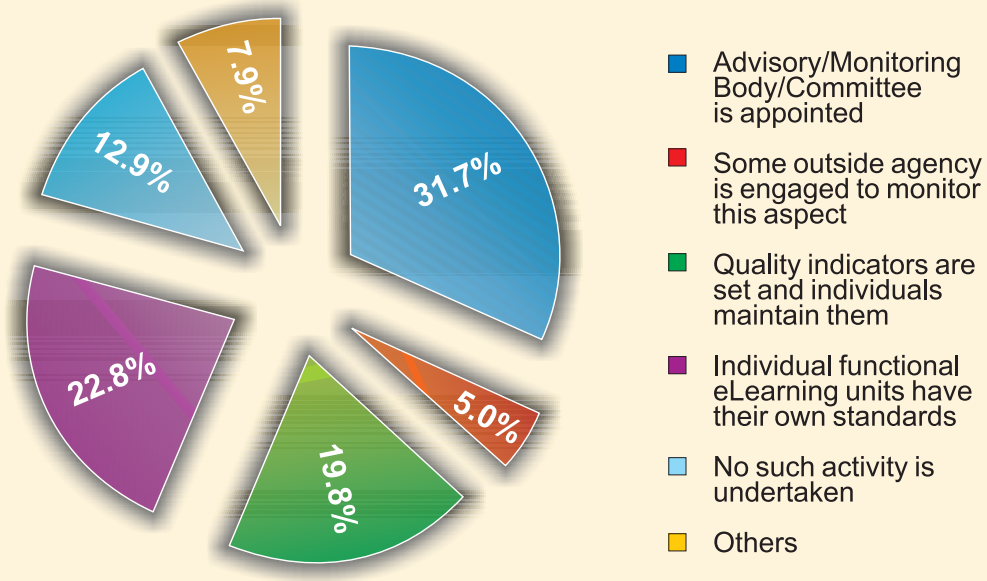
Quality Assurance of eLearning Programmes

Quality Assurance of the programmes

Quality assurance is an important aspect of any eLearning programme. In order to establish and maintain quality of the programmes, institutions need to take appropriate measures besides gearing to put the monitoring mechanism in place for

effecting mid-course correction. To ascertain the quality assurance mechanism adopted by the institutions, the respondents were asked to indicate as to which methods are being adopted by their institutions to maintain quality of eLearning. It was revealed that 31.7 per cent of the institutions have advisory/monitoring body/committees to monitor the quality of eLearning, followed by 22.8 per cent institutions where individual functional units have set their own standards and are responsible for maintenance of quality. Another 19.8 per cent institutions have set the quality indicators and individuals involved with eLearning programmes are assigned responsibility to maintain and monitor those indicators (Figure 15). As many as 12.9 per cent reported absence of any such activity being undertaken by their institutions.

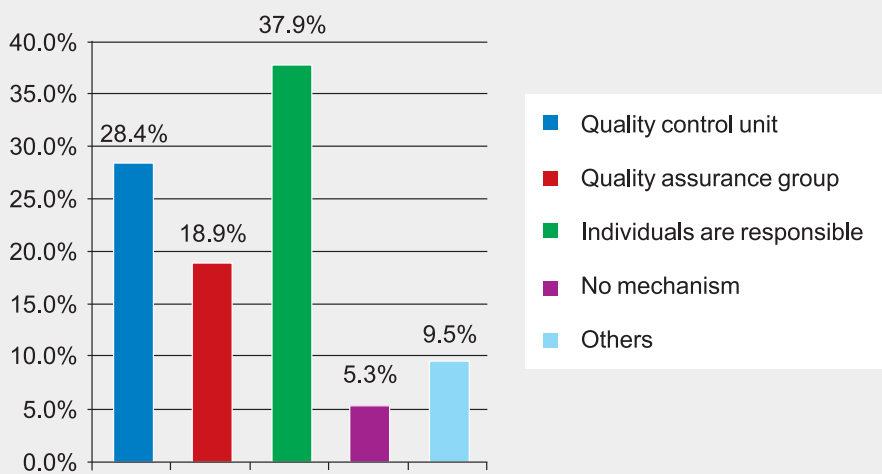
Figure 15: Quality of eLearning programmes is managed in diverse ways



Quality assurance of e-content

The overall quality framework adopted by the institutions reflects on the quality of different aspects of eLearning activities and thereby establishing credibility. The quality of e-content is one such component that

Figure 16: Teachers are responsible for maintaining quality of e-content



adds to the overall effectiveness of the programmes. About 40 per cent of respondents reported that individual teachers are responsible for maintaining quality of the e-content developed by them. Another 28.4 per cent respondents indicated that there is a quality control unit that takes care of quality aspects of e-content, while 18.9 per cent respondents informed that a quality assurance group reviewed the e-content before uploading the content to the LMS for use by the students (Figure 16). There were cases too reporting absence of any mechanism for quality maintenance/control for e-content developed by the faculty.

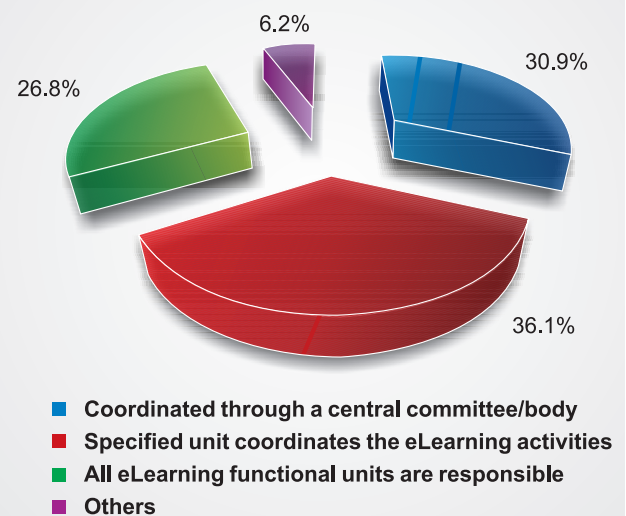
Design and Delivery of eLearning

Coordination of eLearning activities

Launching of an eLearning programme is a well-coordinated team effort and experts from different areas are involved in the process. The project based approach to development and launching of eLearning programmes help institutions to run these programmes in an effective, efficient and coordinated manner. The study reveals that eLearning activities are managed by the specified/designated units (36.1 per cent); through a central committee appointed for the purpose (30.9 per cent) and by the respective

functional units (26.8 per cent) responsible for launch of the programme (Figure 17).

Figure 17: eLearning activities are coordinated in diverse ways

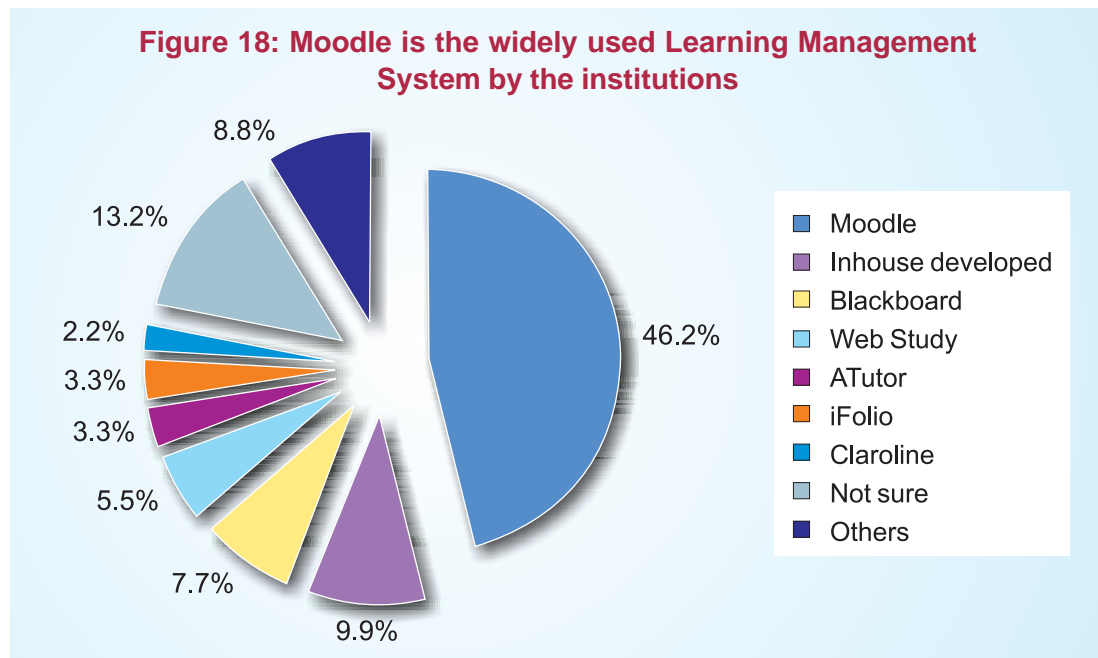


Learning Management Systems (LMS)

Largely the LMS or Learning Content Management System (LCMS) based eLearning programmes are in vogue. On the question as to which LMS/eLearning platform is being used by their institutions for offering eLearning programmes,

administrators and students to facilitate and manage learning in their domains of work. The most used tools of the LMS are communication tools (86.7 per cent), assessment tools (68.9), content uploading tools (68.9 per cent), navigation tools (60 per cent), collaborative tools (58.9 per cent), news and social forums (56.7 per cent), calendar of activities (54.4 per cent),

Figure 18: Moodle is the widely used Learning Management System by the institutions



majority (46.2 per cent) of respondents reported that their institutions use 'Moodle' LMS for managing their programmes; 9.9 per cent respondents mentioned that their institution has developed own LMS for offering eLearning programmes (Figure 18), whereas 13.2 per cent respondents were not sure about the LMS being used by their institutions.

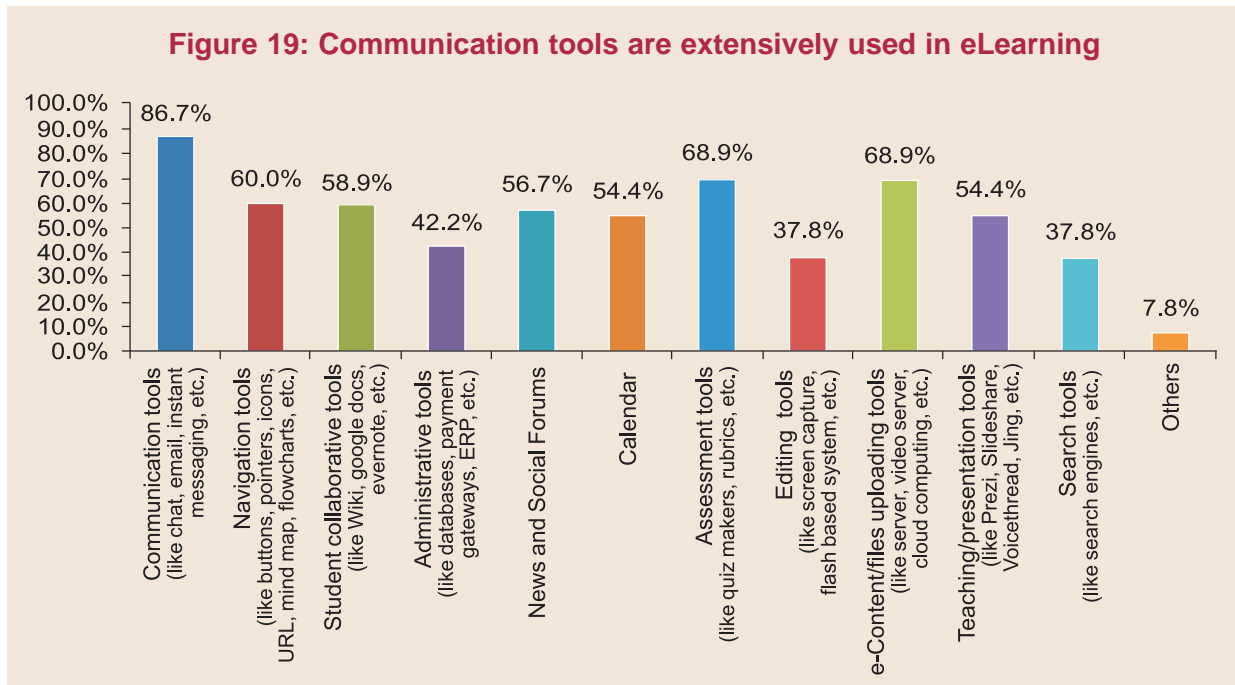
Major tools used in LMS

A standard LMS provides for different support tools to developers, facilitators,

presentation tools (54.4 per cent), administrative tools (42.2 per cent), editing tools (37.8 per cent) and search tools (37.8 per cent) (Figure 19).

Student access points

In order to make the eLearning endeavour successful, it is crucial that access and connectivity to the LMS is ensured for the learners. The learners may access it from anywhere like home, office, designated spots on the campus or elsewhere. The study revealed that majority (84.6 per cent)



of students accessed the LMS from their homes (Figure 20). Students also made use of computer laboratories available on the campus (78 per cent), followed by designated tele-learning centres/hot spots/access points (31.9 per cent).

Instructional design

The instructional design for eLearning programmes has to be different from the face-to-face or print based traditional distance education programmes. Designing eLearning required use of a variety of tools in the LMS and match educational activities to the learning outcomes. Responses in the survey show that assignments (80 per cent), e-content available on the LMS (66 per cent), working on projects (57 per cent), quizzes (49 per cent), group discussion (48 per cent) and printed reading material (44 per cent)

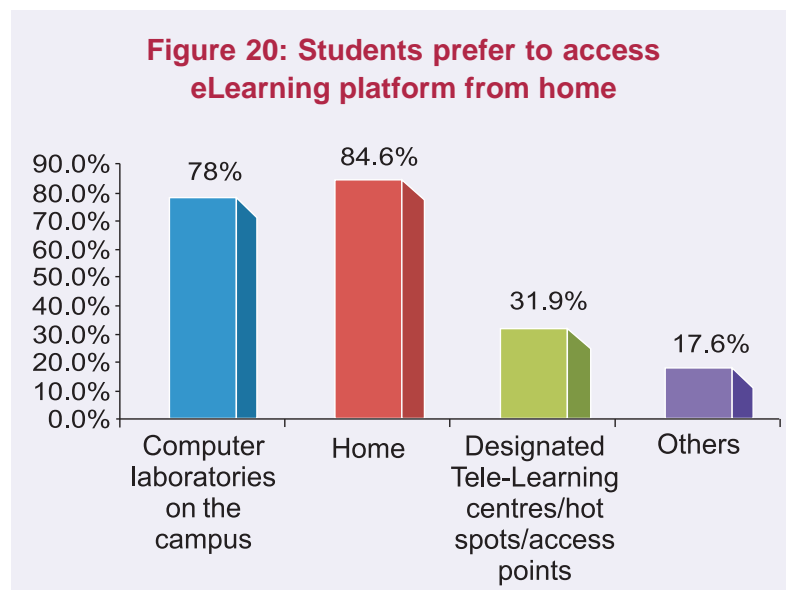
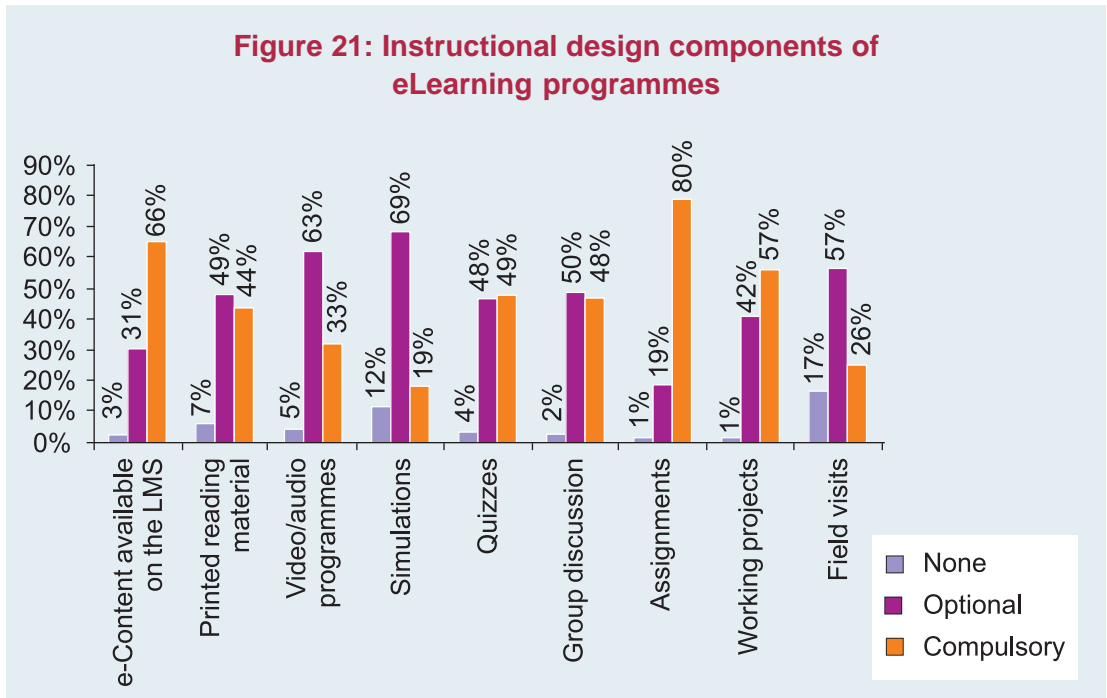


Figure 21: Instructional design components of eLearning programmes



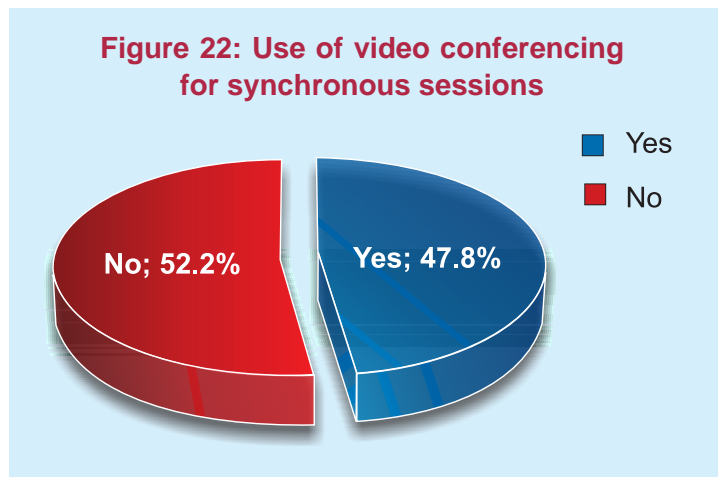
are some of the compulsory components of the instructional design for eLearning programmes in Commonwealth Asia (Figure 21). It was further observed that the component of ‘simulation’ (19 per cent) was not popular as compulsory component though it was available as ‘optional’ in 69 per cent of the cases.

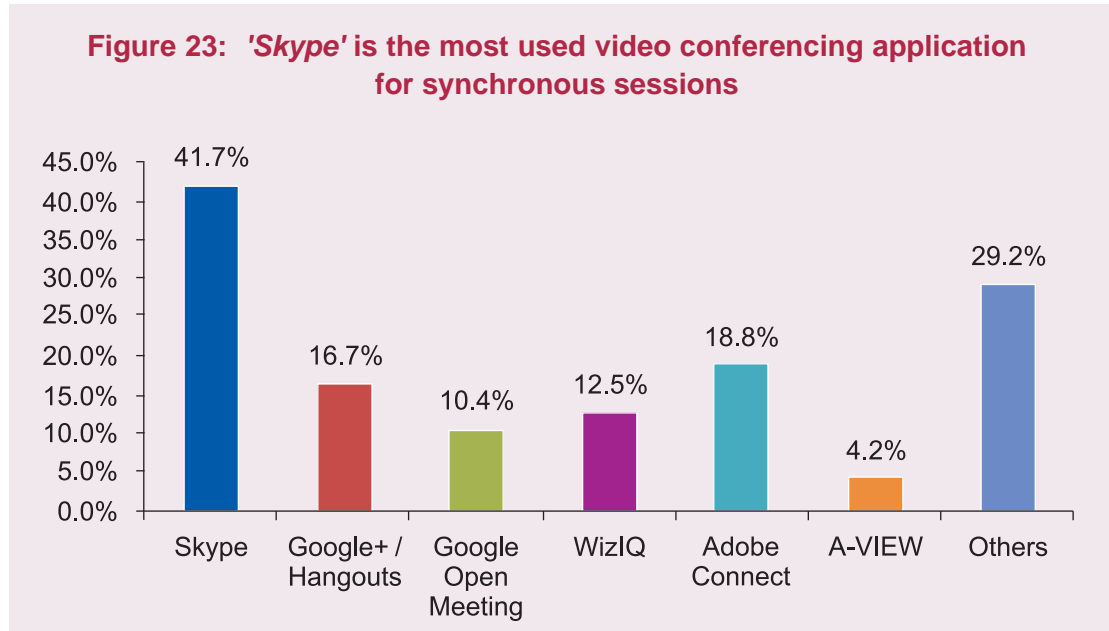
Use of video conferencing

The video conferencing provides for teacher-student interaction in a synchronous environment. It helps in minimising the transactional distance between them. It also enhances a feeling of connectedness and collectiveness among the students facilitating peer interaction. The video conferencing sessions also allow for student-student

interaction parallel to the counselling provided by the teacher. However, in the current study, 47.8 per cent respondents only were found to be making use of video conferencing tools for synchronous interaction (Figure 22). The most used video conferencing applications as reported by the respondents were Skype (41.7 per cent), Adobe Connect (18.8 per cent) and Google+/Google Hangout (16.7 per cent) (Figure 23).

Figure 22: Use of video conferencing for synchronous sessions



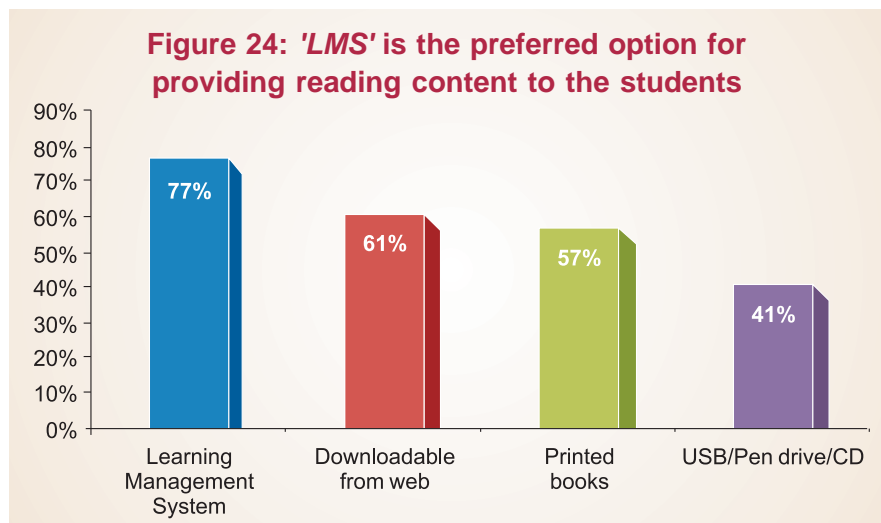


Dissemination of eLearning content

Multiple channels are used by the institutions for dissemination of learning content to the students. The frequently used methods are LMS (77 per cent), downloadable from the web or links to OERs (61 per cent), printed books (57 per cent) and through USB pen drive or CD (41 per cent) (Figure 24).

Formats used for the content dissemination

The instructional design of an eLearning programme aims at providing variety of learning material to the learners in the form of text, images, audio/ video programmes, etc. to compensate for the absence of classroom interaction. The respondents were asked to list the different file formats used for transmitting content

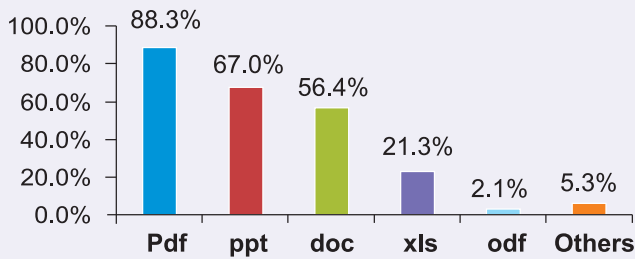


to the students for different purposes. The following file formats have been reported to be used ordinarily by the respondents in their institutions:

- **Common File Formats:** pdf (88.3 per

cent), ppt (67 per cent), doc (56.4 per cent) and xls (21.3 per cent) (Figure 25).

Figure 25: 'pdf', 'ppt' and 'doc' are the most used common file formats for providing material to the students



- **Multi-media File Formats:** mpeg (52.6 per cent), mp3 (42.1 per cent), wmv (39.5 per cent), mp4 (34.2 per cent) and avi (27.6 per cent) (Figure 26).
- **Image File Format:** jpeg (86.3 per cent), gif (35 per cent), png (21.3 per cent) and tiff (16.3 per cent) (Figure 27).
- **Streaming File Formats:** flv (47.5 per

mechanisms are deployed by the institutions for delivery of e-content like involvement of in-house teachers (77.8 per cent). One-third of the respondents indicated that the e-content development activity is assisted by the LMS administrators. Outsourcing was also reported by 25.6 per cent respondents reported for this activity (Figure 29). In 17.8 per cent cases, the work presented by the students is also used as case

Figure 26: 'mpeg', 'mp3' and 'wmv' are the most used multi-media file formats for providing material to the students

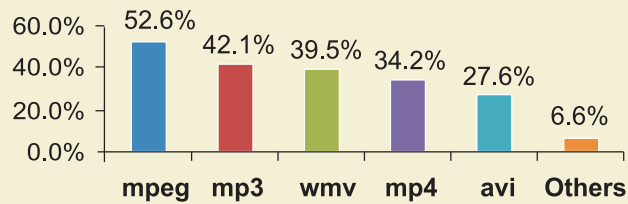
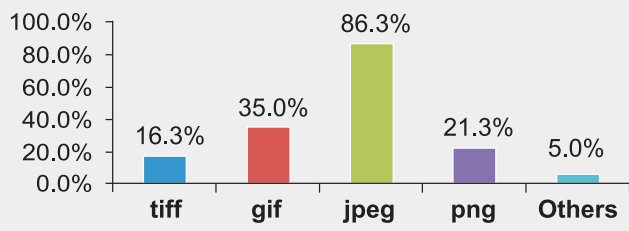


Figure 27: 'jpeg' is the most used image file format for providing material to the students



studies in the curriculum by some institutions.

Authoring tools

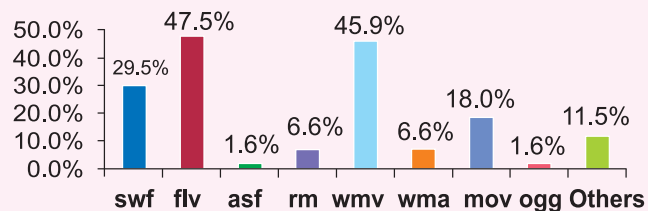
Authoring tools are integral part of development and editing instructional components for online programmes. Since this issue is directly related to teachers

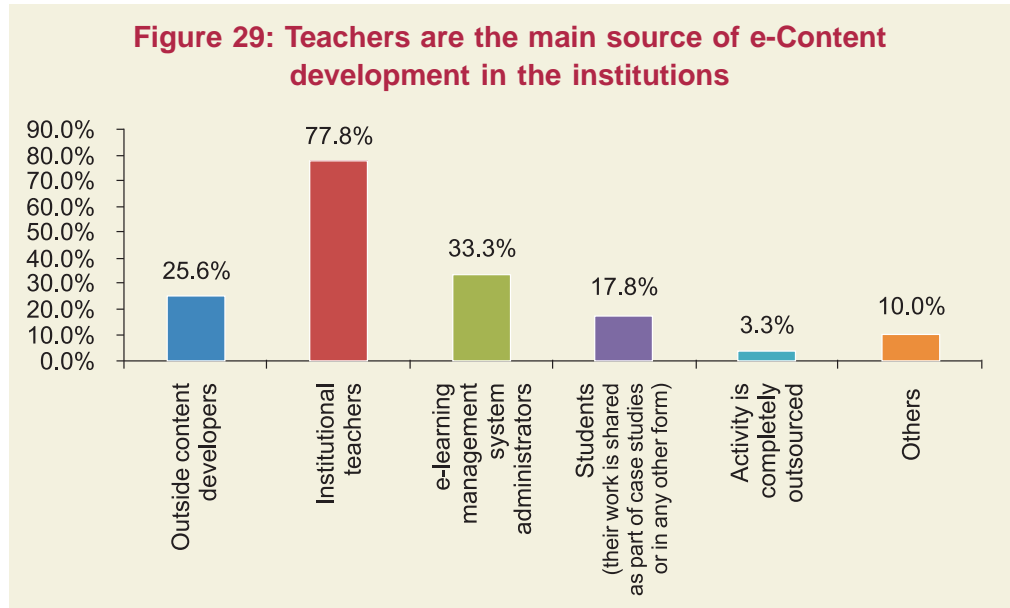
cent), wmv (45.9 per cent), swf (29.5 per cent) and mov (18 per cent) (Figure 28).

Development of e-content

Development of e-content for eLearning programmes is by and large most significant activity. Different methods and

Figure 28: 'flv' and 'wmv' are the most used streaming file formats for providing material to the students



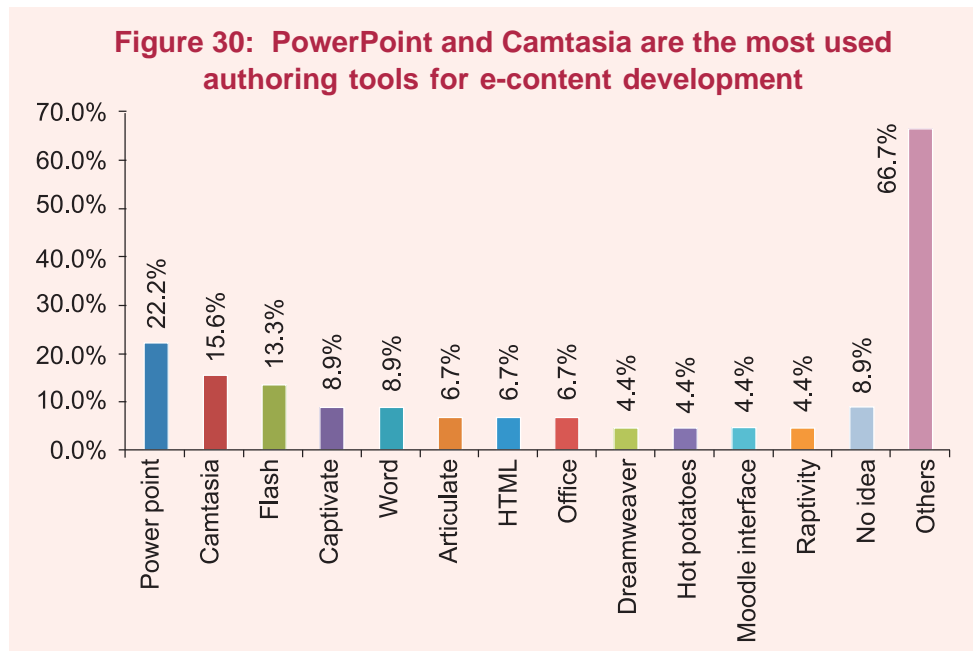


and other e-content developers, it is a matter of comfort and expertise as to who likes which authoring tool. As depicted in Figure 30, the most used tools are MS PowerPoint (22.2 per cent), Camtasia (15.6 per cent) and Flash (13.3 per cent). As many as 8.9 per cent respondents were ‘not sure’ as to which authoring tools they

were using for their eLearning programmes.

Constituents of e-content development team

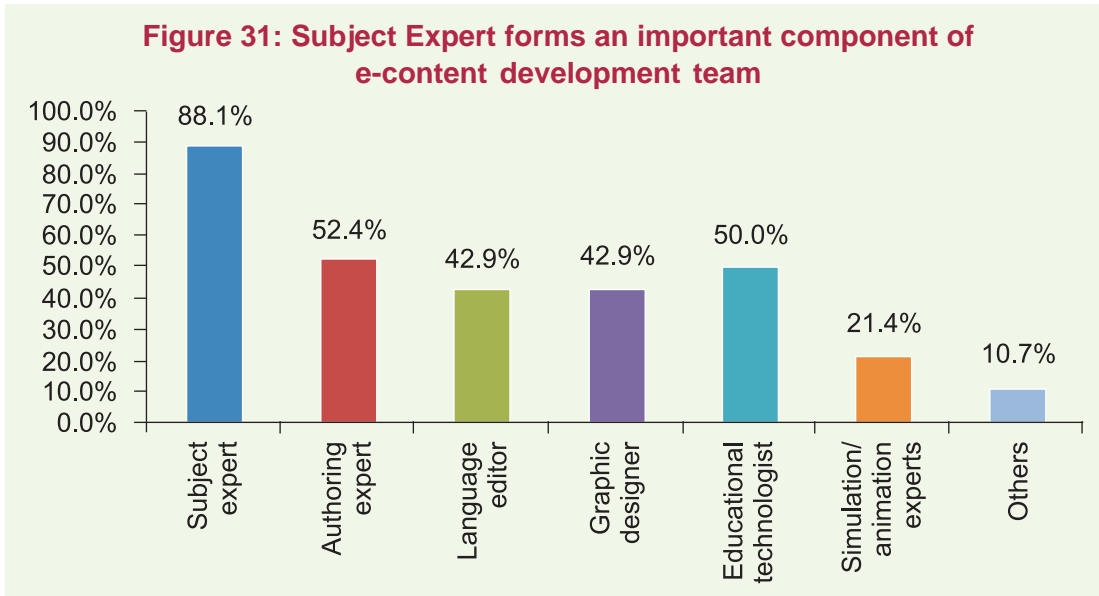
Development of e-content for eLearning programme is a specialised task involving several experts. The people involved with



the e-content development team include: subject experts (88.1 per cent), authoring experts (52.4 per cent), educational technologists (50 per cent), language editors (42.9 per cent) and graphic designers (42.9 per cent) (Figure 31). At

the institutions have a scheme of awarding appreciation letters, followed by 33.8 per cent respondents informed that weightage is also given in performance appraisal. A group of 27.5 per cent respondents reported about provision of monetary

Figure 31: Subject Expert forms an important component of e-content development team



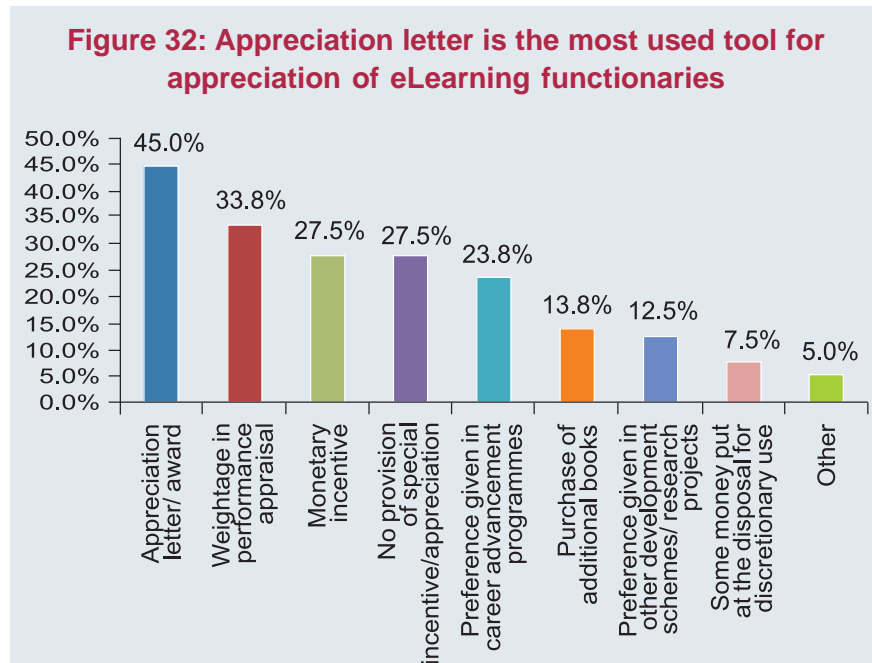
times, other experts like multimedia developer, learning designer, LMS officer, quality analyst, audio narrator, and IT experts also joined the team.

Incentive/Appreciation schemes

Involvement in eLearning programmes is considered as extra workload on the teachers in the organisations where these programmes are yet to be mainstreamed. It is, therefore, imperative that faculty is encouraged to participate by implementing incentive/appreciation schemes. The analysis of the data revealed that majority (45 per cent) of

incentives to the faculty developing eLearning programmes (Figure 32).

Figure 32: Appreciation letter is the most used tool for appreciation of eLearning functionalities



Evaluation of student performance

Evaluation System

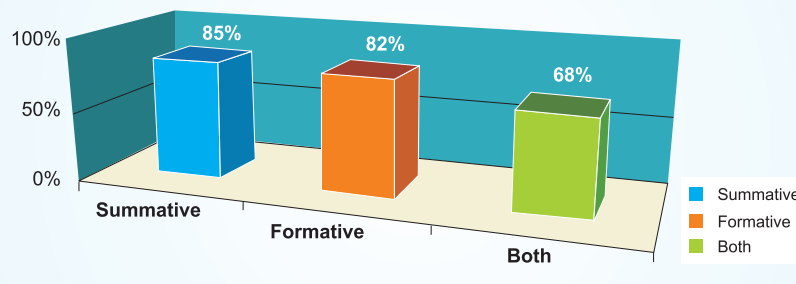
Assessment of student’s performance is an important educational activity.

Features of evaluation system

The evaluation system can be implemented in more than one way. It would depend upon the availability of technology and requirement of the curriculum being transacted. Therefore, the respondents

were asked to report the different features of the evaluation system adopted by their institutions. The evaluation system (Figure 34) for student performance adopted by the institutions revealed the following features:

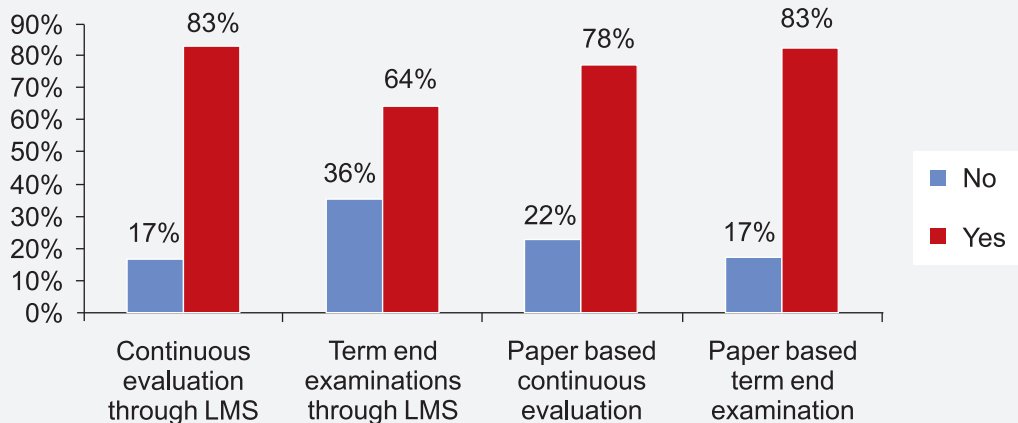
Figure 33: Summative as well as Formative evaluation are adopted for student performance



Institutions adopt different methodologies and strategies to evaluate the performance of their eLearning students. The study shows that institutions are following a system of both the formative assessment (82 per cent) and summative assessment (85 per cent). A combination of both the systems of student assessment was also reported by 68 per cent respondents (Figure 33).

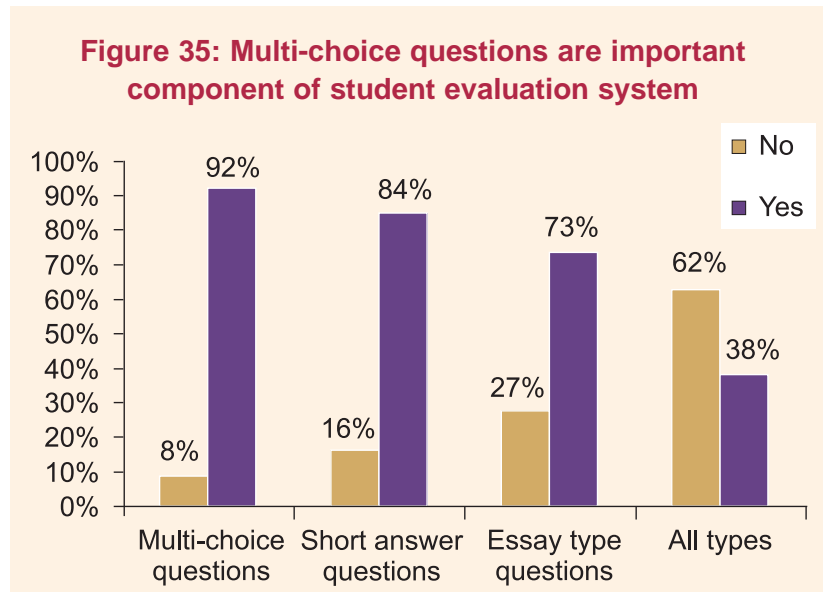
- Continuous evaluation through LMS (83 per cent)
- Paper based Term End Examination (83 per cent)
- Paper based continuous evaluation (78 per cent)
- Term End Examination through LMS (64 per cent)

Figure 34: Some important features of the evaluation system adopted by the institutions



Components of evaluation system

The composition of the evaluation tools may vary depending upon the requirement of the programme. The respondents were



asked about the type of features available with the online student evaluation system in their institutions. The following components (Figure 35) were found to exist as part of the evaluation system in different institutions:

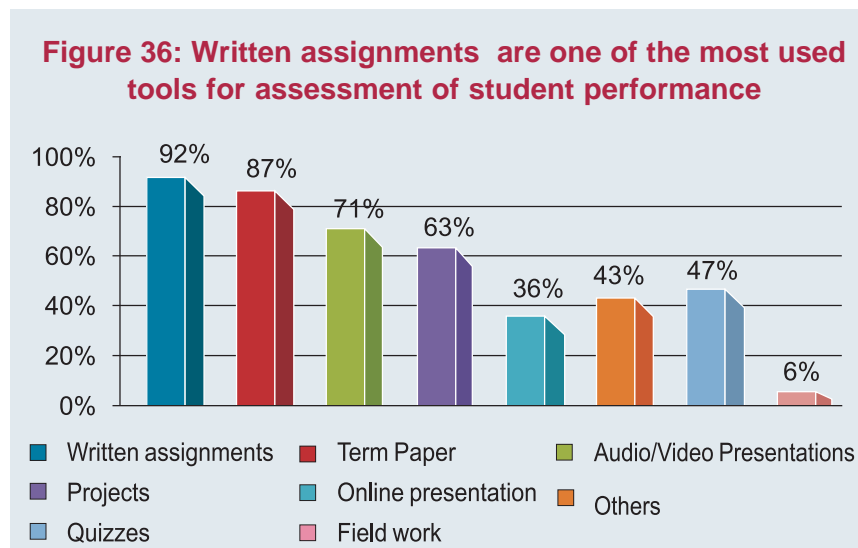
- Multi-choice questions (92 per cent)
- Short answer questions (84 per cent)
- Essay type questions (73 per cent)
- All the above (38 per cent)

Assessment tools

Different assessment tools are employed to assess different types of skills among the learners. The tools adopted for evaluation of student performance by the institutions

were written assignments (92 per cent), projects (87 per cent), quizzes (71 per cent), term papers (63 per cent), field work (43 per cent), audio/video presentation (47 per cent) and online presentation (36 per cent) (Figure 36). Some other rarely used tools reported by the respondents were: blog writing, audio recording,

courseware development, e-portfolio and comprehensive viva.



Enablers, Challenges and Future of eLearning

Institutional enablers

Institutions face internal and external challenges while introducing new technology. One such challenge is how to motivate the professionals to work in the new environment for the implementation and adoption of new technologies.

Therefore, it becomes necessary for the institutions to introduce mechanisms for motivating the faculty to take a lead in implementing and sustaining the new initiatives. The motivating factors for enhancing involvement of teachers with the eLearning programmes as reported by the respondents were:

- Institutional emphasis on promotion of eLearning (78.8 per cent);
- User-friendly LMS (65 per cent);
- Emergence of new ICT culture in the wake of technological revolution globally (58.8 per cent);
- Highly motivated faculty and staff (55 per cent);
- Gradually increasing interest of students in eLearning (47.5 per cent);
- Easy access/availability of e-content on relevant topics for teaching (46.3 per cent);
- Excellent technical support (45 per cent);
- Appropriate and effective training (45 per cent);
- Excellent computing skills of teachers and students (42.5 per cent);
- Excellent programme development facilities (40 per cent);
- Prompt feedback/response time among faculty and students (40 per cent);
- Better infrastructure (40 per cent)
- Improving institution ranking (37.5 per cent);
- Attractive incentive policy (26.3 per cent); and
- Government policy/pressure (25 per cent).

Challenges

There are certain situational challenges while implementing new initiatives as reported by the respondents which are given hereunder:

- Technical problems (57.3 per cent);
- Work overload on teachers (56.1 per cent);
- Lack of proper training of all involved with eLearning (41.5 per cent);
- Financial/Budgetary constraints (40.2 per cent);
- Inadequate programme development facilities (39 per cent);
- Non-tech-savvy persons (37.8 per cent);
- Too much involvement of teachers with other face-to-face/ ODL activities (34.1 per cent);
- Lack of availability of sufficient e-content on relevant topics (34.1 per cent);
- Lack of incentive policy /appreciation in the institutions (32.9 per cent);

- Lack of motivation of functionaries (30.5 per cent);
 - Complexity of LMS (29.3 per cent);
 - Poor computing skills of teachers/ students (28 per cent);
 - Inability of all concerned to adapt to new ICT culture (25.6 per cent);
 - Non-availability of students for eLearning programmes (22 per cent); and
 - Poor feedback/response time (20.7 per cent).
- Integration of social media with the existing LMS (55 per cent);
 - Use of mobile technology for imparting instruction/ sharing information with students in order to provide them enhanced mobility (53.8 per cent);
 - Introduction of intelligent tutoring techniques to accommodate the heterogeneous learning styles of the students (38.8 per cent);
 - Geographical expansion of existing eLearning programmes in case of island countries (37.5 per cent);
 - Establishment of new eLearning support centres within the jurisdiction of the institution (36.3 per cent);
 - Organisation of intensive training programmes for faculty and students covering new areas of specialization in order to make them comfortable with the use of different tools and applications on the LMS (36.3 per cent);
 - Revamping the processes of design, development, delivery and other activities of eLearning programmes in the organisation (28.8 per cent);
 - Introduction and integration of simulation programmes with the curriculum (28.8 per cent);
 - Offering Massive Open Online Courses (MOOCs) for different specialisations (28.8 per cent); and
 - Introduction of educational games as part of the instructional strategy for eLearning programmes (26.3 per cent).

Additional challenges reported were: lack of awareness of the top management and other faculty staff in making them understand the need of eLearning courses, lack of competition among faculty, and insufficient bandwidth compounded by heavy traffic during day time, erratic power supply, and server problems.

Future plans/Way forward

In order to grow with the time and remain contemporary, it is necessary for the institutions to plan for the future. Various future plans of the organisations as reported are given hereunder:

- Introduction of more eLearning programmes in the existing disciplines/ areas (80 per cent);
- Diversification of eLearning programmes in new disciplines/areas of specialization (56.3 per cent);
- Updating and modernisation of existing LMS (56.3 per cent);

5

Recommendations for Promoting eLearning in Commonwealth Asia

Findings and Discussion

Results of this exploratory study bring out useful and interesting facts on the eLearning scenario in the Commonwealth Asian countries. While teachers are in the driving seat for the growth of eLearning programmes, the incentives for using eLearning are very limited. eLearning is available largely in the area of Social Sciences, though the range of courses and subject disciplines are quite diverse. Over a period of time, we find an increase in the number of eLearning programmes. While the earliest eLearning programme started in 1992, there are currently 80 eLearning programmes in the seven countries reported in this study. There are approximately 100,000 students currently studying online in Commonwealth Asia. Considering the population of the countries covered in the study, and the increasing access to Internet, this is very low. We hope that it is poised for growth in the coming years, as capacities of both students and teachers to harness the potential of ICT improves. The gender-wise enrolment in online programmes (52 per cent male and 48 per cent female) indicate almost gender parity, which may be due to the affordance of the technology to enable women students to study online programmes easily from the comfort of their homes. It is also important to note that eLearning is being used in blended

mode by large number of institutions. This may also be attributed to the current level of access to Internet available to the learners, and educational institutions are trying to respond accordingly to the available technology to design suitable programmes, where the learners can have the most advantages of both online as well as face-to-face learning.

Another positive indicator from majority of the institutions offering online programmes is some sort of policy for eLearning. It is envisaged to have appropriate policy in more and more institutions to facilitate use of eLearning by the faculty. The study revealed a very low awareness level for open licensing of learning materials, and adoption of Open Educational Resources while offering eLearning programmes. The institutions in Commonwealth Asia strongly need policies to assist people with disabilities to join eLearning programmes and benefit.

Quality has been a major concern for eLearning programmes as in the case of programmes offered through distance education. While educational institutions in the Commonwealth Asia have been adopting a variety of ways to assure quality of eLearning and eContent, the survey hinted the need for a more systematic approach to develop eLearning quality standards at the regional level.

While the earliest eLearning programme started in 1992, there are currently 80 eLearning programmes in the seven countries reported in this study. There are approximately 100,000 students currently studying online in Commonwealth Asia.

As indicated in previous sections, teachers are the driving force to eLearning and eContent development in Commonwealth Asia. They use a variety of tools available in the LMS to design courses and programmes. Moodle is the most commonly used LMS. Communication tools (email, chat, instant messaging) within LMS are the most widely used applications. Skype is the most commonly used video conference tool for synchronous communication. The instructional delivery of online courses mostly include submission of written assignments, which normally form part of the formative evaluation. Most institutions use both formative and summative assessment of student performance. eLearning programmes also include the formal pen and paper tests as Term-End Examination (TEE). This is also largely due to the fact that institutions have either not yet devised robust methodology for ascertaining the authenticity of learners in online evaluation or have not been able to develop authentic assessment in online learning environment using means other than pen and paper test. The online assessment systems also use a variety of test types viz. multiple-choice, short-answer type and essay type questions.

Recommendations

Based on the findings of the study, following are the recommendations proposed to promote eLearning in Commonwealth Asia:

- While eLearning has been adopted in most subjects and disciplines, educational institutions need to

diversify their programme offerings by initiating eLearning programmes in more disciplines.

- While blended mode of eLearning is highly suitable considering the level of Internet access available in the Commonwealth Asian countries, educational institutions may also explore possibilities of offering completely online programmes.
- The number of organizations, programmes, and students engaged currently in online learning is too small. There is a huge scope to increase the enrollment and offer more programmes by more institutions. The market for eLearning programmes in Commonwealth Asia is increasing rapidly and educational institutions should respond by offering more online programmes.
- There is an increasing need for creating awareness and capacity building in the area of eLearning policy, open licensing, OER, use of technology options etc. While many institutions have recognized the need for training of the staff, not many opportunities are available in this area, and there is a need to encourage teachers to take up continuous professional development programmes in the relevant areas.
- While designing eLearning programmes, it is important to ensure usability of the courses by people with disabilities.
- Development of quality parameters/guidelines for eLearning programmes need to be given top priority.
- Parity of courses and programmes delivered online may be ensured.

Conclusions

The findings indicate that the implementation of eLearning in Commonwealth Asian countries is moving forward. Though institutions are facing different challenges, the enthusiasm among the faculty and staff is high and need sustenance. Institutions are integrating ICTs and online technologies in their programmes. eLearning programmes are

largely offered in blended mode, thus making a strong case for offering completely online programmes. The report provides an overview of eLearning scenario to the policy-makers, planners, implementers and leaders in educational institutions. These stakeholders need to think about adopting suitable mechanisms of learning for providing increased access to quality education in a holistic manner through appropriate use of ICTs.



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Questionnaire

(for eLearning administrators, coordinators, e-content developers, teachers and other functionaries associated with LMSs)

I am conducting a survey on ‘eLearning in Asia’. The Questionnaire has been especially designed for eLearning administrators, coordinators, e-content developers, teachers and other functionaries associated with LMSs.

eLearning for the purpose of this survey is defined as use of online technologies for two way delivery of teaching and learning in any of the three modes:-

- (i) completely online,
- (ii) blended learning (mix of face-to-face and online), and
- (iii) use of online as supplementary to face-to-face for some activities.

If you use eLearning in any of the above ways, kindly complete this questionnaire and help us develop a current up-to-date comprehensive overview of eLearning in Commonwealth Asia. In case you are coordinating more than one online programme, please fill this questionnaire multiple times.

The survey will take about 15 minutes to complete. Data gathered will be presented in aggregate and no individual respondent or institution will be identified.

I thank you very much for your support and providing necessary inputs for the survey.

Dr. S. K. Pulist
e-mail: skpulist@gmail.com

1. Your Name:
2. Your email ID:
3. Name of your Country:
4. Name of your Institution:
5. Year of establishment of your Institution:
6. In which year was the eLearning programme introduced in your institution?
7. In which capacity are you associated with the eLearning programme? (please mark all relevant)
 - As eLearning system administrator
 - As e-content developer
 - As teacher
 - Other (please specify)
8. Name of the Programme:
9. Name of the Discipline of the Programme:
 - Social Sciences
 - Sciences
 - Humanities
 - Engineering and Technology
 - Commerce and Management
 - Medicine and Health
 - Agriculture
 - Other (please specify)
10. What is the duration of the Programme you have mentioned in Q.No. 8 on the previous page
 - Less than 6 months
 - 6 months
 - 1 year
 - 2 years
 - 3 years
 - More than 3 years

11. Please provide the following details about this programme handled by you?

- When was this programme launched
- Total Number of Courses in the Programme
- Total number of Credits in the Programme
- Programme Fee per year
- Currency of payment
- Number of Male students
- Number of Female students

12. One Credit is equivalent to how many hours of student study (which may include lecturing/class/field based activities/watching any media)?

13. What is the mode of delivery of instruction for the programme?

- Completely online
- Blended mode (mix of face-to-face and online components)
- Face-to-face with some online components

14. Has your institution adopted a policy on eLearning programmes?

- Yes
- No
- Not sure

15. If yes, which of the following aspects of eLearning are provided in the policy? (please tick all relevant)

- Governance
- Management
- Assessment
- Ethical issues
- Copyright /Licensing
- Content development
- Incentive/appreciation
- Quality assurance
- Training and staff development
- Research and development
- Other (please specify)

16. If your response to Q No. 14 is 'Yes', please tick the relevant from the following

- | | Yes | No |
|--|-----------------------|-----------------------|
| • The eLearning policy is implemented through a Specified Unit | <input type="radio"/> | <input type="radio"/> |
| • The policy provides for autonomy to all Units to manage their programmes | <input type="radio"/> | <input type="radio"/> |
| • The budget for eLearning activities is centralised | <input type="radio"/> | <input type="radio"/> |

17. The eLearning budget provides for the following activities: (please tick all relevant)

	Yes	No
• Physical infrastructure purchase / development	<input type="radio"/>	<input type="radio"/>
• Hardware procurement/ development/up-gradation	<input type="radio"/>	<input type="radio"/>
• Software procurement/ development/up-gradation	<input type="radio"/>	<input type="radio"/>
• Training programmes	<input type="radio"/>	<input type="radio"/>
• Consultancy service charges	<input type="radio"/>	<input type="radio"/>
• Research and development	<input type="radio"/>	<input type="radio"/>
• System development/ improvement of eLearning platform	<input type="radio"/>	<input type="radio"/>
• e-Content development/ outsourcing	<input type="radio"/>	<input type="radio"/>
• Revision of e-content	<input type="radio"/>	<input type="radio"/>
• Maintenance/troubleshooting	<input type="radio"/>	<input type="radio"/>
• Other (please specify) <input style="width: 200px; height: 15px;" type="text"/>		

18. Who holds the copyright over the e-content developed?

- Institution
- Individual
- Shared/joint
- e-content is released in public domain under OER license
- Other (please specify)

19. Which of the following OER licensing policies has been adopted by your institution?

- CC-BY
- CC-BY-NC
- CC-BY-ND
- CC-BY-SA
- CC-BY-NC-SA
- CC-BY-NC-ND
- No rights reserved
- No OER Policy adopted yet
- Not sure
- Other (please specify)

20. Is there any institutional policy to deal with differently-abled students?

- Yes
- No
- Not sure

21. Are there any special courses for the differently-abled to help them use the eLearning platform?

- Yes
- No
- Not sure

22. How is quality of eLearning maintained in your institution?

- Advisory/Monitoring Body/Committee is appointed
- Some outside agency is engaged to monitor this aspect
- Quality indicators are set and individuals are made responsible to maintain those indicators
- Individual functional eLearning units have their own standards and are responsible for maintaining them
- No such activity is undertaken
- Other (please specify)

23. How does your institution maintain quality of the e-content?

- There is a 'quality control unit' in the institution
- A 'quality assurance group' reviews the e-content before uploading
- Individuals are responsible for quality of e-content developed by them
- No mechanism for quality maintenance/control
- Other (please specify)

24. How are the eLearning activities coordinated in your institution?

- Coordinated through a central committee/body appointed for the purpose
- The specified/designated unit coordinates the eLearning activities
- All individual eLearning functional units/departments are responsible for it
- Other (please specify)

25. Which eLearning platform/LMS is being used by your institution?

- Blackboard
- Joomla
- e-Front
- ATutor
- WebStudy
- SharePoint
- Canvas
- Moodle
- Not sure
- Other (please specify)

26. What are the major tools used in the eLearning platform for the programme?

- Communication tools (like chat, email, instant messaging, etc.)
- Navigation tools (like buttons, pointers, icons, URL, mind map, flowcharts, etc)

- Student collaborative tools (like Wiki, google docs, evernote, etc)
- Administrative tools (like databases, payment gateways, ERP, etc)
- News and Social Forums
- Calendar
- Assessment tools (like quiz makers, rubrics, etc.)
- Editing tools (like screen capture, flash based system, etc)
- e-Content / files uploading tools (like server, video server, cloud computing, etc)
- Teaching/ presentation tools (like Prezi, Slideshare, Voicethread, Jing, etc)
- Search tools (like search engines, etc)
- Other (please specify)

27. From where can the students access the eLearning platform? (please tick all relevant)

- Computer laboratories on the Campus
- Home
- Designated TeleLearning Centres/Hot Spots/Access Points
- Other (please specify)

28. Which are the important components of the instructional design used in your programme?

	Compulsory	Optional	None
e-Content available on the LMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Printed reading material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video/audio programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quizzes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field visits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify) <input style="width: 300px;" type="text"/>			

29. Do you use video conferencing for synchronous sessions? Yes No

30. If your response to Q. No. 29 is 'Yes', which software/platform do you use?

- Skype
- Google+
- Google Open Meeting
- WizIQ
- Adobe Connect
- A-VIEW
- Other (please specify)

31. How do you provide the reading content to the students?

- | | Yes | No |
|---|-----------------------|-----------------------|
| • Through LMS | <input type="radio"/> | <input type="radio"/> |
| • Downloadable from web/links to OERs | <input type="radio"/> | <input type="radio"/> |
| • USB/Pen drive/CD | <input type="radio"/> | <input type="radio"/> |
| • Printed books | <input type="radio"/> | <input type="radio"/> |
| • Other (please specify) <input type="text"/> | | |

32. In which of the following Common File Formats do you provide the learning material to your students?

- ppt pdf doc xls odf
 Other (please specify)

33. In which of the following Multi-Media File Format do you provide learning material to your students?

- mpeg wmv mp3 mp4 avi mng
 sng Other (please specify)

34. In which of the following Image File Format do you provide the learning material to your students?

- tiff gif jpeg png
 Other (please specify)

35. In which of the following Streaming File Format do you provide the learning material to your students?

- swf flv asf rm wmv wma
 mov ogg Other (please specify)

36. e-Content in your institution is developed by: (please tick all relevant)

- Outside content developers
 Institutional Teachers
 eLMS administrators
 Students (their work is shared as part of case studies or in any other form)
 Activity is completely outsourced
 Other (please specify)

37. Which authoring tools are used for e-content development?
(please name all relevant)

- 1.
- 2.
- 3.
- 4.

38. Who comprises the e-content development team? (please tick all relevant)

- Subject expert
- Authoring expert
- Language editor
- Graphic designer
- Educational technologist
- Simulation/animation experts
- Other (please specify)

39. Which of the following are the incentive/appreciation schemes for the eLearning functionaries?

- Appreciation letter/ award
- Monetary incentive
- Purchase of additional books
- Preference given in other development schemes/ research projects
- Preference given in career advancement programmes
- Weightage in performance appraisal
- Some money put at the disposal for discretionary use
- No provision of special incentive/appreciation
- Other (please specify)

40. Which of the following evaluation system is adopted for evaluation of student performance?

- | | Yes | No |
|-------------|-----------------------|-----------------------|
| • Summative | <input type="radio"/> | <input type="radio"/> |
| • Formative | <input type="radio"/> | <input type="radio"/> |

41. Does the student evaluation system provide the following features?

- | | Yes | No |
|-------------------------------------|-----------------------|-----------------------|
| • Continuous evaluation through LMS | <input type="radio"/> | <input type="radio"/> |
| • Term end examinations through LMS | <input type="radio"/> | <input type="radio"/> |

- Paper based continuous evaluation
- Paper based term end examination

42. Does the online student evaluation system provide the following features?

- | | Yes | No |
|---|-----------------------|-----------------------|
| • Multi-choice questions | <input type="radio"/> | <input type="radio"/> |
| • Short answer questions | <input type="radio"/> | <input type="radio"/> |
| • Essay type questions | <input type="radio"/> | <input type="radio"/> |
| • Other (please specify) <input style="width: 400px;" type="text"/> | | |

43. Which of the following assessment tools are adopted for evaluation of student performance?

- | | Yes | No |
|---|-----------------------|-----------------------|
| • Written assignments | <input type="radio"/> | <input type="radio"/> |
| • Audio/Video presentations | <input type="radio"/> | <input type="radio"/> |
| • Projects | <input type="radio"/> | <input type="radio"/> |
| • Quizzes | <input type="radio"/> | <input type="radio"/> |
| • Field work | <input type="radio"/> | <input type="radio"/> |
| • Term paper | <input type="radio"/> | <input type="radio"/> |
| • Online presentation | <input type="radio"/> | <input type="radio"/> |
| • Other (please specify) <input style="width: 400px;" type="text"/> | | |

44. Which of the following are the motivating factors for promotion of eLearning in your institution? (Please tick all relevant)

- Institutional emphasis on promotion of eLearning
- User-friendly LMS
- Excellent programme development facilities
- Excellent technical support
- Highly motivated faculty and staff
- Attractive incentive policy
- Appropriate and effective training
- Gradually increasing interest of students in eLearning
- Emergence of new ICT culture in the wake of technological revolution globally
- Excellent computing skills of teachers and students
- Easy access/availability of e-content on relevant topics for teaching
- Prompt feedback-response time among faculty and students
- Better infrastructure
- Government policy/pressure
- Other (please specify)

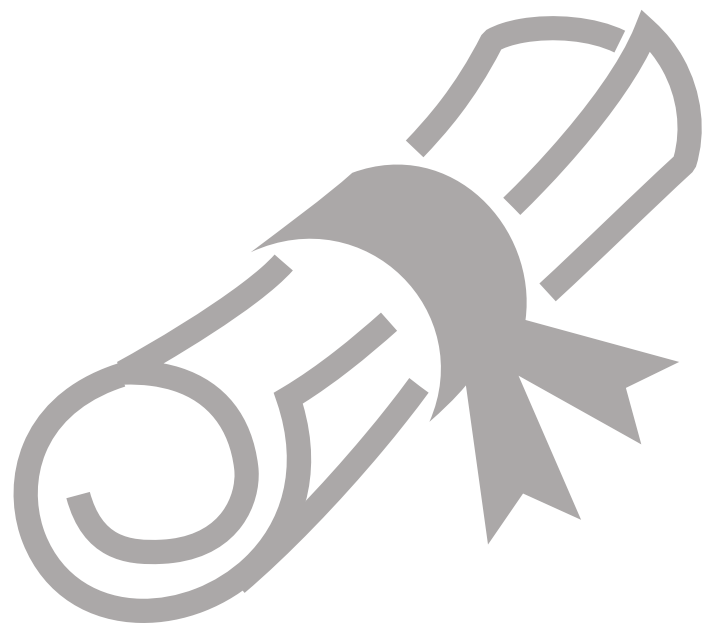
45. What are the challenges in successful implementation of eLearning policy?

(Please tick all relevant)

- Inadequate programme development facilities
- Work overload on teachers
- Lack of motivation of functionaries
- Technical problems
- Complexity of LMS
- Lack of incentive policy /appreciation
- Lack of proper training of all involved
- Non-tech-savvy persons
- Too much involvement of teachers with other face to face/ ODL activities
- Non availability of students for eLearning programmes
- Inability of all concerned to adapt to new ICT culture
- Poor computing skills of teachers/ students
- Lack of sufficient e-content on relevant topics
- Poor feedback-response time
- Financial/Budgetary constraint
- Other (please specify)

46. What are the future eLearning development and integration plans of your institution? (Please tick all relevant)

- Introduction of more eLearning programmes in the existing disciplines/areas
- Diversification of eLearning programmes in new disciplines/areas of specialisation
- Updating and modernisation of existing LMS
- Geographical expansion of existing eLearning programmes
- Establishment of new eLearning support centres within the jurisdiction
- Organisation of intensive training programmes for faculty and students covering new areas of specialisation
- Revamping the processes of design, development and delivery and other activities of eLearning programmes
- Integration of social media
- Use of mobile technology for imparting instruction/ sharing information with students
- Introduction of intelligent tutoring techniques
- Integration of simulation programmes with the curriculum
- Introduction of educational games
- Offering MOOC (Massive Open Online Course)
- Other (please specify)





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