

Handbook on ONLINE EDUCATION IN COMMONWEALTH ASIA

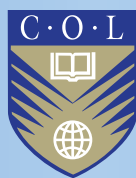


Edited By
Dr Manas Ranjan Panigrahi
Dr Phalachandra Bhandigadi

COMMONWEALTH EDUCATIONAL MEDIA CENTRE FOR ASIA
NEW DELHI

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EDITED BY
DR MANAS RANJAN PANIGRAHI
DR PHALACHANDRA BHANDIGADI



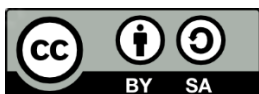
CEMCA

COMMONWEALTH EDUCATIONAL MEDIA CENTRE FOR ASIA
NEW DELHI

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Editors: Dr Manas Ranjan Panigrahi and Dr. Phalachandra Bhandigadi

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ISBN: 978-81-88770-42-7

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Layout and Design: Colorcom, New Delhi

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Printed and published on behalf of Director, CEMCA by Mr Sushil Kumar Tanwar, Head (Administration and Finance), CEMCA, 7/8 Sarv Priya Vihar, New Delhi - 110016, India.

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Foreword

We are in 2022. It is more than thirty months since the lockdowns had to be imposed in all countries in the world to contain the effects of the Corona pandemic. Every country suffered an economic recession. Education has also been seriously affected. Schools and higher education institutions had to be shut down. Governments encouraged alternative access to learning; educational institutions adapted online learning to reduce the learning loss of students and discontinuity. The pandemic left a deep impression that open and distance education, especially the Online Learning mode, is here to stay for sustainable development.

The Open Universities in Bangladesh, India, Malaysia, Pakistan, and Sri Lanka offer programmes in the distance education mode; India alone has fifteen state and one central open university. The Covid-Pandemic dramatically altered the situation compelling both the open and conventional universities to think of alternative ways of delivering education. The technology-mediated learning practised earlier witnessed a surge and innovation since 2020. Many online course offerings by universities and private providers have opened new opportunities for lifelong learning for students.

Some of the major initiatives are: *MOE, Bangladesh promoted Online Courses through their Online Learning Platform; in Brunei, online teaching and learning methods through Zoom and Google meet classes; more than 1000 online courses through India's National Online Learning Platform-SWAYAM; Asia e University reaching not only to Malaysians but also to 31 Asian nations.* In the Maldives, teaching and learning were conducted through televised lessons (Telikilaas) and Google Classroom, including

G Suite applications. *Pakistan established its Virtual University long back. Singapore has its National e-learning platform, which offers online courses. National E-learning Portal of Sri Lanka provided education to school education post Pandemic.* All the eight Commonwealth Countries are pioneering innovations in online learning.

However, there is a digital divide among the Commonwealth Asian Countries. The Internet penetration in Brunei, Malaysia, and Singapore is more than 80 per cent; it is less than 50 per cent in Bangladesh and Pakistan. The percentage of Internet users in India increased to around 60%. Many students lack access to digital devices.

It is necessary to critically analyse and document these developments in online learning initiatives and innovations for posterity. This Handbook on Online Education in Commonwealth Asia aims to provide a snapshot of online education in the Commonwealth countries that CEMCA serves.

The Handbook examines the country and institutional policy for online education and assesses online education strategies in the respective countries. The Handbook includes country case studies of Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, and Singapore. The Handbook contains institutional cases of Bangladesh Open University, Universiti Brunei Darussalam, Indira Gandhi National University (India); Asia e University (Malaysia); Wawasan Open University (Malaysia); Mainz International College (Maldives); and the Open University of Sri Lanka. Among the seven institutions, five are ODL institutions following the blended learning approach, and two are conventional institutions.

The Handbook containing a comprehensive description of various aspects of online education practised in different open universities will keep its readers abreast of online education developments in the seven Asian Commonwealth countries.

On behalf of CEMCA, I thank all the authors of this Handbook on Online education. I especially thank Dr Manas Ranjan Panigrahi and Dr Phalachandra Bhandigadi for reviewing each case study and editing this Handbook.

I am sure the readers will benefit from this Handbook.

Professor Madhu Parhar
Director, CEMCA

12th January 2022



Preface

In view of the recent COVID-19 pandemic, the delivery of education online has become handy for most institutions of higher learning despite several challenges being faced both by the students and institutions. Basically, these institutions use various modes for offering courses online like: Fully online or almost online except for assessments; Hybrid/blended learning (mix of face-to face and online); Use of online learning as supplementary to face-to-face learning for some activities.

The purpose of developing this handbook is to understand the policies/regulations in Commonwealth Asian countries with respect to online education and quality standards/guidelines for designing and delivering online courses by higher education institutions. Another objective is understanding the current status and issues concerning course development and delivery, student support systems, and assessments in Commonwealth Asian institutions. In addition, the study also looks at the challenges faced by the institutions in offering online courses. The major objectives of this of the handbook are: documenting and analysing national policies and guidelines on online education across the Commonwealth Asian countries; documenting and analysing current online education programmes' development and delivery practices across Commonwealth Asian Higher Education Institutions; describing the variations in the policies and practices in online education development and practices across the Commonwealth Asian countries and institutions; and recommending ways for improving and expanding online education.

The handbook includes case reports from seven countries -- Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, and Singapore and covers

seven institutions viz. Asia e University, Malaysia; Bangladesh Open University, Bangladesh; Indira Gandhi National University, India; Mianz International College, Maldives; Open University of Sri Lanka, Sri Lanka; Universiti Brunei Darussalam, Brunei; Wawasan Open University, Malaysia. Among the seven institutions, five are ODL institutions following the blended learning approach and two are conventional institutions.

Issues relating to online education from a national perspective are discussed in the country reports whereas issues specific to the concerned institutions are discussed in the institutional reports. The finalized versions of the reports are presented in Chapters 2 and 3.

The case reports in this handbook will assist informed educational leaders, higher education teachers and higher education institutions to drive development and implementation of online/blended learning strategies and designs for better teaching and learning.

We take this opportunity to thank all the Higher Education institutions and authors in Commonwealth Asia who participated and bring out the case study at national level and institutional levels for this handbook.

We remain indebted to Professor Madhu Parhar, Director and Team CEMCA for their continuous support, motivation and valuable advice to improve and complete this work.

As always, we look forward to receiving your comments and suggestions for improving our work at CEMCA.

Dr Manas Ranjan Panigrahi
Dr. Phalachandra Bhandigadi

LIST OF ACRONYMS/ABBREVIATIONS

ABC	Academic Bank of Credits
ADDIE	Analyse, Design, Develop, Implement, and Evaluate
AeU	Asia e University, Malaysia
APEL	Accreditation of Prior Experiential Learning
BOU	Bangladesh Open University
CEMCA	Commonwealth Educational Media Centre for Asia
GOI	Government of India
ICT	Information and Communication Technology
IGNOU	Indira Gandhi National Open University
LMS	Learning Management System
MIC	Mianz International College
MOE	Ministry of Education
MOOC	Massive Open Online Course
MQA	Malaysian Qualifications Agency
NTU	Nanyang Technological University
NUS	National University of Singapore
PBL	Problem-based learning
PCF	Pan commonwealth
OER	Open Educational Resource
OUSL	Open University of Sri Lanka
SIM	Self-Instructional Materials
SWAYAM	Study Webs of Active Learning for Young Aspiring Minds
UBD	Universiti Brunei Darussalam
UGC	University Grants Commission
WOU	Wawasan Open University

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CHAPTER I: INTRODUCTION

INTRODUCTION

Online learning is education which takes place over the internet. Online courses are flexible and give students enough time and space to learn at their own leisure and pace. Many studies have reported that online learning is as effective as formal learning in terms of student learning. Education delivered online has seen significant growth in the last few years. Advancements in ICT, development and use of OER, and government policies on credit transfers have led many institutions to plan and offer either partial or full online courses and programmes. Some of the universities and institutions have started looking at the credits gained through MOOCs for transfer to regular programmes in view of the policies and guidelines issued by the government's regulatory agencies. Conventional institutions have also started making attempts to offer online courses and programmes as they are deemed to be cost effective and able to meet the requirements of present-day learners.

In view of the recent COVID-19 pandemic, the delivery of education online has become handy for most institutions of higher learning despite several challenges being faced both by the students and institutions. Basically, these institutions use one of the following modes for offering courses online:

- Fully online or almost online except for assessments;
- Hybrid/blended learning (mix of face-to face and online); and
- Use of online learning as supplementary to face-to-face learning for some activities.

Online Education

Online programmes do not require students to physically attend classes as they are provided learning resources online, usually through a learning management system (LMS). Activities, communication/interaction between instructors-students, students-students and student assessments all happen through this system.

According to Latchem (2012) e-learning, or online learning, involves the use, wholly or in part, of the internet, an intranet (local area network, or LAN), or an extranet (wide area network, or WAN) for course or service delivery, interaction, support or facilitation, and assessment and evaluation. Course instructors who teach online or blended learning courses can consider designing forums with a common discussion which facilitates interactions and builds closer connections among learners (Gedera & Williams, 2013). Internet connections too are likely to increase the use of multimedia and interactive simulations or games in online learning (Kim & Bonk, 2006)

Any institution planning online education needs to understand the complexity, advantages, and disadvantages of online education (Anna, 2021). Curriculum designers and policymakers need to give these factors due consideration while designing online courses. Shifting from the conventional to online mode requires time, effort, and money. Despite that there is an increasing trend of online education as most institutions and teachers are moving online as it is seen to be able to enhance education delivery and management (Fedana, 2016).

Kim and Bonk (2006) highlight that higher educational institutions planning online education should also consider instructors'

readiness for online education, their online teaching skills, and students' ability to self-regulate their learning. The instructional methods likely to be preferred are online collaborations, case-based learning, and problem-based learning (PBL). These can be achieved by institutions by conducting orientation and training for online education developers, instructors, and students.

ODL institutions have reported very low completion rates for their programmes. In addition, the enrolment numbers in higher education institutions including ODL institutions are declining, leading the institutions to offer incentives to attract students. The reasons for declining numbers in ODL institutions include increasing programme costs and the entry of multiple players offering online/distance education programmes (Bhandigadi et al., 2020).

Bates (2020) predicts, "over the next 10 years, fully online learning will grow to about 20-25 per cent of all course enrolments, and hybrid

learning, in the sense of an integration of campus-based teaching and digital learning, will grow to about 70-80 per cent of all course enrolments." According to him the impact of COVID-19 on e-learning enrolments is likely to be significant.

In the eventuality that there is an increase in the number of institutions offering online programmes in the next 10 years, the challenge will be retaining students in the system and ensuring that they complete the programmes in a stipulated time duration. A research study conducted at Wawasan Open University (WOU), found that the programme completion rate was just about 20-26 per cent during different points of time. For every 100 students enrolled in WOU, 40 students continued the programme and 60 students became inactive/withdrew over a period of time (Phalachandra, 2018).

The potential impact of Covid-19 on e-learning enrolments

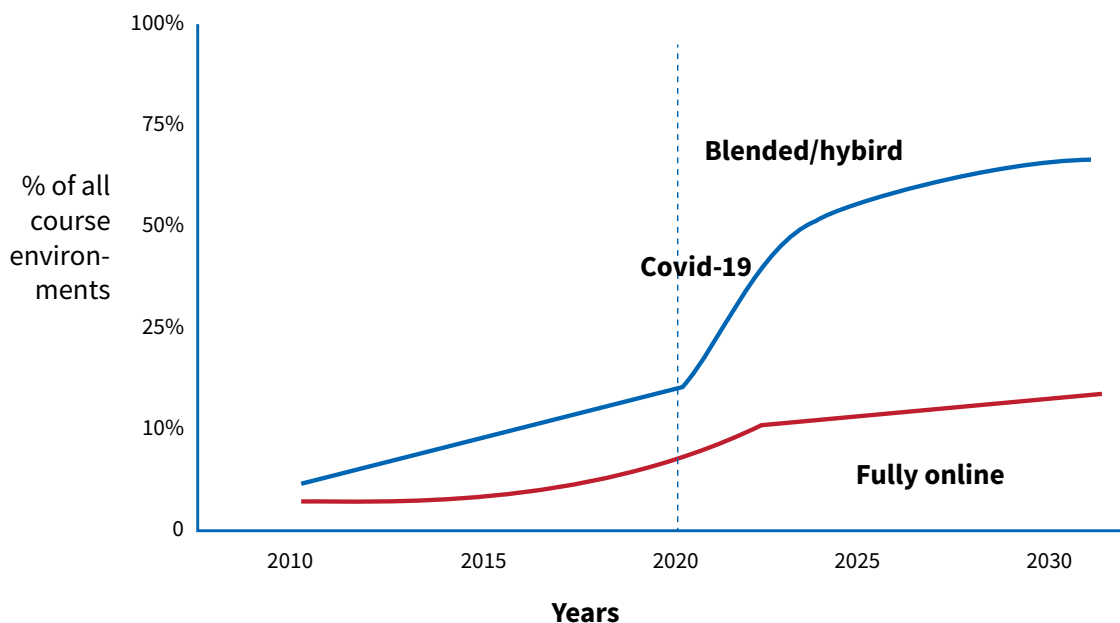


FIGURE 1.1: BATES' PREDICTION OF E-LEARNING ENROLMENTS

Advantages and Limitations

There are issues which require attention when launching online education programmes including infrastructure, proper structuring of content to ensure the full potential of platforms, and effective student support systems.

The Melbourne Centre for the Study of Higher Education in its discussion paper (2017) on online learning lists the following benefits of online learning for students:

- personalised learning – using learning analytics to gather data on student learning and better respond to the learning needs of individual students;
- interactive learning experiences – enabling a range of learning approaches and strategies;
- enhanced assessment of skills and knowledge – including the use of technology to track student progress;
- international collaborations – using technology to enable students to collaborate with their peers in institutions in other countries;
- ‘flipped classrooms’ – engaging students in work outside the classroom and enabling them to co-create knowledge; and
- the use of social media platforms – involving educators and students in a dialogue.

The institutions should analyse the issues experienced during a sudden transition to online learning and prepare for any such situation in the future. Training of concerned persons in digital skills and having infrastructure with proper internet availability and access to gadgets must be ensured (Johnson et al., 2020)

Of late, institutions have realized the advantages of online learning over conventional education including convenience, flexibility, and ability to provide rapid and inexpensive access to high-quality content and material from anywhere

in the world (Latchem, 2012). Meanwhile, inconsistent IT infrastructure and inappropriate software are some barriers in the implementation of e-learning (Gunawardana, 2010)

Kumar (2010) lists the pros and cons of online education. According to him, the pros can be divided into four groups: convenience, less expense, technology, and additional benefits (like equal opportunities and creative teaching) whereas the cons are limited social interactions, technology costs and scheduling, effectiveness of assessments, and problematic for instructors.

Internet and technology access need to be improved, there have to be longer-term investments, and faculty’s acceptance of online learning (McCormac, 2020). Not everyone can afford a computer and internet connection and some are not equipped to use the technology without personal support and self-discipline (Latchem, 2012).

According to Downes (2012), “the challenges for e-learning are no longer technological, but ones of desire, organization and appropriate application based on prior knowledge, experiment, and evaluation.”

Online Assessments

Online assessments are slowly replacing the conventional mode of student assessments, though there is criticism regarding what can and cannot be assessed through online assessments. Developing the right kind of online assessment questions is also a concern. Online assessments, or e-assessments, are capable of further enhancing assessment methods as they can save time, provide immediate feedback, lead to better use of resources, have the ability to save assessment records, and can provide online flexibility for students (Chen et al., 2009). McLaughlin and Yan (2017) concluded that formative feedback like CMA has the potential to encourage student engagement, bolster student enthusiasm in learning, and lead to

improved academic achievements. Jamil (2012) reports that while CMA saves time in supervision, invigilation, marking and double marking, generating reports, and communication with students, it also has limitations in pedagogical and administrative issues such as ensuring quality objective questions.

Domun and Bahadur (2014) report that learners found online self-assessments helpful as the system gave immediate feedback after reviewing the content and stimulating higher order thinking.

In a survey conducted at WOU in 2019 covering 591 students, it was found that 65 per cent of the students felt that the online assessments (computer marked assignments were better than tutor marked assignments (TMAs), 68 per cent felt CMA created less anxiety, and 74 per cent felt that CMA scores were reliable and objective as compared to TMAs (Phalachandra et al., 2019).

Based on an online course design for community college learners, Jaggars and Xu (2016) concluded that the quality of interpersonal interactions in a course were positively and significantly related to learners' grades. In addition, their interview data showed that the frequency and effective learner-course instructor interactions created an online environment that encouraged learners' commitment to the course and performing at a stronger academic level.

Quality Assurance

Quality assurance is one of the major issues encountered by online education providers, accreditors, students, and employers. Quality assurance processes relate to five main areas -- content authoring, courseware development, adjunct faculty recruitment, pedagogy, and delivery (Chua & Lam, 2007). Over a period of time, many government regulators in various countries have established quality assurance agencies to promote, monitor, and ensure that the education provided by institutions is

of high quality which meets the standards set by national governments and also meets the expectations of employers. Consequently, it has become mandatory for institutions to create internal quality assurance departments or units to ensure quality in content, delivery, faculty, infrastructure, and student support systems. From time to time, the national accreditation/ quality assurance agencies do audits of these institutions to ensure that the programmes being offered are of high standards.

The Commonwealth of Learning published a 'Quality Assurance Tool Kit' in 2009 which can be used as a reference by distance education institutions. This toolkit contributes to sustenance as well as enhancement of quality in the programmes offered by institutions as it lists standards and performance indicators for institutions and programmes.

Objectives

The purpose of developing this handbook is to understand the policies/regulations in Commonwealth Asian countries with respect to online education and quality standards/ guidelines for designing and delivering online courses by higher education institutions. Another objective is understanding the current status and issues concerning course development and delivery, student support systems, and assessments in Commonwealth Asian institutions. In addition, the study also looks at the challenges faced by the institutions in offering online courses. The major objectives of this study are:

- documenting and analysing national policies and guidelines on online education across the Commonwealth Asian countries;
- documenting and analysing current online education programmes' development and delivery practices across Commonwealth Asian HEIs;

- describing the variations in the policies and practices in online education development and practices across the Commonwealth Asian countries and institutions; and
- recommending ways for improving and expanding online education.

Methodology

The CEMCA team developed a concept note and a set of guidelines to be followed by the authors while developing the reports.

The study includes case reports from seven countries -- Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, and Singapore and covers seven institutions:

- Asia e University, Malaysia
- Bangladesh Open University, Bangladesh
- Indira Gandhi National University, India
- Mianz International College, Maldives
- Open University of Sri Lanka, Sri Lanka
- Universiti Brunei Darussalam, Brunei
- Wawasan Open University, Malaysia

Among the seven institutions, five are ODL institutions following the blended learning approach and two are conventional institutions.

Procedure

After identifying the countries and institutions for participation in the study, the CEMCA team

ISSUES DISCUSSED IN THIS HANDBOOK

Issues discussed in the Country Reports	Issues discussed in the Institutional Reports
<ul style="list-style-type: none"> • Need for online education • Government policies and regulations on online education (including credit transfers from MOOCs+ micro-credentials delivered online). • Quality assurance agency/body in the country developing quality standards for guiding the delivery of online learning. • Platforms used for delivering online education. • Changes/modifications in policy/regulations in view of COVID-19. • Research findings, if any, on the impact of online education. • Challenges from a country's perspective in offering online education. 	<ul style="list-style-type: none"> • Process involved in assuring quality education. • Process followed in designing and delivering courses. • Student/learner support systems to facilitate online learning. • Students' assessments. Nature/type of assessments, weightage for online assessments and proctored examinations – and how the institutions safeguard the credibility and integrity of online assessments. • Challenges involved in designing and delivering online courses. • Research findings (including impact studies), if carried out on students' satisfaction. Feedback from stakeholders. • Changes made, if any, due to COVID-19 regarding course delivery and assessment of the courses delivered during conventional learning. • Future directions envisaged for improving online course design and delivery.

approached potential authors for writing the case studies.

The editors finalized a concept note highlighting the background and the need for developing a handbook on online education. Further, a set of guidelines and issues to be covered in the report were prepared and circulated among the authors.

Issues Discussed in the Reports

Issues relating to online education from a national perspective are discussed in the country reports whereas issues specific to the concerned institutions are discussed in the institutional reports.

The case study reports received from the authors were reviewed by the editors. Feedback and suggestions were provided to the authors who made the relevant changes.

The finalized versions of the reports are presented in Chapters 2 and 3.

Limitations

The study focuses on the status of online education in the Commonwealth Asian countries and institutions. As mentioned, five of the seven institutions covered are typically ODL institutions. Hence, they are in an advantageous position as compared to institutions in Brunei and Maldives with respect to development and delivery of online education. The CEMCA team was not able to get the country case report from Sri Lanka and the institutional report from Pakistan though sincere attempts were made to get them.





CHAPTER II

COMMONWEALTH ASIA: COUNTRY CASE REPORTS

BANGLADESH

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Introduction

The People's Republic of Bangladesh was founded in 1971 through a liberation war by Bangla speaking people of East Pakistan from West Pakistan. Bangladesh's population is 161 million with an area of 147,570 square km. Bangladesh is uniquely positioned to benefit from its demographic dividend as 33 per cent of its population is young aged between 18-35 years (Ministry of Youth and Sports, 2017). Thus, Bangladesh needs investments in this young human capital through easy access to education at affordable costs. Bangladesh has been identified as one of the 11 emerging economies in the world. The country has experienced a steady growth in GDP over three decades which averaged 6.6 per cent (Ministry of Finance, 2019) in the last decade. The country reached lower middle-income status in 2015 and aspires to become a middle-income country by 2021.

Its economic base has transformed significantly from agriculture to the manufacturing and service sectors. A growing service sector market economy has emerged with increase in transport and communication, education, retail, and wholesale. This transformation of the economic base has had profound ramifications in changing demand for high quality, skilled, and service-oriented manpower in engineering, agriculture, education, and the service sector with analytical, innovative, and management acumen.

Bangladesh's education system comprises of general education which includes sciences, arts

and humanities, business, and social sciences, *madrasah* education focusing on Islamic religious studies, and science and technological education which includes engineering, medicine, agriculture, and ICT. The system is divided into five categories: primary level (year 1 to 5) with entry level age at 6 years; junior level (year 6 to 8); secondary level (years 9 and 10); higher secondary level (years 11 and 12); and tertiary or higher education level. Higher education in Bangladesh specifies a system of education perused after 12 years of schooling at higher secondary or an equivalent level including a bachelor's degree (pass-3 years), a bachelor's degree (honours-4 years), master's (1 and 2 years) MPhil (2 years) and PhD.

There are 157 conventional universities in the country of which 46 are public, 107 are private, two are open universities, and two are international universities. There are 2,268 colleges affiliated to the national university and 444 *madrasahs* affiliated to the Islamic Arbi University. There are also non-university institutions such as polytechnics, medical colleges, agricultural colleges, and leather technology institutes.

Higher education in Bangladesh has expanded during the last decade and will continue to grow as the share of the youth population in tertiary education will increase from 11 per cent in 2010 to 20 per cent in 2035 (The World Bank, 2019). Enrolments in higher education increased from 1.75 million in 2010 to 4.45 million in 2018 (UGC,

2018). Private universities enrolled 0.362 million students, public universities and their affiliated colleges and *madrasahs* enrolled 4.09 million students of which the national university colleges accounted for 68.11 per cent, the Bangladesh Open University enrolled 13.04 per cent, Islamic University affiliated *madrasahs* 5.80 per cent, public universities 6.94 per cent, and 14 public university colleges enrolled 6.11 per cent of the students.

Bangladesh Open University (BOU), which was established in 1992 offers online education at the undergraduate and post-graduate levels. BOU offers courses in Agriculture and Rural Development, Business, Education, Social Sciences, Humanities, and Science and Technology. The BOU Open School also provides opportunities to disadvantaged and marginalized groups to continue school level education through the distance mode. BOU offers courses through 12 regional centres, 80 regional sub-centres, and 1,506 study centres. Bangabandhu Sheikh Mujibur Rahman Digital University (BSMRDU) was established in 2016 as a specialized online learning institution to offer undergraduate and post-graduate programmes in information and communication technology and for promoting research in these areas. In addition, the Institute for Online and Distance Learning under this university offers courses in Digital Learning Design and Cyber Security.

The government's special attention to female participation in the economy and for employment opportunities contributed to an increase in female students' enrolments in higher education institutions from 38.93 per cent in 2010 to 43.20 per cent in 2018. The gross enrolment ratio (GER) for tertiary education was 17.61 per cent in 2017 compared to 8.58 per cent in 2008. In 2008 female and male GER was 6.09 per cent and 11.02 per cent. In 2017 it increased to 14.48 per cent and 20.63 per cent respectively.

Online Education: Emerging Necessity

Expansion of lower level education, increasing retention rates, and a consequent increasing pool of higher secondary school and equivalent graduates are the reasons for the increasing demand for places in the higher education institutions. Despite rapid expansion during the last two decades, GER in higher education in 2017 was 17.61 per cent, far lower than India's (27 per cent) and middle-income countries' average (24 per cent). Demographic transition will add pressure to the GER scenario over the next two decades. HEIs with financial constraints, inadequate teaching capacity, and limited on-campus facilities will not be able to meet additional demand for places without compromising quality.

The nation should step aside from the conventional mode of education and consider cost effective alternative mode of delivery of courses. Campus based HEIs should seriously consider becoming dual mode institutions offering both face-to-face (f2f) and online courses.

Market expansion across manufacturing and service sectors including information and communication technology in Bangladesh will demand better-skilled professionals and up-skilling the existing workforce to meet the rapidly changing production environment and for remaining competitive in meeting the challenges of globalization. Traditional organizations and institutions find it harder to adapt and cope with the fast transformation of jobs and skills due to rapid changes in technology and the market environment. "Research from the World Economic Forum suggests that the core skills required to perform most job roles will change by 42 per cent on average by 2022 and 37 per cent of workforce will be required to redeploy to cope with radically changing skills" (Palvia et al., 2018). HEIs in Bangladesh have developed conventional

time and space bound face-to-face formal learning modules or established training centres within the institutions for enhancing cognitive and soft skills. Dhanarajan (2001) states, “moving knowledge to suit the needs of the learner rather than moving bodies to suit the convenience of institutions seemed to respond to all of the requirements for learning and training of fast changing jobs and skills in knowledge based society.” Conventional methods of teaching are not up to the task of harnessing the potential of online learning to meet personal and social needs and market demand (Daniel, 2006).

Online learning provides opportunities for disadvantaged groups which for some reason are unable to pursue full time on-campus studies in HEIs. Success in women’s empowerment in Bangladesh is recognized worldwide, but female enrolment across HEIs is about 38 per cent, which is lower than India’s (46 per cent) and Sri Lanka’s (60 per cent). Social norms and family conservatism restrict young girls from move to universities and colleges which are mostly located in cities and towns. According to a World Bank Report (2019), “the richest two income quintiles accounted for 75 percent of the total enrollment in tertiary education, and even more strikingly, students from the richest households capture over half of the entire tertiary enrollment in Bangladesh.” Most of the students in universities and colleges from the low income bracket are engaged in temporary work to support educational expenditure and also to augment their family incomes. An ‘earning and learning’ culture has emerged in Bangladesh. This group of students is unable to cope with full time classes along with work. Online learning with the principle of ‘learning anytime and anywhere’ will provide opportunities to a large number of eligible young girls and poor students to pursue higher studies in the country.

Online learning is not a new phenomenon for increasing access to education and promoting lifelong learning. Open and distance learning has

accelerated into online learning due to internet communication in the 1990s and subsequent use of learning management systems and increasing share of Massive Open Online Courses (MOOCs) during 2008-12. Online higher education has grown about 75 per cent during the last one and a half decades outpacing traditional higher education. About 22 per cent of the higher education students worldwide are learning through online modes while online students in higher education in USA are 15 per cent, India 22 per cent, and Australia 13 per cent. About 13 per cent higher education students study online in Bangladesh. Therefore, introduction of online teaching in HEIs in Bangladesh should be seen as a natural development of an alternative mode of studies to keep pace with trends worldwide.

Government Policies and Regulations for Online Education

The essence of the education policy of Bangladesh is derived from the directives of its national Constitution which emphasizes a mass-oriented universal education system meeting society’s needs free from any religious, race, and sex discrimination. Since its independence, subsequent governments have adopted more than half a dozen policies, strategy documents, and commission reports including the last Education Policy in 2010 (Ministry of Education) and the most recent Strategic Plan for Higher Education in Bangladesh 2017-30 (UGC, forthcoming) an updated and comprehensive version of the Strategic Plan for Higher Education 2006–26 (UGC, 2006) the Education Policy (2010) seeks to cultivate human values, groom citizens to become leaders in pro-people development programmes, and groom rationally and intellectually accomplished human beings with ethical perceptions, and equip the nation to acquire the qualities and skills to work at an equal capacity and pace with the global community. The policy has a long list of aims and objectives including emphasizing quality

and standards, providing equal opportunities, extension of the education system, and use of ICT in the education process.

The policy further identifies the limitations of the traditional higher education system to fulfil present-day needs and aims at reforming and restructuring the whole system. The policy and strategic plans concentrate on the conventional face-to-face education system. Prospects for reforming the higher education system to introduce dual or open and online education have not been encouraged or explored. The only policy directive repeated in all the policy documents that encourages open and distance learning is the establishment of the Bangladesh Open University and its development.

The Education Policy of 2010 (Ministry of Education, 2010) stipulated, “the introduction of radio transmission, multi-information system and allocation of longer time on T.V. channels like opening a second channel of BTV, for better functioning of the Bangladesh Open University.” In addition, it suggested building the Bangladesh Open University (BOU) as a true digital university enriched by ICT facilities. The policy showed an interest in online education by stating, “Information Technology University (ITU) will be established for the purpose of training of teachers engaged in teaching of IT in higher education and to facilitate research in this field.” Accordingly, Bangabandhu Sheikh Mujibur Rahman Digital University (BSMRDU) was established in July 2016. Government policies have been carefully crafted for limited development of online education by two specialized public universities: BOU and BSMRDU. Government policies and plans have not paid any attention to online education to complement teaching and learning in the conventional face-to-face universities or for them to become dual mode institutions.

Closure of educational institutions due to the unprecedented impact of COVID-19 compelled the government to ease policies for online

education by allowing educational institutions to introduce online teaching. In consultation with the Ministry of Education, universities, and other stakeholders, UGC issued policy directives (UGC, 2020) for large-scale online teaching including student assessments. One of the two alternative proposals was continuing teaching online covering the remaining syllabus of the spring 2020 semester, except laboratory-based classes. The second option was continuing online teaching of the remaining syllabus (about 30 per cent) according to the institutional capacity adapting any suitable platform. In addition, students’ semester results were to include combined results of on-campus evaluations including the mid-term examination and online evaluations and examinations. In both options, examination of laboratory courses was to be conducted after taking laboratory classes on campus as and when the COVID-19 situation improved. Universities implementing either of the proposals had to ensure 60 per cent student attendance in all online classes.

The UGC policy directives also include permission for admission of new students fulfilling the required conditions for the next semester and that continuing students should be allowed to automatically attend classes in the next semester. General instructions for private universities were continuing online teaching so long as COVID-19 persisted but returning to on-campus teaching as soon as the situation permitted. Academic instructions included delivery of learning materials, regular counselling, and assistance for capacity building in communication, training of teachers, and remaining sympathetic to students.

The government’s directives for online teaching during COVID-19 appear to be a ‘stop gap’ measure, although most of the private universities and a handful of public universities have adopted the system, processes, and procedures as well as enhanced their capacity for online teaching. However, as HEIs embraced online education for sustaining and continuing

teaching, students and online learning emerged to complement on-campus teaching and learning as dual mode education.

The Ministry of Education is the apex policymaking institution of the government regarding administration and development including formation of laws, rules, and regulations for secondary and higher levels of the education sector and institutions. The ministry has two functional divisions: The Secondary and Higher Education Division and Technical and the *Madrasah* Education Division headed by two secretaries.

The Ministry of Education manages higher education through two executive arms according to types of institutions. The Bangladesh University Grants Commission (UGC) coordinates and leads in matters of higher education in the country. UGC plans and promotes the development of higher education, receives funds from the government and allocates them to public universities, and regulates and monitors development activities of universities including approval of academic programmes, research, departments, and institutions. It is in charge of monitoring the activities of all public and private universities. The Directorate of Secondary and Higher Education (DSHE) administers and finances colleges offering graduate and post-graduate level courses. The National University as an affiliating institution which provides academic leadership and regulates colleges' academic programmes jointly with DSHE.

Bangladesh does not have a comprehensive law for the tertiary education sector or umbrella legislation for all universities and colleges. There are pieces of legislation regulating universities, colleges, and technical education in the country. Public universities are established by the national government under a law passed by Parliament which safeguards the autonomous character of the universities. Establishment and operation of private universities is regulated by the Private University Act 2010.

UGC's quality assurance function was taken over by the National Accreditation Council in 2019 which was established under a provision of the National Accreditation Council Act of 2017. The National Accreditation Council is responsible for assuring the quality of higher education, external quality assessments at the institutional level, and accreditation of institutions.

The National University was established under the National University Act 1992 to regulate tertiary level colleges. The National University authorizes the establishment of tertiary level colleges and monitors their operations. Similarly, the Bangladesh Technical Education Board was established under a provision of the Technical Education Act 1967 to oversee technical and vocational training in the country.

Government policies, rules, and regulations in Bangladesh have been formulated and implemented in the backdrop of the conventional education system because government policies and priorities are focused on traditional on-campus teaching and learning. Thus, the general regulatory system for tertiary education deems to provide a regulatory framework for distance and online education in Bangladesh. However, the Open University Act 1992 provides regulatory provisions for the establishment of BOU. Similarly, the Bangabandhu Sheikh Mujibur Rahman Digital University Act 2016 provides the legal framework for the establishment of a second open and distance learning institution in the country to offer online education at undergraduate and post-graduate levels on information and communication technology and promoting research in the field.

Due to the COVID-19 outbreak the government was forced to close all educational institutions in the country. Directed by the Ministry of Education, UGC issued directives on 7 May 2020 to all private universities to conduct online teaching and hold examinations for finishing the ongoing semester. UGC subsequently extended

similar directives to public universities. UGC also conducted a rapid situation analysis of all universities for developing a unified policy to ensure that none of the students were deprived of the opportunity of continuing their studies and they could also complete their courses following international standards. The policy is yet to be published and it is not clear if such a policy will allow long-term large-scale online education or whether it will be a stop gap measure during COVID-19.

Quality Assurance Agencies

UGC has been responsible for quality assurance and has acted as an institutional accreditation agency for both public and private universities while the National University is responsible for quality assurance by colleges. The quality assurance functions for TVET institutions rest with the Bangladesh Technical Education Board and the Department of Technical Education. UGC's accreditation and quality assurance standards and processes were not well articulated till the establishment of the Quality Assurance Unit (QAU) in 2014 under HEQEP. QAU developed capacity within UGC to monitor and support institutional accreditation and quality assurance processes. About 69 public and private universities have established Institutional Quality Assurance Cells (IQAC) to promote and institutionalize a quality assurance culture in the universities in accordance with the national Quality Assurance Guidelines. However, the quality assurance and accreditation function has been taken over by the Bangladesh Accreditation Council which was established by the Bangladesh Accreditation Council Act 2017.

The Bangladesh Accreditation Council (BAC) is an autonomous body, led by a chairman with four full-time and eight part-time members. BAC provides accreditation to HEIs and their curriculum and determines grades/ranks against the benchmark given in the National Qualification Framework. The council is also responsible for

accreditation of programmes and institutions and conducting external assessments of the quality of teaching and learning in HEIs. Students have the opportunity to choose institutions based on grades/ranks given to the institutions. The system helps university authorities to ensure quality education and satisfy stakeholders and the government.

BAC commenced operations in 2019 along with the appointment of the chairman and members and the establishment of a permanent office. The council has been engaged in consultations with university authorities to elaborate on the essence of the act vis-à-vis standards, rules, and regulations for the accreditation process. The act and instruments for the accreditation process and procedures were designed for conventional universities. Given that the programme design, content development, delivery methods, and assessment as well as institutional capacity vary between conventional and online education systems, process procedures and guidelines need to be adopted to address the accreditation and quality assurance of online education programmes and institutions.

ICT and Readiness for Online Education

Online education was first introduced in Bangladesh in 1956 by a radio broadcast and subsequently expanded by BOU. Initially, printed self-study materials were delivered through study centres. Subsequently educational content was delivered via the internet, intranet/extranet, audio and/or video tapes, satellite TV, and CD-ROMs. BOU uses a mix of platforms such as mobile technology, smart phones with SD cards containing video/audio content, BoU Web Radio and WebTV, the National Radio Channel, the FM Radio/ Broadcasting Community Radio E-Book, Web/DVD and other memory media, and Video Conferencing Interactive Virtual Classrooms (IVCR). A learning management system has

been developed and is used as video/audio content and uploaded with instructions to use, notice board, information board, assignment submission facility, evaluation marks' posting, and teacher-student chatting.

Development of online education in Bangladesh has been attached to the development of ODL under BOU and very recently the establishment of BSMRDU. National policies and plans have not been forceful in encouraging online education as a mainstream and/or complementary education system in Bangladesh. Given that higher online education was restricted to BOU, some public and private universities initiated online delivery of limited courses to augment on-campus teaching and learning. The outbreak of COVID-19 in March 2020 forced the government to close all educational institutions. UGC encouraged universities to keep in touch with students virtually and continue teaching depending on available facilities and technical know-how. The universities responded positively and started online teaching which was different from conducting online classes through various platforms to just communicating with students and advising them through simple cell phones. Teachers and students at private universities adopted online teaching and learning promptly while public universities and colleges did not follow suit. Popular platforms for online teaching and learning are Google Meet (G Suit), Zoom, and Microsoft Teams. A few universities have developed their own platforms including learning management systems.

The national budget does not have a separate line item for developing online education except the annual budget provided to BOU and BSMRDU. But there is indirect financial support for ICT development which in turn will develop communication and capacity for online education in due course.

Financial support for online education should be seen as capacity building with respect to communication, technical know-how, large scale

training facilities, and mass awareness through the development of the ICT sector. However, the growth in the ICT sector during last decade sets a stage for the natural development of online education in Bangladesh. Digital Bangladesh is the driving force of Bangladesh's Vision 2020 to transform the country into a technology oriented knowledge society. National ICT policies (2018) stipulate digital government (e-governance), social equity, and universal access to education, skill development and employment generation, and digital security and capacity building to meet the challenges of emerging technologies globally. Bangladesh has experienced 40 per cent annual growth in the ICT sector since 2010 through unprecedented participation of its young, dynamic, and IT savvy population. There are about 170 million mobile subscribers and over 100 million mobile internet users (Ministry of Finance, 2019).

The Access to Information (A2i) Programme of the Prime Minister's Office has been playing a pivotal role in providing technical and financial support to various ministries, departments, and agencies in facilitating digital service delivery throughout the country. The A2i programme has enabled easier access to public services to an estimated 150 million citizens, while 39.21 million beneficiaries have availed 150+ e-services: 69 government services, 80 private services, and more than 10 banking and financial services (Rahman et al., 2019). To decentralize services and for enhancing connectivity in rural areas, 4,554 one-stop information and service centres (union digital centres) have been established in all union councils - the lowest tier of the government.

One of the revolutionary initiatives of the A2i programme was the development of *MuktoPaath* - an open e-learning platform for skill and professional development. *MuktoPaath* created opportunities for general, vocational, and lifelong education including for disadvantaged and marginalized groups for self-employment.

Teachers, students, youth, working people, migrant workers, and housewives can benefit by using *MuktoPaath*. *MuktoPaath* provides online courses on multimedia content development for general, technical, and vocational education. It has facilitated professional institutions to train journalists, migrant workers, teachers, and unemployed youth in various skills. The platform is free to use by any recognized institution for developing and delivering courses online. Notable institutions sharing this platform are: *Mukthapath* (72 courses and 280,695 students), Robi 10 Minute School (30 courses and 385,289 students), Press Institute Bangladesh (18 courses and 4,637 students), Bangladesh Examination (15 courses and 18,720 students), and Life of Hope Ltd. (nine courses and 5,741 students).

The ICT Master Plan (2012-21) formulated by the Ministry of Education (2019) provides a roadmap for an ICT enabled teaching and learning environment for improving quality and increasing equal access to education to avoid a digital divide between rural and urban areas. The purpose is creating an ICT enabled teaching and learning environment at all levels of the education system.

Multimedia classrooms have been established in 23,331 secondary and 15,000 primary schools; 180,000 teachers and 1,650 master trainers have been trained in multimedia content development. Courses on distance education for developing teachers' professional skills and for helping them in conducting programmes on e-learning through radio, TV, and internet have also been developed. A2i initiatives include a teachers' portal, connecting 167,000 teachers to share learning content and professional skills for improving quality teaching. Digital platform *Kisore Batayan* has been developed for adolescents and teenagers to enrich young minds with extracurricular activities such as books, films, and games. About 50,416 primary schools have been equipped with multimedia classroom facilities including internet connections. For teachers' capacity building about 330 master

trainers have been trained by ICT trainers to train primary school teachers. Teachers and subject specialists have been developing multimedia learning material to facilitate self-learning. These are ICT initiatives under the Digital Bangladesh Programme for capacity building through training of students at all levels of the education system.

Development of ICT in education has had a positive effect on developing infrastructural facilities as well as students' active learning using modern technological media in Bangladesh's tertiary educational institutions. At the college level, almost all the public colleges have at least one computer laboratory while 75 per cent of the private colleges have one computer laboratory. Almost all the colleges have multimedia facilities in one or more of their classrooms. The Higher Education Quality Enhancement Project (HEQEP) implemented by UGC supported several public universities in getting computer facilities with high-speed internet connections. Most of the public and private universities have established ICT laboratories with internet connections to facilitate practical lessons and are providing free high-speed wireless internet on a limited scale and internet browsing centres within campuses. Some universities are providing internet connections to all the teachers on a limited scale. Initiatives for ICT in education have been complemented by the Skills and Training Development Project (STEP) through providing institutional development grants for skill development. HEQEP has also supported the establishment of the Bangladesh Research and Education Network (BdREN) to provide high connectivity networks in universities. BdREN promotes collaborative research both in local and foreign universities. About 61 universities have been connected or are being connected to the network. In addition, UGC also provides a University Digital Library (UDL) facility including online journals and books to public and private universities. UDL is operational with access to over 34,000 e-resources in 90 member institutions.

Accelerated growth of ICT in education is contributing to building a digitally enabled, knowledgeable, fair, and just society in Bangladesh. Providing access to ICT equipped classrooms, virtual communication in rural areas, and developing learning content and course delivery platforms has laid a strong foundation for online education in Bangladesh. Considering tremendous progress in ICT enabled education, education institutions at all levels in the country are expected to acquire hard and soft technology for e-learning and the prospect of e-learning appears to be bright in Bangladesh.

Policy Implications

In the absence of a comprehensive policy on large-scale online education for delivering online programmes due to the COVID-19 pandemic, the government immediately reacted by closing all educational institutions and also advised teachers to keep in touch with students to minimize the impact of isolation and uncertainty. UGC subsequently issued a circular instructing private universities to continue teaching online to complete courses and to assess students online as well as based on past assessments. The universities responded positively with little technological and content readiness but adapted quickly to online education settings. The policy directives issued by UGC to complete teaching and holding examinations for a semester was extended to another semester and will continue till a COVID-19 free environment is available and educational institutions can open. The emergency experimental rudimentary online teaching has gradually improved with respect to the digital platform, accessibility, teaching and content delivery, monitoring progress through formative assessments, and learning outcomes through summative assessments. As and when campuses open for teaching and learning, online education will become a new norm of teaching and learning. Teachers and

students will at least continue online teaching and learning to augment their on-campus course offerings. The government will have to respond positively with policies and regulations to support the emerging situation and demand for online learning.

To keep up with increasing demand for online learning, equipment and infrastructure need significant investments. About 50 per cent of the universities are dependent on the BdREN communication system for online teaching. The government policy needs to address the issue to support large-scale provision of communication systems and equipment.

The policy needs to support teachers' preparedness in designing and facilitating online learning modules in synchronous and asynchronous modes. Course design is identified as a pedagogical competency, alongside course implementation, facilitation, and assessments to cover learning outcomes. National curricula courses have to be readily accessible through online platforms which require resources and local expertise to develop. Teachers and students are currently organizing existing content for online teaching. Creating digital content and curating open education resources and related competencies is a key to a swift transition to online education. Plans and policies need to address teachers and university management staff's training for capacity building.

Rules and regulations designed and implemented for granting approval to new institutions by the Ministry of Education and programme approval by UGC need to be adapted to set up dual mode institutions or allowing the existing institutions to offer online courses. Similarly, standards, rules, and regulations should also be adapted by the Bangladesh Accreditation Council to assure quality online learning.

Impact of Online Education: Research Findings

The COVID-19 pandemic destabilized traditional teaching and learning settings where policymakers, practitioners, teachers, students, and the society at large were sceptical about online education. There has been a shift worldwide at all levels of the education system. Bangladesh is not an exception and a considerable number of capacities have been acquired by institutions, teachers, and students. Government agencies are not up to embracing this paradigm shift and provide necessary support to the new education system.

Communication systems for online teaching vary between HEIs and a large number of institutions were supported by UGC through its research communication system, Bangladesh Research and Education Network (BdREN). Given the rapid ICT growth in Bangladesh, UGC in collaboration with the A2i programme may extend support to ensure appropriate communication systems for all HEIs.

Teachers commenced teaching online without prior knowledge and skills in using digital platforms, delivery of course content, assessing students, and supporting learners. Either institutions arranged training for them, or they acquired the skills by doing themselves as stop gap measures. Local expertise with respect to developing content as well as adapting quality open education resources is almost nil except in BOU. UGC in collaboration with BOU and BSMRDU will be in a better position to provide training in online education for capacity building in HEIs.

Conclusion

Bangladesh has emerged as one of the fastest growing economies in the world and aspires to become a middle-income country by 2021. Its economic transformation and demographic

dividend put a premium on its capacity to produce high quality trained human resources. The conventional face-to-face education system needs to be complemented by alternative modes of delivery to provide opportunities for people to harness their potential. Various ICT development programmes under the government's Digital Bangladesh initiatives have resulted in unprecedented growth in infrastructure connectivity, ICT training at all levels of the education system, and skilled personnel. As a result, nationwide readiness has been created for facilitating online learning.

HEIs acquired a level of capacity and competency in online teaching during the closure of campuses due to the COVID-19 pandemic. The growing online teaching process was not perfect at the beginning but is getting better. The recent development of the online teaching system laid the foundation for technologically enhanced pedagogical innovations and an environment for open and flexible learning. The emerging flexible learning system will either be a blended learning system or an online learning system as may be adapted by individual institutions. The government will have to consider a more open and resilient system as and when the nation as well as the education sector stabilizes in the new normal.

HEIs have been delivering online education in a policy vacuum except for a circular providing instructions for online teaching and assessing students. The government appears to hold back support for online education and/or a technologically enhanced education system in a post COVID-19 era while HEIs are likely to take a path of mixed mode education. The government should take leadership in bringing changes by undertaking projects for capacity building with respect to training academicians and managers, developing and/or contextualizing content, infrastructure development for communication, and support to students. BOU and BSMDU should have a leading role along with financial support

from donor agencies and technical support from specialized international agencies such as the Commonwealth of Learning.

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BRUNEI DARUSSALAM

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Introduction

Brunei Darussalam (hereafter referred to as Brunei) is a relatively small country located on the north coast of Borneo Island in South East Asia, with a population of less than half a million. In 2020, Brunei marked its 36th year of independence from the British protectorate. According to the Ministry of Foreign Affairs of Brunei Darussalam, “With Brunei Darussalam’s traditional ties with Great Britain; it became the 49th member of the Commonwealth immediately on the day of its independence on January 1, 1984” (The Commonwealth, n.d.). Developing and strengthening a high quality education system and workforce have always been at the forefront of the country’s aspirations. This is as iterated in the country’s national vision, Wawasan Brunei 2035 where the first goal focuses on the development of an educated and highly skilled population (Wawasan Brunei 2035, Goal 1, n.d.).

Education in Brunei and the Strategic Plan 2018-22

In supporting the country’s Wawasan Brunei 2035 vision, the Ministry of Education of Brunei is dedicated in its commitment to produce well-educated, highly skilled, and accomplished

people. The Ministry’s Strategic Plan 2018-22 sets forth working effectively for delivering the vision Quality Education, Dynamic Nation’ with the mission, ‘To deliver holistic education to achieve fullest potential for all’ (Ministry of Education, 2018). The Minister of Education, in his message iterated in the strategic plan stated:

Looking forward, we also need to stimulate shared ownership and accountability over our learners’ accomplishment. It is therefore critical for all implementing stakeholders to adopt a “whole of nation” approach so we can better deal with the inevitable challenges in ensuring effective implementation (Ministry of Education, 2018, p. 8).

There are three strategic objectives of the strategic plan: 1) Transforming human resources into a performance-driven culture; 2) Providing equal and equitable access to quality education; and 3) Enhancing shared accountability with stakeholders in the development of teaching and learning. Focusing specifically on the context of this handbook, the second strategic objective is further elaborated here. The aims of Strategic Objective 2 are “to improve system-wide inclusion by ensuring access to quality learning and educational attainment opportunities for all learners of diverse needs; to develop them

to their full potential” (Ministry of Education, 2018, p. 27). In realizing these aims, the strategic initiatives being followed are:

- Promoting quality early childhood education (pre-primary education).
- Strengthening the delivery of basic education (primary and secondary education).
- Improving quality and access to post-secondary education.
- Improving inclusion of at-risk and disadvantaged learners at every education level.
- Improving opportunities for lifelong learning.

Lifelong learning in the Ministry’s Strategic Plan 2018-22 is defined as, “All learning activity undertaken throughout life which results in improving knowledge, know-how, skills, competences and/or qualifications for personal, social and/or professional reasons” (Ministry of Education, 2018, p. 36). Accordingly, the initiative to improve opportunities for lifelong learning involves three ministerial key actions -- developing policy, frameworks, and guidelines for promoting access to lifelong learning, reviewing the provision of lifelong learning programmes, and promoting enrolment in lifelong learning programmes.

The Lifelong Learning Centre also known as L3C under the purview of the Ministry of Education was established on 23 September 2019, during the 2019 National Teachers’ Day celebrations. L3C aims to accelerate and strengthen the country’s human resource development through lifelong learning (Lifelong Learning Centre, n.d.; Ministry of Education, Brunei Darussalam, 2020).

It should be noted that lifelong learning in Brunei can be contextualized through opportunities offered in an extensive range of courses or programmes that follow a flexible study pace and learning approaches. The courses offered typically follow a blended learning mode that involves face-to-face or physical classes, and lesson materials or resources provided including

online video lectures, online discussions and assessments, and often an e-portfolios to showcase a record of the work conducted. However, the institutions offering these online courses or programmes must be accredited by the country’s National Accreditation Agency.

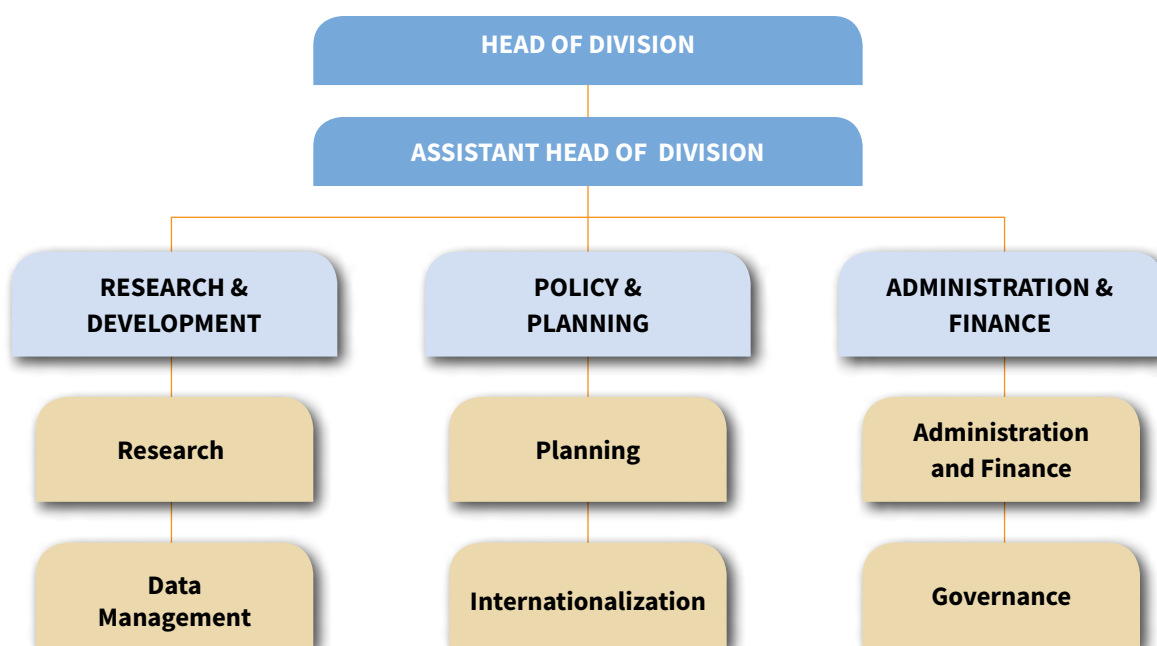
Overview of Higher Education in Brunei

In Brunei, the Ministry of Education is responsible for regulating all government and private education institutions whereas the Ministry of Religious Affairs specifically focuses on educational institutions that cater to Islamic religious education.

For higher education in particular, a division was established on 1 April 2008, under the direct purview of the Office of Permanent Secretary for Higher Education at the Ministry of Education. The role of the Higher Education Division (HED) is regulating and facilitating governance of HEIs, enhancing their capabilities in research, academic, and expertise aspects, aligning strategic initiatives towards the ministry’s vision, and facilitating internationalization pertaining to higher education. HED’s vision is ‘Quality Division towards Higher Education Excellence’ with the mission ‘To provide an environment that enhances the quality of higher education and responsive to national development needs’ (Higher Education Division, n.d.).

There are three units in the division that oversee Research and Development, Policy and Planning, and Administration and Finance.

According to comprehensive data provided in the Brunei Darussalam Education Statistics 2018 (Ministry of Education, 2019a, 2019b), there are five public or government HEIs and two private HEIs in the country. As far as is known, all these HEIs are categorized as conventional, and only UBD, UNISSA, UTB, and PB offer online courses or programmes that follow a blended learning approach. As of 2018 there were 832 lecturers



Source: Higher Education Division (n.d.).

FIGURE 2.1. HED'S ORGANIZATIONAL STRUCTURE

TABLE 2.1: GOVERNMENT AND PRIVATE HEIS IN BRUNEI AND THEIR BRIEF HISTORY

HEIs	Brief History
Government HEIs	
Universiti Brunei Darussalam (UBD)	Established in 1985
Universiti Islam Sultan Sharif Ali (UNISSA)	Established on 1 January 2007
Universiti Teknologi Brunei (UTB)	Established in January 1986 as an institute and upgraded to university status in October 2008
Politeknik Brunei (PB)	Established in October 2008 and started operations in January 2012
Kolej Universiti Perguruan Ugama Seri Begawan (KUPU SB)	Established in 1975 as an Islamic Religious Teachers' Training College and upgraded to a university college in 2007. KUPU SB is under the purview of the Ministry of Religious Affairs
Private HEIs	
Kolej International Graduate Studies (KIGS)	Established in 2002
Laksamana College of Business (LCB)	Established on 18 March 2003

across all HEIs, with 444 males and 388 females (Ministry of Education, 2019b). About half of the lecturers (49.9 per cent) had doctoral degrees.

In 2018 the total number of students enrolled in all HEIs was 11,406 (4,702 male and 6,704 female students) (Ministry of Education, 2019a). There were more female students enrolled as compared to male students because based on the Statistics Handbook, male students mainly enrolled

in the fields of engineering and engineering trades, media, computing, and ICT while female students enrolled in all other fields across the programmes offered by all HEIs.

Meanwhile, the total number of male students who graduated from all HEIs during 2016 to 2018 was 4,374; there were 6,919 female students who graduated from all HEIs during the same period (Ministry of Education, 2019b). Issues

regarding the obvious gender gap in academic achievements at the higher education levels in Brunei have been reported in previous studies (Metussin, 2015a, 2015b, 2016, 2017; Tibok & Hiew, 2019). Among the major factors contributing to this gender gap are career interests and academic achievements in key subjects such as Mathematics and English at the pre-university level, which are typically used as admission criteria for HEIs.

It should be noted that further information about the specific programmes offered by

the respective HEIs at each level of education and discipline can be found in the Statistics Handbook produced by the Ministry of Education (2019a – for UBD, pp. 115-118; UNISSA, pp. 119-120; UTB, pp. 121-123; PB, pp. 124-125; KUPU SBm p. 158; KIGS, pp. 197-198; and LCB, p.199). In summary, only UBD, UNISSA, UTB, and KUPU SB offer graduate level programmes, which are Doctor of Philosophy and Masters Degree. Meanwhile the post-graduate diploma and post-graduate certificate level programmes are only offered by UNISSA and KUPU SB.

TABLE 2.2. THE LEVEL OF EDUCATION (FROM PHD TO BACHELOR'S DEGREES) AND GENERAL DISCIPLINES OFFERED BY HEIS

Level of Degree Programmes	Doctor of Philosophy	Master's	Post-graduate Diploma/ Certificate	Bachelor's
Discipline/ Field of Education	<ul style="list-style-type: none"> • Teacher Training • Art and Humanities • Social and Behavioural Sciences • Business and Administration • Life Sciences • Physical Sciences • Mathematics and Statistics • Computing • Engineering and Engineering Trades • Architecture and Building Engineering • Health • Law 	<ul style="list-style-type: none"> • Teacher Training • Art and Humanities • Social and Behavioural Sciences • Business and Administration • Law • Physical Sciences • Life Sciences • Mathematics and Statistics • Computing • Engineering and Engineering Trades • Architecture and Building Engineering • Manufacturing and Processing Engineering • Health • Social Care 	<ul style="list-style-type: none"> • Art and Humanities • Law 	<ul style="list-style-type: none"> • Art and Humanities • Social and Behavioural Sciences • Architecture and Building Engineering • Business and Administration • Law • Sciences • Computing • Engineering and Engineering Trades • Manufacturing and Processing Engineering • Health

Source: Ministry of Education (2019a, p. 113).

TABLE 2.3. LEVEL OF EDUCATION (FROM HND TO DIPLOMA LEVEL 5) AND THE GENERAL DISCIPLINES OFFERED BY HEIS

Level of Degree Programmes	Higher National Diploma	*Advanced Diploma	*Diploma	*Diploma Level 5
Discipline/ Field of Education	<ul style="list-style-type: none"> • Art and Humanities • Engineering and Engineering Trades • Manufacturing and Processing Engineering • Law 	<ul style="list-style-type: none"> • Science and Engineering • Business • Information and Communication Technology • Health 	<ul style="list-style-type: none"> • Teacher Training • Art and Humanities • Health 	<ul style="list-style-type: none"> • Engineering and Engineering Trades • Architecture and Building Engineering • Business • Information and Communication Technology • Health

Note: *Advanced Diploma, Diploma, and Diploma Level 5 are considered equivalent to HND.

Source: Ministry of Education (2019a, pp. 113-114).

TABLE 2.4. LEVEL OF EDUCATION (FROM DIPLOMA LEVEL 4 TO THE BRIDGING AND FOUNDATION PROGRAMME) AND THE GENERAL DISCIPLINES OFFERED BY HEIS

Level of Degree Programmes	**Diploma Level 4	**Certificate	Bridging and Foundation Programme
Discipline/ Field of Education	Health	<ul style="list-style-type: none"> · Art and Humanities · Law 	<ul style="list-style-type: none"> · University Bridging Programme · Bridging English Course · Foundation Degree in Process Engineering · Foundation Degree in Mechanical Engineering

Note: **Diploma Level 4 and certificate are considered equivalent to HNC.

Source: Ministry of Education (2019a, p. 114).

The Government's Policy and Regulations for Online Education

The Brunei Darussalam National Accreditation Council

The Brunei Darussalam National Accreditation Council (hereinafter BDNAC or the council) was established in 1990 by a decree of His Majesty the Sultan of Brunei Darussalam. BDNAC is the sole accrediting agency and quality assurance agency or body in the country. BDNAC's mission is ensuring and maintaining quality and standards of educational credentials in accordance with the provisions set by the Government of His Majesty the Sultan and Yang Di-Pertuan of Brunei Darussalam, to support its vision of establishing a national and international reputable accrediting agency (Brunei Darussalam National Accreditation Council, n.d.; Akbar, 2009).

Moreover, the council is responsible for evaluating the status and quality of qualifications awarded by various local and overseas institutions; setting up, if necessary, appropriate committees including special and ad-hoc ones to assist the council in evaluations and assessments of qualifications in various subjects or disciplines; acting on matters related to the

council's responsibilities either as directed by His Majesty the Sultan and Yang Di-Pertuan of Brunei Darussalam or if and when the council considers it appropriate and necessary to do so; reviewing the status of any qualifications as and when the council sees it fit or necessary (Brunei Darussalam National Accreditation Council, n.d.; Akbar, 2009).

On 16 March 2011, BDNAC recognized open and distance learning (ODL) or the online learning mode of study or delivery and outlined important accreditation criteria for ODL programmes or courses. The accreditation criteria that were set by BDNAC for ODL programmes or courses include:

- A university or institution must first be accredited by BDNAC.
- ODL is only for master's programmes (Brunei Darussalam Qualification Framework or BDQF Level 7) and PhD (BDQF, Level 8).
- The master's and PhD programmes or courses must not include programmes or courses which are skill-based or in professional fields such as Engineering, Architecture, Accountancy, Law, Medicine, Quantity Surveying, and Dental.

- The mode of study or delivery must be the blended mode of learning, which involves a combination of face-to-face interactions and online learning, and is not delivered fully or totally online.
- ODL programmes or courses should be comparable to the programme or course conducted formally or conventionally, particularly in terms of entry requirements, duration, course content, mode of assessment, and mode of instruction.

For example, a candidate who want to study in any bachelor's programme or course in one of the BDNAC's accredited institutions as is normally the case, will need to have a minimum of two GCE Advanced Level ('A' level) with Grade A to C as the entry requirement, the duration is a minimum three- year programme after the 'A' level, and the mode of study or delivery can either be full-time or part-time. BDNAC emphasizes on the traditional or conventional classroom learning environment with face-to-face interactions. At this stage, ODL or online learning or delivery for bachelor's degrees is not accredited by BDNAC.

In compliance with BDQF, the following criteria are also listed (Ministry of Education, 2014, p. 8):

- All higher education providers conducting an accredited programme or awarding an accredited qualification or providing consultancy services on education shall comply with BDQF.
- No programme or qualification provided by HEIs shall be accredited unless it complies with BDQF.
- BDNAC may exempt for professional programmes or professional qualifications awarded by a higher education provider to be assessed by the relevant professional body subject to such conditions as it considers fit.

Meanwhile, as was informed by BDNAC, for credit transfers from MOOCs and micro-credentials

delivered online, there is currently no policy in place.

BDQF

The Brunei Darussalam Qualifications Framework (BDQF) comprises of eight levels covering qualifications in school, technical and vocational education, and the higher education sectors. BDQF is used as a tool for developing guidelines that classify qualifications based on criteria agreed at the national level and benchmarked with international good practices.

The framework explains the level of learning, achieved learning outcomes in study areas, and a credit system based on students' academic load. These criteria apply to all qualifications recognized in Brunei, thereby integrating and linking all qualifications recognized within the country.

Level descriptors have been developed for all the eight levels of BDQF, defined by the nature of characteristics outcomes of learning at each level in terms of five domains: (i) Knowledge and understanding; (ii) Practice: Applied Knowledge and understanding; (iii) Generic cognitive skills; (iv) Communication, ICT, and numeracy skills; and (v) Autonomy, accountability, and working with others (the level of independence) (Ministry of Education, 2014, p. 12).

It has been stipulated in the BDQF handbook that BDNAC requires:

- All training providers and HEIs to take responsibility for their excellent performance. They need to demonstrate to stakeholders that their quality management systems are robust and meet or exceed the quality assurance requirements set by BDNAC.
- All training providers or HEIs have to develop their own coherent internal quality assurances that include a management system of organizational structure, its responsibilities,

BDQF Levels	Schools Sector Qualifications	Technical and Vocational Education Sector Qualifications	Higher Education Sector Qualifications
8			Doctors' Degree
7			<ul style="list-style-type: none"> • Master's Degree • Post Graduate Diploma • Post Graduate Certificate
6			Bachelor's Degree
5		<ul style="list-style-type: none"> • Advanced Diploma • Higher National Diploma (HND) 	<ul style="list-style-type: none"> • Foundation Degree • Advanced Diploma • Higher National Diploma (HND)
4	<ul style="list-style-type: none"> • GCE "A" Level • IGCSE "A" Level • IB Diploma • STPU 	<ul style="list-style-type: none"> • Diploma • Higher National Technical Education (HNTec) 	
3	<ul style="list-style-type: none"> • GCE "O" Level (Grades A-C) • IGCSE and GCSE "O" Level (Grade A* - C) • SPU (Grades A-C) • BTEC Level 2 Diploma 	<ul style="list-style-type: none"> • Skills Certificate 3 (SC3) • National Technical Education Certificate (NTec) 	
2	<ul style="list-style-type: none"> • GCE "O" Level (Grades D-E) • IGCSE "O" Level (Grade D-E) • SPU (grades D) • BTEC Level 2 Extended Certificate 	<ul style="list-style-type: none"> • Skills Certificate 2 (SC2) • Industrial Skills Qualifications (ISQ) 	
1	BTEC Level Introductory Certificate	Skills Certificate 1 (SC1)	

Source: Ministry of Education (2014, p. 9).

FIGURE 2.2. BDQF

procedures, and resources for setting and implementing quality policies.

- The system will ensure that training providers or HEIs have the capability and capacity to establish and maintain an environment fit for delivering quality education and training to meet or exceed the specified standards as stipulated in the Code of Practices of Programme Accreditation (COPPA) and the Code of Practices of Institution Accreditation (COPIA) that have been outlined by BDNAC.
- BDQF thus helps strengthen quality assurance in all institutions to promote

continuous improvements based on the establishment of strong institutional quality management and external quality assurances including institutional registration, programme accreditation, and institution quality audit.

(Ministry of Education, 2014, pp. 5-6).

Platforms for Online Education Delivery, Funding, and Support

The Lifelong Learning Centre (L3C) at the Ministry of Education aims to provide equal and equitable access to quality education through

improvements in lifelong learning opportunities. L3C's mission is building holistic individuals and an inclusive society by improving opportunities for lifelong learning to learners of all ages, to support its vision of becoming a centre of excellence for expanding lifelong opportunities for strengthening communities. The centre serves as a one-stop information centre and a gateway for lifelong learning programmes offered by L3C and various lifelong learning providers in both the government and non-governmental sectors (Lifelong Learning Centre, n.d.; Ministry of Education, Brunei Darussalam, 2020).

L3C has partnered with four HEIs in Brunei to provide the centre with the required programmes for participants. Other L3C providers include the Institute of Brunei Technical Education, an autonomous post-secondary educational institution that offers Higher National Technical Education Certificates (HNTec), the National Technical Education Certificate (NTec), and SEAMEO VOCTECH, the Regional Centre for Technical and Vocational Education and Training (TVET). Both these are based in Brunei.

TABLE 2.5. L3C'S HEI PARTNERS

HEIs	Centre Name	Established
UBD	Centre for Lifelong Learning (C3L)	2016
UNISSA	Centre of Leadership and Lifelong Learning (C4L)	2017
UTB	Continuing Education in Science, Engineering, and Technology (Tri-Ced)	2018
PB	Centre of Excellence for Lifelong Learning (CELL)	2020

L3C is responsible for coordinating, promoting, and regulating L3 programmes conducted by various L3 providers. The centre also supports the Manpower Planning and Employment Council (MPEC), the Prime Minister's Office, and 'JobCentre Brunei' as a facilitator for access to education and training and job opportunities to adult learners and jobseekers for future employment and career progression (Lifelong Learning Centre, PowerPoint slides, 12 August 2020). The L3 skilling programmes' target group is youth whereas the up-skilling and re-skilling programmes are geared towards adult learners. There are four types of the L3 programmes available at L3C.

WORKFORCE DEVELOPMENT	Programmes to meet demand of job markets leading to employment, upskilling and reskilling.
ACADEMIC UPGRADING	Programmes to enable access to multiple pathways to enter TVEIs and HEIs for academic attainment.
COMMUNITY DEVELOPMENT	Programmes based on community needs.
PERSONAL DEVELOPMENT	Programmes for individual's growth and progression.

Source: Lifelong Learning Centre, PowerPoint slides (2020, p. 13).

FIGURE 2.3: TYPES OF L3 PROGRAMMES

The MPEC Secretariat has collaborated with L3C in offering up-skilling and re-skilling programmes under the SkillsPlus Initiative. This initiative provides funding assistance to citizens or permanent residents of Brunei between the age of 16 to 45 years who are local jobseekers and local employees in the private sector including freelance workers who want to re-

skill and up-skill themselves by taking courses that are less than one year long offered by L3C which are available on its portal. Individuals who are interested in applying for any of the programmes and willing to fund themselves are also welcome.

In three months since the official launch of the up-skilling and re-skilling programmes on 11 April 2020, L3C recorded 156 programmes under Workforce Development (data as of 22 July 2020).

No. Programme	No. Programme
WORKFORCE DEVELOPMENT	COMMUNITY DEVELOPMENT
1 UBD – 39 Programmes	1 <i>Potongan dan jahitan</i> (Cutting and sewing)
2 UNISSA – 7 Programmes	2 <i>Masakan dan pastri</i> (Cuisine and pastries)
3 UTB – 50 Programmes	3 <i>Kraftangan</i> (Handicraft)
4 Politeknik Brunei – 24 Programmes	4 <i>Bimbingan membaca Al-Quran</i> (Guidance on reading the Quran)
5 IBTE – 21 Programmes	
6 SEAMEO VOCTECH – 15 Programmes	
ACADEMIC UPGRADING	PERSONAL DEVELOPMENT
1 Academic Upgrading (IGCSE, GCE 'O', GCE 'A')	1 <i>Kursus-Kursus Muzik</i> (Music Courses)
2 Examination Preparation (IGCSE, GCE 'O', GCE 'A')	2 <i>Kursus-Kursus Bahasa Asing</i> (Foreign Language Proficiency Courses)

Source: Lifelong Learning Centre, PowerPoint slides (2020, p. 16),

FIGURE 2.4: THE L3 PROGRAMMES

In tangent with BDNAC recognizing ODL or online learning, a policy is currently in the pipelines to overcome and integrate the accreditation criteria set forth by BDNAC. According to the L3C roadmap, among the events laid out for 2021, L3C plans to introduce and share the L3 policy and guidelines and conduct nationwide research on L3's needs, and implementing future programmes with blended learning approaches using its own LMS. Such an approach provides an opportunity to offer flexibility and an integrated style to lifelong learning across institutions. In particular, it provides an opportunity to enable students to benefit from a common accreditation framework that, in principle, is an enabler for students to transfer and accumulate study credits from different institutions. However, challenges remain in implementing lifelong learning that looks beyond skill development to embedding an ethos that engenders in students a desire for continuous study. L3C is in a position to facilitate such an approach by embedding innovations and a passion for learning. Assessments provide an opportunity for L3C to re-imagine assessments by placing the formative at the 'heart of lifelong learning.' Implementing such an approach provides Brunei with an opportunity to use lifelong learning and formative development as an enabler for re-skilling and up-skilling that deeply connects with business and society's needs.

Changes in Education Policy due to COVID-19

Brunei reported its first positive COVID-19 infection on 9 March 2020 (Ministry of Health, Brunei Darussalam, 2020; Shahrill et al., 2021; Shahrill, Noorashid & Keasberry, 2021; Wong et al., 2020). With five more cases reported the following day (Ministry of Health, 2020), the Ministry of Education and the Ministry of Religious Affairs took immediate precautions in announcing changes to the earlier start date of the first term school holidays from 16 March

to 11 March 2020 (Ministry of Education, 2020). These changes involved all government, private, and international schools in the country with the exception of HEIs.

On 25 March 2020, five days before the second school term was due to resume the Ministry of Education announced that all teaching and learning sessions in all schools under its purview, as well as under the purview of the Ministry of Religious Affairs were to be conducted online (Ministry of Education, 2020). These were necessary and important precautionary measures to ensure that the students' health and safety were protected and for minimizing potential pathways to any possible infection. All school students were required to stay at home and follow the online teaching and learning approaches through various platforms according to the capacity of their respective schools. These were done via E-mail, Google Docs, WhatsApp, Video Conferences, Microsoft Teams, or social media platforms or any suitable telecommunications application. In addition, some schools also provided home-based learning packs for students who did not have access to the internet. Moreover, educational TV shows were also started as additional support for teaching and learning through the mass media.

All schools also activated their business continuity plans (BCP) and the Schools Operation Protocol Matrix during COVID-19 provided by the Ministry of Education (2020) to ensure the well-being of teachers and other school staff by providing flexibility for staff members who were categorized as vulnerable in accordance with the statement by the Ministry of Health, including those who were pregnant to work from their respective homes (Work from home or WFH). WFH's implementation was also coordinated with flexible working arrangements for all civil servants as stipulated by the Prime Minister's Office of Brunei (Prime Minister's Office, 2020).

Online teaching and learning during the second school term in all schools continued till the beginning of the special school holidays, the fasting month of Ramadan and Hari Raya Aidilfitri (from 15 May to 31 May) and resumed again for the later part of the second school term on 2 June (Ministry of Education, 2020). Re-opening of schools and allowing student attendance were subsequently allowed in stages starting in Phase 1 on 2 June followed by Phase 2 on 18 June, Phase 3 on 4 July, and the final Phase 4 on 27 July (Ministry of Education, Brunei Darussalam, 2020).

In a recent seminar presentation for an ongoing study that focuses on the impact of COVID-19 on educational policies in three countries -- Brunei, Malaysia, and Indonesia -- the presenters highlighted that since Brunei is a small country it implemented an educational policy in a very short period of time (Phan et al., 2020). Moreover, they also highlight that the response in the implementation of SOPs in schools was faster and effective in Brunei as compared to Malaysia and Indonesia where there are disparities in rural and urban schools with millions of students reportedly not having access to technological devices.

Meanwhile though most HEIs remained open and essential services continued, their mode of teaching delivery and assessment varied from one HEI to the next. Based on the information extracted from their respective websites and press releases in the national newspapers and social media, all HEIs modified their teaching approaches to online teaching three days after the first reported COVID-19 case to two weeks.

In UBD's case, all lectures and tutorials transitioned to online platforms from 12 March and options were given for modules to be converted to 100 per cent coursework and online examinations (Shahrill et al., 2020; UBD in the COVID-19 Pandemic, n.d.; Tong & Daud, 2020). UTB used its online education platforms and other non-face-to-face delivery methods

of teaching and learning from 16 March and the conversion of examinations to 100 per cent coursework (BCP Issues – Universiti Teknologi Brunei, n.d.; Suhaili, 2020; The Vice-Chancellor Shares the Impact of COVID-19 on UTB at ATU-NET UPF2020 Virtual Forum, 2020). All HEIs also activated their BCPs for ensuring the well-being of their staff and students.

TABLE 2.6. BRIEF SUMMARY OF AVAILABLE INFORMATION IN CHANGES IN HEIS' POLICIES IN VIEW OF THE COVID-19 PANDEMIC

HEIs	Mode	Source Date
UBD	<ul style="list-style-type: none"> Online via Canvas Options given for modules to be converted to 100 per cent coursework Online examinations 	12 March 2020
UNISSA	<ul style="list-style-type: none"> Online via LMS and other teaching and learning technologies Studies on campus deferred from 15 March to 28 March 	13 March 2020
UTB	<ul style="list-style-type: none"> Online teaching using Online Education Platforms (OEPs) and other non-face-to-face delivery methods of teaching and learning No on-campus examinations All assessments converted to 100 per cent coursework 	16 March 2020
PB	Online using LMS	11 March 2020
KUPU SB	<ul style="list-style-type: none"> School facilities closed Online programme 	22 March 2020
KIGS	Online classes using the Microsoft Team app	28 March 2020
LCB	Online classes	Not clear when in March

Note: LMS -Learning Management System.

The COVID-19 pandemic affected and still continues to affect the global educational landscape in all schools and HEIs (Shahrill et al., 2021; Shahrill & Yacob, 2021). According to UNESCO (2020), 50 countries worldwide closed all schools and universities fully, impacting over 800 million people of which 11.7 per cent were university students in tertiary education. In Brunei Darussalam in particular, more than 108,000 learners were affected, including 10,940 tertiary students (UNESCO, 2020). Several local studies (in the context of Brunei) are currently being conducted on the responses of university academicians and students and also from teachers at the school level in relation to online education, pedagogy, and how far will technology impact the delivery of education (Keasberry, 2020; Keasberry et al., 2021; Noorashid, 2020; Noorashid et al., 2020, 2021; Shahrill et al., 2020, 2021; Shahrill, Noorashid & Keasberry, 2021). It is hoped that all these disruptive shifts in the way we adopt and adapt to a new way of teaching and learning will provide the most and best effective approaches to educate future generations beyond this pandemic.

Previous Studies in Brunei on the Impact of Online Education

There are a few studies specifically on Brunei that focus on the impact of online education in general, with samples consisting of the general public and/or samples of HEI students.

Hamid et al. (2020), targeted 150 cohort 5 students from the School of Business in PB. The objective was investigating students' perceptions that may influence their acceptance of LMS in their business module and also to show the effectiveness of the LMS platform. The findings show that the portal that students found useful was more accepted making it vital for schools to find ways to enhance a platform such as the Technology Acceptance Model (TAM)

to ensure student acceptance. In addition, most lecturers used using ICT tools such as Moodle, which improved communication with students thus enhancing the effectiveness of their teaching (Hamid et al., 2020).

Suhaili (2020) reported on a study that focused on UTB students' online education platform usage during the COVID-19 pandemic between 14 to 17 March 2020; 670 responses from a survey were collected, which accounted for 45 per cent of the university's student population. This survey analysed data which showed that students were more open to blended learning rather than online learning, which should be maximized to four hours a day.

Anshari and colleagues (2017) administered a survey to 355 students around Brunei in February and March 2015 and also to 30 students from UniBridge and 12 from the diploma level in UBD. The focus of this study was on smartphone usage among students and the questionnaire, which consisted of 16 questions, included questions on topics such as internet usage and smartphones activities, habits, and others. Anshari et al. (2017) found that most students accessed the internet using their smartphones while 20 per cent accessed it from their laptops. They concluded that it was reasonable to accept that smartphones should be used for supporting learning. The study further established that there might be an indication that smartphone usage depended on the brand of the phone, with the platform with the most features becoming more popular among students. It also found that WhatsApp was the leading app for sharing information with students in the classrooms and at home. Anshari et al. (2017) concluded that smartphones could replace papers, reducing waste but this could also disturb learning, as they are a distraction for students.

Meanwhile a study by Jasmei et al. (2017) evaluated the adoption of the LMS platform called Canvas with UBD as the sample site.

The rate of adoption in the early stages of implementation and monitoring for Canvas was slow, which might be due to resistance to change by the academic staff (at the time of study). The study concluded that the decision to adopt Canvas as the official e-learning platform was a huge responsibility undertaken by the management team at UBD, and it remained optimistic on the prospects on the use of Canvas. During the COVID-19 pandemic's last semester, there was an influx in Canvas usage.

A survey of the general public was done to observe expectations regarding e-learning services (Anshari et al., 2015, 2016). There were 856 respondents and the data was collected from October to November 2014. The survey showed that almost all Bruneians had access to the internet and tended to use the internet daily. The results also showed that 64 per cent of the respondents were interested in e-learning.

Nor Amin et al. (2016, 2020) researched 100 subjects, with a 60 per cent response rate. The survey aimed to examine the use of Web 2.0 among students and lecturers in HEIs in the country. From their analyses the authors found that most of the respondents agreed that instructors used Web 2.0 to review data and communicate with students. Half of the respondents also shared neutral satisfaction with the quality of Web 2.0 provided by their respective institutions. Furthermore, most respondents preferred the knowledge shared using Web 2.0 due to the effectiveness and flexibility of the platform.

Rajak et al. (2018) examined students from HEIs such as UBD, UNISSA, UTB, PB, and KUPU SB, with a total of 94 respondents. The research was based on the acceptance of e-learning services in tertiary education, with results such as students finding online learning beneficial when the lecturers were helpful in accommodating their needs, students also found the material taught online not to be very beneficial and playfulness was not important during the lectures.

The final study targeted the demographic from UNISSA, with the aim of gaining insights about the satisfaction of users using the Complain Management System (CMS) (Azahari et al., 2020). The responses were centred on being dissatisfied and being uncertain with the process, with complaints sent using forms or through university staff. The areas that had a lot of dissatisfaction were the lack and inefficient management of the system and perceptions about staff members' handling of the complaints. Azahari et al. (2020) commented on an issue where there were only 10 permanent staff handling ICT tasks who had insufficient training. Hence, multitasking for staff members needs to be reduced and experts should be assigned specific jobs.

Challenges

With the sudden changes in the educational policy due to the unprecedented global pandemic in 2020, there continues to be significant increase in workload but also changes in teaching approaches. Teachers face a plethora of challenges at all levels. Teachers continue to face challenges in how to support all the aspects of teaching and learning online. The need to adapt to these new styles of delivery have raised concerns about students' learning experience. Challenges continue in supporting the transition through initiatives that support digital literacy skills for teachers and students, comprehensive online resources, innovative assessment methods, emotional well-being, and meeting international standards for accessibility and inclusion. Students with special needs and other vulnerable groups, are particularly at risk of exclusion in a time of radical change through the unprecedented global pandemic.

It is important to note a significant challenge for Brunei in the near future -- the increasing need to align institutional level qualifications with country level accreditation criteria for online learning (Shahrill & Yacob, 2021). The need for a revised policy is recognized and

ongoing, and this offers major potential for change in mainstreaming and growing lifelong learning. The country's economic development and associated issues of employment, are proactively being supported by investments in lifelong learning with a focus on up-skilling and re-skilling.

Conclusion

There is a need to explore the embedding of online education in Brunei further. Due to the 2020 pandemic this has heightened the need for the country to mainstream a blended approach to teaching and learning in schools through to universities. Brunei responded at an unprecedented speed to COVID-19 and this was also reflected in the application of online learning. The mainstreaming and continuity efforts that ensure sustainable quality assurance for online education beyond COVID-19, remain a challenge and this is reflected globally. For example, Universiti Brunei Darussalam (UBD) is committed to implementing a blended pedagogy with lectures remaining online and with an increasing focus on a personalized 'tutorial system' for teaching and learning.

Brunei has a small population and it was observed that changes in the educational policy were implemented at an unprecedented speed to support quality assurance of teaching and learning. The main challenge remains in sustaining the application of a new blended pedagogy that can support learners. This provides a unique opportunity for Brunei in embracing and embedding a blended approach that represents the needs of learning in-person but increasingly online. The young generation in Brunei adapted easily to digital education. The pandemic was a catalyst in a change in HEIs in Brunei as it provided a way to adapt to the needs of a young generation that changed with ease in a transition to an increasingly digital nation.

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Acknowledgments

We gratefully acknowledge the assistance and
contributions of the following senior members at
the Ministry of Education, Brunei Darussalam:

- *Dr Chin Wei Keh*, Deputy Permanent Secretary
(Higher Education);
- *Hajah Anis Faudzulani binti Haji Dzulkiflee*,
Head of Higher Education Division;
- *Rosimah Sumaimah binti Haji Matassim*, Acting
Executive Secretary, Secretariat of Brunei
Darussalam National Accreditation Council,
Brunei Darussalam; and
- *Dr Sheikh Lukman bin Sheikh Abdul Hamid*,
Acting Director, Lifelong Learning Centre.

Disclaimer: Some of the data and information
used in this chapter are available upon formal
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limited. The views and opinions expressed in this
chapter may not necessarily represent the views
or opinions of the Ministry of Education, Brunei
Darussalam.

INDIA

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Introduction

India has the highest number of HEIs in the world with 39,931 colleges, 993 universities, and 10,725 stand-alone institutions (Ministry of Human Resource Development, 2019). Total enrolment in higher education is around 37.4 million with 19.2 million male and 18.2 million female learners for a population of 1.3 billion. The gross enrolment ratio (GER) is 26.3 per cent in higher education in the country which is much below the global average. The National Education Policy 2020 calls for increasing GER to 50 per cent by 2035. This requires systemic interventions where ICT can play a major role. There are around 118 HEIs including 15 open universities offering ODL programmes in the country (UGC, 2019). The enrolment for ODL learners is only 10.62 per cent of the total enrolments in higher education which has the potential to meet the growing requirements for higher education but perhaps is not sufficient to meet the target of 50 per cent GER by 2035.

In India, ODL institutions have restrictions in offering professional degree programmes in Engineering and Technology, Law, Medical, Nursing, and Agriculture. Other than that, they are permitted to offer degree programmes in all the other disciplines with prior approval of UGC and AICTE. In the case of online programmes there are further restrictions for lab based programmes.

Higher education in India over the last decade has seen considerable transformations in terms of the changing profile of learners, their demands

for knowledge, skills, and competencies, and access to digital resources and services in a 'networked society.'

The technology ecosystem in education has seen a major change over the years. Learners today are digital natives, at ease with mobile and computing devices looking for information on the internet.

Technological advancements and penetration of telecom services in the country over the last decade provided a great boost to the development and implementation of ICT applications in higher education. Major ICT initiatives by the Ministry of Education (erstwhile Ministry of Human Resource Development) under the National Mission on Education through ICT (NMEICT) (Ministry of Human Resource Development, 2009) are NPTEL, NDLI, ePGPathshala, CEC E-content, Virtual Labs SWAYAM (India MOOCs), and the SWAYAM Prabha DTH Channel which paved the way for digital learning in the country.

With the lockdown due to COVID-19 digital learning in the country became the need of the hour and saw a major turnaround in the entire education sector with a massive thrust on online education.

Need for Online Education

Higher education in India has witnessed a major shift from an elite centric education system to massification with major emphasis on access and equity while maintaining quality and excellence.

There has been significant progress in the higher education ecosystem with a 50-fold increase in the number of universities and colleges since independence. ODL has contributed significantly to the massification of higher education in the country.

The higher education system in the country faces major challenges in its growth. There is lack of an adequate number of quality educational institutions with a huge disparity between rural and urban areas. GER in higher education is 26.3 per cent which is much below the global average and there are huge variations in the ratio from region to region. Access to higher education differs widely across states (Ministry of Human Resource Development, 2019). The states in southern India have better GER with higher availability of educational institutions compared to hilly regions with low institutional density; GER also varies from high to low.

HEIs also lack sufficient academic infrastructure and educational resources. Inadequate qualified faculty is another impediment in the growth of the higher education system in the country. This requires systematic interventions as only increasing the number of educational institutions will not suffice to cater to the increased demand for higher education.

Though India has more than 50,000+ HEIs none of them have the facilities or resources to reach a 50 per cent GER by 2035. ODL institutions are catering to around 10 per cent of GER and are able to massify higher education to some extent but the dependence on learner support centres for catering to distance learners' needs restricts large scale expansion.

The limitations of 'brick and mortar' campuses to serve a large scale learner community, ICT enabled education offering low cost, flexible 'anytime, anywhere,' individualized and just-in-time learning seems to be a viable solution. Appropriate use of ICT can overcome barriers of physical distance and time and lower costs. It also has the potential to increase student enrolments.

There were around 687 million internet users in India and around 629 million mobile internet users in January 2020 (Statista, 2020). Though India is the second largest online market, the internet penetration rate in the country was just around 50 per cent of the population at the start of 2020. India's digital environment is increasing rapidly and is expected to reach 1 billion internet users by 2025 (Analytics Insight, 2020). The number of mobile users is also likely to increase to 966 million (68 per cent of the population) by 2023.

The government is targeting radical digitalization through Digital India, Make in India, and Skill India initiatives for economic inclusiveness and social transformation (ETGovernment, 2020). This has paved the way for the adoption of the new age technologies the Internet of Things (IoT), Artificial Intelligence (AI), and Robotics which have the potential to transform the higher education sector.

ICT has percolated to the remotest part of the country in terms of internet and mobile connectivity. In this context, online education, MOOCs, and virtual universities need to be promoted to cater to a larger student base.

Over the years, online education has moved from being a content repository and emulating classroom teaching to more dynamic concepts of Social Networking, Do-It-Yourself (DIY), a Personal Learning Environment (PLE), and Mobile Learning.

Online/ virtual education as an alternative delivery mode can fulfil the following objectives:

- Increase access to basic education, skill-based education, and lifelong learning, both formal and non-formal.
- Enhance the quality of teaching and learning to improve the relevance and effectiveness of basic education.
- Expand distance learning opportunities especially for disadvantaged groups in remote areas.

With financial constraints in opening new higher education institutions or building new facilities to boost GER, online education seems to be a logical solution for a country like India.

Government's Policy and Regulations for Online Education

The National Mission on Education through Information and Communication Technology (NMEICT) was launched on 3 February 2009 as a centrally sponsored scheme to leverage the potential of ICT in the teaching and learning process. It was envisaged to be a major initiative for enhancing GER in higher education thus benefitting all the learners in HEIs through the 'anytime anywhere' mode of learning (Ministry of Human Resource Development, 2009)

The mission document provides a holistic view of ICT interventions in higher education covering major aspects like e-content development, educational software development, low-cost access to devices, and internet connectivity. Some major achievements of NMEICT were providing connectivity to all colleges and universities in the country through the National Knowledge Network (NKN), launch of the Akash tablet, a low-cost access device (\$ 35), providing access to e-journals and e-books, generation of e-content, digitization, and indexing of existing e-content, virtual reality laboratories, and supporting facilities for e-learning which paved the way for digital education in the country. Under the mission, funds were made available to the topmost higher education institutions in the country for developing e-content and digital learning platforms.

Under NMEICT, the first move towards online education started with the development of an Indian MOOC - 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM), as an integrated platform and portal for online courses. Funding was provided to AICTE to develop an indigenous (Made in India)

SWAYAM platform for hosting the MOOCs. The guidelines for developing SWAYAM were issued in 2017 by the Ministry of Education (erstwhile MHRD) which provide details of the course development processes and quality check parameters to be followed (Ministry of Human Resource Development, 2017). Major emphasis was given to the transfer of credits earned through SWAYAM. Both UGC (UGC, 2016) on 20 July 2016 and AICTE on 22 August 2016 (AICTE, 2016) issued Gazette Notifications on the Credit Framework for Online Learning Courses through SWAYAM which clearly specified transfer of 20 per cent of the credits earned through SWAYAM courses in the credit plan of the programme that a learner had enrolled in. The notification asked for necessary amendments in the University Rules and Regulations by statutory bodies for seamless integration of the credit transfer framework. MoE is giving a major thrust to the credit transfer policy and the revised UGC Gazette Notification issued in March 2021 (UGC, 2021) states, "the higher education institutions may allow only up to forty per cent of the total courses, being offered in a particular programme in a semester, through the online credit course, through the SWAYAM platform." This is expected to leverage online education in the country.

The SWAYAM initiative has brought enthusiasm among the learners in the country as is seen through the rapid increase in enrolments which were around 2.8 million in the July 2020 session. But the platform is mainly for standalone MOOCs and the second vertical of SWAYAM serves as an LMS for online programmes and the courses are not listed in the main SWAYAM platform (vertical 1).

India has seen sporadic growth in online education over the last two decades. Lack of a policy framework at the national level has inhibited its growth. Though there have been reports of offers of online programmes by some institutions, these are limited to certificate and diploma level courses which do not generally

come under the purview of regulatory authorities like the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE). Moreover, UGC has provided an advisory to all institutions under its purview not to offer any online programmes or conduct online examinations till there is a national level policy in this regard.

The first move towards a national level policy for offering online programmes/ courses started with the University Grants Commission (Online Courses or Programmes) Regulations, 2018, through a Gazette Notification dated 4 July 2018. The regulations laid down the minimum standards of instruction for the grant of a certificate or diploma or degree through the online mode, delivered through interactive technology using the internet. The regulations clearly spell out the types of programmes that can be offered online restricting practical and professional programmes. Institutions eligible for offering online programmes were restricted to those in existence for at least five years, accredited by the National Assessment and Accreditation Council (NAAC) with a minimum score of 3.26 on a 4-point scale and in the top-100 in the overall category in the National Institutional Ranking Framework (NIRF) for at least two years during the previous three years (UGC, 2018). The open universities were exempt from NAAC accreditation and NIRF rankings. It further advised using the SWAYAM platform for offering online programmes and using the four quadrant approach for content development for online courses. After releasing the regulations, UGC called for expression of interest for offering online programmes. In the first phase seven institutions were approved to run 33 online programmes Distance Education Bureau (UGC), 2019)

On 4 September 2020, UGC issued new regulations combining the 2017 ODL regulations and the 2018 online regulations. The UGC Open and Distance Learning Programmes and Online Programme Regulations, 2020 laid down the

minimum standards of instruction for the grant of degrees at the undergraduate and post-graduate levels and grant of post-graduate diplomas, through the ODL and online mode (UGC, 2020). The major policy change in the revised regulations is that they permit HEIs having a NAAC score of 3.26 and above or having a rank in the top-100 in the university category of the National Institutional Ranking Framework, at least twice in three preceding cycles (at the time of application) to start full-fledged online programmes without UGC's prior approval. The regulations provide details of the processes and quality parameters to be followed for offering online programmes. They spell out in detail the administrative arrangements and infrastructure and technology support for effective delivery of programmes in ODL and online modes. After notification of the new regulations, UGC has now called for fresh EoIs for offering online programmes.

AICTE (Open and Distance Learning Education and Online Education) Guidelines, 2021 were released on 1 March 2021 for conducting technical education courses in the field of Management and Allied Areas, Computer Applications, Artificial Intelligence and Data Science in the Engineering & Technology domain, Logistics and Travel & Tourism (AICTE, 2021). They permit institutions with a NAAC score of 3.26 and above on a scale of 4 or a NBA score of 700 on a scale of 1,000 or having a rank in the top-100 in the university category of the National Institutional Ranking Framework, at least twice in three preceding cycles to offer ODL/ online programmes without AICTE's prior approval. This is restricted to the National Board of Accreditation (NBA) accredited programmes. Institutions with a NAAC score of 3.01 and above or a NBA accreditation with 650 points and above can also apply to AICTE for offering ODL/online programmes for approval to run the programmes. This is different from the earlier guidelines issued in 2020 by AICTE as these place more emphasis on online education.

The National Education Policy (NEP) 2020 approved by the Union Cabinet of India on 29 July 2020, is expected to give a boost to online education in the country (Ministry of Human Resource Development, 2020). NEP's Section 24 is dedicated to 'Online and Digital Education: Ensuring Equitable Use of Technology.' The policy recommends the following key initiatives:

- Pilot studies to be conducted for online education
- Building a robust digital infrastructure
- e-learning platforms like SWAYAM and DIKSHA to be extended further
- Developing engaging e-content including games, simulations, augmented reality, and virtual reality
- Adding more virtual labs
- Addressing the digital divide through appropriate technology infrastructure
- Capacity building of teachers for using online platforms
- Proper online assessment mechanisms to be developed
- Setting up a National Education Technology Forum for exchange of ideas on the use of technology for enhancing learning

NEP 2020 is seen as a gamechanger for the education sector and expected to bring in major structural changes. This is going to provide an impetus to online education in the country.

Quality Assurance Agency

The quality parameters for online programmes are clearly defined by the online regulations issued by UGC and AICTE.

UGC regulations restrict the eligibility of institutions for offering online programmes

based on the NAAC grading and NIRF ranking. Institutions with a NAAC grading of 3.01 and above and top-100 NIRF ranked institutions are eligible for running online non-technical and non-professional programmes. For technical and professional programmes, institutions with a NAAC grading of 3.01 and above or NBA grading of 650 and above and the top-100 NIRF ranked institutions are eligible for running online programmes.

UGC and AICTE follow stringent processes for approval of online programmes to avoid any compromise with quality. Proposals are to be submitted online by the interested institutions detailing the programme structure, pedagogy, assessments, student support services, platform to be used, and available infrastructure and human resources as well as readiness of the programme as per the four quadrant approach. UGC's Distance Education Bureau (DEB) and Approval Bureau monitor the online programmes offered by the universities on a regular basis and the continuity of these programmes is based on a quality check of the content and delivery mechanisms. The quality parameters for content are strictly based on SWAYAM Guidelines for Online Courses and for the delivery of programmes on the UGC/ AICTE Regulations for ODL and Online Programmes.

As per the regulations, HEIs need to establish a Centre for Internal Quality Assurance and follow the Quality Assurance Guidelines on learning materials in multiple media, curriculum, and pedagogy.

UGC and AICTE's regulations prescribe minimum standards to be maintained at examination centres for online programmes both for centre based and remote proctored examinations.

For the e-learning material for online programmes the regulations prescribe the four quadrant approach as per the credit framework for online learning courses through SWAYAM.

Platforms used for Delivering Online Education

Online / virtual education may range from digital resource-based delivery to a complete virtual mode.

A major effort was initiated by seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati, and Roorkee) along with the Indian Institute of Science, Bangalore in 2003 under the aegis of the National Programme on Technology Enhanced Learning (NPTEL). The initiative focused on developing web and video-based content for five core disciplines: civil engineering, computer science and engineering, electrical engineering, electronics and communication engineering, and mechanical engineering. The first phase was till NMEICT's content for 235 courses was developed. In the second phase (2009-14) an additional 600 web and video courses were created in all major branches of engineering and physical sciences at the undergraduate and post-graduate levels and for management courses at the post-graduate level (NPTEL).

The main goal of NPTEL's Phase II (2009-14) was further extending the engineering and core science courses launched in NPTEL Phase I. Further, 600 web and video courses were created in all major branches of engineering, physical sciences at the undergraduate and post-graduate levels, and management courses at the post-graduate level. This phase also implemented indexing of all video and web courses and keyword searches.

In 2006, MoE (erstwhile MHRD) initiated the process of developing a One-Stop Portal for Learners, Teachers and other stakeholders with the launch of the Sakshat Portal by the then President of India Late Dr APJ Abdul Kalam. For the first time it introduced the concept of the four quadrant approach by hosting high school level courses in four quadrants in which NCERT textbooks were enriched with videos

and animation simulation along with self-assessments. The portal had a live chatting facility where school teachers identified by the Central Board of Secondary Education (CBSE) were available through live video chats before the board exams and the response was quite positive.

As a follow up to the SAKSHAT initiative, the National Mission on Education through ICT (NMEICT) was launched as a centrally sponsored scheme of MoE (erstwhile MHRD) on 3 February 2009 at Tirupati. NMEICT, was a landmark initiative of the Government of India to leverage the potential of ICT in teaching and learning and was seen as a gamechanger in the higher education sector. It was envisioned to be a major intervention for enhancing GER in higher education addressing the educational aspirations of students and lifelong learners (Kanjilal & Prakash, 2013).

After the launch of NMEICT in 2009 the emphasis shifted to content development across disciplines of higher education and SAKSHAT became NMEICT's official site hosting all the content. More than 100 projects were funded under the mission ranging from e-content development and access to e-resources to development of software tools.

Over the years, major content got generated across disciplines. Four major initiatives worth mentioning here are the UG level courses developed by CEC, ePGPathshala for PG level courses developed by UGC, virtual labs by IIT Delhi, and spoken tutorials by IIT Bombay (15).

For UG courses, the Consortium of Educational Communication (CEC) was assigned the task of e-content generation. In Phase I, e-content for 19 UG subjects and in Phase II in 68 subjects was generated by CEC in collaboration with its other media centres.

e-PG Pathshala provides access to high quality, curriculum-based, interactive four quadrant e-content at the PG level in 70 subjects (723 papers/ courses) across all disciplines of social sciences, arts, fine arts and humanities, and

natural and mathematical sciences. As on date it has 20,000+ e-texts, 19,000+ Videos, and 30,000+ quizzes. The content has been developed by 3,200+ subject matter experts (SMEs) across the country. As a bi-product of the e-PG Pathshala, UGC/ INFLIBNET developed e-Adhyayan, a platform providing access to 700+ e-books for post-graduate courses derived from e-PG Pathshala's content with integrated videos (INFLIBNET).

The virtual labs project (IIT Delhi) was initiated under NMEICT to complement NPTEL's e-content by IIT Delhi with 12 participating institutes. Under the project virtual labs in various areas of science and engineering were designed and developed to benefit the maximum number of students. The virtual labs have a user-friendly graphical interface, synchronized with a back-end with a simulation-engine running on a server or actual measurement data or remotely triggered experiments.

The beauty of a virtual lab is that it does not require any infrastructural setup for conducting experiments. A computer terminal with broadband connectivity is a basic requirement for performing experiments remotely. The virtual labs were dedicated to the nation on 23 February 2012. The Virtual Labs Project offers over 120 virtual labs (900+ experiments) in all important domains of science and engineering. Over 1,200 nodal centres are participating as users and the cumulative usage of the virtual labs has crossed 45 lakh + as on date.

Spoken Tutorials (IIT Bombay) provide training in free and open source software. The tutorials are self-paced, multilingual courses meant for anybody with a computer and a desire for learning who can learn at any place, time, and in a language of her/his choice. Spoken Tutorials are generally 10 minute audio- video tutorials for training in important IT topics especially open source applications. The tutorials are dubbed in all Indian languages to

facilitate non-English speaking learners. Using a series of such tutorials, one can even learn a complicated IT topic easily. There are more than 500 tutorials in English and 2,000 dubbed tutorials available on the Spoken Tutorials site. Those who are interested in testing their expertise in a particular software can go for the end-of-course online tests and on clearing them earn certificates. These certificates increase employability potential and provide an edge to students during placements.

The best part of these major NMEICT initiatives is that the content developed is available as OERs under the CC- BY- SA license. NMEICT has made all the content available under open licenses with the adoption of the OER Policy in 2014 (Ministry of Human Resource Development, 2014).

NMEICT (NPTEL) gradually shifted its emphasis from content creation to online courses in 2014. NPTEL under the aegis of NMEICT in association with NASSCOM launched the first MOOCs on data structures and algorithms. The platform was powered by Google Course Builder. NPTEL's online certification started in 2014 and as on date it has offered 2,000+ online courses on SWAYAM with 12.5 million+ enrolments which are free. For online certification there have been 1.38 million + exam registrations which are optional for a fee. On successful completion of the courses, learners get an e-verifiable certificate from IITs and IISc. NPTEL courses are very popular as is evident from the daily hits and subscriptions on the site. Till date there have been 900 million+ hits on the website. The NPTEL YouTube channel has 44, 000+ hours of video hosted with 2.9 million+ subscribers (NPTEL).

NPTEL partners with colleges in India and worldwide as local chapters. More than 4,000 colleges are registered as local chapters for NPTEL which act as a single point contact (SPOC) and mentor the learners.

Another initiative worth mentioning is mooKIT – a MOOC management system developed by IIT Kanpur in collaboration with the Commonwealth

of Learning (COL) based on open source software (IIT Kanpur). It is a lightweight, scalable, and cost effective platform targeting developing nations and has been used in more than 60 courses so far with 200,000+ learners registered from more than 90 countries across the world.

A major thrust on online courses started with the launch of the SWAYAM (India MOOCs) initiative by MoE (erstwhile MHRD) in 2016 but this was limited to standalone courses.

SWAYAM's journey started with IIT Bombay initiating the process for developing the platform by customizing the open-edX. This was later abandoned by the ministry which took a decision to develop an indigenous platform. IIT Bombay is still continuing with the IITBX platform and offering MOOCs independently (IIT Bombay).

The Ministry of Education (erstwhile MHRD) floated a global tender. After failing to identify a qualified bidder, the task was finally entrusted to AICTE. AICTE in collaboration with Microsoft and its software partner WizIQ developed and made live the Beta version of the site on 15 August 2016.

In 2018 NPTEL's online courses were merged with SWAYAM and a unified platform was developed based on the Google Course Builder and all SWAYAM courses version 1.0 were migrated to the unified platform SWAYAM 2.0 (Ministry of Education).

There are nine national coordinators: NPTEL (including all IITs and IISc Bangalore), the University Grants Commission (UGC), the Consortium for Educational Communication (CEC), Indira Gandhi National Open University (IGNOU), IIM Bangalore, NITTRE, AICTE, NIOS, and NCERT offering courses on SWAYAM at all levels from high school to PG across disciplines. As on date around 2,075 unique courses have been developed. The total number of courses delivered (listed) on SWAYAM since its inception in 2016 is 4,307. The total enrolments

are around 19 million with 5.9 million unique registrations.

SWAYAM has two verticals, one for standalone open courses and the other for online programmes. SWAYAM's Vertical 2 serves as a LMS for offering online programmes and the courses are for closed groups not listed in the public domain. Online programmes approved by UGC are hosted on the SWAYAM's Vertical 2. At present Shastra University, Bharti Vidyapeeth, Dr D. Y. Patil Vidyapeeth, and JSS Academy are running their online programmes on the second vertical. IGNOU is offering its courses for online programmes on SWAYAM Vertical 1. Another variation of the SWAYAM portal named iLearn has been developed for the e-VidyaBharti network project of the Ministry of External Affairs for offering online programmes in African countries under the scholarship scheme (Ministry of External Affairs). Reputed public and private universities in India are offering short-term, undergraduate, and post-graduate courses on the iLearn portal.

After the success of the NPTEL stand-alone online courses, it has now started offering NPTEL domain certification in 41 domains across 10 disciplines. For domain certification, learners have to complete 5-7 courses combining core and electives in a focused area. Average score required for certification is 60 per cent which has to be completed within three years. The cost for domain certification is as low as Rs 5,000. Some of the popular areas of domain certification are: Programming, Data Science, AI, VLSI Design, Environment, and Marketing.

From the current session, IIT Madras has started offering online degree BSc programmes in Programming and Data Science. Entry is open to anyone who has completed the 12th standard exam. The programme is modular in nature with multiple entry and exit points. Registration is open to anyone who clears the qualifying exam and entry can be at the basic level or at the diploma level. On successful completion

of the foundation level courses one can exit with a certificate in 1-2 years, with completion of diploma level courses in 1-4 years and with completion of the degree level courses within 3-6 years for a BSc degree from IITM. For the July 2020 session there were 30, 276 applications of which 20,312 qualified from India and 84 from UAE after completing four weeks of classes in October.

The COVID-19 Pandemic and its impact on Online Education

The COVID-19 pandemic brought major disruptions in higher education, transforming the centuries old chalk and talk model to a technology driven model. It called for a multi-pronged approach to manage the crisis and build a robust education system in the country. With the lockdown in March 2020 as colleges

and universities closed there was a sudden surge in demand for online classes and courses. Faculties were taken unaware and many were unprepared and had to adopt and adapt to the online teaching-learning mode. They were under tremendous stress to address issues like online pedagogy and deliverables. Apart from that teachers and students had to struggle with basic requirements such as dedicated computing devices, internet connections, and unpredictable power supply.

MoE issued guidelines for use of platforms developed under NMEICT such as the National Digital Library of India (NDLI), SWAYAM, SWAYAM Prabha, NPTEL, ePGPathshala, Spoken Tutorials, and Virtual Labs regularly. It urged the learner community to register for courses on the SWAYAM portal and asked HEIs to popularize the existing initiatives taken by the government.

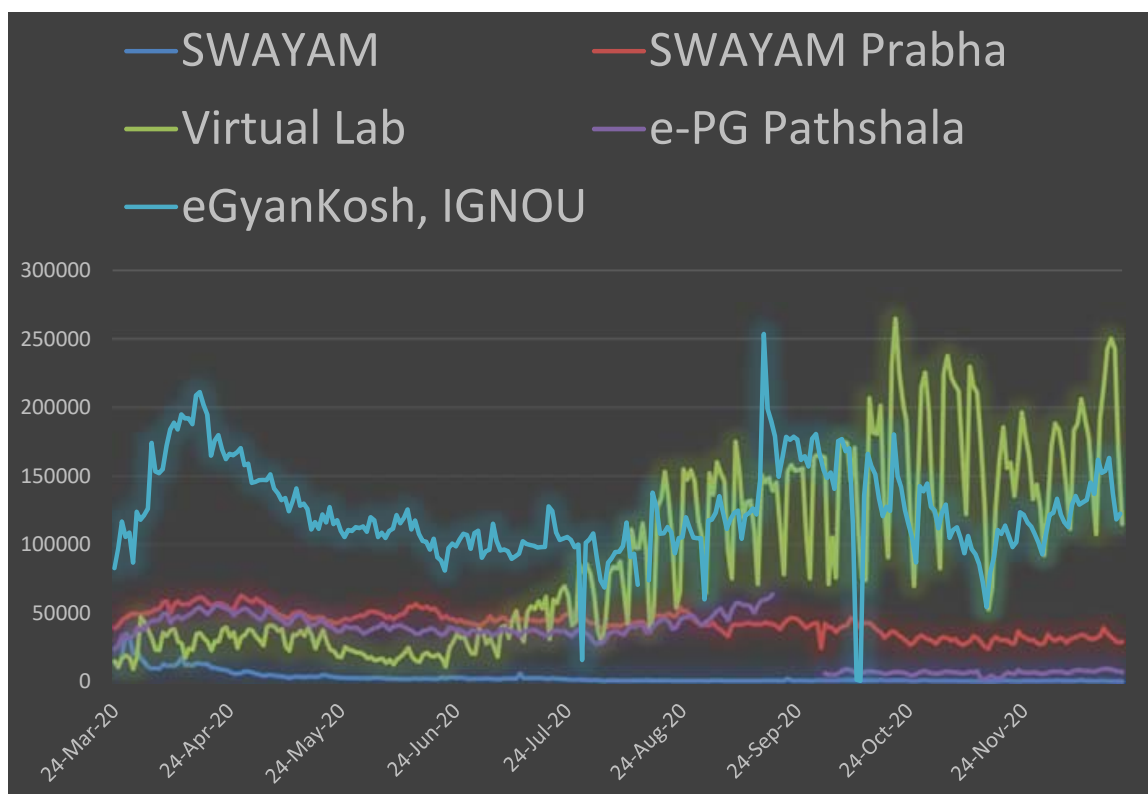


FIGURE 2.5: DAILY HITS ON POPULAR ONLINE PORTALS DURING THE COVID-19 LOCKDOWN

UGC constituted two key committees on crucial aspects related to higher education during the pandemic. One committee worked on the New Academic Calendar headed by the Central University of Haryana's Vice-Chancellor Professor R. C. Kuhad and another on Promoting Online Education headed by IGNOU Vice-Chancellor Professor Nageshwar Rao.

The Kuhad Committee's report recommended various options for conducting examinations online and adopting other alternative methods keeping the diversity of the country in mind. The recommendations were mainly advisory in nature. The following major recommendations were issued by UGC after due approval of the commission (PIB, 2020):

1. *The Intermediate Semester students to be graded based on internal assessment of the present and previous semester. In states where the COVID-19 situation had normalized, the exams to be conducted in July.*
2. *For Terminal Semester students exams to be held in July.*
3. *The universities were advised to constitute A COVID-19 cell empowered to solve students' issues related to the academic calendar and examinations.*
4. *A COVID-19 cell also to be created in UGC for faster decision making.*

A revised suggestive academic calendar was also issued for the academic sessions 2019-20 and 2020-21 by UGC based on the recommendations of the Kuhad Committee.

The Professor Nageshwar Rao Committee looked into issues related to promoting online education. On the aspect of methodology to integrate and enhance various efforts for online education, the committee recommended 'One India One Content,' an integrated e-content portal to be made live at the earliest. On methodology to conduct online examinations ensuring

credibility and transparency, the committee recommended that online examinations should not be made mandatory and the universities may devise their own mechanisms for conducting examinations including mode of evaluation keeping in mind the concerns of the learners. The committee further proposed to raise the current limit on online teaching of 20 per cent as stipulated in UGC Regulations, 2016 to 40 per cent. It also suggested that universities with either a valid NAAC score equal to or greater than 3.01 or with a rank in the top-100 in the overall NIRF rankings at least once in the last two cycles, should be allowed to proceed with online learning facilities without UGC's permission. The committee's recommendations were integrated with the Merged Regulations for ODL and Online Education 2020, the drafting committee for this was also chaired by Professor Nageshwar Rao, Vice-Chancellor IGNOU.

With the thrust from MoE on using online platforms and regular advertisements for these on different social media platforms, the government was able to generate awareness and interest in online education to some extent. This can be seen in the surge in daily hits on the sites.

The pandemic has to some extent been able to generate interest in online educational resources and courses and the learner and teacher communities have started adopting the online teaching-learning environment.

The new normal has the possibility of digital interventions post-COVID with a greater emphasis on OER repositories (both web and mobile based), MOOCs, and online education. Already major activities in this direction have started but there are some challenges that need to be addressed for successful implementation of the government's policies.

As per NSSO data, only 4.4 per cent rural households and 23.4 per cent urban households own computers of which only 14.9 per cent rural households and 42 per cent urban

households have a computer with an internet connection (Ministry of Statistics and Programme Implementation). This could be a major bottleneck.

Most of the faculty members are not adept at using online education platforms and this calls for massive capacity building initiatives to be taken up by the government to train teachers on online pedagogy and delivery platforms.

Online education requires robust online examination systems with secure platforms, processes, and policies in place. The National Testing Agency (NTA) has been catering to these requirements especially for the SWAYAM courses to some extent but this needs to be augmented and scaled up further to cater to online education requirements in the country.

Further, it is important to see that online assessments require a different strategy with AI and learner analytics in place which has yet to be adopted by most of the online education providers in the country.

Just emulating the traditional classroom strategy for online education will not help in successful implementation of online education. Emphasis needs to be put on developing engaging e-learning content and the active participation of the learners with interactive platforms.

Research Findings on the Impact of Online Education

Research on online education in the country is sporadic and has been mainly triggered after the COVID-19 pandemic. During the lockdown when all educational institutions were closed, online education remained the only option to remain connected and keeping the teaching and learning processes running. The government is yet to conduct a national level survey on the impact of online education but some efforts have been made in this direction at different levels. Some of these efforts are discussed in this section.

ASSOCHAM and Primus Partners (2021) conducted a joint survey across the country involving key stakeholders in education -- teachers and students -- to understand their readiness for digitization of education in response to COVID-19 disruptions. The key findings indicate that there is hardly any difference in access to resources across institutions whether private or government and across states among students and teachers. But a difference is generally seen in the quality of resources and education provided. The deployment of services is also not uniform wherein private institutions seem to have an edge in terms of hours of online classes attended by learners. In the context of modes of content dissemination, it is found that the most common methods used were online classes followed by document sharing through e-mails or WhatsApp. The pattern was found to be more or less uniform for both private and government institutions across school and higher education levels. The survey also found that 88 per cent of the respondents missed interactions with teachers and peer groups the most while attending remote or online classes and 51 per cent mentioned missing extracurricular activities. Regarding quality of online learning, 50 per cent of the respondents said that in the absence of a classroom environment and physical presence of teachers they found it difficult to understand the subject and clarify doubts from the teachers. From the teachers' perspective it was found that around 80 per cent were comfortable conducting online classes whereas in the case of government teachers less than 68 per cent were comfortable. Though a majority of the teachers were found to be comfortable in an online environment they lacked training in conducting online classes in a structured manner. Teachers also found it difficult to adapt to the digital environment. Interestingly 86 per cent of the learners in private institutions preferred online classes whereas 85 per cent of the learners in government institutions preferred physical classes.

Schoolguru Eduserve (2020) an ed-tech firm, conducted a survey of 1,200 university teachers pan-India to understand their comfort levels in online teaching. Nearly 50 per cent of the teachers said they were not comfortable with online teaching even after six months of conducting online classes during the COVID-19 pandemic. More than 89 per cent teachers claimed that they did not have any training for handling technology for teaching purposes. Only 3 per cent of the respondents had prior experience of teaching online.

Darius et al. (2021) surveyed around 450 students of universities, engineering colleges, and medical colleges in South India to study the effectiveness of online teaching-learning methods. The study found that animations, digital collaborations with peers, video lectures delivered by faculty, online quizzes, student version software, a conducive environment at home, interactions by the faculty, and online reading materials were most effective in the case of online learning. Online classes were endorsed as being the most effective as presentations could be seen by all the learners by adjusting the sound level of the lectures by faculty and they did not need to travel long distances to reach physical classrooms.

Chakraborty et al. (2020) conducted a survey in the Netaji Subhas University of Technology, New Delhi. They elicited responses from 358 students of which 65.9 per cent said that they preferred physical classrooms while 39.9 per cent were fine with MOOCs over the online mode. Regarding online teaching skills, 68.1 per cent mentioned that the teachers had improved their skills during the COVID-19 pandemic and 77.9 per cent felt that in the present circumstances online education was quite useful. Overall, the respondents were happy with the online study material and the platform used for online education but said it was quite stressful and affecting their health and social life.

A recent survey conducted by IIM Indore's faculty member Dr Surbhi Dayal (*Times of India*, 2021)

of 950 learners covering both higher education and high schools found that 93.4 per cent of the respondents felt that the quality of education was compromised in online learning and 79 per cent said the same thing about the overall online format. Most of the learners reported that they found online education hectic and stressful and 75 per cent said that excessive screen time led to mental stress. Most of them reported that lack of social interaction was affecting their emotional and mental well-being.

The Association of Indian Universities in collaboration with the UK based company QASPIR (AIU & QASPIR, 2021) conducted a survey of 366 HEIs (155 universities and 211 colleges) covering universities and colleges across India (Association of Indian Universities, 2021). The responses were directly collected from the faculty. The main aim of the survey was assessing the preparedness of Indian HEIs in light of the COVID 19 pandemic which brought major disruptions in the education system across the world.

The survey threw light on different aspects like infrastructure, internet connectivity, online platform use, student engagement, value added services, faculty readiness, and institutional policies through 85 questions.

The survey showed that 50 per cent of the institutions (public and private) were equipped with smart classrooms. More than 75 per cent institutions indicated that they required capacity building of faculty to prepare them for online education. More than 75 per cent of the universities preferred a blended approach over complete online delivery. It was also seen that more than 50 per cent of the universities were using limited LMS functionalities and 20.3 per cent universities did not have any LMS. It was found that around 20 per cent were not providing any course materials online. Around 42.5 per cent of the universities were not offering any MOOCs.

Around 80 per cent of the universities were expecting to offer online degrees in 1-3 years'

time. Though many challenges in terms of technology and access were cited it was also seen that most of the respondents were eager to adopt online education methods in the future.

The report provided recommendations for the government and institutions and is expected to act as a guide for all the stakeholders in preparing them for online education.

Concluding Remarks

MoE has taken several initiatives over the years for online education such as NPTEL, SWAYAM, SWAYAM Prabha, Virtual Labs, Spoken Tutorials, and the National Digital Library India (NDLI) which need to be integrated seamlessly to provide a complete virtual learning experience for learners. Most of the projects like Virtual Labs and Spoken Tutorials are intended for technical education, which can be easily extended to cover other domains. Further, all these initiatives need to be promoted which will help in a quantum jump in the quality of academic interaction in the classrooms, apart from reaching the unreached.

Initiatives like the National Digital Library of India (NDLI) and SWAYAM are important for their richness of content and delivery capabilities respectively. NDLI needs to be further augmented into an OER repository and integrated with the SWAYAM portal to facilitate both learners and teachers with facilities with the discovery of resources. Videos developed for SWAYAM can be scheduled for regular and repeat broadcasts through SWAYAM Prabha which will help in last mile connectivity.

There is an urgent need to integrate SWAYAM with already existing popular platforms like IIT BombayX, IIMBX, and IIT Kanpur's MOOCIT. Considering the different commercial models of the platforms, a policy framework may need to be evolved for this. A unified platform integrating several MOOCs offered by HEIs and pooling educational resources and subject experts will help in reaching out to a large number of learners

who are otherwise deprived of higher education opportunities.

The COVID-19 pandemic has made us realize the importance of online education and it is time that a concerted effort is made at all levels to gradually start adopting online tools and platforms for both online and classroom-based education. In the long term this will help in achieving GER targets and providing quality education.

NEP 2020 provides a clear-cut framework for implementing online education in the country and with Online Education Regulations in place a major shift towards online education is expected in the coming years.

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Introduction

The Malaysia Ministry of Higher Education (MOHE) plays an integral role in creating a higher education ecosystem with the finest public universities, private HEIs, polytechnics, and community colleges. These institutions form the main components of the national education ecosystem and training for generating first-rate thinkers, scholars, masters, and skilled and semi-skilled manpower in accordance with their respective roles. The guiding vision and mission of MOHE is (<https://www.mohe.gov.my>):

Vision	High quality tertiary education, excellent individuals, and a prosperous nation
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Mission	To sustain the higher education ecosystem for developing and enhancing individual potential and fulfilling the nation's aspirations
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1. To ensure success, MOHE has three departments that manage HEIs:

- (i) The Department of Higher Education (public and private higher education institutions);

- (ii) Department of Polytechnic Education (polytechnics); and

- (iii) Department of Community College Education (community colleges).

Efforts to achieve this role are also supported by agencies with roles that are vital in higher education (<https://www.mohe.gov.my>):

- (i) The Malaysian Qualifications Agency (MQA): supervising and coordinating quality assurance as well as accreditation of national higher education; and
- (ii) National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional, PTPTN): managing loans for higher education purposes and collecting loan repayments.

TABLE 2.7: NUMBER OF HIGHER EDUCATION INSTITUTIONS

No.	Type of institutions	Number of institutions	
		Private	Public
1.	University	51	20
2.	University College	37	-
3.	Branch campus	10	-
4.	College	339	-
5.	Total	437	20

Source: <http://jpt.mohe.gov.my/portal/index.php/ms/ipt/ipta/28-direktori-universiti-awam>

Out of the 437 private institutions, only seven are dual mode institutions. Presently there are four

TABLE 2.8: MQF LEVELS AND DESCRIPTORS COVERING SECTORS AND DISCIPLINES OF STUDIES

MQF Levels	SECTORS		Minimum Graduating Credits
	TVET	Academic	
8	-	PhD by research Doctoral degree by coursework/mixed mode	No credit rating 80
7	-	Master's by research Master's degree by coursework/mixed mode Post-graduate diploma Post-graduate certificate	No credit rating 40 30 20
6	-	Bachelor's degree Graduate diploma Graduate certificate	120 66 36
5	Advanced Diploma	Advanced diploma	40
4	Diploma	Diploma	90
3	Certificate	Certificate	60
2	Certificate	Certificate	30
1	Certificate	Certificate	15

institutions with ODL licenses:

- (i) Open University Malaysia was established in 2000. It has learning centres across all states in Malaysia except Perlis.
- (ii) Wawasan Open University was established in 2006. Currently it has two learning centres and five regional centres in Malaysia.
- (iii) GlobalNxt University was established in 2001 and it is a fully online university.
- (iv) Asia e-University was established in 2007. Currently it has 12 learning centres in Malaysia.

There were about 2.04 million students in 2019 out of which 307,818 graduated in 2019 (<https://www.mohe.gov.my/en/download/awam/statistik/2019-1/612-bab-1-makro-institusi-pendidikan-tinggi-3/file>).

The Malaysian Qualifications Framework (MQF) provides a set of levels and descriptors covering all sectors and disciplines of studies, which uses these levels and outcomes with the intention of bringing progression and pathways together and accommodating all forms of learning. They are related to the study and/or work context to make it applicable for academic and TVET type qualifications and purposes. MQF maintains eight levels of learning achievements. These are certificates (Levels 1-3), diplomas and advanced diplomas (Levels 4-5), and bachelor's, master's, and doctoral degrees (Level 6-8). Post-doctoral degrees are not included in the framework.

Need for Online Education

Internet penetration in Malaysia was 90.8 per cent in 2019 (<https://www.statista.com/statistics/975058/internet-penetration-rate-in->

malaysia). This put Malaysia in a good position to harness the power of online learning to widen access to good quality content, enhance the quality of teaching and learning, lower the cost of delivery, and bring Malaysian expertise to the global community. There are significant opportunities to achieve the desired outcomes

first set forth in the National e-learning Policy. Most of the higher education institutions are moving into blended learning or fully online learning. Technology-enabled innovations are harnessed to democratize access to education and offer more personalized learning experiences to all students.

TABLE 2.9: GUIDELINES FOR MICRO-CREDENTIALIALS

Nature of Micro-Credential	Component of Accredited Programme	Component of Accredited Programmes	Stand-alone - additional, alternate, and complementary
Micro-Credential Provider	Single HEP	Multiple HEPs	HEPs and Other Providers
Origins of Micro-Credential	<p>All courses taken via micro-credentials are components of provisionally or fully accredited programmes of a HEP.</p> <p>Example: A learner does a courses from an accredited diploma in business from college AAA.</p>	<p>A combination of courses taken via micro-credentials from accredited programmes across HEPs or providers whether local or foreign.</p> <p>Example: A learner takes courses from different public and private, local or foreign* HEPs.</p> <p>*These courses must be accredited in the home country of the HEP.</p>	<p>A combination of courses taken from a variety of providers.</p> <p>Example: A learner takes courses from local and foreign HEPs, MOOC providers, and local training institutes.</p>
Credit Transfer/ Completion of requirements	<p>Since all the micro-credentials are components of the HEP's accredited programmes, all course credits including credit transfers go towards the completion of the programme (100 per cent credit transfers)</p>	<p>Credit transfers (subject to credit transfer policies of MQA and the HEP) to a maximum of 70 per cent of the credits in the programme. The awarding HEP can determine 30 per cent requirements to be fulfilled and the mode of delivery of the prescribed courses</p>	<p>Credit transfers up to 30 per cent of the credits in an accredited programme under CT for MOOCs, APEL(C), and micro-credentials.</p> <p>More recognition of non-formal learning can be provided through APEL for academic qualifications' award arrangements</p>

Source: MQA Guidelines to Good Practices: Micro-credentials.

The Government's Policy and Regulations for Online Education

MOHE recognizes that higher education needs to evolve in tandem with the fourth industrial revolution (4IR) to be current, relevant, and competitive in the global arena. MOHE has launched the Malaysia Education Blueprint for higher education (2015-25). MEB clearly outlines 10 shifts to meet the advancements in 4IR. The ninth shift focuses on 'Globalized Online Learning (GOL).'

The MOOCs initiative in Malaysia is prominently highlighted under GOL. GOL is aimed at enhancing the quality of course-delivery, lowering the cost of delivery, bringing Malaysian expertise to the world, enhancing the branding and visibility of Malaysian higher education providers (HEPs), and fostering lifelong learning among Malaysians. To achieve this, targets have been set for GOL. Firstly, Malaysian HEPs will collaborate to develop MOOCs by leveraging the expertise available in the respective institutions and establishing mutual recognition of courses. Secondly, MOHE is committed to enable credit transfers for courses completed by learners via MOOCs. This has resulted in the development of the Guidelines on Credit Transfers for MOOCs (CTM) by the Malaysian Qualifications Agency (MQA) which was published and implemented effective September 2016 (<https://www2.mqa.gov.my/qad/v2/ggpnew.cfm>). The guidelines are made based on the underpinning principles of recognition of prior learning (RPL), which recognizes the learning acquired through formal, informal, and non-formal means. In the Malaysian context, RPL is referred to as the Accreditation of Prior Experiential Learning (APEL). MOOCs are categorized as non-formal learning.

Continuing the national aspirations for flexible higher education, MQA has developed comprehensive Guidelines to Good Practices (GGP): Micro-credentials as a guide for HEPs to deliver micro-credential effective August 2020.

This enables the unbundling of accredited programmes in HEPs, making them accessible to non-traditional learners in line with the national lifelong and life-wide learning agenda. In May 2019, MQA issued Guidelines on Micro-credentials to launch the micro-credentials initiative.

The purpose of these guidelines is providing HEPs and relevant stakeholders with information on policies, principles, and good practices in designing, developing, delivering through quality-assurance, and recognizing the assessed learning acquired through micro-credentials. Specifically, the guidelines are intended to facilitate, empower, and guide all types of micro-credentials whether they are intended to be complementary, in replacement of, or a component of existing programmes offered by HEPs.

Micro-credentials can be designed and delivered through ODL or conventional modes including blended modes of delivery. However, micro-credentials delivered mainly or fully through online mechanisms allow access to learners from everywhere with the possibility of more personalized offers. The conventional mode of delivery serves the needs of working adults in a locality or community.

Depending on the nature and origin of a micro-credential, the credits earned can be transferred to an academic programme ranging from 30 per cent to 100 per cent of the total credits of the programme.

Quality Assurance Agency

Malaysia takes cognisance of the fact that with the advent of technology, HEIs are no longer confined to the traditional brick and mortar learning and teaching methods. ODL which includes online learning is gaining momentum and is the new frontier of learning which will revolutionize the landscape of higher education in the country.

The number of institutions in Malaysia that will be launching ODL programmes is expected to increase further, hence quality assurance of ODL programmes is crucial. To safeguard the integrity and credibility of ODL, the Code of Practice for Programme Accreditation: ODL (COPPA:ODL) was developed and issued to HEPs in November 2019. COPPA-ODL is to meet the increasing demand for ODL programmes offered by full-fledged open universities and traditional and dual mode institutions in Malaysia. COPPA:ODL contains clear, specific indicators and benchmark standards to guide the institutions in the development, delivery, assessment, and monitoring and review of ODL programmes.

COPPA-ODL aims to assist HEPs achieve the standards outlined in each of the seven areas of evaluation:

- (i) Programme Development and Delivery
- (ii) Assessment of Student Learning
- (iii) Student Selection and Support Services
- (iv) Academic Staff
- (v) Educational Resources
- (vi) Programme Management
- (vii) Programme Monitoring, Review, and Continual Quality Improvement

Programme accreditation is carried out in three stages -- provisional accreditation, full accreditation, and maintenance audit (compliance evaluation).

(i) Provisional Accreditation

The purpose of the provisional accreditation exercise is ascertaining whether the minimum requirements are met for conducting a programme of study. HEPs must meet the standards for the seven areas of evaluation as stated earlier. Where necessary, a visit may be conducted to confirm the availability and suitability of the facilities in the HEPs' premises.

The evaluation involves an external and independent assessment conducted by MQA through its panel of assessors (POA). HEPs use the decision to seek approval from MOHE to offer the programmes.

(ii) Full Accreditation

The purpose of full accreditation is reaffirming that the programme delivery has met the standards set by COPPA, and is in compliance with the Malaysian Qualifications Framework (MQF).

The full accreditation exercise is usually carried out when the first cohort of students is in the final year. It involves an external and independent assessment conducted by MQA through its POA. The panel evaluates documents, including programme self-review reports (PSRRs) submitted by the HEPs. An evaluation visit to the institution is conducted by the POA to validate and verify the information furnished by the HEPs before the POA submits its recommendations to MQA's Accreditation Committee through a formal final accreditation report.

Accreditation gives significant value to programmes and qualifications. It enhances public confidence and can become a basis of recognition nationally and internationally.

(iii) Maintenance Audit (Compliance Evaluation)

Compliance evaluation is done for monitoring and ensuring the maintenance and enhancement of programmes that were accredited. It is crucial given that the accreditation status of a programme is without an expiry provision. Compliance evaluation, which applies to all accredited programmes, must be carried out at least once in five years. In cases where a compliance evaluation finds that a HEP has failed to maintain the quality of an accredited programme, the accredited status

of the programme may be revoked and a cessation date recorded in the Malaysian Qualifications Register (MQR).

All these are in support of the aspiration to make Malaysia a centre of educational excellence through globalized online learning under MEB 2015-25 for widening access and meeting the manpower needs of a high-income nation.

(Source: <https://www2.mqa.gov.my/qad/v2/copnew.cfm>: Code of Practice for Programme Accreditation – ODL – COPPA-ODL).

Platforms used for Delivering Online Education

To achieve the outcomes set forth in MEB 2015-25 under the ninth shift (Globalized Online Learning), the ministry works with HEIs to build the capabilities of the academic community and explore the establishment of national e-learning platforms to coordinate and spearhead content development. Key initiatives include:

- (i) **Launching MOOCs in subjects of distinctiveness** for Malaysia such as Islamic banking and finance in partnership with high-profile international MOOC consortiums like EdX and Coursera, to build Malaysia's global brand;
- (ii) **Making online learning an integral component** of higher education and lifelong learning starting with the conversion of common undergraduate courses into MOOCs and requiring up to 70 per cent of the programmes to use blended learning models; and
- (iii) **Establishing the required cyber infrastructure** (physical network infrastructure, info structure, platform, devices, and equipment) and strengthening the capabilities of the academic community to deliver online learning at scale.

Blended learning models will become a staple pedagogical approach in all HLIs. Students will benefit from robust cyber infrastructure that can support the use of technologies like video-conferencing, live streaming, and MOOCs. Malaysian HLIs will also develop MOOCs in their niche areas of expertise, while participating in international MOOC consortiums and building the Malaysia education brand globally.

Changes/Modifications in Policy/Regulations because of the COVID-19 Pandemic

On 29 March 2020, MQA issued an advisory note to all HEPs in view of the COVID-19 pandemic. The MQA circular titled 'Guidelines on the delivery of higher education programmes during and post COVID-19 Movement Control Order (MCO),' serves as an advisory to all HEPs in planning temporary actions and recovery measures in the current academic systems which are affected by the implementation of MCO.

The circular clearly states that all temporary actions and measures taken during this crisis period are the responsibility and autonomy of a HEP's senate/academic board who are responsible for taking the necessary decisions within an appropriate time frame (current and post-crisis) based on the HEP's constitutional provisions and the suitability of relevant existing resources and infrastructure.

In general, HEPs can modify the current teaching and learning components that involve face-to-face learning (which includes blended learning) to become fully online, depending on the readiness of the students, academic staff, and existing resources and infrastructure. Other remote learning methods such as learning through assignments and self-learning can be used accordingly. HEPs are required to produce clear guidelines for students on this matter.

Students' exposure to the practical components (partial or the entire course) can be implemented through video and virtual simulations or other suitable methods. Academic staff is responsible for ensuring that the practical activities are appropriate and able to meet the stipulated course learning outcomes.

Impact of Online Education: Research Findings

All tertiary institutions had to migrate to online teaching when the Movement Control Order (MCO) was imposed by the government. The research findings by Penang Institute on the impact of COVID-19 on the tertiary education sector in Malaysia outline three major challenges: (<https://penanginstitute.org/publications/covid-19-crisis-assessments/covid-19-impact-on-the-tertiary-education-sector-in-malaysia/>)

- (i) **Internet access:** Students and lecturers may be able to overcome technical difficulties, but we should not assume that all of them will enjoy unlimited internet access or possess laptops or desktops to facilitate them to attend online classes freely. The Internet Users Survey 2018 conducted by the Malaysian Communications and Multimedia Commission, for example, found that there was a sizable disparity between urban and rural internet users. Urban users made up 70 per cent of the internet users.
- (ii) **Coverage and speed of the internet:** This aspect varies depending on the geographical area, subscription to different internet providers, and individual budgets. In this connection, some tertiary students, especially those in rural areas, will not enjoy good or uninterrupted internet access compared to those who live in urban areas. These students will encounter higher probability of being left behind if classes are conducted entirely online.
- (iii) **Quality of teaching:** Most of the HEIs in Malaysia earlier relied on physical face-to-face lectures and tutorials when conducting classes. Tutorials are important for students as they allow them to discuss their lectures, debate ideas, and present their work in smaller groups or individually. Student engagement is usually enhanced during smaller group discussions or tutorial sessions. Lecturers can also evaluate students' performance and class participation during these sessions properly. Although this can be done via online teaching, the quality of interaction and student engagement will be compromised if it is not properly managed.

Challenges

Like in any mode of delivery, online education has its challenges as well. A study conducted by Professor Tan Sri Datuk Dr Anuwar Ali, the past President/Vice-Chancellor of Open University Malaysia highlights the concerns of many in delivering online education (http://library.oum.edu.my/repository/145/1/issues_and_challenges.pdf).

As highlighted by Professor Anuwar, the following major challenges need to be overcome to yield the results of online education:

- (i) **Bandwidth and connectivity:** Online learning content requires a rich combination of multimedia components. However, bandwidth and connectivity limitations impede the process of accessing and downloading learning material on the LMS platform.
- (ii) **Computer literacy and digital divide:** There is a large segment of the population that is still computer illiterate. This is especially true in rural areas and this hinders the introduction and implementation of online learning.
- (iii) **Self-instructional material (SIM) and**

e-content: There is a scarcity of high quality online learning content. This is due to lack of expertise in designing and developing SIM as well as the huge financial resources required for developing SIM and other related online learning material. As a result, most of the online learning content has low interactivity and a moderate impact on learners.

- (iv) Engagement with students: Engaging learners actively is one of the key factors in determining the success of an online program. Online learning requires a very high degree of self-motivation and commitment which is found to be lacking among learners. Learners find it difficult to change their mindsets and migrate from the traditional learning approach to the independent online learning mode.
- (v) Language barriers: Most of the online learning material is produced in English. This is one of the factors that has hindered the success of online learning, especially in non-English speaking countries like Malaysia where the learners' lack of competency in English language plays a major role.

Conclusion

As indicated in the Department of Higher Education's Strategic Plan 2018-22 (in support of MEB 2015-25), higher education 4.0 symbolizes the digital iteration of the higher education system. Within this framework, online learning will prevail and disrupt the way a higher education system delivers its core work to its stakeholders.

The line between the physical and virtual learning space will be blurred in shaping students and staff members' academic and research experiences. Students navigate between lecture theatres and learning platforms online. They learn anytime and anywhere through LMS which promotes collaborative learning and self-paced learning. IT-enabled processes automate tasks and complement structures for checks and balances. Decisions are made faster, are more transparent, and with better insights through data. Therefore, quality assurance must be instituted within HEIs to ensure that online teaching, learning, and assessments uphold the quality of education.

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MALDIVES

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Introduction

With a population of almost half a million, the Republic of Maldives is located in the Indian Ocean. It comprises of 22 atolls and 1,190 islands with a total area of 90,000 square km including land and sea. This makes Maldives the smallest nation in South Asia. Here, higher education plays a major role in terms of basic education and work life.

Overview of Higher Education

The Ministry of Higher Education plays a role in strengthening the higher education system in Maldives. Private/public universities and colleges are guided by standardized rules and regulations in conducting programmes in the country. As a part of nation-building, their contribution to the enrichment of society is achieved as a whole for the nation.

The Ministry of Higher Education is providing free scholarships for first degree courses across the nation. This has enabled opportunities for people with minimum finances to get their degree certifications. Apart from monitoring, assisting, and providing scholarships locally, they engage as parent bodies for any validation and attestation of credits for certifications acquired from any university or college. This part is attended to by a sub-division of the ministry which works as a separate body and is called the Maldives Qualification Authority.

Colleges and Universities in Maldives

Due to COVID-19, almost all the colleges managed to adapt to the new norm by enabling virtual and online classes. The difference is that students need not be present physically in the institutes as classes are held over the internet where students use various connectivity methods to join the classes. A live interaction between the lecturers and students is conducted and they are assigned tasks that require them to submit these to a specified LMS.

Registered Colleges and Universities and Mode of Delivery

Face to Face

- Maldives National University
- Islamic University of Maldives
- Maldives Polytechnic
- AVID College
- Clique College
- Cyryx College
- MI College
- Maldives Business School
- Mandhu College
- MAPS College
- Villa College
- Zikura International College

Online/Virtual

- Maldives National University
- Islamic University of Maldives
- Maldives Polytechnic
- AVID College
- Clique College
- Cyryx College
- MI College
- Maldives Business School
- Mandhu College
- MAPS College
- Villa College
- Zikura International College

Total Number of Students Enrolled in HEIs in 2019-20

Based on a study done with disaggregated data, the Ministry of Higher Education identified 13,999 students who were registered to continue their higher education career paths in Maldives in different fields of study.

Judging by the activities and performance of the HEIs, an average 25 per cent increase in student enrolments was possible with the 2020 intake. This average increase was enabled by the government's free degree scheme that enabled a lot of students to get enrolled without facing any financial barriers.

The government's free degree scheme is an arrangement under which the government provides those Maldivian citizens who meet the criteria a chance to acquire first degree certification which is fully funding. It provides a loan to the students for the degree plans competitively available in the market. Payments are provided partially according to the progress of the student semester-wise. Any additional payments depending on the difference in the fee structure are to be borne by the students

themselves. Thus, this scheme assists most students in getting a degree. A non-constructive bond of requesting to serve the nation is made with the students as a commitment. They are not required to pay back the loan for any reasons despite complications and not completing the course.

Discipline and level of Education

MNQF allows a possible future interface with secondary education and provides seamless progression for technical and vocational education graduates to move to advanced technological, professional, and post-graduate learning. The framework also has an internationally benchmarked suite of higher education qualifications like associate degrees and bachelor's and master's degrees, through to higher technological and professional diplomas and doctorates. This allows valid international higher education qualifications to be recognized in Maldives and helps in promoting mobility and recognition for Maldivian citizens travelling overseas for work or further studies.

There are 10 levels in higher education programmes in general.

Levels in Higher Education

Level Specifications

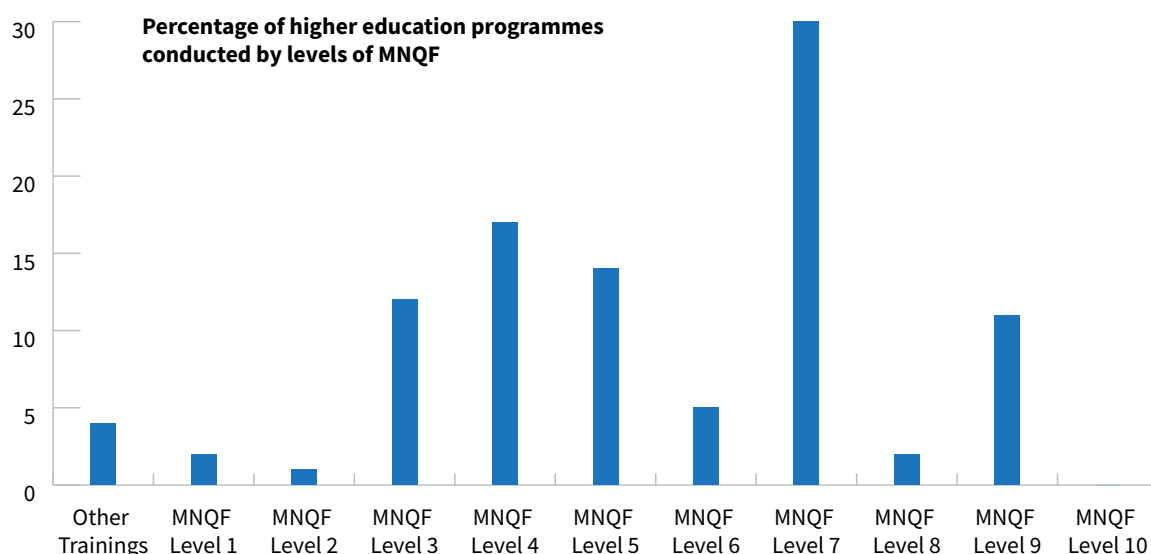
- Not Specified : Other Training
- MNQF Level 1 ; Certificate 1 Programmes
- MNQF Level 2 : Certificate 2 Programmes
- MNQF Level 3 : Certificate 3 Programmes
- MNQF Level 4 : Advanced Certificate Programmes
- MNQF Level 5 : Diploma Certificate Programmes
- MNQF Level 6 : Associate Degree Certificate Programmes

- MNQF Level 7 : Bachelor's Degree Certificate Programmes
- MNQF Level 8 : Post Graduate Certificate Programmes
- MNQF Level 9 : Master's Degree Certificate Programmes
- MNQF Level 10 : Doctorate Degree Certificate Programmes

Statistics obtained from the Ministry of Higher Education

Main Fields of Study

- Basic programmes and qualifications
- Personnel Skills
- Education



Total programmes conducted 843

FIGURE 2.6: PERCENTAGE OF HIGHER EDUCATION PROGRAMMES CONDUCTED BY LEVELS

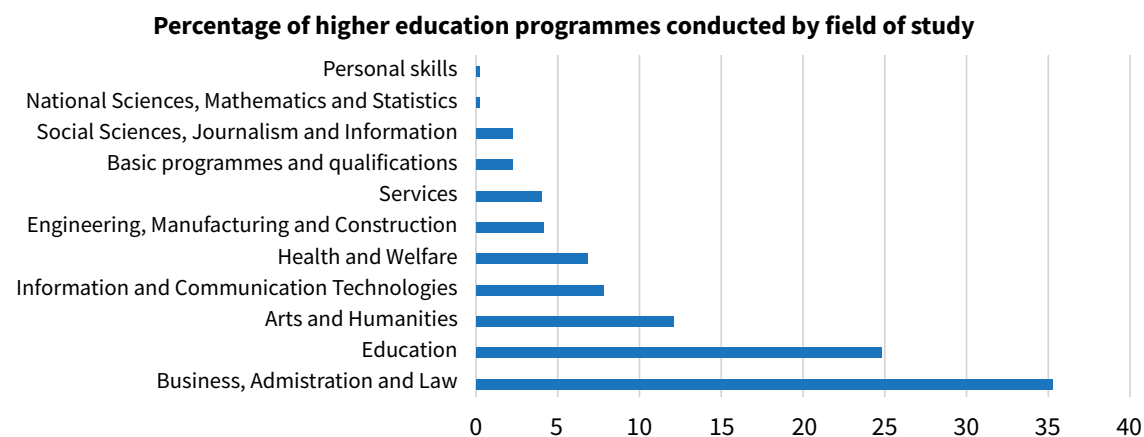


FIGURE 2.7: PERCENTAGE OF HIGHER EDUCATION PROGRAMMES CONDUCTED BY FIELD OF STUDY

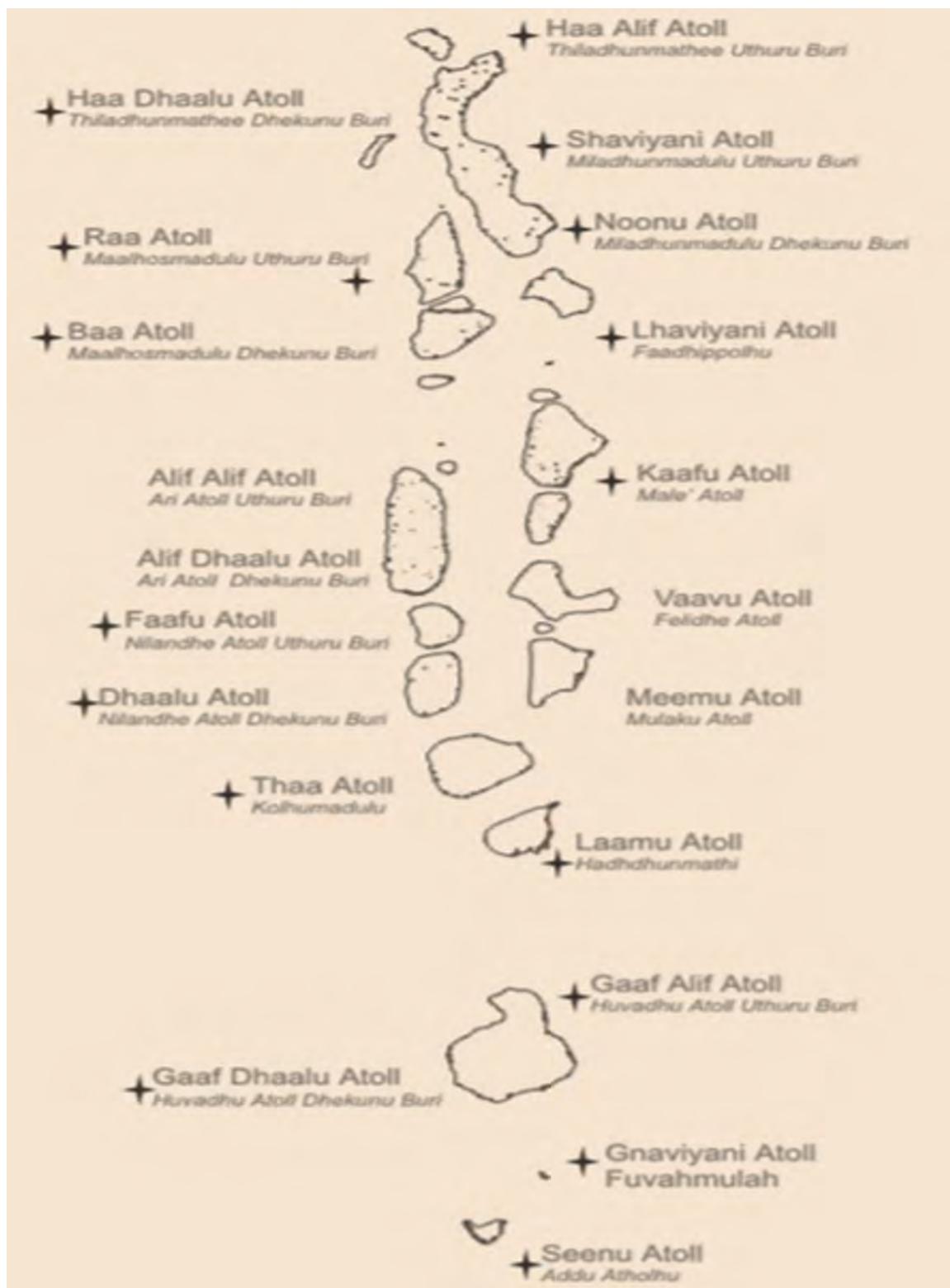


FIGURE 2.8: DISTRIBUTION OF REGIONAL CAMPUSES OFFERING HIGHER EDUCATION PROGRAMMES (2019-20)

- Arts and Humanities
- Social Sciences, Journalism and Information
- Business, Administration, and Law
- Natural Sciences, Mathematics, and Statistics
- Information and Communication Technologies
- Engineering, Manufacturing and Construction
- Health and Welfare Services

Fields of education and training

- Basic programmes and qualifications
- Personal skills
- Teacher training for children
- Teacher training without subject specialization
- Training for pre-school teachers
- Teaching training with subject specialization
- Audio- visual techniques and media production
- Fashion, interior and industrial design
- Religion and theology
- Philosophy and ethics
- Language acquisition
- Literature and linguistics
- Political science and civics
- Psychology
- Journalism and reporting
- Accounting and taxation
- Finance, banking and insurance
- Management and administration
- Marketing and advertising
- Law
- Biology
- Earth science
- Database and network design and administration
- Software and applications development and analysis of chemical engineering and processes

- Electricity and energy
- Mechanics and metal trades
- Motor vehicles, ships and aircrafts
- Food processing
- Materials (glass, paper, plastic, and wood)
- Medicine
- Nursing and midwifery
- Medical diagnostic and
- Therapy and rehabilitation
- Pharmacy
- Social work and counselling
- Domestic services
- Hotels, restaurants, and catering
- Sports
- Travel, tourism, and leisure
- Community sanitation
- Protection of persons and property

Need for Online Education

Till the COVID-19 pandemic struck most colleges and HEIs in Maldives were focusing on physical interaction based learning experience. COVID-19 placed many restrictions with regard to people's safety, travel, and physical interactions. Therefore, it was mandatory for all institutions to obey the rules and regulations provided by the Health Protection Agency in adapting their modalities to a more virtual and online based learning.

At first most of the HEIs took a dive in arranging online / virtual methods of education. It was a fairly complicated and new way of teaching and learning which needed new procedures and protocols. Some colleges had already established their online / virtual teaching modes but they had to strengthen their protocols and procedures. All education systems diversified to make the online platforms stronger.

Accommodating studies for multiple students across the country was a challenge. This was

taken into consideration when arranging the classes. Students who were in different areas of the country were brought in to study using the online systems. If these students were not considered it would make them lose hope in getting knowledge. The new online / virtual method led to significant changes in bridging the gap so that no student was left without an opportunity to study a programme that did not require any special interactions.

For special interactions and experiences, methods are being developed for ensuring that the actual experience is not lost. For instance, working from home for students in the internship programmes was accommodated by communicating with private organizations and monitoring their performance via virtual workspace technologies. This meant having certain criteria as well as certain technological requirements for managing this.

The Government's Policy and Regulations for Online Education

The government brought the Google for Education platform to educate students on the online platform and it expected HEIs to have similar protocols if they wanted to conduct virtual classes. In addition, the government also brought some rulings that all students were to be seen in the classes via the webcam and they had to interact with the lecturers to clear doubts and understandings. Students were to follow these instructions to make sure they were able to adapt to this new learning system.

When it comes to MOOCs and credit transfers, there is no specific understanding about MOOC programmes. This can be done to make more and more courses available to students. As a standard protocol of the Maldivian government, any course or education programme goes through a lot of piloting and testing before it is actually run as a normal systematic process. This is done to make sure that the set standards

as per the protocols and procedures are met. Therefore, MOOCs is an important area for Maldives to progress towards as they are becoming a trend across other countries.

Quality Assurance Agency

The Maldives Qualification Authority is the main body that monitors quality assurance on behalf of the Ministry of Higher Education.

The Maldives Accreditation Board (MAB) was created by a Presidential Decree on 14 August 2000 and renamed the Maldives Qualifications Authority (MQA) on 17 May 2010. MQA's mandate is ensuring the quality of post-secondary qualifications awarded for educational attainments. A framework was developed in 2001 called the Maldives National Qualifications Framework (MNQF).

The organization follows the vision 'Quality Assured Education' that strives to achieve, preserve, and protect the quality of the education provided in the country.

Its mission is, "to facilitate quality assured higher education and training available to the citizens of the Maldives, Locally and internationally" which supports achieving the vision in a more actionable way.

Maldives National Qualification Framework (MNQF)

Today, the Maldivian post-secondary education sector is growing rapidly with an increasing number of private providers entering the sector to meet demand. Emerging from this growing importance of post-secondary education is the concomitant requirement of ensuring the quality of qualifications awarded for educational attainments. Therefore, MNQF assists in:

- Facilitating the development of a quality assurance mechanism for the post-secondary education sector.

- Providing a framework for recognition of qualifications offered in Maldives and abroad.

MNQF provides a comprehensive and coherent national framework that facilitates quality improvements, quality assurance, and private sector participation in post-secondary education. MNQF also ensures that students, employers, education providers, and the community at large easily understand the learning outcomes of various qualifications.

MQA has taken strict decisions about the management of online and virtual programmes. These start from the beginning of the course being approved by MQA till the very end with assessments and graduation. Any course that is to be conducted online / virtually follows certain procedures and protocols.

Firstly, when MQA approves online courses it looks at the institute's way of managing the learning management. To cater to distant learners in the different regions, LMS plays a major role in distributing material and guides for course requirements. This makes the students have better interactions and better management of the course.

LMS makes student learning more practical, realistic, and achievable. This is important for colleges as well as the students to keep a record of the study material. Students have to interact via LMS to get material while the colleges make sure that the material is available for the students. They create and modify the content to cater to different students' needs. The material is compiled when proof of studies is required.

Online Education Funding and Support by the Government

No new financial support was provided during the pandemic to higher education in the private sector. Support was provided through guiding several procedures for making arrangements.

For instance, the government gave colleges and universities the authority to move from face-to-face classes to virtual or online modes of teaching. In addition, the government was concerned with primary and secondary education where it provided multiple learning platforms via the online medium including tele-class mode of teaching the younger primary and middle school children.

Platforms used for Delivery

A few online multimedia platforms and online collaborative tools are used in the management of online teaching and learning activities like Google, Zoom, Canvas, Trueconf, and any specifically designed software. These are world class software and applications that can handle major collaborations and communication. In addition, the government acquired licenses to make Google its main platform for providing education. National television was also used for tele-classes for the younger group. All these platforms are new normal ways of providing education.

Students join real time virtual classes through these platforms and get their lessons and contact hours covered while their assignments and class work are arranged through LMS where they can get notes and submit completed work. Some HEIs also arranged online examinations and assessed projects which took the place of physical examinations.

Impact of Online Education: Research Findings

COVID-19 had an impact on the Maldivian economy. The education system too faced a number of challenges.

Educational Impact of COVID-19

1. Continuity of learning was incorporated by using internet based learning; 85 per cent

Immediate impact of COVID-19 on Colleges and Universities

At present there are two universities and 11 colleges currently registered in the Ministry of Higher Education

Continuity of learning

– 85 percent of Colleges/universities conducted their classes via internet-based platforms without any disruptions

100% of Colleges/Universities are currently equipped with internet-based platforms of teaching and learning

Adaptation: teaching

– Designing online teaching content
– Livestreamed lectures
– Audio/video conferencing
– Pre-recorded lessons
– Recording real time lessons for future use

90% of teachers were ready to teach via internet-based mediums

Adaptation: student engagement

– Social media for interaction
– Discussion forums
– Live text chat
– Using Learning Management Systems



Adaptation: assessment

– Live proctored examinations
– Additional control measures introduced to verify authenticity of student works

40% of HEIs had to postpone their assessments

Challenges

– Time taken to prepare for internet-based learning resulted in loss of teaching time
– Unable to access internet
– Low internet connectivity
– Digital divide
– Lack of pedagogical expertise
– Technical difficulties
– Difficulties in monitoring
– Inadequate teaching and learning environment at home



50% of HEIs needed readiness time to deliver classes on internet-based platforms

Opportunities

– Teaching and learning via internet-based mediums improved
– Technical support mechanism improved
– Supervision and monitoring mechanism improved
– Psycho-social support provided to students
– Student support services strengthened
– Refresher and professional development programmes for teachers held regularly
– Effort to address digital divide

98% of HEIs believe that this is an opportunity to build a more resilient system of teaching and learning



Ministry of Higher Education
May 2020

FIGURE 2.9: COVID-19'S IMPACT ON COLLEGES AND UNIVERSITIES

of the HEIs were ready to move to online learning with no problems while 100 per cent conversion of all HEIs came later.

2. Teaching and learning was more online where exercises, tasks, and assessment components were drafted and created with more possible online answerable questions without compromising quality as much as possible where applicable.
3. Challenges were faced by the lecturers and teachers in preparing their lessons as a virtual class means more preparation and material designing in a computerized platform. LMS played a big role in adopting this new change as it was the one providing the interactive lessons.
4. Students interacted on more platforms to make sure they were able to cope with their studies. Enrolments were done with the help of digital media and marketing arrangements.
5. Assessments and examinations were moderated using measures and protocols. Most HEIs postponed their examinations to make sure that quality was not compromised.

Conclusion

Since Maldives is a very small nation, education plays a major role in terms of basic education and work life. During COVID-19 there were major challenges and the government strived to overcome them, piece by piece, trying to incorporate best practices and best management decisions till normalcy returned. Maldives is a fast learning, versatile adaptor of the new normal.

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PAKISTAN

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Introduction

The COVID-19 pandemic pushed the limits of change as it distressed the fundamentals of educational policies across countries. Both developed and developing countries are now confronted with novel challenges that justify a radical reconsideration of policies to deal with these challenges.

Karabag (2020) explains that the COVID-19 pandemic produced a global, national, regional, political, economic, and commercial crisis. Mahmud (2020) specifically discusses the after effects of coronavirus on the global economy that has become a most frequented angle of social scientists. Bouey (2020) discusses the implications of COVID-19 on China's economy related to small and medium sized enterprises. And Ying et al. (2020) analyse the effects of coronavirus on tourism in China. Khan et al. (2020) discuss COVID-19's impact on the tourism industry and global economy. They suggest that as the tourism industry plays a big role in the world's economy, coronavirus has impacted tourism and consequently the global economy has also suffered. Khan and Naushad (2020) discuss the effects of COVID-19 on the world community in terms of far-reaching concerns for the entire globe as it has affected contemporary lifestyles and halted almost every kind of social activity and interaction.

The Higher Education Commission of Pakistan

Pakistan's Higher Education Commission (HEC) is a statutory regulator of the federal government. Its main functions are funding, overseeing, regulating, and accrediting HEIs in Pakistan. It was established in 1974 as the University Grants Commission (UGC) and later renamed HEC in 2002 under the leadership of the founding chairman, Dr Atta-ur-Rahman. HEC is responsible for the formulation of higher education policies, quality assurance to meet international standards, provision of accredited academic degrees, and developing new and existing institutions. The commission also plays an important role in building a knowledge-based economy in Pakistan by annually giving out hundreds of doctoral scholarships for education abroad.

HEC's Vision 2025 is an ambitious long-term strategy to sustain the achievements in higher education since 2002 and to initiate further qualitative and quantitative improvements that are consistent with the Government of Pakistan's Vision 2025. With the alignment of both the Human Resource Development Platform and the Economic Development Platform, HEC is looking forward to a future knowledge-based economy in Pakistan. HEC aims to develop a process to harness individuals who are both professionally capable and ethically committed to making Pakistan an emerging economic power.

It is the commission's mission to facilitate HEIs to serve as a driving force in the development of Pakistan:

"Facilitating Institutes of higher learning to serve as an Engine of Growth for the Socio-Economic Development of Pakistan."

Regulatory Bodies Governing Education in Pakistan

The commission's regulatory bodies are termed divisions. These are:

- Academics Division
- Human Research Management Division
- Finance and Budget Division
- Research and Development Division
- Human Resource Development Division
- Accreditation Division
- Learning and Innovative Division
- Quality Assurance Division
- Planning and Development Division

Universities Offering Online Programmes in Pakistan

The COVID-19 pandemic created a venue for conventional universities to bring in the online mode of education. It did not seem possible for all the universities in Pakistan to accomplish HEC's prerequisites of online teaching, in particular the less assisted public universities. University management and IT administration efforts to provide rapid internet accessibility and timely availability of electricity in remote areas for students was difficult.

Currently the following universities are offering online education in Pakistan at different levels of expertise:

• Allama Iqbal Open University

The oldest university in Pakistan was established in 1974. AIU is one of the largest distance learning institutions in the world and the largest distance learning

institution in Pakistan with 44 regional campuses and centres across the country. It offers education from SSC to PhD levels and provides e-learning facilities through virtual classrooms, interactive online study material, and web-based assignments and submission.

• The Virtual University of Pakistan

The Virtual University of Pakistan (VUP) was founded in 2002 as a public university based in Lahore. Virtual lectures are delivered via cable channels alongside online video-viewing platforms such as DailyMotion and YouTube. VUP also provides a free online portal for digital skills training programmes across the country.

• COMSATS University

COMSATS University, Islamabad has a virtual campus CUI VC which offers students online courses through COMSATS internet services using which students anywhere in Pakistan can receive lectures from teachers in the Islamabad campus.

• The University of Peshawar

The University of Peshawar offers distance learning opportunities to students by providing digital resources such as e-libraries, audio/video lectures, computer-mediated instructions, other web-based material, and more recently online classes.

Universities that were imparting online education before COVID-19 such as Allama Iqbal Open University have proved to be successful, having developed online and distance education systems long before the spread of the pandemic and subsequent closure of the universities.

Enrolment in Higher Education Institutions in 2019 and 2020

Degree Colleges (Classes XIII-XIV)

According to the Economic Survey of Pakistan (2018-19), enrolment of 0.59 million students

was expected during 2018-19 in degree colleges against an enrolment of 0.60 million in 2017-18. A total of 1,659 colleges with 41,233 teachers were functional during 2017-18. The slight decline in enrolments might be due to students' preference for professional and vocational courses.

Universities

In 2017-18, there were 186 universities, with 56.9 thousand teachers in the country, with a total enrolment of 1.6 million. This enrolment was 7.7 per cent higher than previous years. The growth in enrolments was projected to decline by 0.2 per cent in 2018-19. Education conditions are based on key performance indicators such as enrolment rates, number of institutions, and teachers with experience. Total enrolments in all educational institutions in the country were 50.6 million compared to 48.0 million during 2016-17 an increase of 5.3 per cent. The number of institutions was projected to increase by 1.6 percent in 2018-19, leading to an increase of 4.8 per cent in aggregate enrolments. The total number of teachers during 2017-18 was 1.8 million compared to 1.7 million during the previous year showing an increase of 1.6 per cent. The number

of teachers was estimated to increase by 2.9 per cent to 1.8 million during 2018-19.

According to data from the Higher Education Commission (HEC), there were 211 universities with 51.5 thousand teachers in both the public and private sectors that were functional during 2018-19. Also, the overall enrolments of students in universities increased from 1.58 million in 2017-18 to 1.86 million in 2018-19.

The overall education situation based on key indicators, such as enrolments, number of institutes, and teachers, showed a slight improvement. The total number of enrolments during 2017-18 was recorded at 51.0 million as compared to 47.6 million during the same period last year, which shows an increase of 7.1 per cent. It was estimated to increase by a million during 2018-19. The number of institutes stood at 262,000 during 2017 compared to 260.1 thousand during last year, with the number of institutes estimated to increase to 266.3 thousand in 2018-19. The number of teachers during 2017-18 was recorded at 1.77 million as compared to 1.73 million during the last year showing an improvement of 2.7 per cent, with the number of teachers estimated to increase to 1.83 million during 2018-19.

Disciplines and Level of Education

TABLE 2.10: DISCIPLINES AND LEVELS OF EDUCATION OFFERED

S. No.	Level	Discipline
1	Graduate (Associate Degree)	BBA, commerce accounting and finance
2	BS (4 years) Programme	Computer Science, Data science Telecom and networking, Agricultural sciences, Forestry and wildlife management, Geology, Medical lab technology, Health and Physical Education, Biochemistry, zoology, mathematic, business administration, publication administration, and governance, accounting and finance, tourism and hospitality, political science, Pakistan studies, artificial intelligence, software engineering, environmental sciences, food sciences, and technology. public health, microbiology, botany, physics, chemistry, statistics, Physiology, economic, Islamic and religious studies, history, English Fine art, design architect, international relations, public administration, Elementary education, communication and media studies, archaeology, physiology, sociology for science studies, software engineering, telecommunication, artificial intelligence, computer science, environmental science, biotechnology, genetics, geographical environment, information system, botany, chemistry, bioinformatics, zoology, physics, geology.

S. No.	Level	Discipline
3	Master's (MA, MSc)	Archaeology, economics, Pakistan studies, physiology, tourism and hospitality, International relations, art and design, history, heritage management, Islamic and religious studies, communication and media studies, Urdu, English, political science, sociology, Economy conservation studies, M. Com, botany, chemistry, zoology, genetics, physics, statistics, Public administration, biochemistry,
4	MPhil/ MS	Mathematics, Physics, Statistics, geology, telecommunication and network, management sciences, conservation studies, communication and media studies, archaeology, education, Pakistan studies, human genetics, physiology, botany, Urdu, computer science, chemistry, economics, microbiology, bioinformatics, chemistry, genetics, Agronomy, horticulture, plant breeding and genetic food, science and technology and technology soil science, environmental science, forestry and wildlife management, computer science, microbiology, medical lab science, mathematics, management science, education.
5	PhD	Hydrology, psychology, education, mathematics, biochemistry, microbiology, Computer science, conservation studies, Chemistry, genetics, Urdu, physics, zoology, botany, Agronomy, horticulture, plant breeding and genetics, food science and technology, technology soil science, computer science, microbiology, environmental sciences, management sciences, education.

Need for Online Education

Drawing from developed countries, Pakistan opted online university teaching during the lockdown that did not seem efficacious due to many factors such as remote locations of the students (most of them live in the periphery where they do not have proper access to electricity and uninterrupted internet supply), teachers are not well trained in online teaching, a proper online teaching module/ syllabus is not yet available (apart from some universities who have designed a few courses), and lack of IT facilitated and equipped labs. Hence, it became difficult for universities to cope with online teaching that could fulfil the six requirements of distance learning as given on the Pakistan HEC's (2020) official website.

Vice-Chancellors were requested to proceed with online classes if and only if they could certify *personally* that six key elements were 'online ready': (a) *University Readiness*, or an effective and operational learning management system (LMS) as well as an oversight body responsible for certifying courses as online ready; (b) *Faculty*

Readiness, or faculty members having gone through training in online teaching before being allowed to teach the courses; (c) *Course Readiness*, or all key information about a course is available on LMS; (d) *Library Readiness*, or all course readings and assignments are available through online means; (e) *Technology Readiness*, or the technology needed for delivering online classes is ready for deployment; and (f) *Student Readiness*, or students are assisted in overcoming any obstacles they may face in accessing classes and materials.

The world is going through unprecedented changes due to COVID-19. During these challenging times, HEC-QAA is primarily focused on the well-being of learners and trainers. With constant supervision by the Government of Pakistan as well as the World Health Organization (WHO), HEC guided HEIs in launching virtual learning systems, mitigating the need for learners to attend classroom lessons physically. Virtual learning can be carried out in offices and at home. HEC has issued guidelines concerning COVID-19 for HEIs, faculty, staff, teaching, government directions, and online readiness. It is

very important to ensure the quality of teaching and learning when many universities have started online classes through different LMS. QAA is evolving and ensuring that basic, effective, and exemplary categories can meet the requirements of a continuous learning system. Information gathered from 63 universities shows that 84 per cent of the HEIs were online ready.

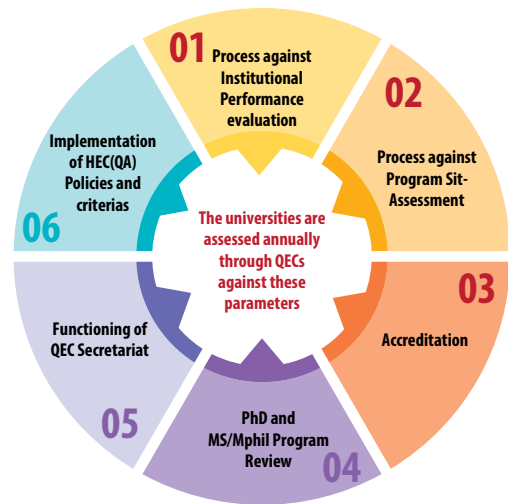
HEC's Policy on Distance /Virtual / On-line Education offered by Foreign Universities

Recognition of foreign university degrees awarded through the open and distance education mode was accepted by HEC's Equivalence and Accreditation Committee while considering the following points:

- A university/institution accredited/chartered by a body that is recognized by the Higher Education Commission.
- The university/institution has both on-campus and distance education programmes.
- The degrees granted by the university/institution to students studying on-campus or through distance education are indistinguishable.

Quality Assurance Agency

The quality of teaching of online classes must be top-notch, which is ensured by QAA through installing different checks and setting up requirements. All HEC recognized HEIs have established their directorates of quality enhancement and are striving for internal quality assurance (IQA) mechanisms. The establishment of quality enhancement cells is rooted in the establishment of the QAA (HEC, 2005). Consequently, the phase-wise establishment of QECs has started. To reinforce its objective, IQA holds periodic meetings and performs monitoring visits. It has been directed by the



Source: www.hec.org.pk

QUALITY ASSURANCE PROCESS

educational authorities that the quality assurance mechanism be reviewed annually and reported to the university's statutory bodies. The assessment period starts from 1 July every year and ends on 30 June the next year. A major outcome of the quality assurance review is reflected through the Vice-Chancellor's report submitted to the chancellor. If the HEC intends to inspect the institution, a team is formed which inspects the respective university on prior notification.

Accreditation Councils in Pakistan

Accreditation councils are meant to ensure the quality of the programmes offered by HEIs. Their responsibilities include formulating education standards and reviewing the ongoing processes in institutions periodically. If the HEIs ensure that all standards are met, their degrees are accredited by their respective accreditation council. The council is also responsible for establishing new accreditation councils, coordinating with existing councils, assessing institution performances, and building their capacity.

Existing Accreditation Councils/ Professional Bodies in Pakistan:

- Pakistan Bar Council (PBC)
- Pakistan Council for Architects and Town Planners (PCATP)
- Pakistan Engineering Council (PEC)
- Pakistan Medical Commission (PMC)
- Pakistan Nursing Council (PNC)
- Pakistan Pharmacy Council (PCP)
- Pakistan Veterinary Medical Council (PVMC)
- National Council for Homoeopathy (NCH)
- National Council for Tibb (NCT)

Accreditation Councils Established by HECs:

- National Accreditation Council for Teachers Education (NACTE)
- National Agricultural Education Accreditation Council (NAEAC)
- National Computing Education Accreditation Council (NCEAC)
- National Business Education Accreditation Council (NBEAC)
- National Technology Council (NTC)

Platforms used for Delivering Online Education

In Pakistan a two-week nationwide lockdown was announced on 23 March 2020 when transport was suspended, international air travel was stopped, and universities and other educational institutions were closed. HEC was directed to “engage faculty and quickly develop online courses and disseminate those to the students in view of the coronavirus situation in the country.”¹ HEC said that the COVID-19 pandemic had threatened the education system and online education was the solution for the protection of faculty and students.

e-learning in Pakistan has largely grown in the 21st century with many online universities and e-learning platforms opening in recent years. The introduction of 3G/4G technology has contributed to the growth of mobile learning, enabling the integration of e-learning in classrooms as well as in informal education.

Education in Pakistan is under the administration of federal and provincial governments, allowing multiple e-learning opportunities for individuals. HEC and the respective higher education departments are responsible for overseeing HEIs’ activities and ensuring the quality of education provided to students. HEIs are responsible for providing students all relevant resources on their LMS, with live lectures on platforms such as Zoom, Google Meet, and Microsoft Teams. To provide satisfactory and consistent delivery of online classes, all HEIs must have at least a basic security system for their LMS, required bandwidth, and IT support, maintaining the quality of education including timetables, material delivered in classes, student participation, and availability of course material both live and in recorded form.

Modifications to the Policy and Regulations due to COVID-19

During the COVID-19 pandemic, policy guidelines to facilitate HEIs for online readiness and blended learning were formed. These principles were intended to assist programmes in maintaining quality standards and ensuring consistency in the educational system. All programmes were to be designed to attain programme learning outcomes (PLOs) stipulated in the Accreditation Manual. Teaching-learning and assessment (TLA) mechanisms had to be formulated based on the intended learning outcomes and HEIs had to maintain a record of the evidence. Scenarios or case study-based assessments by the faculty could be used as an alternative measure to ensure the desired taxonomy as set out in the

CLOs / PLOs for courses offered during the pandemic.

For accomplishing PLOs, overall teaching and assessment methods had to be consistent with policy guidelines. The concept of learning via e-labs or simulation-based laboratory experiments had to be considered for the psychomotor domain. However, for experiments that could not be carried out online, they could be offered on-campus after the resumption of a normal academic session in accelerated teaching to achieve programme and learning outcomes.

Accordingly, necessary arrangements were required to revise the existing curriculum to include less lab-intensive courses for the current and succeeding semesters. Similarly, activities related to affective domains had to be revised or re-shuffled during the COVID-19 pandemic. HEIs were instructed that all courses should be planned and implemented with a clear mechanism of substantial equivalent for the partial segment of assessments to the current direct assessments in the face-to-face TLA system. Continuous assessments implemented during the spring semester could be continued with assignments and offline exams covering up to 50 per cent of the overall semester weightage. However, final term exams (of 40-50 per cent weightage) would be conducted after the normalization of the situation. Therefore, a hybrid model of TLA was proposed by adopting condensed/accelerated teaching for a set period decided by the respective HEIs. Precautionary measures had to be taken to handle integrity issues with suitable monitoring and evaluation systems and recorded evidence of PLO attainments. If an HEI opted for the implementation of an online TLA, all its programmes had to ensure a minimum level of accessibility to all students in the e-learning process and online assessments.

Essential Requirements

HEC, being the regulatory body in Pakistan, laid down certain conditionalities for HEIs in addition to the general policy guidelines. HEIs had to follow the following requirements while offering online education during the COVID-19 pandemic:

- i. The size of an online class was limited to 100 students in engineering and 240 students in non-engineering fields. Flexibility in extending the number of students per class can accommodate multiple sections of a class in parallel. This, in turn, will require extra bandwidth.
- ii. A committee formed in a HEI will be responsible for the training and assessing faculty in its delivery of online courses. The committee will also prepare the faculty for handling basic IT functions like setting up audio and video conferencing and sharing screens and materials.
- iii. A monitoring and feedback evaluation system will be introduced by HEIs to gauge student participation and time spent on online class platforms. Viewing of recorded lectures and timely submission of work was included in this.
- iv. Innovative assessments, quizzes, and types of assignments/PBLs/CEPs must be created that cover CLOs to attain the PLOs of courses appropriately. Assessments will be carried out on time and shared with the students, a record of which must be maintained by the HEIs.
- v. All the FYDPs will continue as required by the clauses in the PEC Accreditation Manual 2014. Capstone projects of engineering programmes that are PEC accredited will be considered/conducted by using appropriate modern tools and technology like computer-based simulation system designs and presentation of literature critiques. Ongoing experimental capstone projects of the

final semester may be carried out with the extension of time if required. Whereas the experimental capstone projects that are ongoing and in the initial stages may be carried out as computer-based simulations or other technologies appropriate for engineering programmes.

- vi. Student teams working on all complex engineering problems, projects, or activities, which cover the respective CLOs/PLOs, will continue their work with the guidance of their supervisors. Such work will be considered complete if students create prototype designs or computer simulations for their projects instead of producing real working prototypes for testing. PEC Policy Guidelines for Online Teaching-Learning and Assessment Implementation during COVID-19 pandemic¹ were accepted in the projects.
- vii. A relative grading policy was proposed to be adopted by HEIs to cater to circumstances under which partial assessments are carried out in virtual environments to avoid discrepancies for students who are not yet acquainted with this new learning arrangement.
- viii. HEIs must record and store all evidence of online lectures, assignments, and quizzes as per the instructions of the PEC Accreditation Manual. Online coordination/quality committees formed in HEIs will be responsible for reviewing the online conduction of courses and the training and assessment of instructors. Evidence will be made available to PEC if required. After the online coordination/quality committee has carried out an initial review, the LMS has to be shared with PEC as well.
- ix. Lab-intensive courses requiring laboratory equipment and experimentation will not

be carried out online, instead they will be resumed when the situation permits the completion of lab work. HEIs can defer such practical work as per the general guidelines.

- x. Feedback provided by the students should be acted on in a reasonably sized sample of enrolled students to figure out the best delivery and response mechanisms. It is possible for the world to shift to an online or a blend of both online and offline teaching and learning processes, provided that the minimum requirements like LMS and meeting software like Zoom are met.
- xi. All lectures and course material must be available for the students as recorded, both online and offline, to ensure accessibility to all students. In any case, if a student wants to withdraw for inaccessibility or any other reason, s/he will be allowed to, given that s/he maintained a CGPA of minimum 2.0/4.0. This should have no adverse effect on the student's promotion and the semester will be considered 'frozen.' Under such circumstances, no course fee will be charged by the HEI for the continuation or re-enrolment of the student at a later stage.
- xii. The National Skills Building Initiative was discussed in the 96th EAB² and it was decided that necessary arrangements will be made by PEC for HEIs wanting to use online learning platforms such as Coursera, EdX, Udemy, and MOOCs for providing online education and CPD training programmes.
- xiii. The evaluation of compliance submitted by HEIs will undergo a two-phase evaluation to provide provisional accreditation followed by a normal re-accreditation mode as mentioned in the PEC Policy Guidelines for Online Teaching, Learning, and Assessment Implementation during the COVID-19 pandemic.

¹ 96th EAB dated 13 April 2020.

² 96th EAB dated 14 April 2020.

Suggestions for Improving Online Education

- i. Training should be provided by the HEIs to facilitate and train faculty members in the online or blended mode of teaching and learning. HEIs should also ensure access to channels of communication with the students for lectures, guidance, counselling, assignments, and projects.
- ii. For students who are unable to attend online sessions due to access issues, e-mails/ WhatsApp can be used to access learning material or for joining online sessions. HEIs can give such students a chance for either freezing their semester or attending make-up classes when circumstances permit.
- iii. Universities, being autonomous bodies, can revise or formulate their academic calendars as required. Furthermore, they can create policies for quality assurance of their faculty, course delivery, feedback evaluation, assessments, and maintaining the minimum requirements of online teaching.
- iv. Faculty members are advised to provide students guidance on practical work, lab work, and projects so that they can continue and complete their work on the resumption of the academic session.
- v. Universities that already have good LMS, like UET Lahore and Virtual University, can help other institutions in conducting online studies. A sub-committee should be formed which will sort out the software and hardware requirements of the institutions.
- vi. HEC and PITB were consulted on issues regarding bandwidth, storage, and hardware requirements.
- vii. PHEC, HEC, and HED will work together on policies and keep in touch with universities to evaluate their requirements regarding IT, LMS, automation, and assessments to assess

their financial requirements so that they may be included in next year's financial budget.

Challenges

It can be argued that what Pakistan's formal universities did during the COVID-19 crisis was emergency remote learning (ERT) and not e-learning. ERT is a practical and temporary shift in reaction to the pandemic for delivering education through a new mode without much pedagogical change. Distance and non-formal educational institutions used a blended model of educational methodology and identified that online education required careful deliberations.

Without much preparation and an urgency to facilitate teaching and learning, the faculty had to struggle to make this transition and also support students. Most academicians had never taught online but they made praiseworthy attempts to adapt to the circumstances through trial and error. This was, however, just a stop-gap solution, where faculty members tried to replicate face-to-face interactions in online sessions. It takes months to design, plan, and execute an online course of good quality for students with specialized training and resources. Online education needs to have institutional policies and frameworks for course design, minimum teaching standards, as well as access to technology and student assessments. Applications like Zoom (paid and unpaid versions), Microsoft Teams, and Google Classrooms are the most frequently used platforms by HEIs. A few universities relied on unpaid versions of these platforms, which restricted session timings and led to lack of options in having a controlled online learning environment.

During the pandemic, many students left during the long non-interactive lectures or got frustrated with constant connectivity issues. Faculty members continued to face challenges such as a decline in attendance, low participation, and disruptive behaviour. This was mainly due to lack

of training in e-learning pedagogy and student acceptability for moving to new learning modes.

Questions like how is it possible to teach online with access to every university student who may live in any periphery of a province? Will such online teaching not sacrifice the quality of higher education? Unless the main purpose of online teaching is merely completing the syllabus and meeting semester deadlines, such kind of teaching probably might not produce the essence of learning, which face-to-face classes do as they lead to intellectual debates, encouraging healthy discussions that give way to pedagogy that is true scholarship rather than completion of online robotic courses. Are Pakistani students dedicated and virtually trained to meet the challenges of higher education whether online or otherwise? Are Pakistani university teachers competent and virtually equipped to meet international challenges and transform students to become intellectually rich scholars and researchers? What about the students who do not even have a laptop or internet facility? How is it possible to teach music, theatre, art, medical, engineering and other practical courses online? What will be the strategies for students whose courses cannot be taught virtually through distance learning? These were some of the questions in the minds of the teachers as well as students, in terms of online teaching.

Certainly Pakistan still lags far behind in research when compared to international levels; online teaching will further deteriorate the higher education and will totally remove it from research and scholarship. Therefore, it seems that blindly following western and developed countries was not the solution to problems during the pandemic. Hence, considering the technological conditions of universities, already prevalent educational systems throughout the country, virtually untrained students and teachers, and the resources of the country the need is to develop higher education policies and solutions

instead of following the lead of highly developed countries particularly in the case of education.

Conclusion

This review is a collection of research articles that deal with the effects of coronavirus on different socioeconomic spheres. This learning is significant for its analysis based on education as a key component of development that is impacted by the COVID-19 pandemic. The pandemic will be deliberated on for modifying policies in the future. Primarily, some clarifications are required to make it comprehensible even to non-academic readers who may not be adept at handling development jargon.

Lack of preparation for this scenario led to many challenges for the people involved. It can be contended that the educational structure needs to be revisited considering the recent experience, with a move towards a blended mode of education proving vital for the future. Lessons from developed countries should be adapted while developing learning modes. For future scenarios, cooperation should be developed between formal and informal educational institutions with the help of HEC and training being provided for the development of both pedagogies. HEC and other international donor agencies should donate more funding towards building a centre for ODL, along with developing OER and online infrastructure. In this regard, preference should be given to the oldest ODL institutions like the Allama Iqbal Open University.

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Introduction

Singapore is a small city state in South East Asia located at the southern tip of the Malayan Peninsula. The island nation is roughly 650-700 square km with a population of about 5.7 million people. About two-third of the country's population is made up of Singapore citizens and residents (Singapore Department of Statistics, 2020). Singapore is one of the largest ports in the ASEAN region and amongst the top busiest ports in the world. The country is also home to one of the busiest airports in the world. The nation has four officially designated languages: Chinese, Malay, Tamil, and English. A bilingual policy was implemented in schools in 1956 so equal weight is given to all the four languages.

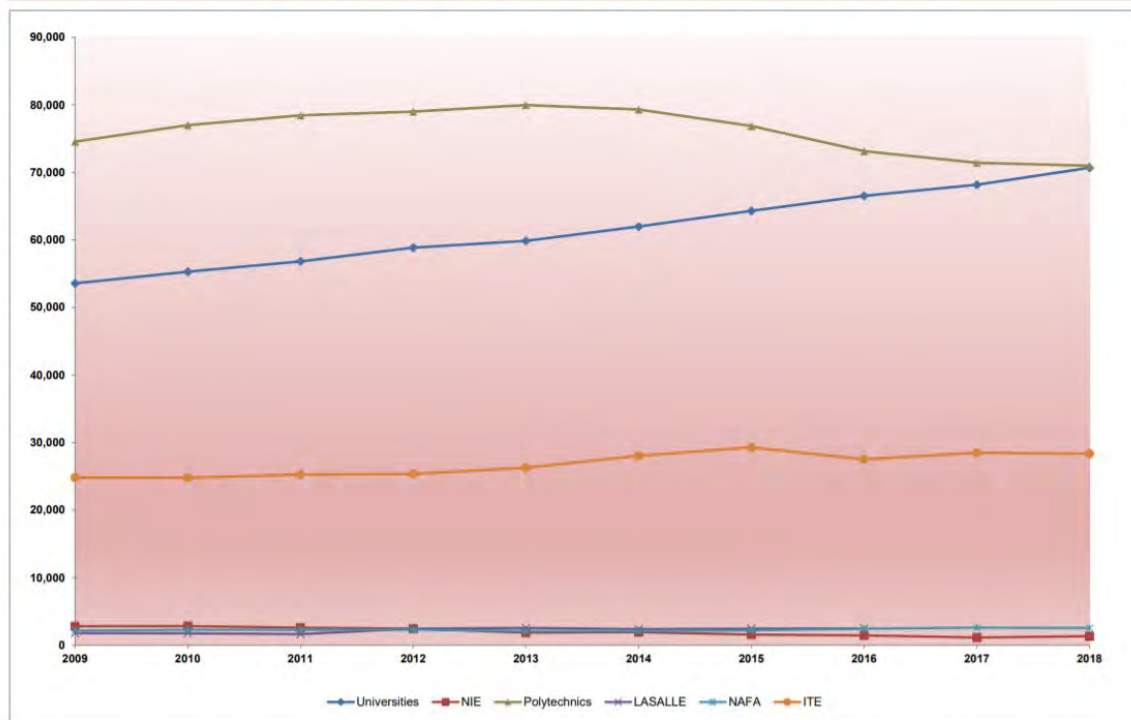
Singapore is one of the most developed nations in the world with a high human development index of 0.935 (United Nations Development Programme, 2018). Fair economic and trade policies and globalization have contributed immensely to the nation's growth and development. In its 55th year of independence, Singapore has demonstrated growth at a great speed becoming a highly developed country from being a low income country a few decades ago.

Its GDP per capita is around SGD 80,000, which is one of the highest in the world.

Singaporeans place a lot of emphasis on education and the demand for higher education is increasing. A survey by HSBC in 2015 found that over 90 per cent of the parents believed that a university degree was important for their children to move upwards in life. The international education market intelligence firm, ICEF monitor estimated that local universities in Singapore could accommodate roughly 57,000 students only as of 2016. As of 2019, 104,000 students were enrolled in local higher education institutions (statista.com). There are several registered private higher education institutions in Singapore and it is estimated that these institutions offer over 60,000 undergraduate places to students.

Singapore's University Landscape

More than 25 per cent of the local students from the primary one cohort are able to secure a place in one of the six publicly funded universities in Singapore. The cohort participation rate (CPR) increased gradually from 26 per cent a decade ago to 30 per



Source: Education Statistics Digest (2019), Ministry of Education, Singapore.

FIGURE 2.10: STUDENT ENROLMENTS: UNIVERSITIES, POLYTECHNICS, LASALLE, NAFA, AND ITE.

cent in 2015 and 40 per cent in 2020. The higher education cluster started with two universities. The University of Singapore and Nanyang University merged in 1980 to form the National University of Singapore (NUS). Subsequently, in the following decade, Nanyang Technological University (NTU) was awarded university status. In the last two decades, the number of higher education institutions has increased to six with the addition of: Singapore Management University (SMU), Singapore University of Technology and Design (SUTD), Singapore Institute of Technology (SIT), and SIM University. All of them were autonomous public universities except SIM University, which existed as a non-profit. In 2017, SIM was renamed the Singapore University of Social Sciences (SUSS), in a drive to restructure and reposition the institute as the sixth autonomous university in Singapore.

Both SUSS and SIT enjoying a unique positioning as lifelong learning institutes with a mission to instil a culture of continuous up-skilling and re-skilling. SUSS is the country's first institution for lifelong learning where students of all ages, experience, qualifications and backgrounds are studying. The learners are offered broader admission criteria that are inclusive and offer opportunities to all. SIT is positioned as an applied learning institution with a distinctive pedagogy that integrates work and study with state of the art university-industry collaborations. All students have a year of real world working experience to enable them to be work-ready. Applied problems from industries help students gain deep insights and experience through hands-on opportunities. For example, SIT has set up Industry Labs (ILabs) that are being used by students and industry partners to jointly engage in real world studies. Students benefit

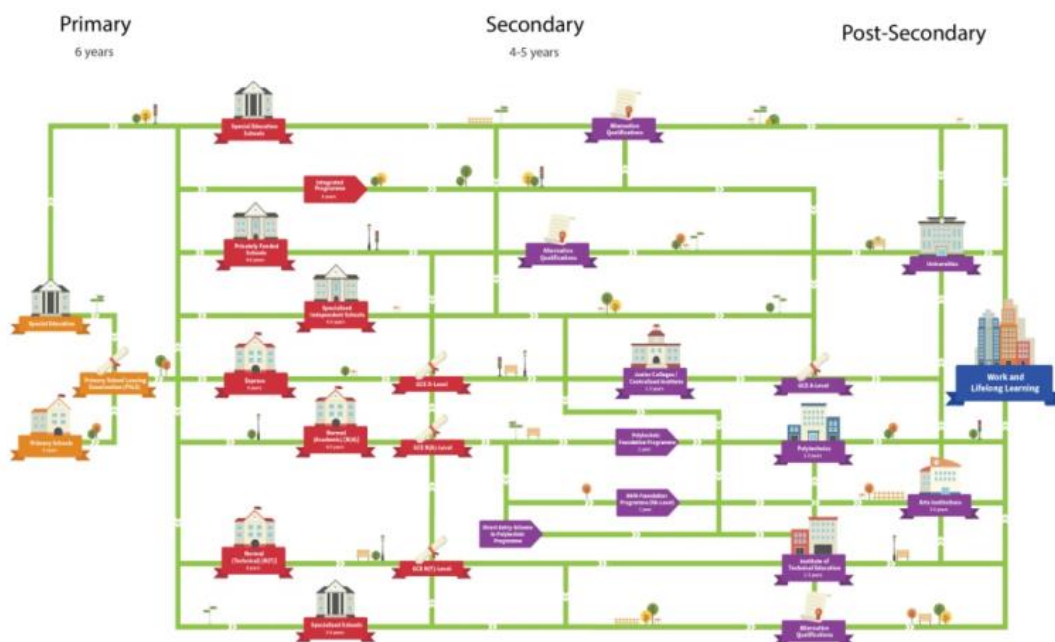


FIGURE 2.11: SINGAPORE'S EDUCATIONAL LANDSCAPE

from exposure to real world problems and apply theory to practice. Industry partners gain access to talent as well as academic expertise and resources. The Integrated Work-Study (IWS) programme permits students in advanced years to immerse themselves in an organization for up to 12 months. Companies benefit from being able to identify and train work-ready talent. SIT's industry induction (II) encourages industries to attract students from their first year of studies to form a mutually beneficial relationship between students and potential employers. The term used is 'green harvesting' to enable talent spotting early on.

The Ministry of Education oversees the higher education landscape in Singapore and has recently set up the following new institutions besides the six local universities.

- Yale-NUS Liberal Arts College (YNC)
- Lee Kong Chian School of Medicine (LKCSOM) in NTU

Need for online education

The rapid proliferation of technological advancements along with the amplification of high speed internet access has axiomatically propelled many nations around the globe to adopt an ever-growing knowledge-based arena. Its popularity and prominence has not only brought about an astonishing pace of economic growth, but also competitive yet sustainable developments. As for Singapore, besides intending to attain such progress, the country additionally strives to become a Smart Nation as well as a regional e-learning hub (Bashar & Khan, 2007). Hence, it is of pivotal importance for Singapore to utilize the cutting edge infrastructure and facilities, and strong government support to build critical, innovative, and skilled human resources responding to set goals. Online education, especially at the tertiary level has noticeably become a major catalyst in achieving this (Gleason, 2018; Ng, 2013; Tham & Tham, 2013). Online education has also generated pedagogical shifts across Singapore's higher education sector.

Platforms used for Delivering Online Education

Online education has a heterogeneous reality with a multiplicity of definitions and platforms. Interchangeably used with e-learning, internet-based education or virtual education, online education is characterized by the use of digital devices, applications, and internet connection for delivering and support educational content and process independent of place and time (Arkorful & Abaidoo, 2015; Dublin, 2003). It is operated either synchronously or asynchronously via satellite broadcasts, websites, social applications, software, and hardware or through the amalgamation of a few elements together to make the teaching and learning process more interactive and flexible (Zeitoun, 2008).

In Singapore, the higher education institutions use a number of top-notch technological platforms, media, and tools to facilitate educational delivery. All of them leverage commercial or customized learning management systems to deliver, monitor, and evaluate curricular content, quizzes, assignment repositories, and archiving of lectures. Some of the popular platforms are Canvas, Blackboard and Moodle. Social media tools that are in vogue for students' everyday interactions are also increasingly being used for creating both a collaborative and communicative learning environment and for extending learning beyond the rigid boundaries of classroom hours. These tools include Facebook, Twitter, and Google Plus which can also be effectively used as assessment modes for evaluating students learning based on the quality of their inputs in online discussion discourses. Despite an array of online education



FIGURE 2.12: CET MASTERPLAN

platforms, comprehensive awareness of their impact as well as the complications that come along their operations are crucial.

The Government's Policy and Regulations for Online Education

MOOCs have assumed a critical role in education and skill development in Singapore in the last few years. Almost all the institutions of higher education in Singapore are well prepared and use online learning both for delivering teaching and learning resources and with the objective of keeping the student and adult workforce up to date with technology.

Lifelong learning is considered critical for individual career progress as well as for the economy and society. The Singapore government's Skills Future programme is meant to motivate Singaporeans to learn skills and keep themselves abreast through lifelong learning. It is part of a concerted nationwide effort under the Continuing Education and Training (CET) plan. Singapore citizens over the age of 25, are given credits worth S\$500 that they can use for their personal development. Anyone over 40 years of age (mid-career workers) will have up to 90 per cent of course fees for programmes online subsidized by the government (Skills Future enhanced Subsidy, 2020). The credits can be used for MOOCs on platforms such as Coursera, Udemy, and Canvas. The uptake of the credits is low among the residents but it is increasing. The Singapore Workforce Development Agency (WDA) and the Institute of Adult Learning (IAL) work closely for this initiative.

In 2014, NUS and NTU started offering MOOCs on platforms like Coursera. Credits from MOOCs' courses were permitted to be used as part of qualifications for a degree. All the local universities have their own e-learning portals like Blackboard and Moodle. The European Centre in Singapore also offers courses through MOOCs

(Lim et al., 2017). Singapore's youngest university, SUSS largely has part timers and adult learners and has been subscribing to the online e-learning modes for quite some time.

NUS offers seven courses on the edX platform. NUS and NTU together have 10 courses on Coursera. The Internal Blended Learning Online Courses (iBLOCs) are a blended format. Flipped classrooms have become part of iBLOCs. The Centre for Instructional Technology and teaching and learning centres in the universities work closely with the academic teaching staff in designing the online courses. Currently, NTU students can use credit transfers of up to 12 academic units (AUs) during their candidature and the courses are part of a preapproved list. The AUs are determined by the amount of time and effort spent on the course.

Amid the COVID-19 pandemic, the Ministry of Education also announced in late July that new graduates can enrol for short term (3-6 month) programmes to gain micro-credentials or certifications and further improve their skills to tide over the COVID-led economic downturn. The offer is available to graduating students from the Institute of Technical Education (ITE) and the polytechnics, as well as university graduates who have completed full-time undergraduate degree courses from the six autonomous universities this year. Notable certifications include international logistics, engineering, network security, and robotics.

Quality Assurance to Guide the Delivery of Online Learning

In Singapore, the Higher Education Policy Division (HEPD) of the Ministry of Education (MoE) is responsible for drafting and implementing policies related to tertiary institutions like universities, polytechnics, and private education providers. HEPD has research capacity to monitor global current trends and situations that inform higher education policies. The Skills

Future arm of the government formulates and implements policies with respect to lifelong learning and partners closely with the higher education institutions in Singapore to support students in multiple pathways for acquiring skills. The Higher Education Division has oversight over several statutory boards, polytechnics, and the Institute of Technical Education (ITE) in Singapore, all delivering tertiary education. For more than a decade now, the Infocomm and Development Authority (IDA) has been working with institutions of higher learning, industries, and infrastructure companies for establishing necessary hardware and technical infrastructure to build online learning capacities. A National eLearning Technical standards Committee has been established to draft the necessary regulatory standards and policies. The quality in institutions is maintained by way of implementing quality assurance frameworks that have been drafted, regular enforcement of rules and regulations where required, and using continuous monitoring and feedback mechanisms.

Policy Responses in view of the COVID-19 Pandemic

The COVID-19 pandemic accelerated a digital transformation in all walks of life, including higher education. It forced leaders to rethink how we educate students. It helped higher education institutions to not only ensure continuity, but also enabled students to discover learning on their own and improve self-regulation. NTU announced in early May 2020 that all its 23,000 undergraduate students could earn selected academic credits from about 86 MOOCs on Coursera, edX, and FutureLearn platforms. The credits range from three to five courses, up to 12 AU equivalent, about 10-15 per cent of the total units. Coursera permitted NTU students to obtain online certification free of charge (which would have been paid for otherwise) if students registered before 31 July.

To accommodate the new regulations by the ministry in the extra university places' offerings, institutions held a second round of admissions to cater to students. Some Singaporean students who were midway through their graduate studies in overseas universities and wished to return home due to COVID-19 were permitted to apply to local universities and their admissions were reviewed on a case-by-case basis.

The Singapore government had all along kept its cohort participation rate (CPR) at about 26 per cent but had plans of expanding the intake in local universities to 40 per cent by 2020. As the pandemic struck, the government increased about 2,000 places in the universities to accommodate more Singaporeans returning from overseas universities. Some of the places were earmarked for graduates from local polytechnics who could not find jobs due to COVID-19 related economic downturn. Although the CPR may seem low compared to other welfare-centric countries, it is higher than countries in Asia like Korea and Hong Kong.

SGUnited Skills is a full-time training programme that supported graduates and other job seekers during COVID-19. Spread over a few months, the programme comprises of certifiable courses delivered by CET centres, including HEIs. CET courses are conducted through virtual classrooms (VLCs) and other online learning modes and are designed in partnership with industries to help individuals acquire industry-relevant skills that can improve their employability.

One of the prime policy considerations for expanding CPR over the years has been relevance for the economy, keeping unemployment numbers low, and delivering quality education. A delicate balance between managing the number of graduates and the manpower needs of the job market has been deliberately done. Emphasis on quality has been high on the agenda, pegged on high quality university governing standards.

Broader Impacts and Challenges of Online Education

Opinions are divided about the potential and ramifications of online higher education. In Singapore, online higher education is having a massive transformational impact on the teaching and learning landscape. It is changing educators' traditional roles, creating fundamental shifts in ideological approaches to pedagogy and remodelling the dynamics of normal classroom contexts (Markovic, 2010; Tan et al., 2009). In addition, it has enabled customization of learning to suit different learning needs and styles of a huge cohort of students. To exemplify, learning has now become much more personalized rather than the one size fits all approach that had been the dominant instructional mode in the past, and it has reached more groups of learners that was earlier limited by certain factors such as family commitments or special needs (O'Donoghue et al., 2004).

Moreover, with information available at the click of a button, the quest is no longer about saturating learners with information but rather enabling them to learn to think independently, to learn how to learn, to seek, process, to evaluate and apply information, and to become critical decision makers and effective problems solvers. For instance, at the Singapore University of Technology and Design (SUTD), realistic test-bedding facilities have been built to provide more authentic learning opportunities to equip students with skills in problems solving and innovative thinking. At NUS, an integrated virtual learning environment (IVLE) has been operational for more than a decade to supplement classroom learning.

Numerous research studies have also reported significant improvements in achievement scores, attitudes towards learning, and depth of conceptual understanding when technology is integrated with learning (Evans & Fan, 2002; Kozma, 2003; Wenglinsky, 1998). According to the

results of a survey of Singapore's Master Plan II in education conducted in 2011, more than 70 per cent of the students reported that information technology had helped making the lessons interesting and helped increase their knowledge. Another survey done by NTU indicated high student satisfaction (80 per cent) with the online courses and systems (Daniel, 2005). Besides this, with the infusion of technology in the classrooms, the roles of the educators do not get obsolete but are instead accentuated as they take on different roles as facilitators of learning and co-creating learning as partners with students. Online professional development programmes cater to educators to upgrade their skills as well as collaborate regionally and internationally which leads to more innovations and developments (Bautistia et al., 2015; Gleason, 2018; SkillsFuture Singapore, 2020; So et al., 2009).

However, it has been found that these technological platforms have not been fully optimized for their pedagogical affordances. More often than not, they have been superfluously used, often for the sake of embedding technology in educational delivery rather than a proper investment of time and effort in maximizing learning. Many educators seem to lack adequate time to reflect on their teaching practices or ponder over strategies of technology inclusion that add value to learning efficacy (Wepner et al., 2003). Furthermore, while technologies offer myriad learning pathways and opportunities for a diverse population of higher education students, educators still find it hard to manage, monitor, and assess the learning achievements of individual students. Another challenge in moving to technology infused learning environments is that of creating an educational climate that fully understands and enhances the potential of digital literacy. Often digital literacy has been tackled in terms of obtaining isolated and disparate technological skills rather than it being a multifaceted concept generating a deeper understanding of the dynamics of a technology-saturated world that is predominantly focused on

collaboratively co-creating content to respond to ever-changing contexts.

The government's Funding and Support

Since the late 1980s, the Singapore government has been putting tremendous efforts in reforming and strengthening the higher education system to be competitive regionally and globally. Singapore's HEIs are autonomous in governance and funding which means that the government is no longer their sole financier but there are still active governmental initiations and participations pertinent to online education. One of the salient features has been the push for integration of information and communication technology (ICT) in education, especially at the tertiary level (Khan, 2019; Lung, 2018; Mok, 2008). Their determination and actions are reflected through the formulation and operation of various policies and strategic plans, namely Master Plan for ICT I (1997) to Master Plan for ICT IV (2015), Infocom 21, Intelligent Nation (2015), SkillsFuture, the 2017 Report of the Committee on the Future Economy and more recently the Infocomm Media 2025 plan. Financial resources and incentives have also been offered by the government to prompt top global universities to set up their branches physically or virtually and offer distance education in Singapore (Chan & Ng, 2008). Progressive incentives and promotion of online education as well as expansion of the e-learning infrastructure have been recognized in the government's collaborative projects bodies like the Strategic Manpower Conversion Programme between the Infocom Development Authority (IDA) and the Ministry of Manpower (MOM) (Bashar & Khan, 2007).

Conclusion

Singapore has been working on transitioning to online education and building the infrastructure and other necessary resources progressively over

the last two decades. Although the COVID-19 pandemic is unprecedented, the government swiftly started implementing measures to support lifelong learners and also students enrolled in the HEIs. It is fair to say that a one model fits all will not work for all countries in this situation but a right mix of localization and adapting to global changes is critical in today's context, as was seen in Singapore. Online education cannot thrive without quality learning management systems and online delivery systems with an emphasis on adaptive pedagogy for the virtual mode. Universities in the United States saw declining enrolments in the last few years but this form of education could prove very vital for large developing countries like India and Indonesia as we emerge from the COVID-19 pandemic.

Globally, and likewise in Singapore, the trend is that the online education option is seeing a demand from mid-career professionals and adult learners who want flexibility in time and space, and who hold full time or part time jobs for upgrading their skills and knowledge. An online education degree is not widely perceived to be on par in quality with an in-person one. One of the most cited reports based on a large-scale survey done with 2, 800 colleges in the United States demonstrated academic leaders' perceived challenges in implementing online education. About 50 per cent of the institutions were still undecided about implementing MOOCs. A majority of the academic officers (73 per cent) perceived lower retention rates in online courses, over 85 per cent stressed on more discipline among students, 23 per cent believed that the outcomes of online education were inferior to those of face-to-face instruction, and close to 40 per cent felt that a lack of acceptance of online degrees by potential employers was a barrier in the widespread acceptance of online education (Allen & Seaman, 2013). But the pandemic has made employers rethink how they hire and attract jobseekers. How the online courses are valued by the labour market and whether individuals who do more online courses and

less in-person graduate programmes or mid-career programmes are similar or dissimilar in quality will have implications for evolving post-secondary education models worldwide (Hoxby, 2014).

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CHAPTER III

COMMONWEALTH ASIA: INSTITUTIONAL CASE REPORTS

ASIA E UNIVERSITY, MALAYSIA

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Institution Profile

Asia e University (AeU) is a collaborative multinational university initiated by the Asia Cooperation Dialogue (ACD), an inter-governmental organization established in 2002 to promote Asian cooperation at a continental level. Established as a Malaysian initiative to be the prime mover of education and human capital development, it is supported by 35 ACD member countries as affirmed at the ACD Ministerial Meetings held in Islamabad in 2005 and Doha in 2006. As of today, ACD has 35 member countries.

AeU officially started operation in 2007 and offered post-graduate programmes — master's

and doctorate degrees in 2008 — after receiving approval from the Ministry of Higher Education (MoHE) and the Malaysia Qualification Agency (MQA).

AeU collaborates with IHLs and training centres in the ACD member countries to offer quality academic and professional training programmes that are affordable and accessible. It acts as a facilitator for mutual accreditation and recognition of degrees and academic programmes among Asian IHLs. It also acts as an enabler for IHLs in Asia to leverage on each other's resources and facilities including the sharing of academic and professional programmes. ACD member countries have

VISION

To be a leader and a premier education hub in the promotion of affordable and quality e-learning in Asia.

MISSION

To work in collaboration with universities, institutions, and corporations drawing on their collective expertise, prestige, and resources to provide quality higher education and lifelong learning.

GOALS

- To provide programmes of international reputation by collaborating with global institutions
- To provide students access to relevant, affordable, cost-effective, and flexible education and training programmes
- To leverage pedagogical strategies and technologies to develop students' critical thinking creative abilities and entrepreneurial and communication skills
- To ensure that all programmes and courses meet the quality benchmarks established in the policies and standards of lifelong learning's best practices among member institutions

recognized AeU as an instrument for greater Asia-wide cooperation. As a spearheading institution of choice in the new wave of e-learning, AeU is the major catalyst in promoting cooperation in e-education among Asian communities and networks. AeU is set to champion e-education in its efforts to meet Asia's human capacity needs. Being one of a new breed of global digital universities, AeU emphasizes on agile, entrepreneurial, and ubiquitous education. AeU provides working adults a chance to continue learning and upgrading their skills and knowledge, thus improving not only themselves but also their families, professions, and ultimately, their countries.

Built on the philosophy that education should be democratized, AeU creates an affordable and accessible pathway to higher education while placing importance on flexible entry requirements, a learner-friendly academic system, and a blended pedagogy that combines different modes of learning. AeU's core values are:

Carrying the mission of ACD to provide quality higher education and lifelong learning to member countries, AeU has been developing academic collaborations with member countries such as Sri Lanka, Nepal, Myanmar, Cambodia, Vietnam, India, Pakistan, Bahrain, Yemen, and Hong Kong.

Being a triple mode university, AeU offers full-time on campus as well as blended and online modes of learning. AeU delivers its academic programmes in other countries through collaborations with institutional partners by leveraging technologies for enhancing teaching and learning and also to facilitate academic and administrative support for quality assurance.

AeU offers a comprehensive range of academic and professional training courses from certificate, diploma, undergraduate to doctorate levels in Business and Management, ICT, Education and Humanities, and Arts and Social Sciences. With a focus on personalized learning, AeU is leading the way in providing flexible, innovative, and affordable quality education in Asia.

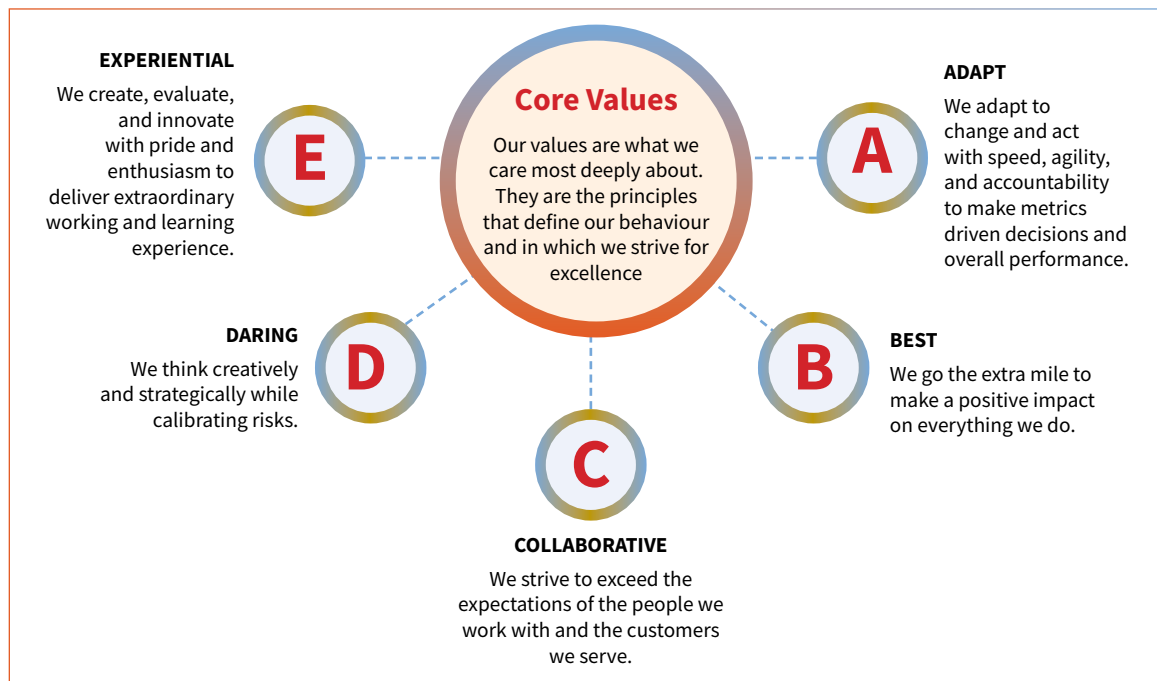


FIGURE 3.1 : AeU'S ABCDE PHILOSOPHY

The 'e' in Asia e University has **8 elements** that define the thrust of AeU in learning and teaching methodologies and learning experiences of our students.

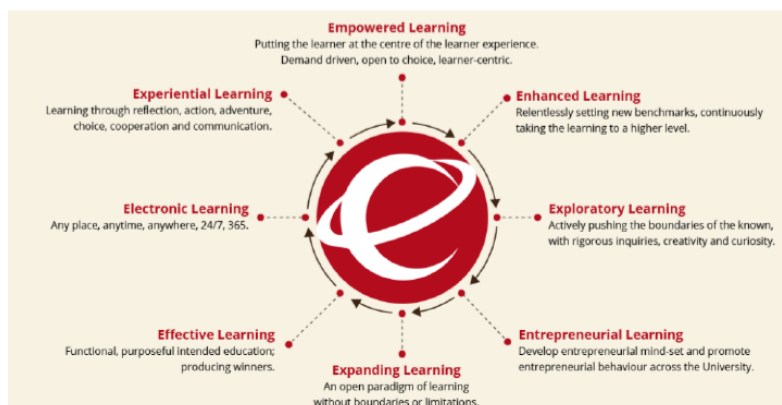


FIGURE 3.2: AEU'S 8 'e's

The letter 'e' in Asia e University defines eight elements of AeU's trust in teaching and learning, and students' experience empowered, enhanced, exploratory, entrepreneurial, expanding, effective, electronic, and experiential learning.

AeU is also the main facilitator of the Asian Credit Transfer System (ACTS) to facilitate mutual credit transfers, accreditation, and recognition of degrees among Asian HEIs under ACD. Currently, the ACD MBA (Master's of Business Administration) works on the ACTS system and more than 10 universities from Thailand, Bangladesh, Malaysia, Iran, Indonesia, Philippines, Korea, India, Cambodia, and Russia have adopted this mutual recognition of degrees.

Being a facilitator for mutual accreditation and recognition of degrees and academic programmes among Asian HEIs, AeU organized the 4th ACD Roundtable Meeting on the Asian Credit Transfer System (ACTS) in Kuala Lumpur on 13 September 2011. The main agenda of the meeting was participating countries deliberating and coming to a consensus on the establishment of ACTS among ACD countries. The countries that participated were Malaysia, Thailand, Japan, Sri Lanka, China, India, Pakistan, Saudi Arabia, Oman, Bangladesh, Qatar, Vietnam, Myanmar, Cambodia, Singapore, Kuwait, Brunei, and Kazakhstan. The consultation initiative is still ongoing with AeU working in collaboration with

Siam University of Thailand. The adoption of ACTS is voluntary.

Continuing to promote the joint development and delivery of collaborative study programmes across 35 countries, AeU took the lead and established the **ACD University Network (ACD-UN)** in an ACD high-level meeting on Asia Academic Collaboration which was co-organized with the Siam University of Thailand. This resulted in five key activities which were identified as:

- (1) ACD University Network Coordination Committee (ACD-UNCC)
- (2) ACD Research Network (ACD-RN)
- (3) ACTS Task Force
- (4) Asia MBA
- (5) ACD Student Leadership Institute (ACD-SLI)

As agreed by the ACD, AeU established the Asian Centre for e-learning. It is the centre's mission to be involved in developing e-learning policies, guidelines, e-learning platform, and tools for ACD. The centre is also involved in establishing a database of e-learning experts, conducting training in e-learning, establishing standards, and providing advisory and consultancy services.

AeU was cited in a UNESCO commissioned report led by Commonwealth of Learning and presented

at the World Higher Education Congress 2009 as leader in the use of OERs. The university was also a steering committee member of CEMCA –MOHE for establishing e-learning content standards.

At the 1st ACD Head of States Summit in Kuwait in 2012, AeU was declared the best ACD project (The Star).

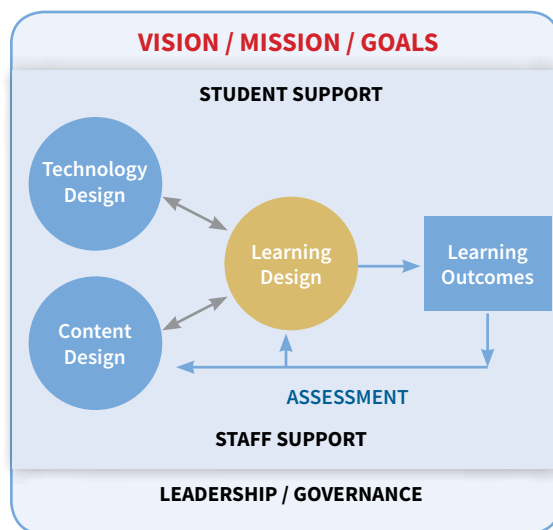
Since its inception in 2007, AeU has had a staff of 100 including academic and support staff in seven schools offering more than 25 academic and more than 150 professional programmes. It has more than 28,800 students including close to 5,000 international students, coming from over 40 international collaborative learning locations. Over 80 per cent of the student population is working while studying. As of today, more than 19,300 students have benefited from this education system and have successfully graduated.

To move forward, a 5-year strategic plan for 2020-25 has been drawn up to map out AeU's pathway towards academic excellence and addressing the demand of the Industrial Revolution 4.0 workforce. It focuses on seven strategic thrust areas: academic excellence, awesome learning experience, embracing digital technology, regional and global impact, dynamic human capital, business sustainability, and global visibility. It is envisaged that with staff support and students' performance, AeU will move to greater heights in the coming years and contribute to the development of the nation as a whole.

Quality Assurance

Learning design is not an individual element. It is a framework that integrates the entire organization, from students and staff to the management.

The AeU's E-Learning Quality Framework is based on a pedagogical perspective which focuses on the learning outcomes desired of a chapter,



Source: Arul (2015, ppt. 12).

FIGURE 3.3: AeU'S E-LEARNING QUALITY FRAMEWORK

topic, or course. In other words, it is about how all relevant components and resources are mobilized in achieving the desired learning outcomes (Arul & Ahmed, 2015).

AeU's overall quality control lies in the Audit & Quality Assurance and Regulatory Affairs (QARA) units. Audit and QARA have to remit to ensure the university's compliance with rules and regulations of respective authorities locally and internationally. It not only takes charge of the internal audit, but also liaisons between the university and the regulatory bodies in Malaysia such as the Ministry of Higher Education (MoHE) and the Malaysia Qualification Agency (MQA).

Audit and QARA have the ownership of all SOPs ranging from new programme development and review of existing programmes, examination and academic guidance, to project papers and research programme management, tutorial class management, and other standardized processes. A sample of SOPs for Tutorial Class Management is given in the appendix.

Audit and QARA also took the ownership of implementing the ISO21001:2018 certification

which was introduced in 2018 to enhance the university's quality management system. Academic schools are guided to improve their academic quality accordingly.

To enhance students' learning experiences, academic schools play an important role in monitoring teaching and learning and class delivery, be it online or physical classes. Feedback evaluation is collected from students for each online class and semester-base for physical classes. Survey feedback is compiled by Audit and QARA for continual quality improvements.

Online Course Design and Delivery

Online course design requires an emphasis on self-learning. Besides subject syllabus, e-textbooks, e-journals, and self-instrumental materials (SIM) are developed to support students' learning. Online course design believes that learning material must be able to "*enable people to study whenever they want and from wherever they are in the world.*" (Arul, 2015, p.4).

MOOCs are one example of online course design. Championed by the Asian Centre of e-learning (ACE), MOOC courses are developed to promote e-learning initiatives in the Asia region and for revolutionizing conventional education. They allow learning to take place anywhere, anytime and also remove the barriers that limit learners' access to higher education. MOOCs make education more approachable, flexible, and economical for learners. Currently, AeU is offering MOOCs free of charge (<https://mooc.aeu.edu.my/>).

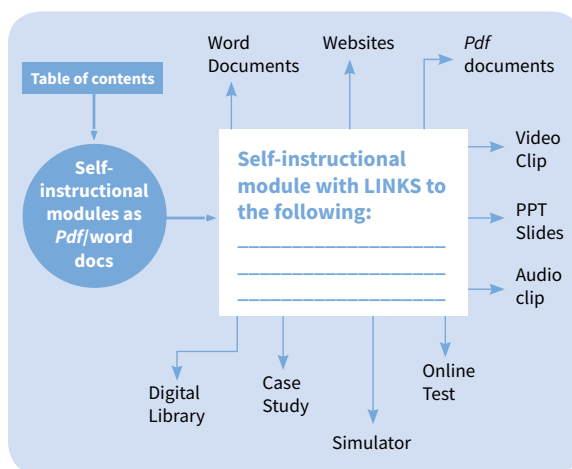
On completion of learning a MOOC course, the learner is awarded with either a certificate of participation if s/he chooses not to take up any assessment, or a certificate of completion if the learner has successfully passed the specified assessment.

Micro-credentials are given after completion by finishing all the learning materials, in which certificate of completion is awarded, with no credits granted. A certificate of achievement is awarded when a learner completes all the learning material and successfully passes all the components of the assessment. With the certificate of achievement, learners can opt for transferring credits to their main degree qualifications.

SIM is developed by organizing learning material into study units / topics / chapters which align to learning outcomes to indicate what is required of learners. Content is highly structured to focus attention. It is developed to meet two major objectives:

- (1) 'Simple but not simpler' (Albert Einstein) with lots of examples, illustrations, and analogies to enhance understanding.
- (2) Application of concepts to real-world settings.

The following Figure 4 and Figure 5 shows some examples of SIM's Table of Contents and its alignment to learning outcomes



Source: Arul (2015, p. 56).

FIGURE 3.4: SELF-INSTRUCTIONAL MODULE

Example: Consumer Behaviour

- Consumer buying behaviour
- Consumer buying role
- Factors influence consumer buying decision
- Consumer buying decision process
- Types of consumer decision

Learning outcomes

After studying this chapter, your should be able to:

1. **Define** consumer behaviour
2. **Describe** the role consumer behaviour plays in marketing decisions
3. **Analyse** the factors influencing consumer buying decisions
4. **Outline** the consumer decision process
5. **Compare** different types of buying decision behaviour

Source: Arul (2015, p.15).

FIGURE 3.5: EXAMPLE OF SELF-INSTRUCTIONAL MODULE

SIM is meticulously prepared to engage self-learning as learners acquire knowledge and skills in their respective subjects. Learning activities, self-review questions, assignments, online discussion forums, and face-to-face tutorials seek to promote critical inquiry, developing problem solving skills, decision making, and analytical thinking skills. Learners are encouraged to bring in their experiences to relate principles and concepts learned and their application to real-world contexts.

A SIM generally takes about 3-4 months to be developed at a cost of about RM2,000- RM5,000 per course depending on the nature of the subject and its complexity. Some of the SIMs are developed internally and some are developed externally depending on the availability of subject matter experts.

Besides, SIMs are made available at any given time on AeU's LMS, MyPLS. Students can learn at their own pace, read learning material, respond

to learning activities, work on assignments, and interact online. AeU's pedagogical strategy is a blended learning approach. This consists of three learning components: independent study, online discussions, and face-to-face components.

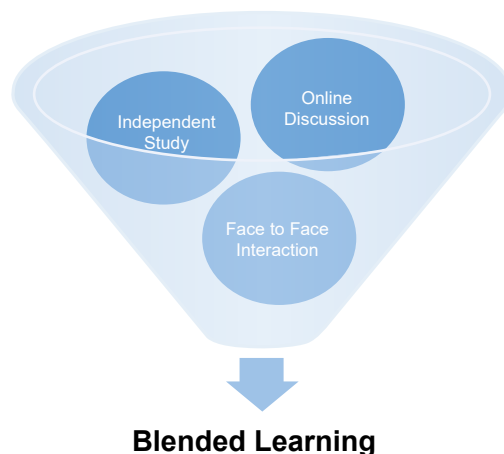


FIGURE 3.6: AEU'S BLENDED LEARNING PEDAGOGY

(i) Independent Study

- Facilitating and supporting independent learning. Learners are provided detailed learning contents, which are available on the university's LMS MyPLS (My Personalized Learning Space). The learning material includes:
- SIM, which consists of learning activities and practices for discussion.
- a personalized learning guide explaining what students need to do, a timetable for each week's activities, deadlines for assignments, and examination dates.
- Additional learning materials such as power point slides and video and audio clips may give learners a different perspective of the course.

(ii) Online Discussions

- Students discuss online using a discussion forum as well as other technology-enhanced learning platforms such as

social media, Whatsapp, LinkedIn, Webex, Google Meet, Zoom, and Microsoft Teams.

- Students join a community of learners with other fellow course mates to:
- discuss and share ideas about learning activities included in the course material.
 - discuss and collaborate on assignments and projects.
 - share ideas on preparing for the examinations.

(iii) **Face-to-Face Interactions**

- Face-to-face sessions are for strengthening learners' understanding of the subjects.
- For each course, an academic facilitator (AF) who is an expert in the subject is assigned to conduct face-to-face sessions.
- Two formats of face-to-face interactions are provided:
 - Learners meet up with the AF physically at AeU's main campus or one of AeU's learning centres whichever is convenient for them.
 - Learners meet up with the AF virtually via web or video conferencing.
- All courses have face-to-face sessions to explain key concepts in the course material, guidance in studying, and feedback on their assignments.

Thus, a 40-hour learning time which is equivalent to one credit value, is approximately divided into 26 hours of independent learning, 10 hours of online discussions or collaboration, and four hours of face-to-face interactions or web conferencing.

Learner Support Systems

AeU's management is committed to providing quality education that equips graduates with not only the necessary knowledge and skills to contribute to society as responsible citizens but

also provides them the foundation for lifelong learning in a globalized context. Towards this end, the university has provided training facilities to support students' learning.

All students are provided with webmail accounts to access application software such as Microsoft Projects and Microsoft Teams.

Besides well equipped with internet access in the physical classrooms, other up-to-date facilities include a digital library which has been set in place. The AeU Knowledge Centre or library is well stocked with a collection of the latest references and online books and journals. In addition, AeU subscribes to 16 electronic databases:

- six e-books,
- six e-journals,
- one thesis collection, and
- three databases related to research, quality assurance, and educational publications.

All these have been made familiar to students through information skills' tutorials conducted periodically by the university's chief librarian.

Furthermore, the AeU library has signed a MoU with Malaysia's National Library. Under this collaborative scheme AeU's library members are able to borrow books from the 500 member libraries in Malaysia for inter-library loans, document delivery service library, and membership/reference.

Students are supported by library services such as loans, returns, renewals, reference service, document delivery, library orientation/tours, and information literacy programmes.

When it comes innovations in teaching strategies, AeU has largely been adopting learner-centred e-learning. Learning and teaching material are provided via LMS, MyPLS. Learners have been trained and equipped to be active in independent learning. They have also been engaged in numerous group discussions.

In addition, learners are also supported through social media platforms such as Whatsapp, Facebook, Instagram, and others. Formal and informal communication between learners and their Afs as well as their peers is also an effective way of learning.

Students' assessments are done to show learning and work processes as well as performance

Other than research programmes, each subject consists of formative and summative assessments to ensure that students are able to grasp basic concepts and knowledge. Meanwhile, active learning and simulation are encouraged to let students experience real life situations. This is in line with the university's 8 'e's.

Through continuous assessments students are able to discuss the main topics in the subjects. Continuous assessments consist of a variety of options such as individual assignments, group assignments, case studies, presentations, and portfolios in a student's final grade. Summative assessments such as closed book examinations make up 30-50 per cent of the total assessment. Teaching and learning support is also available via the e-library which is accessible to all students as well as the physical digital library.

AeU had been following proctored examinations in Malaysia and international designated examination centres, till the COVID-19 pandemic. Synchronous online final examinations (SOFE) were introduced in the January 2020 semester.

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About a month before the actual date of examination, announcements were made through various channels to ensure that students were able to receive this important message. Two weeks before the actual exams, students were called to take a mock exam to familiarize them with the examination procedures. Students were requested to install the Safe Exam Brower in their computers/laptops before they took the exam.

On the actual date of the exam, students were required to sign in and turn on their devices' cameras during the entire examination session. Academic staff e-invigilated them through their computers too. Students were monitored through Google Meet and the entire examination session was recorded. Figure 3.7 shows a snapshot of the SOFE.

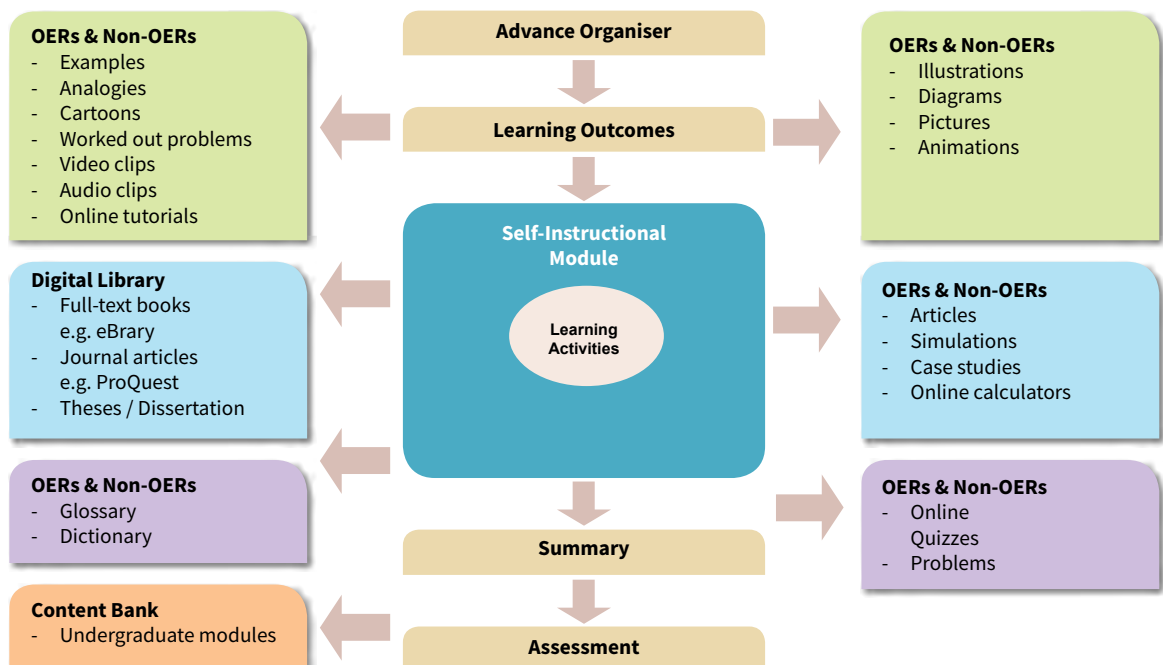
SOFE has been conducted for two semesters since its launch. Although the results have been satisfactory, post-mortem meetings have been held out to fine-tune and further improve the overall work process.

Challenges Involved in Designing and Delivering Online Courses

Challenges involved in designing and delivering an online course exist at two levels: the student-learning experience and outcome-based learning principles used for the course design.

From the students' perspective, time is a serious constraint. Besides, due to individual differences such as gender, prior knowledge, and cognitive and learning styles and preferences, it is highly challenging to provide a personalized e-learning system to students (Alwadei, 2020).

The academic facilitators are usually trained for the conventional methods. To adjust their teaching and learning strategies to design and deliver online courses takes time to un-learn and re-learn, especially because of their mindsets. It is "Like the difference between building a new home and re-modeling an old home, first we had to take apart what we had and then begin building the new" (Defa, et al., 2016).



Source: Arul (2015, p.50).

FIGURE 3.8: CONTENT THAT PROVIDES DIFFERING VIEWPOINTS OF THE SAME IDEAS

As an improvement guideline, AeU is still working to further improve its SIM learning material to provide optimal approaches for individualized instructions. The following Figure 8 shows the guiding principles from an alternative viewpoint.

Research Findings/Feedback from Stakeholders

Feedback from stakeholders, especially learners is captured in every semester for further improvements in the overall e-learning process.

The student course evaluation survey focused on a few areas such as learning materials, academic facilitators, assessment, and services. Its aim was obtain students' feedback on the quality of the specific subject. Working with QARA all schools have to work on addressing any concerns or issues raised by students.

Changes made due to COVID-19 in Course Delivery and Assessments

Being an ODL institution, course delivery and assessment were not affected much by the COVID-19 pandemic, except summative assessments, which were usually conducted through proctored and face-to-face methods. However, in the new norm, a range of different modes for the final examinations were proposed and conducted to meet the various groups' needs such as:

- Synchronous Online Final Examination (SOFE) –
 - an online-invigilated examination with the assistance of staff members and technology.
- Online examination (to be submitted within 24 hours)
- Extended assignment (to be submitted within one week)

Post-mortem meetings were held to discuss various pertinent issues and proposing solutions

/ actions. Meanwhile, schools are looking into the different forms of assessments to suit the needs of their learners. It is AeU's belief that continuous improvements are the way forward in bringing learning to an optimal level.

Future Directions and Plans

At the beginning of 2020, a 5-year strategic plan (2020-25) with the theme 'Transforming Global Society' was developed to set the new direction for AeU to meet the changing landscape and the environment in which the university was operating. The plan was to guide AeU in decision making in academic matters and set priorities for the next five years with the university's vision in mind. Its aim was supporting the global community in human capital development, especially members of Asia Cooperation Dialogue (ACD):

Marked by innovation and passion, AeU 2025, is looking at a new direction. With the vision of Transforming Global Society AeU supports the education for all strategy by UNESCO and champions inclusivity and sustainability in higher education... give value education to all and shape the future generation to meet global challenges.

*(Professor Emeritus Dato'
Dr Hassan Said Vice Chancellor, AeU, 2020).*

The strategic plan strengthens AeU's commitment to *enhancing learning, teaching, and learners' outcomes* in five thrusts areas:

Thrust 1: Innovative learning and teaching

Thrust 2: Seamless systems and processes

Thrust 3: Internationalization

Thrust 4: People

Thrust 5: Sustainability

The priority thrust areas have been identified to indicate abilities and outcomes to make an impact on the strategic plan. It is noted that innovative learning and teaching is the number

one priority. Leveraging on the revolution to furnish learners with the knowledge, skills and values in meeting the challenges of the 21st century, AeU aims to provide a flexible and personalized learning experience anywhere, anytime using any device to meet the demands of a new generation of learners.

While online learning is seen as disrupting the delivery of higher education and training, the emergence of micro-courses offering micro-credentials is perceived as the next disruption in higher education.

AeU's MOOCs portal (<https://mooc.aeu.edu.my/>) launched in October 2019 with nine courses and more courses to be ready soon, received 70 registrations by students from Somalia, Pakistan, Sri Lanka, Lao, Indonesia, Myanmar, Nepal, South Africa, Nigeria, and Malaysia.

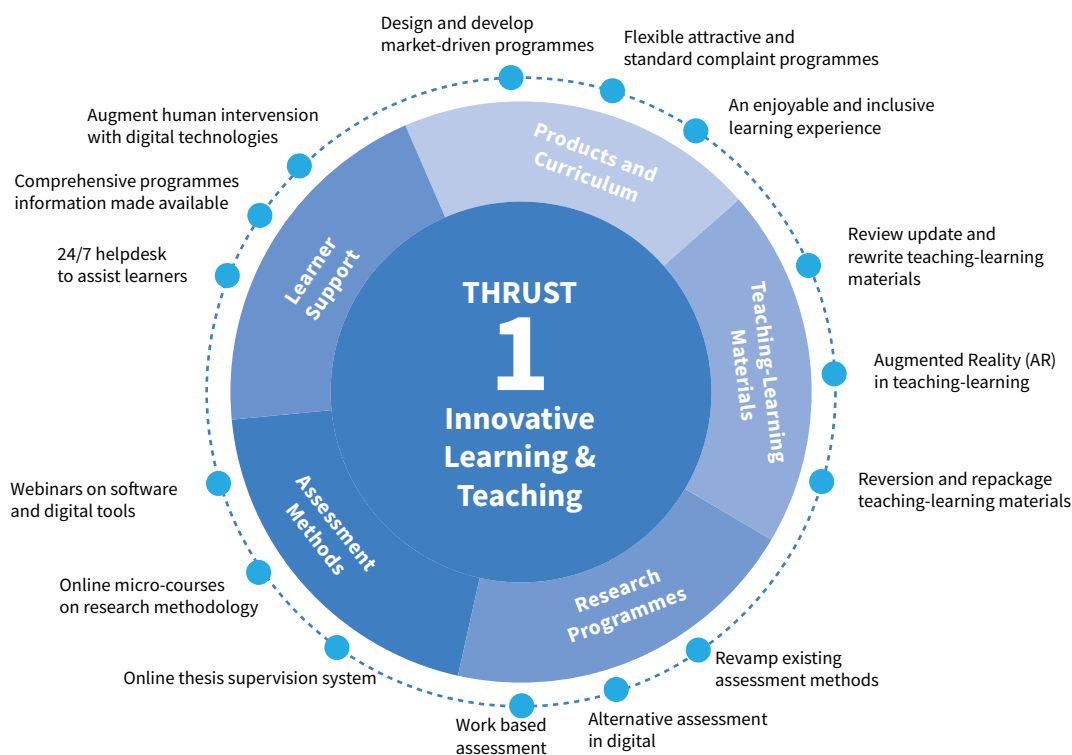
Another AeU's website on Degree by Bits & Bytes

is an example of its micro-courses. It is meant to help individuals reach their goals and pursue their dreams. Currently, 12 courses are being offered free of charge (<https://degreebybits.aeu.edu.my/>)

AeU celebrated its 10th convocation on 10 October 2020 to showcase its numerous milestones achieved so far. However, due to the COVID-19 pandemic, the celebrations were simple and re-arranged in e-form.

As a spearheading institution of choice in the new wave of e-learning, AeU will continue to strive as a major catalyst in promoting Asia-wide networks for cooperation in e-education.

To sum up, being a unique collaborative multinational university, AeU focuses its strategies on being an agile, entrepreneurial, and ubiquitous emerging university. It continues to champion e-education and acts as a facilitator and enabler for IHLs in Asia.



Source: AeU 2025 Strategic Plan (2020).

FIGURE 3.9: THE INNOVATIVE TEACHING AND LEARNING STRATEGIC PLAN

Appendices

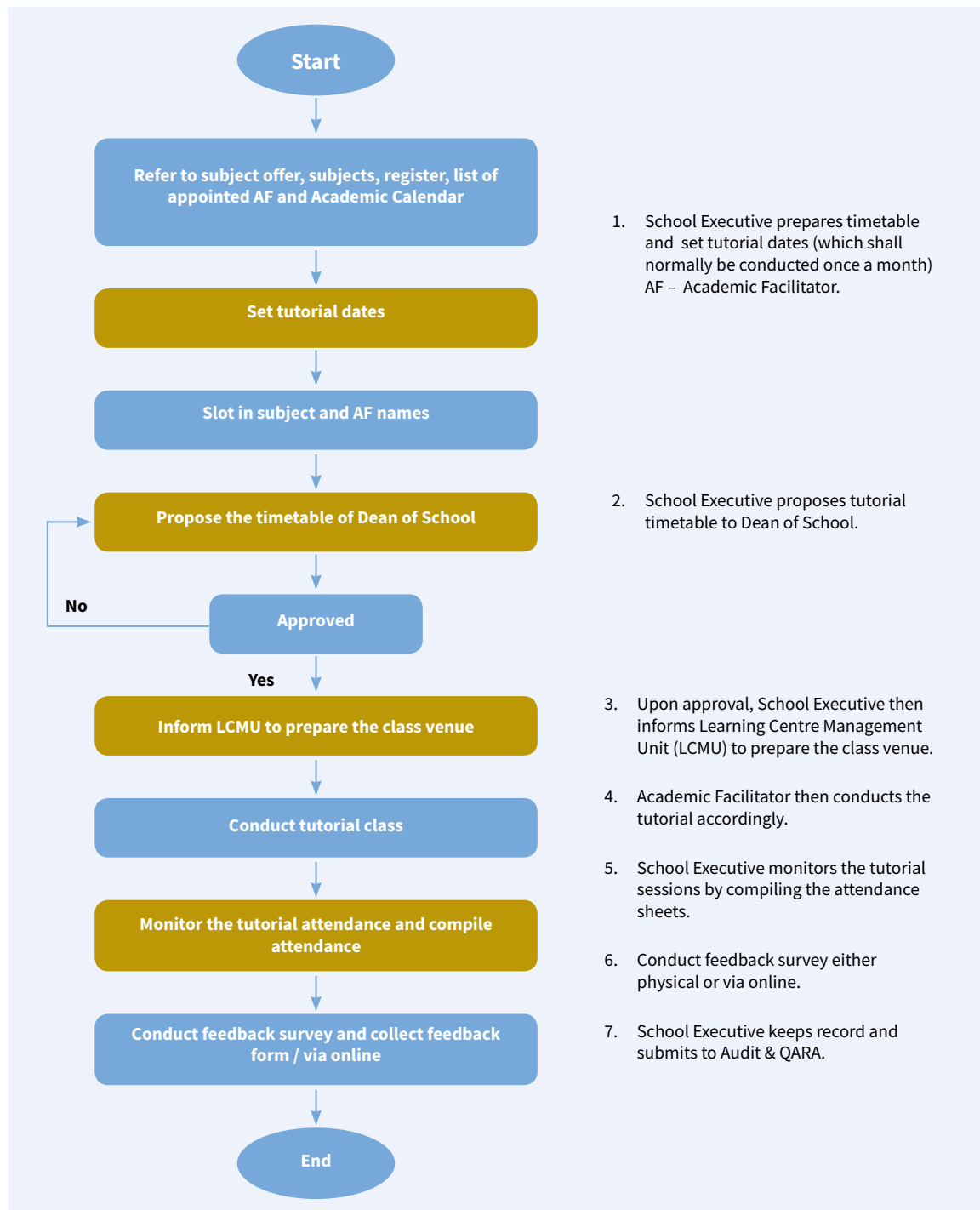
Appendix 1: 35 Asia Corporation Dialogue (ACD) Member Countries



Appendix 2 : AEU'S 8 'E'S

Empowered Learning	Putting the learner at the centre of the learner experience. Demand driven, open to choice, learner-centric.
Enhanced Learning	Relentlessly setting new benchmarks, continuously taking the learning to a higher level.
Exploratory Learning	Actively pushing the boundaries of the known, with rigorous inquiries, creativity, and curiosity.
Expanding Learning	An open paradigm of learning without boundaries or limitations.
Effective Learning	Functional, purposeful education producing winners.
Electronic Learning	Any place, anytime, anywhere, 24/7, 365.
Experiential Learning	Learning through reflection, action, adventure, choice, cooperation, and communication.
Entrepreneurial Learning	Developing entrepreneurial mindsets and promoting entrepreneurial behaviour across the university.

Appendix 3: Standard Operating Procedures for Tutorial Class



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BANGLADESH OPEN UNIVERSITY (BOU), BANGLADESH

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Institution Profile

Distance education in Bangladesh started in 1956 with the distribution of 200 radio receivers throughout the country, which led to the creation of five audio-visual cells (AVC) and later the Audio-Visual Education Centre (AVEC) in 1962. In 1978-80, a pilot project 'School Broadcasting Programme (SBP)' was undertaken. In 1983, SBP and EVEC were merged to form the National Institute of Educational Media and Technology (NIEMT). In 1985, the Bangladesh Institute of Distance Education (BIDE) was established and NIEMT was incorporated into BIDE. In 1989, as per the request of the Government of Bangladesh, the Asian Development Bank (ADB) sent a 'fact finding mission on an open university' to Bangladesh. A feasibility study on an open university was conducted through a technical assistance project (TAP) under the assistance of ADB. Finally, with a mission to ensuring education for the citizens irrespective of their age and gender, the Bangladesh Open University (BOU)

was set up on 21 October 1992 by an act passed in the Bangladesh National Parliament (BOU Act 1992). Figure 3.10 shows the historical evolution of ODL initiatives and the emergence of BOU.

The main goal of establishing BOU was improving the quality of education and providing opportunities for education to the general public through mass-orientation of education and creating an efficient manpower by improving the quality of education in general (BOU Act-1992, No. 38, 3(5)). Since its inception, BOU has been providing education at the doorstep so that everybody can have the freedom to have education for life, through life, and throughout life. BOU is the only university in Bangladesh offering a number of ODL programmes.

Governance

BOU performs all its academic, administrative and financial activities under the Bangladesh Open University Act 1992. While the board of

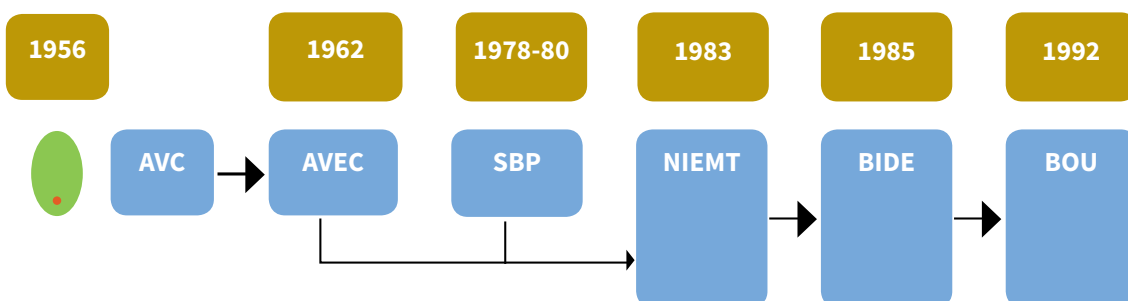


FIGURE 3.10: EMERGENCE OF BOU

BOU's vision and mission

VISION

BOU strives to ensure education for all in the country through the open and distance learning system and to excel as a provider of higher education.

MISSION

To spread quality education, both general and need specific, among all sections of citizens, irrespective of their age and gender in a flexible manner by using a suitable mix of educational media and technologies.

SCALE OF OPERATIONS

Level of the academic programmes: Currently, BOU is offering 60 formal programmes and 19 non-formal programmes through six academic schools. The formal programmes range from certificate to PhD levels.

Academic staff: As on 15 December 2020, BOU had 137 full time faculty members and 28,916 adjunct teachers/tutors. BOU is running its operations throughout Bangladesh and providing educational services to almost 9,95,838 students through 1,550 study centres.

Administrative and learner support staff: Student support services are spread all over the country through 12 regional centres (RCs) and 80 sub-regional centres (SRCs); 593 officers and 654 employees are working to provide administrative and learner support all over the country.

governors (BoG) is the highest decision-making body, other statutory bodies such as Academic Council, Finance Committee, and the Works Committee deal with academic, financial, and administrative matters. The chief executive of the university is the Vice-Chancellor, who is appointed by the President of Bangladesh and Chancellor of the University. On the recommendation of the Vice-Chancellor, the chancellor appoints, the pro-Vice Chancellors and the treasurer who perform their duties under the guidance of the Vice-Chancellor. The deans of the academic schools, registrar, and the directors of various divisions also perform their responsibilities under the leadership of the Vice-Chancellor, who is also the chairman of the BoGs, Finance Committee, Academic Council, and other statutory bodies.

BOU's Geographical Reach – Home and Abroad

BOU operates both at home and abroad. Within the country, BOU operates through 12 RCs and 80 sub-regional centres. BOU programmes are reaching almost all the corners of Bangladesh. The regional centres are situated in big cities such as Dhaka, Chittagong, Comilla, Sylhet, Mymensingh, Rajshahi, Khulna, Bogra, Jessore, Rangpur, Barisal, and Faridpur. The sub-regional centres are operating within the orbit of defined regions under the regional centres. Outside Bangladesh, BOU has study centres in South Korea, Qatar, Dubai, and Saudi Arabia. Through these overseas study centres, BOU offers the secondary school certificate (SSC) programme, the bachelor of arts (BA) and bachelor of social

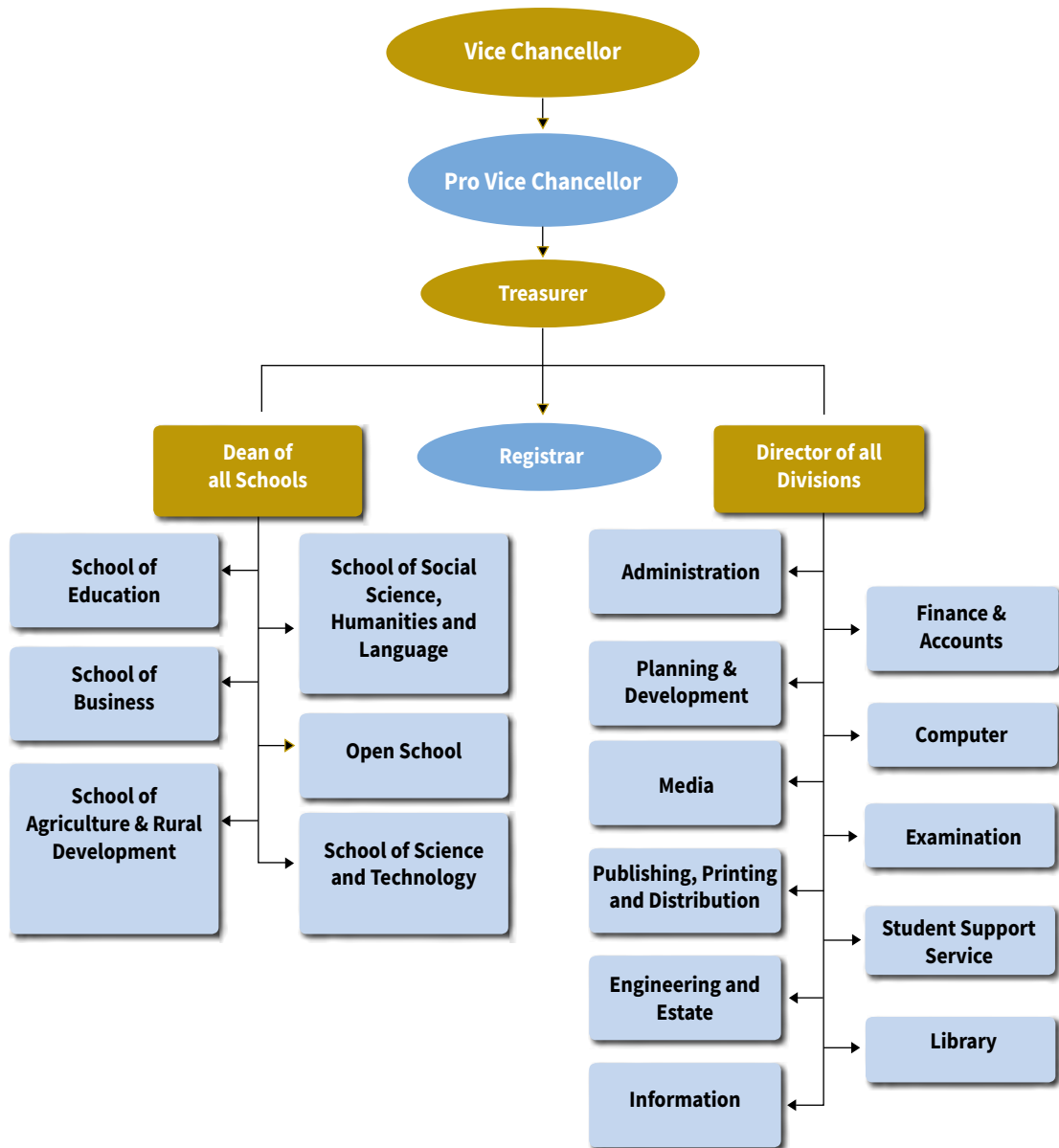


FIGURE 3.11: BOU'S ORGANOGRAM

science (BSS) programmes based on demand from the expatriate Bangladeshis working in those countries.

Students' Enrolment Patterns

BOU had cumulative enrolment of 9.65,838 students at the end of 2020. Yearly enrolments have been steadily increasing over the years.

In terms of yearly enrolment, there are 38 per cent and the rest are males (62 per cent). Most of the learners are adults and their goal is upgrading their life and livelihood through acquiring knowledge and skills. BOU provides an opportunity for these learners who otherwise would not have been able to access education following the traditional education system.

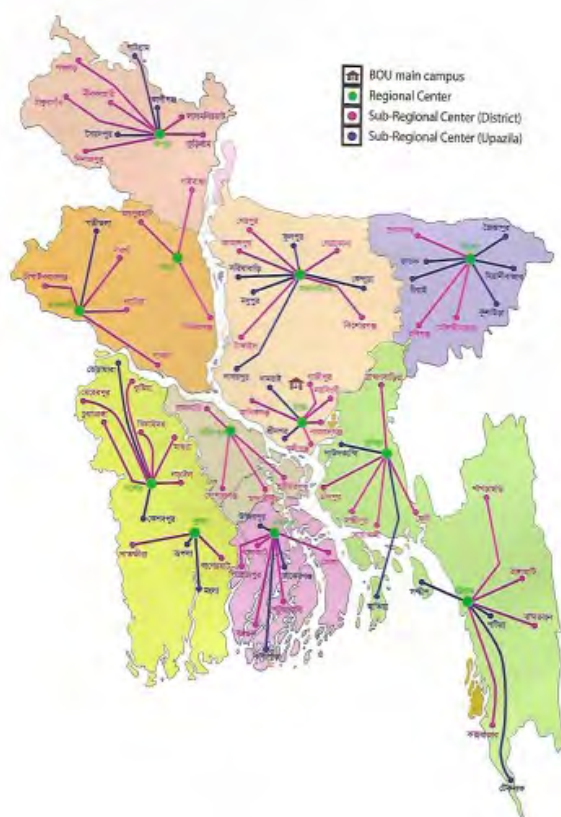


FIGURE 3.12: EMERGENCE OF BOU

Academic Delivery and Learner support systems

BOU is the only public university in Bangladesh which offers academic programmes through the ODL system. Under six academic schools, 24 formal and 19 non-formal programmes are being delivered through different study centres.

Academic Collaborations at Home and Abroad

In addition to ties with local academic institutions and organizations, BOU has established very intensive collaborations with the Commonwealth of Learning (COL), Asian Association of Open Universities (AAOU), the Commonwealth Open Schooling Association (COMOSA), International Council for Open and Distance Education (ICDE), Open University of Malaysia, Yunnan Open University of China, the British Council, the Global Distance Learning Congress, and nine universities in Asia, Africa, and

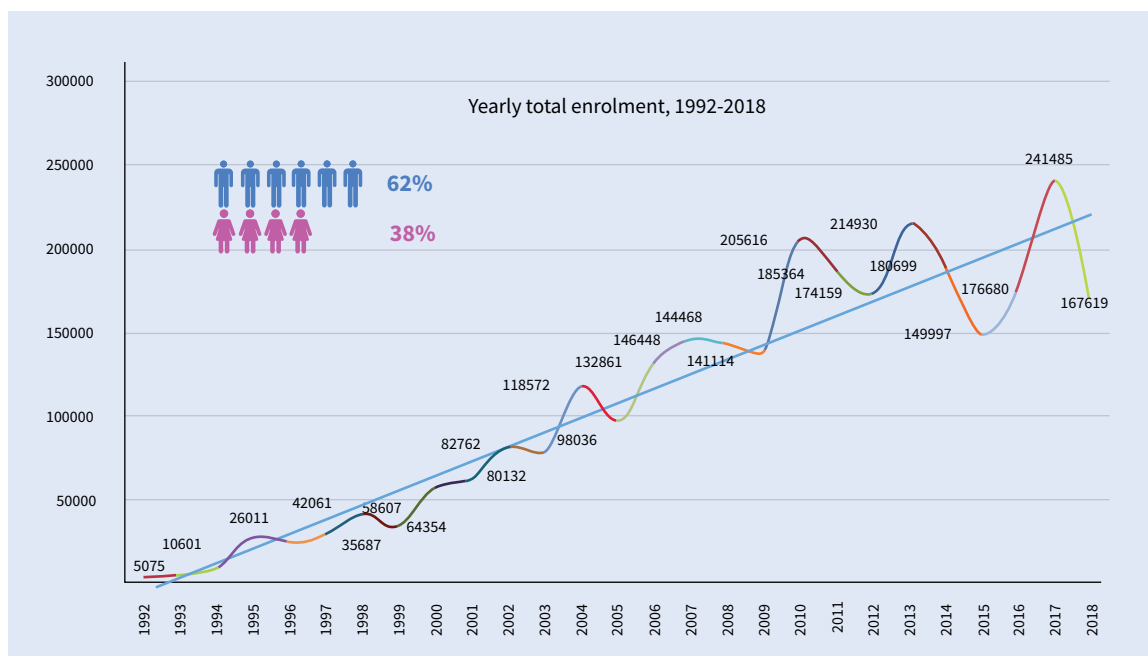


FIGURE 3.14: STUDENTS' ENROLMENT PATTERN AT BOU [1992-2018]

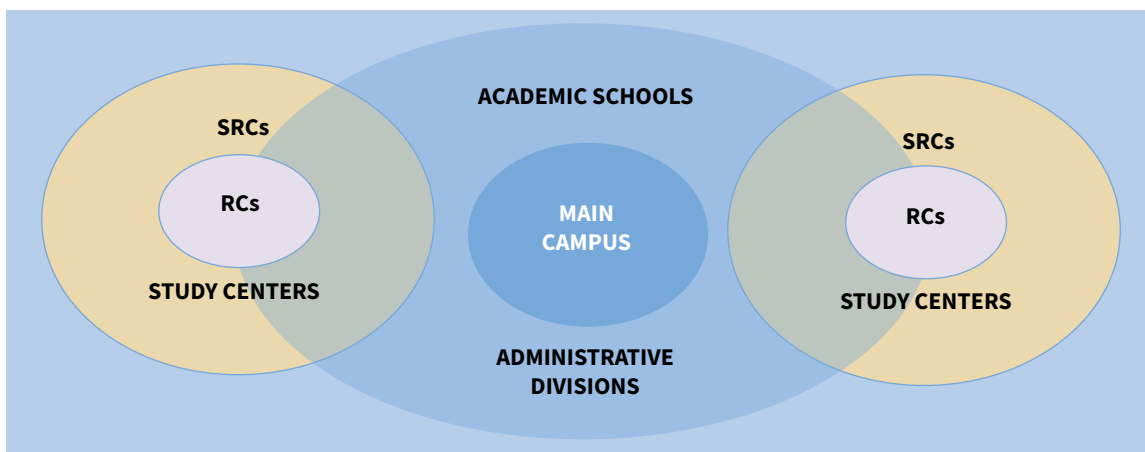


FIGURE 3.15: BOU'S ACADEMIC AND ADMINISTRATIVE NETWORK

the Caribbean. Initiatives are under way to widen the collaborations with more open learning institutions and development organizations throughout the world.

Quality Assurance

With the growth and diversity of technologies, ODL is growing rapidly not only as a supplement to traditional institutions and programmes, but also as a replacement for those institutions and

BOU'S VIRTUAL UNIVERSITY VISION

Recent steps: BOU is working towards the actualization of its virtual university vision. Recently, the e-learning centre was restructured and LMS and other related applications are being integrated for smooth and meaningful management of online courses.

Policies: Although there is no e-learning policy in BOU, the academic schools are being supported and guided to step into LMS-based offerings of the courses. For content development, the BOU OER policy has been in place since 2014. Faculties are encouraged to use OER while developing and sharing the contents with the learners. The quality assurance mechanism has to be followed in every phase of content development, delivery, and assessments.

Technological set-ups: BOU has a very comprehensive technological set-up and e-learning and ICT teams work together for a meaningful integration of all the related applications. The technologies comprise of high quality studios, customized LMS, webTV, webRadio, IPTV, Open TV, OER repository, and the admission and exam management software (OSAPS).

All these technologies and infrastructure can be smoothly used for content development, delivery, and assessments.

Trained experts: BOU has a pool of instructional designers, IT experts, and media technicians attached to its e-learning centre. Instructional designers have been formally trained through on-job experience, face-to-face workshops, and online certificate courses offered by the Open Polytechnique, New Zealand, which is supported by the Commonwealth of Learning and CEMCA. In addition, for technical skills and instructional design, selected teachers, officers, and IT experts have attended a series of face-to-face training from the Korean International Cooperation Agency (KOICA).

Dedicated internet connectivity and server set-ups: BOU's e-learning and ICT centre has dedicated high-speed internet lines and server set-up. The E-Learning and ICT centre is working under the direct supervision of the Vice-Chancellor's office.

programmes but susceptibility to fraud and abuse in ODL has increased in online teaching. Therefore, it is very crucial to assure quality in ODL as part of the national commitment that all citizens get education of an acceptable standard.

BOU has been aware of quality assurance since its inception. It has followed a specific quality assurance mechanism maintained with technical assistance from the Commonwealth of Learning (COL), Vancouver, Canada and local accreditation bodies including the University Grants Commission (UGC) of Bangladesh. Recently, BOU established a Quality Assurance Cell to look after quality assurance practices across BOU's academic, administrative, and learner support services.

The Institutional Quality Assurance Cell (IQAC):

IQAC was established in BOU formally in February 2017. IQAC's general objective is promoting a quality assurance culture in the university. IQAC's specific objectives are:

- institutionalizing the quality assurance culture in accordance with national quality assurance guidelines and international practices;
- ensuring that the university's quality assurance procedures are designed following the UGC's Quality Assurance Unit's guidelines and national requirements;
- developing, maintaining, and enhancing the quality of education and people's perceptions in favour of the university through consistent quality assurance practices and performance;
- building an image of the university with the confidence of the stakeholders ensuring transparency, accountability, and good practices in all aspects of management; and
- preparing the university to meet external quality assurance assessments and accreditation requirements.

IQAC is working towards the development of quality standards for academic programmes and aligned administrative and learner support services.

The Quality Assurance Mechanism at BOU

BOU is yet to develop any specific guidelines for quality assurance for the institution as a whole. It does not use any quality tools developed by any external institutions/agencies. However, it tries to follow some principles to ensure that the study programmes/courses, designing the curricula, the development of study materials, delivery system, support services, faculty performance, and assessment techniques are of acceptable standards.

Identifying the study programme/course:

BOU conducts *a priori* need assessment surveys/consultation meetings to identify the programmes/courses to be offered. In the survey, various stakeholders are contacted to collect their opinions and BOU selects which programme it will offer and when.

Designing and approval of the curricula: For every programme or two/three similar types of programmes, there is a curriculum committee that includes BOU faculties, leading expert members from other universities/institutes, and prospective employers. Usually, the curriculum is designed by the academic committee in the school, then it is placed before the general meeting of faculty members in the school and finally, it is placed before the curriculum committee for further modifications. Once the curriculum is finalized, it is sent to the academic council for approval. The board of governors, the highest decision making body in BOU, finally endorses the curriculum approved by the academic council.

Development of study material: Usually, BOU involves a group of people including

course experts (either BOU faculty or external experts), editors (usually, BOU faculties), style editors (usually BOU faculties), proof readers, graphic designers, and desk-top publishers in the process of course material development. The course director or dean of the school coordinates the work. Once the editing and style editing of the manuscript is complete, it is sent to a referee for independent reviewing. If the reviewer is convinced that the manuscript is of a publishable standard, it is sent to the course development team for upgradation on the basis of the reviewer's comments. Finally, the manuscript is checked and double-checked by the concerned faculty members before sending it for printing.

Course material delivery: Course material is sent to the SRCs and/or RCs where the students come to collect it. In some cases, the course material is distributed at the tutorial centres. Course material includes printed textbooks, learner manuals, and assignment questions.

Support services: BOU maintains various types of student support systems which include administrative support, tutorial support, and counselling. Administrative staff members at BOU's RRCs and LCs provide administrative support (for example, student registration, information about programmes and courses, and information about exam dates and results), and the tutorial centres provide academic support. Students meet the tutors twice a month at the specified tutorial centres. Students' movement from one tutorial centre to another is accepted. Students get a chance to meet the BOU faculties at the tutorial centres or at the RCs when they go for tutor centre visits. In addition, students can contact the school by phone, e-mail, or postal mail.

Faculty performance: The faculty members at BOU come with a lot of experience and expertise. During the recruitment process, their academic achievements and other relevant experience

is verified. They get the required on-the-job training on instructional design, course material development, and production of audio-visual media. Every year the university sends a group of faculty members abroad to visit successful ODL institutions and see their work.

Monitoring and evaluation: BOU has a large number of administrative staff members spread all over the country at different RCs and SRCs. They get proper training either in the country or abroad. Their work is continually monitored and reported by the concerned officers to the university's authority on yearly basis.

Assessment techniques: BOU uses continuous assessments and end-of-course exams to evaluate students' performance and achievements. In every course, students have to submit a number of assignments. These are evaluated directly by faculty members of the university. Students get proper guidance from the tutors while preparing the assignments. In some courses like MBA and CEMBA, students have to submit master papers which they have developed throughout their study periods. An assigned supervisor guides the research work while the research report (master paper) goes to BOU's faculty members for final evaluation.

Accreditation: By an act passed by the national assembly of Bangladesh, BOU's programmes are considered equivalent to those of traditional institutions. If any problem with equivalence of any programme arises, the university solves it by getting the required endorsements from the Ministry of Education. Like other public universities in the country BOU does not have periodic accreditation on the basis of continuous evaluation of the performance of the programmes and concerned management.

Challenges with Quality Assurance Practices at BOU

As BOU is yet to develop comprehensive guidelines for ensuring the quality of its programmes and activities, it cannot do a systematic evaluation of its programmes and activities. BOU faces the following challenges at the moment with its quality assurance efforts:

- There is no internal specific body that is supposed to evaluate BOU's activities continually using specified guidelines. Of late IQAC is expected to fill this gap.
- As there are no centrally set quality tools at BOU, it becomes very difficult to compare the performance of the activities of different schools and divisions and the standard of the assigned academic programmes.
- Till now there is no accrediting or quality assurance agency at the national level to oversee BOU's programmes and management as well as that of all other universities in Bangladesh. BOU is unable to compare its performance with other universities in terms of academic excellence and related services. Students usually want to see that the degrees they are being awarded from BOU are recognized at home and abroad.
- As students in BOU's programmes are increasing, this may pose the threat to the *quality-quantity trade-offs* in the near future.
- Like other DE instructions, BOU programmes are cost effective. Most of the programmes are profitable. If profitability does not go hand-in hand with quality assurance, BOU may become a just a 'cash-cow' which is unexpected though.
- The retention rate is high in some programmes and this can be used to mean that BOU's programmes are of high standards. However, this may be a misleading generalization about the quality of BOU's programmes if a systematic evaluation is not done periodically by a quality assurance body or accrediting agency.

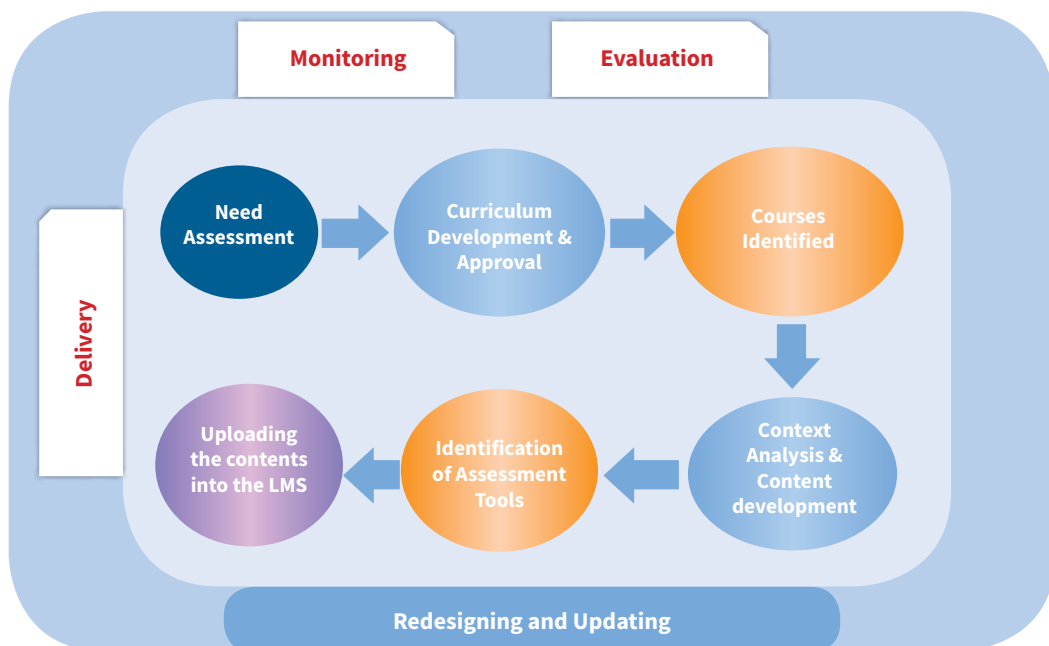


FIGURE 3.16: ONLINE COURSE DEVELOPMENT PROCESS

Online Course Design and Delivery

BOU mostly uses a mix of print, face-to-face tutorials, and audio-video broadcasts through the state-owned national TV channel, Bangladesh Television (BTV). With the rapid growth of technological innovations, there is access to different types of media and educational resources that can be meaningfully used for designing and delivering educational programmes. It has already been agreed that online education is scalable. “.....tech-based education is completely scalable. There is no reason to reinvent the wheel. Models already exist” (Banerjee, 2020). Realizing this, BOU had already started restructuring its e-learning facilities few years ago. Hence, it could

comfortably start offering courses online through its Moodle-based LMS during the COVID-19 outbreak.

Processes Involved in Developing an Online Course

BOU is transforming its courses into LMS-based online courses since the COVID-19 pandemic. As the courses were being offered in ODL mode, the content was ready. Therefore, only face-to-face interactions had to be replaced by online sessions (via Zoom or Facebook live or Google Meet) immediately. Slowly, all the courses are being transformed to LMS-based online courses. Some master’s-level courses are fully managed through LMS and other courses are gradually being added to LMS.

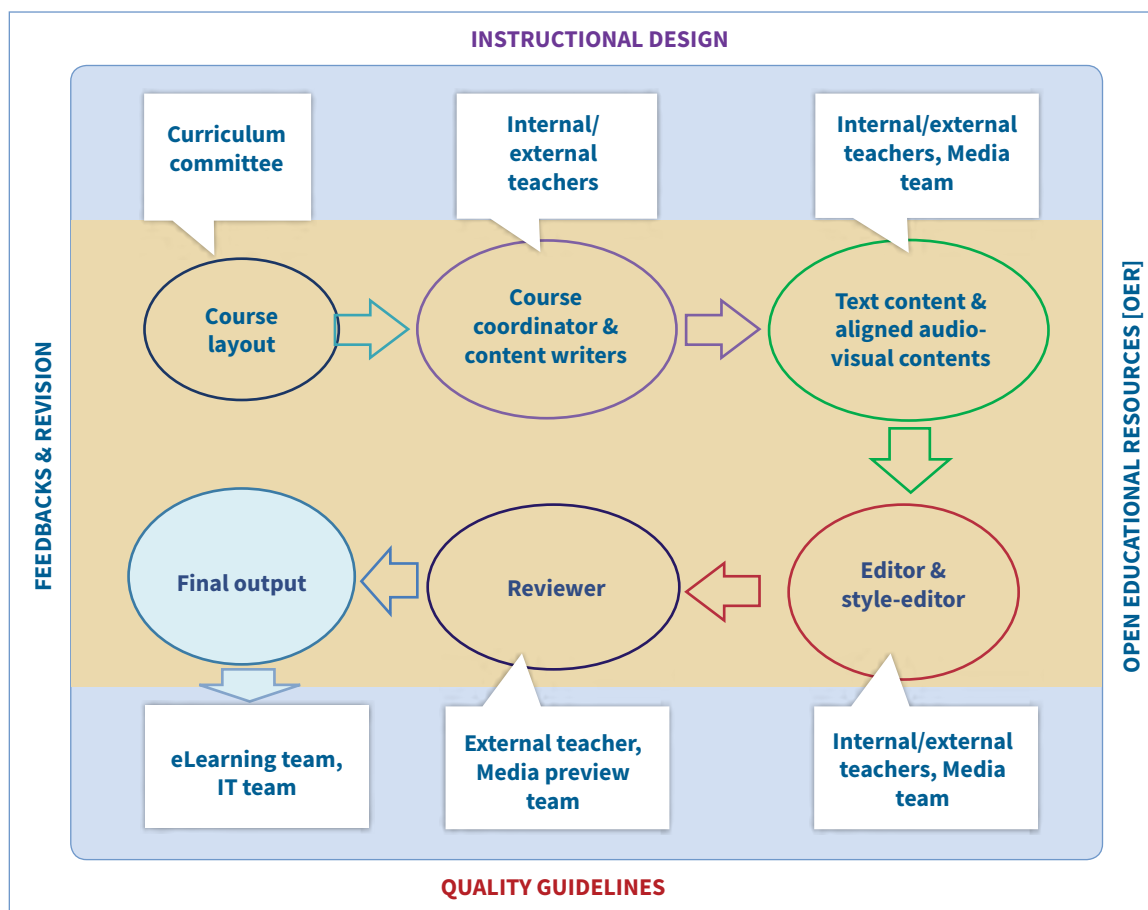


FIGURE 3.17: CONTENT DEVELOPMENT PROCESS AT BOU

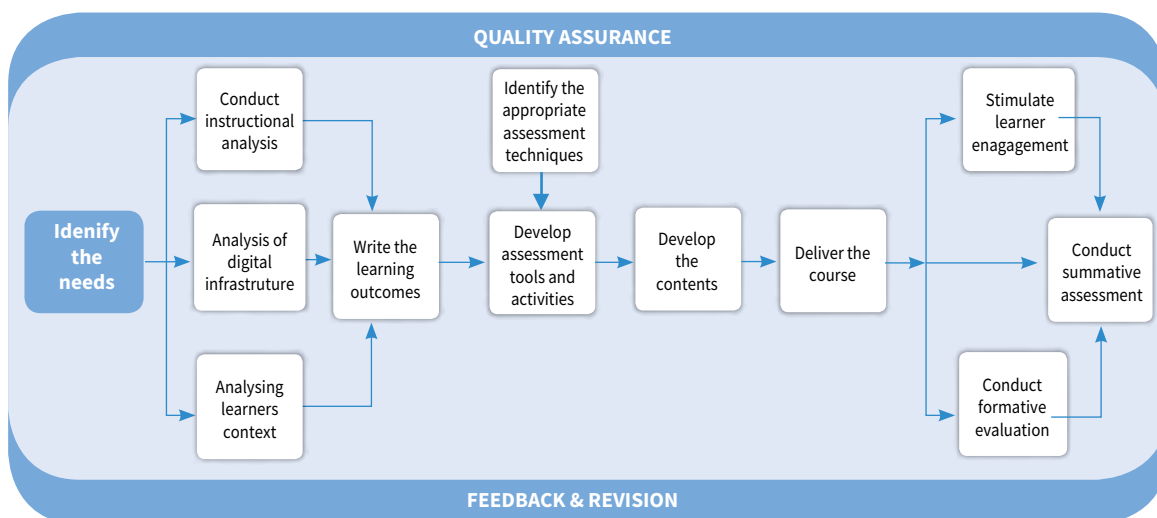


FIGURE 3.18: INSTRUCTIONAL DESIGN PROCESS AT BOU

Content Development Process

BOU still uses the same process it has been following so far for content development. Based on the curriculum, BOU follows a structured process for finalizing the contents of the courses that it offers. Content developers, editors, and reviewers are instructed to go by the instructional design and are encouraged to use OER while choosing the content which has to be customized. Course writers are instructed

to consider copyright issues while developing the content. Overall, writers have to follow the quality guidelines otherwise, final acceptance of the content becomes difficult.

Based on the ADDIE model, BOU follows a well-structured instructional design (ID) process. While it is true that all the steps cannot be followed due to time constraints and high pressure to launch a course, the key phases of the ID process are not skipped.

TECHNOLOGIES AND MEDIA USED AT BOU

Delivery media used in BOU's academic programmes:

BOU uses both synchronous and asynchronous media for effective delivery of its courses. The media used includes print, weekly lectures, audio broadcasts, video broadcasts, YouTube, e-mails, and Facebook.

OER policy and repository: BOU is the first university in Bangladesh to develop and implement an OER policy. Recently, BOU also developed a comprehensive OER repository and 350 textbooks have been uploaded under the CC-BY 4.0 license. Any learner can download the digital version of the textbooks from the repository.

WebTV and WebRadio channels: BOU broadcasts its audio and video content through WebTV and WebRadio both in real time as well as asynchronously. Thus, learners can watch the tutorial sessions and other relevant presentations live-streamed directly from BOU's media centre's studios.

LMS: BOU uses Moodle as its official e-learning platform. With financial and technical support from the Commonwealth Educational Media Centre for Asia (CEMCA) and the Commonwealth of Learning (COL), BOU has installed and customized Moodle for conducting its online class delivery and assessments. BOU has also

got access to two other LMS - one was developed by the Korean International Cooperation Agency (KOICA) and the second is a national platform Muktapath developed by the Access to Information (a2i) wing of the ICT Ministry.

BOU IPTV: Recently BOU has established an internet-based broadcast (live and asynchronous) channel IPTV. Learners will be able to access IPTV programmes from anywhere in the world where they have an internet connection of a dish (cable operator) connectivity both in real-time and asynchronously.

Open TV: In early 2021, BOU launched a satellite-based TV channel for live broadcasts. Open TV is using the signals from the Bangabandhu satellite for transmitting programmes throughout the country. Open TV is committed to reaching the unreached groups of the people in remote islands and coastal belts.

Online services and payment system (OSAPS): In late 2016 BOU introduced OSAPS for facilitating online applications, admissions, registrations, payment of fees, and other related issues. Using the system, learners can submit their admission application forms and complete their registration and they can also produce their IDs and collect provisional certificates online through a mobile-based payment gateway (bKash, SureCash) as well as the online banking system.

MicroSD cards: BOU uses microSD cards for sharing educational videos with learners living in remote areas like hilly areas and coastal belts so that they can watch the lectures on their mobile phones at a convenient time. This initiative helps learners in the previously unreached areas access study resources and save money and time for attending face-to-face tutorial sessions from a long distance.

Interactivity, Costs, Time, Platforms, and Capacity Building

Table 3.1 shows the status of the key factors relating to launching and maintaining an online course at BOU. Although there are no written regulations for the development, launch, and maintenance of online courses, BOU applies the existing regulations for its ODL courses to online courses and also includes experiences of other universities where appropriate.

TABLE 3.1: STATUS OF KEY ITEMS RELATED TO LAUNCHING ONLINE COURSES AT BOU

Items	Status
Interactivity	<ul style="list-style-type: none"> • Forum discussions • Group work • Learners get control of their learning
Time taken to develop an online course	<ul style="list-style-type: none"> • 4-6 months for curriculum design and approval • 6 – 9 months for content development • 1-2 months for uploading and testing on LMS
Cost involved in developing a course (including opportunity costs)	<ul style="list-style-type: none"> • Mostly internal teachers and experts • Total cost of developing a course is 7,00,000 BDT on average. The cost varies depending on the level of the course and credit hours
Infrastructure to support delivery of online courses	<ul style="list-style-type: none"> • Interactive virtual classrooms (IVCRs) • Computer labs • Mobile network

Items	Status
Structure of students' learning time (SIT)	<ul style="list-style-type: none"> For a 3-credit course, students are expected to spend 135 hours (=45hours×3) For non-credit courses, the learning hours vary from course to course depending on the length
Technology /platform used for delivering online courses	<ul style="list-style-type: none"> Moodle-based LMS OSAPS ZOOM Pedlet, Google Docs E-mails Mobile phones
Training of students or guidelines provided to students for adopting online learning	<ul style="list-style-type: none"> Online workshops with students to take them through LMS and also to explain the procedure for assignment submission and forum discussions Video tutorials are shared with the students explaining the protocols and techniques for attending online courses
Training of faculty and instructors/tutors in online education delivery	<ul style="list-style-type: none"> Online/face-to-face workshops with the teachers/tutors to help them learn how to create and manage an online course One-on-one technical support is provided if needed

Learner Support Systems for facilitating Online Learning

TABLE 3.2 : LEARNER SUPPORT SYSTEMS AT BOU

Items	Status
Learner support types	<ul style="list-style-type: none"> A 24/7 asynchronous support system has been established to troubleshoot any technical problems faced by learners. Mostly e-mails and LMS messaging options are used for this kind of support. Student can directly talk to the LMS team and also to the concerned teacher/tutor. Mobile phones, TeamViewer, Zoom, and social media are used for interacting with students in real-time.
Mode/s of support (synchronous/asynchronous)	<ul style="list-style-type: none"> Both f2f and online. Mostly asynchronous; however, the tutorial sessions are conducted synchronously. Learners get access to video lectures asynchronously.
Social media used	<ul style="list-style-type: none"> Social media like WhatsApp, Facebook, and Telegram are used for keeping students connected with teachers, the LMS team members, and peer learners. Learners are sometimes advised to use social media for sharing their classwork and ideas.

Student Assessment

BOU implements both formative and summative assessments in its courses; however, for programmes with a large number of students, only summative assessments get priority as formative assessments are difficult to manage. Assessment methods vary from programme to programme. Table 3.3 summarizes the assessment practices at BOU.

TABLE 3.3: STUDENTS' ASSESSMENT PRACTICES AT BOU

Nature of the assessment	Process/practices	Weightage [% of total marks]		Remarks
		Pre-COVID context	COVID context	
Assignments	<ul style="list-style-type: none"> Creative and open questions 2-3 assignments are to be submitted 	20-30%	40-50%	During the COVID-19 pandemic, emphasis on assignments has been growing
Times Quizzes	<ul style="list-style-type: none"> Mostly formative Applied to LMS-based courses 	No marks allocated	10-20%	UGC recommends the times quizzes for formative assessments
Online exams	<ul style="list-style-type: none"> Combination of MCQs, short answer questions, and case analysis Cameras and audio devices are to be kept open during the exams Mid-term and end of the course [summative] 	Not practiced	50-60%	Online exams are allowed during the COVID-19 crisis
Proctored written exams	<ul style="list-style-type: none"> Mostly formative Mid-term and end of the course exams [summative] 	Face-to-face	Not encouraged	Face-to-face written exams are not encouraged during the COVID-19 crisis
Lab tests/ practice teaching	<ul style="list-style-type: none"> Mostly conducted at the end of the course 	Face-to-face [30-40%]	No virtual lab is practiced yet	
Viva-voce	<ul style="list-style-type: none"> Mostly conducted at the end-of-programme For few specific courses like research methods, viva-voce are included in the course 	<ul style="list-style-type: none"> 50-100% at programme level 25-50% at course level [true for few courses] 	<ul style="list-style-type: none"> 30-50% at course level [for all the courses] 	UGC recommends viva-voce for the end of the course final exams

Challenges involved in Designing and Delivering Online Courses

Offering online courses is still a challenge for BOU. Readiness in terms of platform and skills is not sufficient to run online courses smoothly. Some major challenges observed during the COVID-19 pandemic include:

- Lack of proper skills on customization of LMS

as per the pedagogical design.

- Instructors' rigid mindset about transforming to online instructions.
- Strong bias towards the traditional face-to-face classes makes instructors reluctant to accept online classes as a better alternative.
- Students have limited access to digital devices.

- Low internet bandwidth outside the major cities.
- Insufficient availability of localized digital content.

Students' Satisfaction with ODL courses

ODL institutions generally depend on course material, technology, media, and administrative support. Therefore, quality assurance and continuous improvements play vital roles in the effectiveness and efficiency of these institutions. Distance education is a unique method of study since instruction and learning take place in an environment where the instructor and student are geographically far away from each other most of the time (Burns, 2011). When learners are satisfied with the content and other educational services they continue with the learning and attract new learners. Recently a study was conducted by the author on the students of BBA, MBA, Commonwealth MBA/MPA, and Professional MBA programmes of BOU.

The study shows that 41 per cent of the respondents were satisfied and thought that the tutorial sessions conducted at the study centres were useful while 38 per cent of the respondents were satisfied and 33 per cent were very satisfied with teachers at BOU as they could be reached easily. A majority of the students (90 per cent) agreed that technologies used in the courses were meaningful though a few of them had a different opinion. It was also found that most of the students (92 per cent) were happy with the academic counsellors as they explained the concepts clearly. Further, more than half the students were satisfied with the interactive counselling sessions. Additionally, 89 per cent of the students were more or less satisfied with the on-time communication of information about any changes in counselling sessions and 62 per cent were satisfied and very satisfied with the use of technologies in the counselling sessions.

Nearly half the students said that personnel in the study centres were helpful and infrastructure at the study centres was adequate for facilitating distance learning in Bangladesh. However, 35 per cent of the students considered the infrastructure and personnel facilities at the study centres average. A majority of the respondents (71 per cent) were happy with the online services provided by the university as they could access them easily.

Assessments and feedback are important for any teaching-learning process. Choosing an appropriate assessment technique is vital in ODL. The study showed that 42 per cent of the students were satisfied and 19 per cent were very satisfied with the timing of feedback on the assignments. Most of the respondents were satisfied with feedback on the assignments as this helped them get clarity about the concepts. However, 33 per cent of the respondents were not sure whether the feedback clarified the concepts. Almost 68 per cent of the students were aware of the procedure for the term-end examinations as the information was communicated properly and 25 per cent of the respondent had an average opinion. Very few of the respondents (7 per cent) showed dissatisfaction with the procedure for term-end examinations. For MBA programmes, students are required to submit project reports/master's papers. A majority of the students (74 per cent) were satisfied and very satisfied with the evaluation of the project reports/master's papers. The respondents had mixed responses to exam results. Forty-four per cent were satisfied, 27 per cent were dissatisfied, and 29 per cent found it average. Almost half of the respondents showed their satisfaction with the response of BOU offices on their queries though a few of them claimed that they were not getting responses to their queries in time.

There were mixed reactions to BOU's initiatives for placements. Students reported that they were happy with the current activities at the university.

Conclusion and Future Directions

This chapter highlighted BOU's status in terms of its academic activities including the design and development of online courses. The chapter also shed light on BOU's steps to cope with the challenges due to the COVID-19 pandemic. The university is working towards further enhancing online courses so that learners get a meaningful learning experience and get empowered holistically. For this, BOU needs to give high priority to the following activities:

- A well-structured e-learning policy needs to be developed and implemented. The policy development process should include all relevant stakeholders.
- BOU should have a comprehensive action plan and aligned guidelines for the implementation of online instructions in its teaching and learning processes.
- There is a need to ensure wider access to the wi-fi network on the university campus and in the study centres. Bandwidth should be increased so that learners and teachers have easy, uninterrupted access to LMS, educational resources, course-related information, and various learning forums and social media.
- Teachers should be trained in how to meaningfully integrate technology in their teaching and learning practices.
- Teachers should be trained in how to create online courses and facilitating the learners learning process on online platforms.
- Teachers should be trained in the creation of digital content.
- Teachers and learners should be trained on how to use OER in developing content and preparing assignments.
- Teachers and students need to be made aware of copyright issues while creating and sharing resources online.
- The university should consider initiating regular programmes on digital literacy for learners. Courses like C-DELTA (offered by COL) could be good for students to test and enhance their digital literacy online. Students may be given credit for successful completion of the C-DELTA course.
- BOU should develop a comprehensive action plan for transforming to a virtual university.
- Students should be provided with a laptop/mobile for them to comfortably access online courses. Also, a special internet package should be given to the poor students so that they can attend online courses with ease. BOU can coordinate with internet service providers or mobile operators for this special support.

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INDIRA GANDHI NATIONAL OPEN UNIVERSITY, INDIA

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Institution Profile

IGNOU, the world's largest open university, was established by an Act of Parliament in 1985, "to advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology, to provide opportunities for higher education to a larger segment of the population and to promote the educational well-being of the community generally, to encourage the Open University and distance education systems in the educational pattern of the country and to coordinate and determine the standards in such systems" It has tried to make a mark in higher education in India by offering high quality teaching through the ODL mode. The university's objective is offering high-quality, innovative, and need-based programmes at different levels to all those who require them and reaching out to the disadvantaged segments by offering academic programmes across the country and overseas at an affordable price. IGNOU has been steadily expanding opportunities for lifelong higher education and democratizing education by making it inclusive. The university has adopted a flexible and innovative approach which encourages learners to move from education to work and vice versa. Its academic programmes are well suited to the diverse requirements of the country, and also help in harnessing the human resources and leveraging the demographic dividend. In 1987, the university was started

with two academic programmes (Diploma in Management and Diploma in Distance Education) with 4,528 students. Today, it serves the educational aspirations of over 3 million students in India and other countries through 21 schools of studies, divisions, a network of 67 regional centres, around 3,656 active learner support centres (LSCs), and 22 overseas partner institutions with 38,685 approved academic counsellors from conventional institutions of higher learning, professional organizations, and industry. IGNOU has been conferred with the Award of Excellence by the Commonwealth of Learning (COL), Canada. It was listed 27th in the webometric ranking of Indian universities, based on the criterion of its presence on the internet in March 2013.

The university's instructional system provides multi-channel, multiple media teaching/learning packages for instruction and self-learning. The different components used for teaching/learning include self-instructional material, audio-video material, radio, television broadcasts, face-to-face counselling/tutoring by academic counsellors, laboratory and hands-on experience, teleconferencing, web-casting, and SMS support. For streams like sciences, computer sciences, nursing, medical sciences, and engineering and technology arrangements have been made to enable students to attend intensive practical classes at selected learner support centres. While the traditional distance education delivery through print and study centre support has been

strengthened, the university is also strengthening the development of interactive multimedia content and learner support through video-conferencing and web-based platforms by using the internet.

TABLE 3.4: IGNOU AT A GLANCE [2]

Academic Programmes on offer	251
Online Programmes	15
Students Registered in 2019-20	13,48,948
Students on Rolls	3.33 million
School of Studies	21
Regional Centres	67
Divisions	12
Centres / Institutes	10
Learner Support Centres (in India)	1961
No. of Overseas Study Centres(Countries)	22(14)
Academic Counsellors (Approx.)	35,385
IGNOU Staff Strength by Position	
Teachers	444
Academics	340
Administrative	900
Technical	389
Non-Teaching	2499

Programme development is a rigorous process. To start a new programme in any school, especially designed forms/formats are available which need to be filled and approved by various statutory bodies. The university calls them Programme Proposal Form (PPF), Programme Development Form (PDF), Programme Project Report (PPR), and the Programme Launch Form (PLF). For revising a programme, a special Programme Revision Form (PRF) is required to be approved by the statutory bodies. All these forms are made available as downloads on IGNOU's website.

A programme consists of several courses depending on the level of offer. Each course is assigned some credit weightage (2/4/6/8 credits). A course coordinator is identified for every course. Each course is divided into units (chapters) and some units are published as blocks. To design and develop the course, course writers are identified and they are oriented to prepare the course in a self-instructional material (SLM) format. After receiving these units, they are sent to the editors. After receiving the comments / suggestions from the editors they are forwarded to the course writers once again to make the changes. Once they are finalized they are sent to language editors and later they are sent for preparing camera ready copies (CRCs). After everything is finalized, the course is printed as hard copies.

National and International Recognition

In 2019-20, IGNOU got five-star ratings for innovations and start-ups by the Ministry of Education's Innovation Cell. IGNOU is national coordinator for SWAYAM and SWAYAMPRAKHA to offer certificate and diploma MOOC courses. The university was awarded second prize in SWACHH CAMPUS ranking of HEIs in the non-residential university category. IGNOU's Vice-Chancellor was made an Honorary Fellow by the Commonwealth of Learning (COL).

Quality Assurance

The Internal Quality Assurance Cell (IQAC) at IGNOU was established in 2016. It was later renamed the Centre for Internal Quality Assurance in accordance with the UGC (ODL) Regulations 2017.

Keeping in view the directives of National Assessment and Accreditation Council (NAAC) and the University Grants Commission, the centre was established with a primary focus of shouldering the responsibilities of generating and promoting awareness about quality assurance and working

out the procedural details. CIQA directly reports to the Vice- Chancellor, IGNOU.

CIQA's major objectives include:

- 1) To act as a coordinating unit for seeking recognition/ approvals from various apex bodies in the country for IGNOU's programmes;
- 2) To ensure compliance with norms and guidelines prescribed by the apex/regulatory bodies;
- 3) To act as a coordinating unit for seeking assessment and accreditation from designated bodies for accreditation like NAAC;
- 4) To undertake self-evaluative and reflective exercises for continual improvements in all the systems and processes of the university;
- 5) To develop quality benchmarks/parameters for the various academic and administrative activities of the university; and
- 6) To ensure participation of stakeholders namely, learners, teachers, members of staff, parents, society, employers, and the government in quality improvement processes.

The university ensures that quality issues/ concerns are met by adopting stringent processes in approving and launching academic programmes.

NAAC Accreditation

IGNOU has been accorded A++ grade by NAAC. IGNOU is the first higher educational institution in ODL to be accredited by NAAC. As per NAAC's norms, ODL universities are assessed on the basis of seven criteria: curricular aspects, teaching-learning and evaluation, research, innovations and extension, infrastructure and learning resources, learner support and progression, governance, leadership and management, and institutional values and best practices.

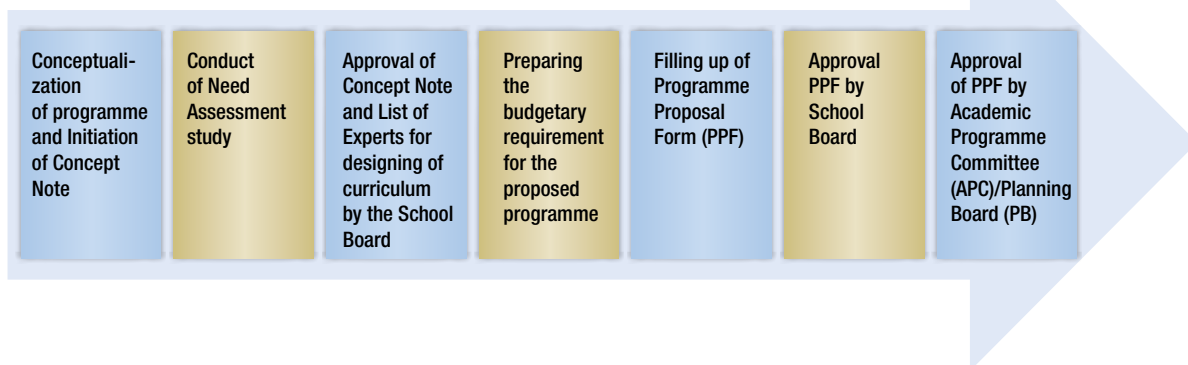
Online Programmes

IGNOU started offering three online programmes from the January 2020 admission cycle:

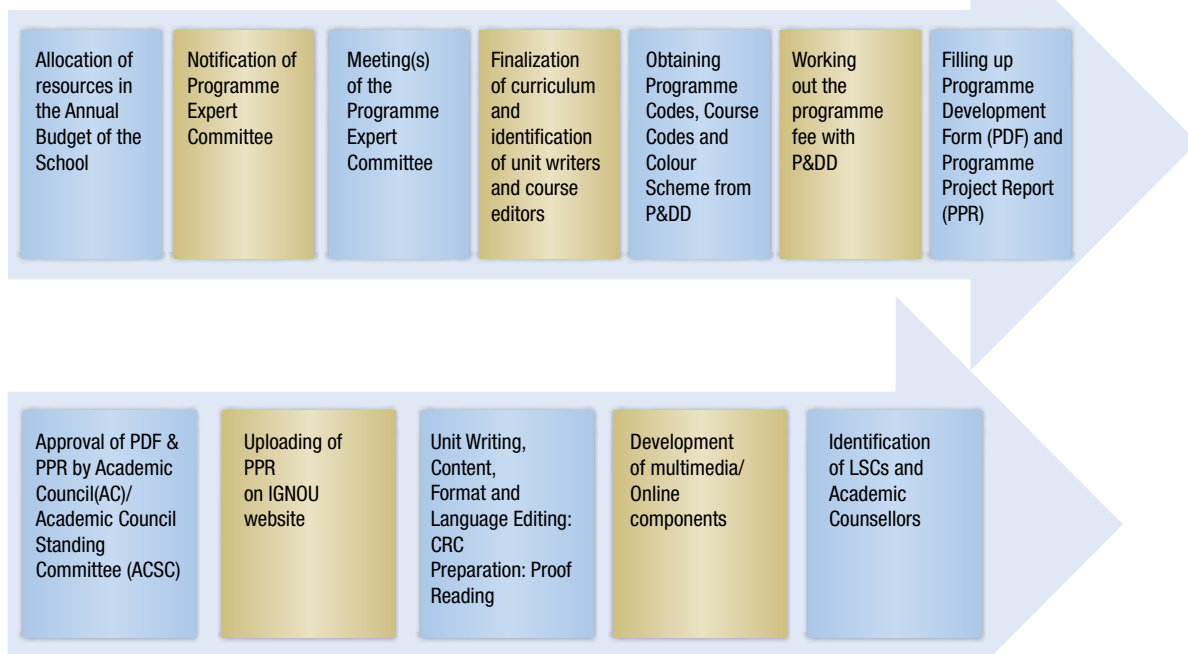
(i) Certificate in Arabic Language (CAL), (ii) Certificate in Russian Language (CRUL), and Certificate in Tourism Studies (CTS). In addition, during this COVID-19 pandemic IGNOU started offering 12 online programmes (three master's/ one post-graduate diploma/two post-graduate certificates/ one bachelor's degree/ one diploma/ four certificate programmes) for the July 2020 admission cycle.

Further, for the July 2020 cycle 46 new online individual courses were added on to the SWAYAM portal in addition to 18 previously existing IGNOU courses. Now the total courses on offer through the SWAYAM portal is 64.

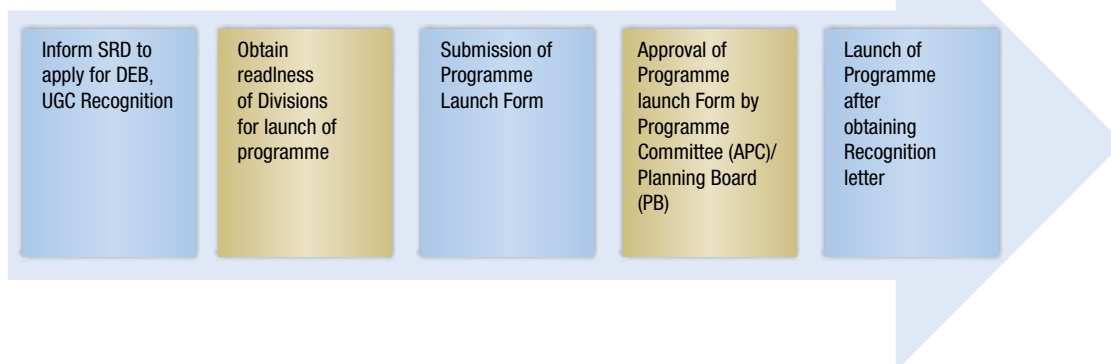
Programme Proposal Stage



Programme Development Stage



Programme Launch Stage



Source: IGNOU - Centre for Internal Quality Assurance (CIQA) - Flow Chart: Approval and Launch of New Academic Programme.

Instructional System During the COVID-19 Pandemic

The whole world is currently grappling with one of the worst health crises in recent times because of the COVID-19 global pandemic. It has disrupted normalcy in every sphere of life including education. It has affected nearly 1.6

billion learners in more than 190 countries in the world. IGNOU is the world's largest university with approximately 3 million students. As the Indian government announced a complete lockdown to combat the COVID-19 virus IGNOU's headquarters, regional centres, and learner support centres were also closed. To minimize

the ill-effects of this closure on students, IGNOU was at the forefront helping its students continue their learning staying at home through various ICT interventions.

With a commitment to ensure well-being of more than 30 lakh learners and their families the university effectively and vibrantly used video-conferencing tools including Google Meet, Zoom, Webex, and social media tools including Twitter, Facebook, e-mails, WhatsApp, and digital resources to reach students and urge them to adhere to the government's directions and guidelines of social distancing and complete lockdown and show their determination and resolve in expressing solidarity with the initiatives taken by the Government of India. Teachers and academicians addressed the teaching-learning process differently using technology enabled means including:

- Course material offered through eGyankosh, IGNOU's eContent app and sharing other Government of India online initiatives;
- Conducting academic counselling online;
- Online submission and marking of assignments;
- Using Gyandarshan, Gyanvani, and Gyandhara etc;
- Using Virtual Labs, Spoken Tutorials, and SWAYAM courses;
- Using web enabled academic support systems like Facebook Live, WhatsApp, e-mails, and chat groups for interacting with learners;
- Online induction of learners; and
- Using Cloud platforms like Zoom, CISCO, and Google Meet for conducting online meetings with students and other colleagues.

During a period of 115 days (from 23 March 2020 to 15 July, 2020), the university organized 2996 academic counselling sessions including both recorded and interactive live radio sessions through the Gyan Vani channel. On an average

26 sessions were organized daily during the 115 days. On a weekly basis about 187 sessions were organized across 16 weeks.

More than 1,095 project reports/synopses were evaluated. More than 200 webinars were attended/conducted by the faculty. More than 500 assignments were prepared by the faculty. Several faculty members prepared educational videos and hosted them on social media like Facebook and YouTube. SOCIS-70 videos, SOTHSM 24 videos, SOTST 39 videos, SOA 55 videos, SOE 183 videos, and SOITS 28 videos are some examples. SOEDS made 300 slides for the web enabled academic support (WEAS) portal and in a one-to-one communication sent digital course material to 740 students. Besides, 494 Right to Information queries were also communicated online. Transcripts were provided to online to eligible candidates after fulfilling the criteria. Grievance redressal were online through iGram, INGRAM, e-mails, PGPortal, and telephones. Faculty members published 146 research papers and also 335 papers were communicated during this period.

(i) eGyankosh and the IGNOU eContent App

IGNOU has a big asset in the form of the digital repository www.egyankosh.ac.in on which the complete self-instructional material (SLM) for all programmes is placed in a downloadable form. Along with SLM, Youtube videos of all the schools are also shared on it. Currently there are 19,000 hits per day on the channel.

SLM is delivered with the help of the app IGNOU eContent app which became very popular during this period. The app is of 25 MB size (approximately) and till now has crossed 5 lakh installs (as on 16 April 2020). There is also the IGNOU Student app with a 989kb size and with 50,000 installs. This provides registration details, material dispatch status, identity cards, grade cards, TEE results, hall tickets, and various other important links in one window.



FIGURE 3.19: eGYANKOSH, IGNOU eCONTENT APP AND THE IGNOU STUDENTAPP

(ii) Gyanvani / Gyandhara

Gyanvani, Delhi, continued to broadcast for 12 hours daily from 8 am to 8 pm despite the challenges and constraints due to the mandatory guidelines of social distancing during this lockdown. Gyanvani, Delhi continued with its broadcasts, both live and pre-recorded. It broadcast 100 LIVE sessions for the benefit of IGNOU learners, during 21 March to 15 April) and many pre-recorded IGNOU course curriculum based audio programmes. The web version of Gyanvani is Gyandharawww.ignouonline.ac.in/gyandhara/. It also produced and broadcast three weekly editions of GYAN PATRIKA, educational magazine programmes, with the help of media officers and announcers working from their respective homes during this period.

(iii) Gyandarshan / Webcasting

The Gyan Darshan TV channel continued its 24X7 transmission of educational programmes for the benefit of its learners and viewers, despite the constraints imposed by the COVID-19 lockdown. It transmitted 216 hours of mostly course curriculum based programmes from 23 to 31 March 2020 and telecast 720 hours of programmes in April 2020. The GD channel is accessible through all leading DTH bouquets, being a MUST CARRY channel (as per a Gazette Notification) and through the webcast mode (www.ignouonline.ac.in/gyandarshan/).



Gyandarshan Webcast

(iv) Facebook, Videos, and Promos for SWAYAM

Facebook Live lectures were used regularly for addressing students' needs during the COVID-19 pandemic; 110 lectures were delivered through Facebook and after due editing were archived on eGyankosh for further reference by the students; 530 videos of SWAYAM MOOCs and SWAYAM PRABHA were recorded during April-October 2020; and 46 promos were recorded for the SWAYAM courses. Further, 630 video transcripts for SWAYAM courses were translated into eight regional languages. However, even after coming out of complete shutdown, the university is continuing using social media tools for student support.

Initiatives taken for Online Assessments

(i) The Online Assignment Management System

The Centre for Online Education (COE), IGNOU is in the process of developing the Online Assignment Management System (OAMS). It is a web-based system – a centralized portal catering to all aspects of learners' continuous assessment. The main objective of IGNOU's OAMS is providing continuous evaluation of all the courses' needs in terms of receiving assignments from students all over the country for various courses/programmes; making them available to tutors for marking; returning the grades to the students; comments and feedback marked to students; monitoring assignments; and dashboards for all the stakeholders. This system will later be integrated with the SAMARTH portal, as an integrated university management system.

(ii) ePrashnakosh (Question Bank)

A proposal by NCIDE to develop an e-Prashnakosh – A Digital Repository of Different Types of Questions for different courses was approved by the statutory body in November 2020. The proposed e-Prashnakosh can be used for generating any number of parallel question papers within no time for various purposes such as:

- generating multiple sets of question papers for term-end examinations
- for individualized question papers for pen and paper based on-demand examinations
- for preparing individualized students' assignments (TMAs/CMAs) whenever required
- for preparing question papers for entrance exams

- for conducting online examinations in an on-demand manner

(iii) Restart of On-demand Examinations

A proposal by NCIDE for restarting the on-demand examination facility for conducting on-demand term-end examinations, on-demand individualized assignments (TMAs), and on-demand online examinations was approved in November 2020 by the academic council.

(iv) Online Question Paper Delivery System (OQPDS)

An encrypted online question paper delivery system was developed and questions papers to most of the examination centres conducting the term-end examination (conducted from 15 September 2020 to 16 October 2020) the question papers were delivered using this system smoothly.

New Technological Initiatives / MoUs @IGNOU during Pandemic

During the COVID-19 pandemic, IGNOU made many technological interventions and signed MoUs to address its stakeholders' needs:

(i) MoU with ICSI

In November 2020, IGNOU signed an MoU with the Institute of Company Secretaries of India (ICSI) for offering two academic programmes by the university (BCom with major in Corporate Affairs and Administration and MCom in Business Policy and Corporate Governance). Through the proposed MoU, it is envisaged that both the institutions can collaborate further to better achieve each other's objectives in promoting excellence in common areas of interest and in imparting the knowledge and skills required to operate in the areas of academics, research, and training.

(ii) Collaboration with the Government of Guyana

A proposal to collaborate with the Government of Guyana for offering educational/ technical programmes under the scholarship scheme was approved in November 2020.

The Government of Guyana's priority is providing 20,000 online scholarships to its citizens over the next five years in its quest to improve educational skills and capacity building among the youth of Guyana. To achieve this objective, the Government of Guyana is of the view that IGNOU will be the best option for collaboration with the University of Guyana for providing up to 5,000 slots for its students per year under a scholarship scheme. Both the parties are working towards the success of this collaboration.

Online Support by the School of Computer and Information Sciences,

IGNOU During COVID-19 – A Case Study

During the lockdown due to the COVID-19 pandemic, the School of Computer and Information Sciences did not have complete access to IGNOU's servers for uploading the resources on to IGNOU's official website (www.ignou.ac.in). However, it adopted a different approach. It attempted to tap the potential of social media tools like Facebook and Twitter. Immediately after the announcement of the lockdown it opened a Facebook page *IgnouSocis* (<https://www.facebook.com/ignou.socis.3>). It also opened two new Twitter handles (@*ignoucit*, @*ignoupgdca*). Twitter handles @*mcaignou* and @*bcaignou* of MCA and BCA programmes have been functional for a long time now. So, there are Twitter handles for all

the programmes. Many of the regional centres already had Facebook accounts and they were requested to join our IgnouSocis account for sharing information. The regional centres were also asked to follow the SOCIS-programme Twitter accounts for latest updates. Wherever it was not possible to directly upload to the FB and Twitter accounts, the documents / PPTs / audio clips were uploaded on to Google Drive / slideshare.net / sound cloud / anchor.fm and shareable links were made available on the FB and Twitter accounts.

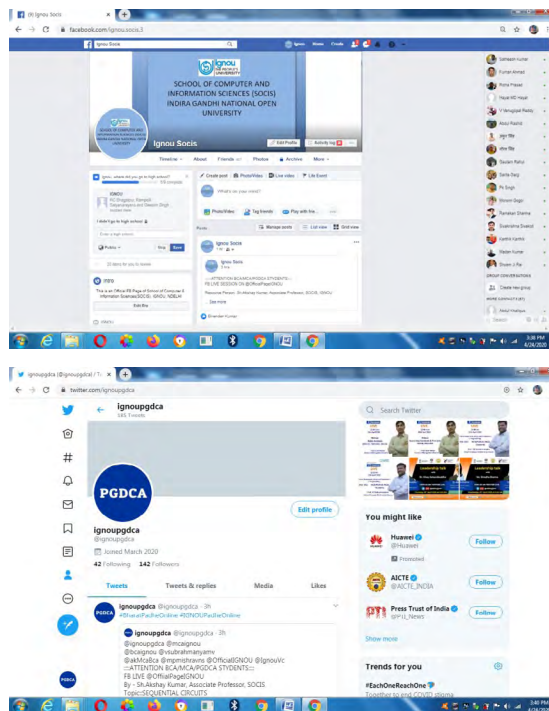


FIGURE 3.20: OFFICIAL FB ACCOUNT OF IGNOUSOCIS AND TWITTER ACCOUNT OF PGDCA

The following resources were created by its faculty and shared through emails, *IgnouSocis* Facebook, and the entire SOCIS programme's Twitter accounts:

(i) Help Link Documents for all the Programmes

For all its four programmes CIT, BCA, PGDCA, and MCA help link document of the entire programme was created and shared with the

users. This document contains reference links to the complete course material, programme guide, assignments, videos, old questions papers, and PPTs for the programme. QR codes were also generated for the convenience of the students to randomly go to the sites if they had wi-fi or mobile data on their access devices.

(ii) ePGPathshala, National Digital Library of India (NDLI), and Virtual Lab Links

The School of Computer and Information Sciences mapped all the available course material on these resources with the courses offered in IGNOU's BCA/MCA/PGDCA programmes for the benefit of students.

(iii) Counseling through NPTEL Videos

Academic counseling is an essential component of the ODL system. As there are no counseling classes conducted at LSCs, NPTEL video courses were mapped and recommended for equivalent BCA/MCA courses and shared with students asking them to watch them carefully and if they had any queries they could send them through e-mail.

FB Live sessions were conducted through IGNOU's official Facebook page giving the schedule to students through FB and Twitter accounts well in advance.

(iv) Practical Counseling through Virtual Labs, FOSSEE, and Quick Reference Cards

For any computer science course, hands-on experience / lab component is essential to sharpen programming skills:

- As was informed by the MHRD and UGC circular regarding the availability of Virtual Labs(www.vlab.co.in) for most of the core courses of computer sciences, SOCIS curated these courses and shared them with learners to perform practicals at home.

- FOSSEE- Project Spoken Tutorials were curated and shared with learners for computer science courses especially for practical courses.
- Quick reference cards were curated for practical courses/programming courses and shared with the students.

(v) eBooks and OERs of Common Wealth of Learning

Apart from IGNOU's SLM which is the strength of its ODL system the following reference eBooks were also shared:

- Curated and shared available eBooks (reference books) with the faculty in Google Drive.
- Common Wealth of Learning OERs on computer science and technology shared with the students.
- SPRINGER (408) freely downloadable eBooks shared.
- SPRINGER (65) books on Data Science, R Programming, and Python Programming shared with learners.

(vi) WhatsApp Groups

For programmes like those for PhD where there are a limited number of students, many of the faculty members provided support through programme-wise WhatsApp groups. For communication between the faculty and administration, SOCIS tried a WhatsApp group which worked very well.

Other Initiatives

- PGDCA FB-Page was created and provided a AI- powered *ChatBot* facility.
- Audio tracks were uploaded on SoundCloud for communication skills (MCS-015) courses and these were shared.

- Faculty participated in academic counseling at LSCs through video conferencing.
- The MCS-012 Computer Organization FB Page was started by its course coordinator to share updates with students.
- Course-wise help links by individual course coordinators for many of the courses.
- Interactive radio counseling (IRC) and recordings shared online.
- WhatsApp groups for internal communication with PhD scholars.
- Uploading PPTs on Slideshare.net and sharing them with the students.
- Assignments for all the programmes were shared as a separate document.
- Programme guides for all the programmes were shared as a separate document.
- Grievances were handled by individual programme/course coordinators. RTIs and iGram grievances were handled on their respective websites.
- Queries through e-mails were handled by respective faculty members.
- Faculty meetings were organized using video-conferencing tools.
- All the PPTs were shared with the students ahead for the FB-Live sessions.
- Some faculty members joined academic counseling and induction programmes along with the regional centres / LSCs.
- Short video clippings were prepared by the course coordinator of MCS-053 to explain the underlying concepts of the course.
- Twenty videos and 20 PPTs were shared for MCS-023 (Introduction to DMBS) course by its course coordinator.
- All the Facebook sessions are recorded and shared on eGyankosh.
- Faculty members participated as resource persons in various webinars.
- Students submitted all their assignments online and were evaluated by the academic counselors.

(i) Online Support

Documentation plays an important role in disseminating information. SOCIS tried to create a valuable document containing all the reference links and documents shared with the students, RCs, and LSCs.

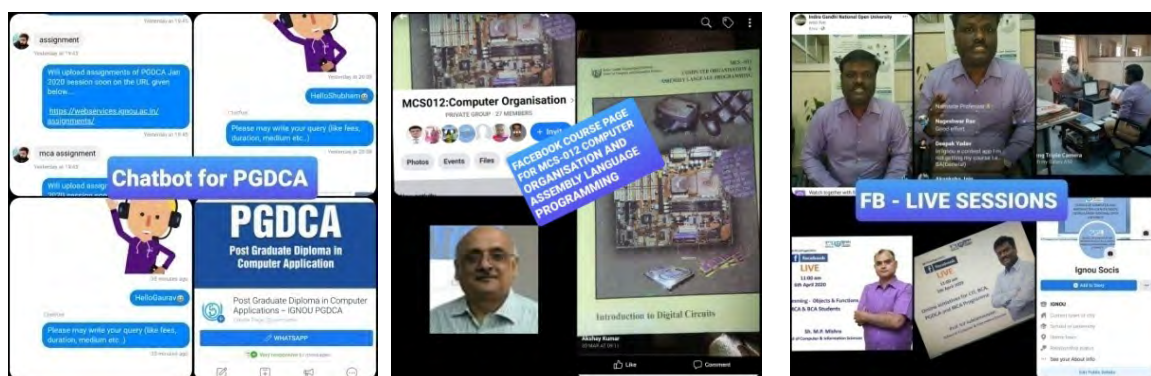


FIGURE 3.21: ChatBot FOR PGDCA, MCS-012 FB PAGE, AND FB-LIVE SESSIONS

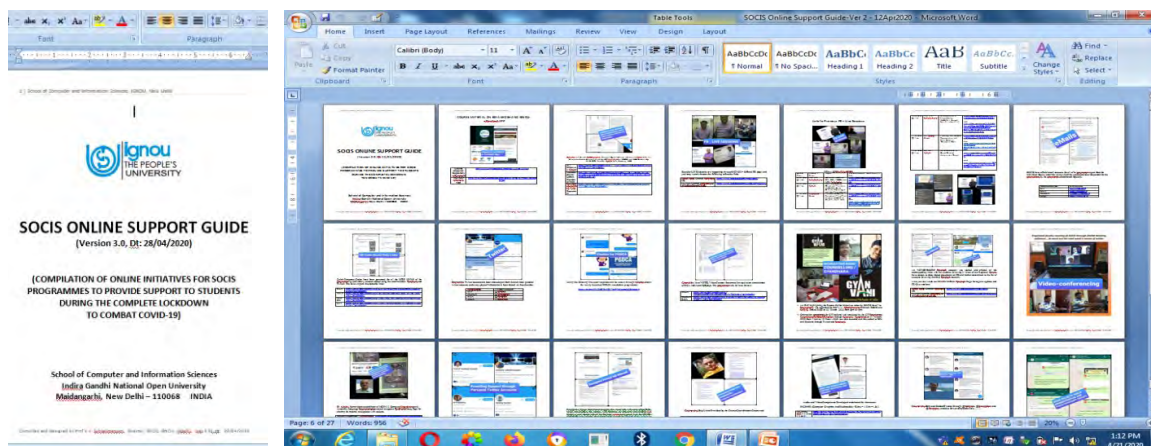


FIGURE 3.22: SOCIS' ONLINE SUPPORT GUIDE FOR STUDENTS (VERSION 4.0)

This support guide was shared through the Facebook, Twitter, and e-mails. As the resources were sent every day, altogether three versions of the guide were shared.

(ii) Conducting School Board Meetings and Doctoral Review Committee Meetings online

A school board meeting was held online on 13 July 2020 inviting all its members to participate participating via video conferencing through Google Meet. Apart from this, the 36th meeting of the Doctoral Review Committee (DRC) was also held online on 29 September 2020 through video conferencing with an external expert and the SOCIS faculty. In this DRC meeting, one scholar presented her research proposal and two others presented their 6-monthly progress reports.

(iii) Training Programmes Organized for Teachers, Academicians, and Administrators

SOCIS organized three online training programmes through webinars to train teachers, academicians /other academicians and administrators in the use of video conferencing tools, podcast tools, and social media tools to provide student support.

TABLE 3.5: DETAILS OF THE TRAINING PROGRAMMES ORGANIZED BY SOCIS

Sl No.	Title of the Training Programme and Date of Training	For Whom	No. of Participants Attended
1	Use of ICT Tools for Teaching and Providing Online Support to Students During COVID-19 for Teachers on 21-22 May 2020	Faculty	103
2	Use of ICT Tools for Teaching and Providing Online Support to Students During COVID-19 for Academics on 28-29 May 2020	Academics / Other Academics	118
3	Use of ICT Tools for Administration on 12 June 2020	Administrators	106

These training programmes not only helped teachers, academicians, and administrators to work during the lockdown period but also helped them in implementing technological

interventions to provide student support suggested in NEP 2020.

(iv) **Conducting Online Project Viva-voce and Practicals**

Project work is the important component of any professional course. During the pandemic students were given the option of submitting their BCA/MCA project reports online. Earlier the students needed to submit a hard copy. But it was a challenge to conduct viva-voce. However, with approvals from the competent authority guidelines for conducting online viva-voce for BCA/MCA projects as well as for practical courses was taken and forwarded to the Regional Services Division. Regional centres organized the viva-voce and most of the RCs successfully completed them during October 2020 along with their term-end examinations.

Challenges and Future Directions

Given its size and operational dimension during the pandemic IGNOU faced several challenges. Necessary steps were taken to meet the challenges like reviewing, reflecting, introspecting, and carrying out appropriate action while maintaining and consolidating best practices. The main focus remained on a learner-centric approach suited to both individual requirements and learners' composite needs.

IGNOU is coming up with more online courses / programmes in various disciplines. Faculty members are working to develop all the self-learning material for the Choice Based Credit System (CBCS). The School of Computer and Information Sciences is coming up with its new curriculum for MCA (2 years) and PGDCA from January 2021 onwards.

Conclusion and Acknowledgments

The outbreak of the COVID-19 pandemic became a major disruption to colleges and universities across the world, with most institutions cancelling physical classes and moving to online teaching. In this paper the various online initiatives taken by IGNOU and as a case study discussed the support provided by the School of Computer and Information Sciences during this tough time in providing continuous support to its learners through various ICT interventions.

We would like to thank and acknowledgements IGNOU authorities for their continued support and cooperation.

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MIANZ INTERNATIONAL COLLEGE, MALDIVES

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Institutional Profile

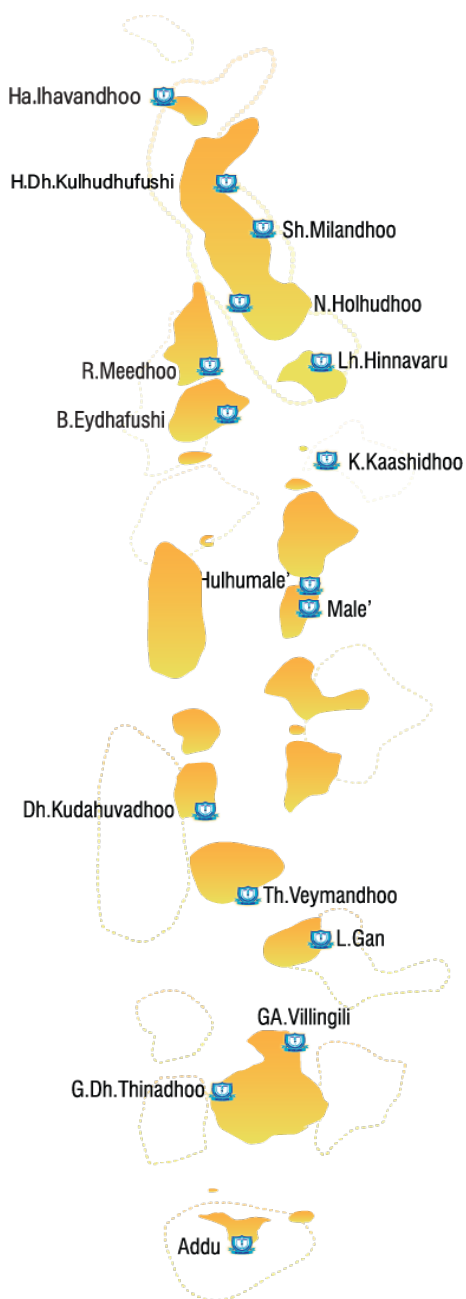
Mianz International College (MI College) is a private college owned by Mianz Pvt. Ltd. Ahmed Mottaki is a co-founder of the company. He is also the Chairman of the college's board of directors. MI College started its educational journey on 20 July 2006 as the International Centre for Career Development (ICCD) with 19 students, two classrooms with one permanent faculty (the co-founder), and two part-time lecturers.

With the approval of a few certificate Level 1 and Level 3 courses by the Maldives Accreditation Board (MAB), in addition to the Cambridge International Diploma in Business and English Language courses, ICCD started growing. ICCD's best programme so far has been the Future Leader Programme. This programme is the brainchild of Mottaki, a competent business teacher and a talented entrepreneur. ICCD obtained the license to run International Supply Chain Management by the International Trade Centre (ITC), a technical organization of the United Nations. By obtaining this license, ICCD got international recognition and an opportunity and invitation to participate in international events. This made ICCD attractive for both children and adults.

A pre-school teacher-training course (early childhood education) was introduced in 2009 which too has become very popular. As the

student population increased so did the faculty, and in 2009 the ICCD campus was moved to a bigger campus and its name was changed to the International Institute for Professional Development or IIPD (on 6 July 2010). IIPD became a franchise of APTECH, which is one of the largest IT training companies in India. With this, IIPD opened another campus for IT education in Male.

In mid-2012, under Mottaki's initiative, a US Fulbright Scholar Suresh Appavoo joined the institute for 10 months. Appavoo is the Associate Professor of Education of the Dominican University of California and Director of Dominican University of California's Centre for Diversity Initiatives. With the full-time staff of IIPD, Appavoo assisted in developing the 5-year strategic plan and trained its full-time lecturers. Appavoo also helped in some aspects of managing the institute. Transitioning into a college in three years after its inception, IICD became IIPD. This institute has been running many courses, its student population has increased, and so have its faculty members. In addition, IIPD has expanded into the islands. IIPD was awarded college status on 21 April 2014. This has been one of the biggest achievements in IIPD's history. The new college was named Mianz International College, commonly known as MI College.



MIC Campus Chart

FIGURE 3.23: THE MIC CAMPUS AT A GLANCE

Today, the college has a student population of approximate of 2,500 studying in 17 different campuses across the country (August 2020). There are 105 full time and more than 300 part-time lecturers (August 2020) teaching in Male and atoll campuses.

MI College's vision is making MI College a college of first choice for prospective students. The management and staff are working towards achieving this dream in the next three years. MIC offers courses in four broad disciplines: Education, Management, Information Technology, and Foundation Studies. All the courses offered at MIC are approved by MQA and range from Level 3 courses to Level 9 courses.

TABLE 3.6: LEVEL-WISE NUMBER OF COURSES OFFERED BY MIC

Course Levels	Number of Traditional Programmes	Number of Virtual Programmes
Certificate level 1	3	1
Certificate level 2	3	1
Certificate level 3	23	2
Advance Certificate Programme	10	4
Degree level	10	8
Post-graduate level	1	1
Master's level	5	5

Virtual programmes were added to the college course basket in 2015. Initially a post-graduate diploma in education, a year-long programme was developed and approved as a virtual programme through the Maldives Qualification Authority (MQA). After a thorough review of the first batch, additional programmes such as master's of education and bachelor's of business administration were added to the virtual programme basket.

Students come from three cohorts -- those who have been in the employment sector for at least three or more years after formal schooling at GCE O/L, those who have completed either GCE O/L or A/L and had remained idle for some years due to lack of opportunities, and now a gradually increasing number of fresh graduates completing O/L and A/L. It is generally noted

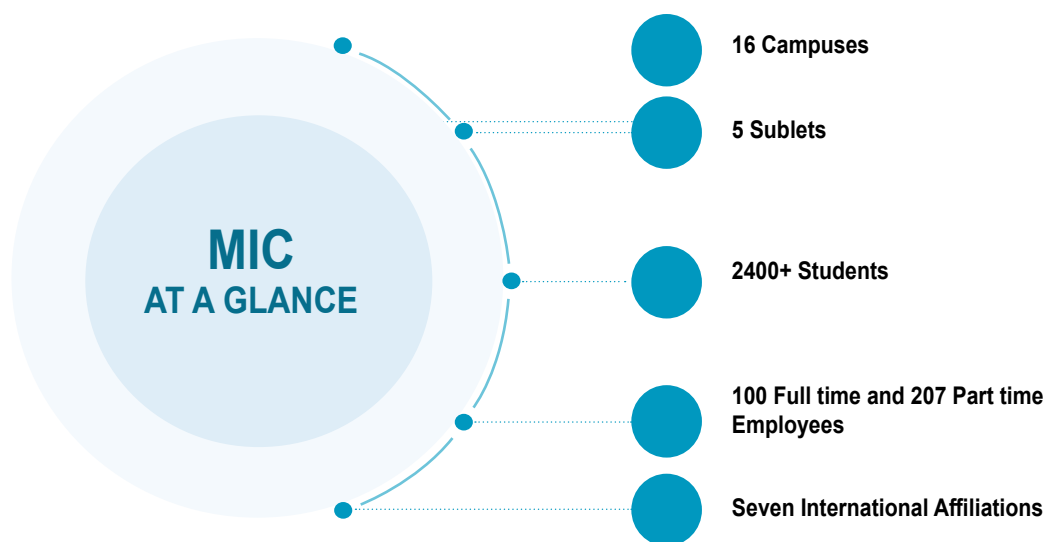


FIGURE 3.24: MIC AT A GLANCE

that fresh entrants require a preparatory curriculum in addition to the prescribed course curriculum that they have applied for to prepare them for independent study, bridging the knowledge gap, and creating a broader mindset about the purpose of education. Thus, all the college's programmes accommodate developmental programmes such as creating social awareness and responsibility, personal development, and knowledge building through multiple phases in curriculum transactions. Usually, all courses are designed to provide students with multiple pathways so that they can easily switch between courses as they discover their true aptitude in the learning process.

Mianz International Pvt. Ltd.

Mianz International Pvt. Ltd. is not only focused on providing education at a different level but during the last few years it has expanded its services to other countries as well delivering teaching for pre-school, day care centres, and international schools locally and internationally.

Mianz International (MI) Preschools are located in three countries -- Sri Lanka, Bangladesh, and Nepal. Their aim is creating a conducive learning

environment that enhances children's holistic development. The learning programme's aim is opening young minds and helping the children to grow a love for learning. As a result, they are curious to learn and explore the world.

The MI Preschool has a partnership with the International Preschool Curriculum (IPC) and it has implemented the IPC curriculum. IPC is a professional association of more than 100 schools worldwide. Its key aim is strengthening early childhood education standards. The IPC's academic team consists of Professor Donna Skinner, PhD, Dr Rebecca J. Reynolds, Ed.D., and Dr Erika Burton, PhD. The IPC currently has both an infant and toddler curriculum, designed for children aged 3-6 years.

International Affiliations

MIC gains strength and diversity from its network of global partners and academic contacts. These relations provide strategic depth to its programmes, vibrancy, and experience through visiting faculty and international credibility to many of its programmes. MIC's international affiliations include APTECH in India; ITC, United Nations, Switzerland; CPA in Ireland; and City & Guilds in the UK. Ventures are also underway



FIGURE 3.25: MIC AT A GLANCE

with the Open University of Sri Lanka and UTHM, Malaysia, the biggest public university for vocational programmes in Malaysia. These will provide parallel pathways for both academically and vocationally tailored programmes that will meet the needs of Maldivian society.

Establishment of a Virtual Campus

Maldives is a geographically dispersed island nation with the largest population of 150,000 people residing in capital Male. The remaining 300,000 people are dispersed in not less than 200 islands scattered in the Indian Ocean, with populations ranging from 800 to 25,000 people on a handful of islands. Of the population, roughly 30,000 students are currently enrolled in colleges or universities for programmes ranging from foundation courses to master's degree programmes. Due to geographical isolation the population is scattered across the ocean making it less feasible to provide higher educational opportunities. MIC was the first higher educational institution to establish 19 branches making higher education accessible in the country. The first branch was established in Laam atoll Gan as a pilot project. Based on the experience the remaining 18 branches were established by the end of 2019 with better adaptation. Furthermore, through student feedback it was identified that despite having a branch nearby there were still difficulties in travel within the atoll via sea due to weather conditions. Also, the high cost of sea transport made education unfeasible for many students.

Hence, MIC decided to run a pilot programme in blended or hybrid mode in 2015. The post-graduate diploma in education is a one-year programme which is conducted in hybrid mode where 50 per cent of the credit hours are conducted face-to-face and the remaining 50 per cent of the course is covered virtually. After a thorough analysis other programmes were also made hybrid.

With the success of establishing 19 physical branches across the country a virtual campus was established in 2019. Initially the campus was started with 183 students but today there are approximately of 800+ enrolments in the virtual campus who are studying 112 different MQA approved virtual programmes through the virtual arrangement.

Quality Assurance

Currently, MQA has only generic guidelines for approving institutions for conducting virtual / online classes that do not specify any theoretical framework, technological guidelines, preliminary teacher standards, or any mechanism for ensuring minimum learning and engagement hours by the students.

However, MIC follows a number of approaches for maintaining the quality of virtual programmes. Internal assessments are done through branch managers and faculty heads. External assessments are done by MQA. Students' performance evaluation does not indicate a significant difference compared to students enrolled in the programmes offered in the

conventional mode. Students' feedback and lecturers' feedback has helped improve the overall performance of the virtual campus.

Designing and Delivery of Virtual Programmes

The initial pilot project the post-graduate diploma in education was developed in conventional mode but it was adapted to a virtual programme. The syllabus design includes various teaching-learning online activities for every topic and the syllabus was reviewed by a syllabus review committee. After approval from the MIC's syllabus review committee it was submitted to MQA. With minor changes the syllabus was approved and the pilot project was started in the Addu city campus.

Steps in Designing Virtual Programmes

1. Adaptation of conventional mode syllabus to virtual mode
 - a. Incorporating hourly online activities that students will do in the syllabus document
 - b. Developing instructional design based on the approved syllabus document for every module

- c. Developing a student assessment component according to the approved syllabus for every module
- d. Developing and incorporating reading material, contexts, journal articles, and research papers in the canvas
- e. Approving the Canvas design through the syllabus review committee

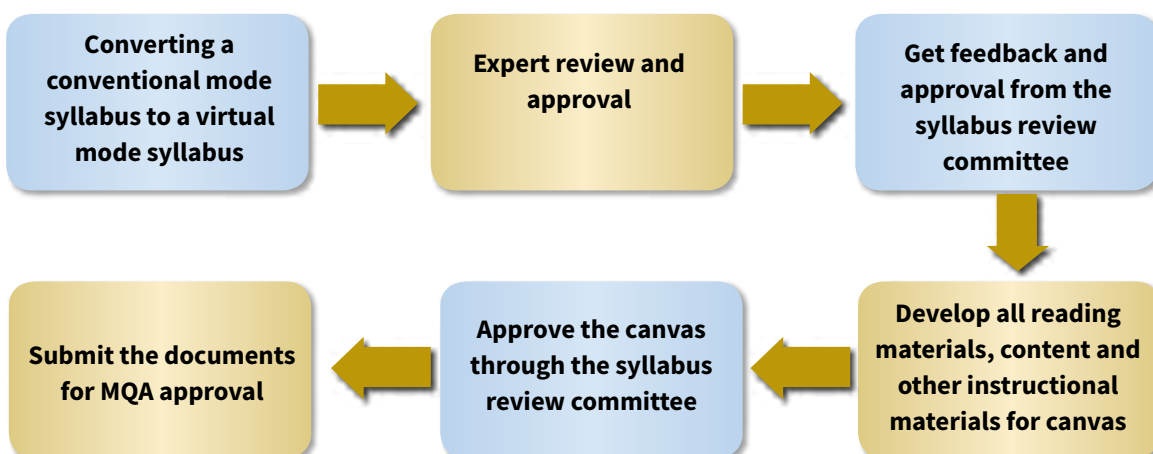
Process Involved in Developing an Online Course

After MQA approves the course syllabus the next step is developing the instructional design. All material required for the modules in the course delivery and assessment is developed by subject specific experts based on given standards.

Material Development

The main focus while developing the material is interactive activities incorporated in the lessons. The lessons include student presentations and other activities that encourage students' active participation. Internal assessments also include quizzes, presentations, and tutorials that need interaction with other participants and the tutor.

FLOW CHART OF THE APPROVAL PROCESS



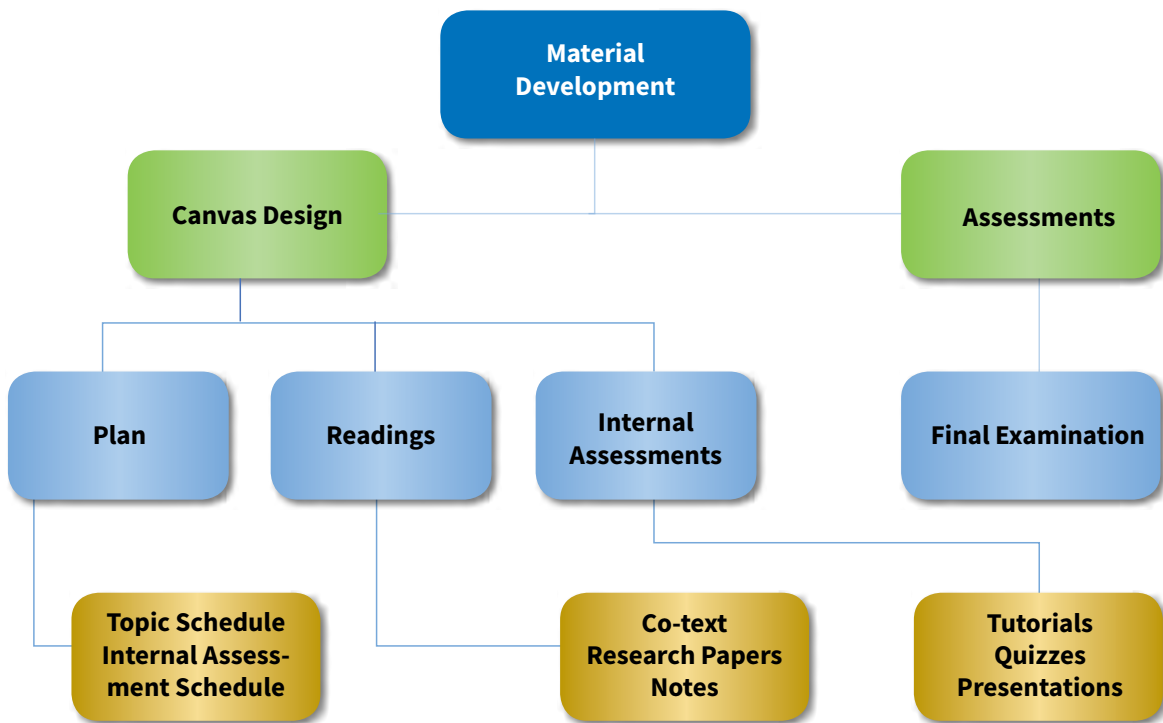


TABLE 3.7: TIME TAKEN TO DEVELOP AN ONLINE COURSE

Syllabus Development	5 – 6 months
Approval Process	6 – 12 months
Material Development	6- 7 months

Costs involved in developing a course (including opportunity costs)

Generally, a 120-credit programme has eight modules. Based on the number of modules and experts involved, the cost of a programme is decided.

Syllabus development ranges from MVR 80,000 to MVR 100,000. Instructional design costs between MVR 5,000 to MVR 10,000.

Final Examinations

The final examinations get 50 per cent of the total weightage. The final examinations are conducted physically. At the end of each semester, students travel to the nearest MIC registered branch for the examinations.

The other 50 per cent of the assessment includes internal assessments like presentation, quizzes, assignments, projects, video submissions, and such.

TABLE 3.8: INFRASTRUCTURE SUPPORT FOR THE DELIVERY OF ONLINE COURSES

Students	Lectures
<ul style="list-style-type: none"> • Dongles are provided for internet connection 	<ul style="list-style-type: none"> • Cubicles in the college for holding classes
<ul style="list-style-type: none"> • During COVID-19 free data was given 	<ul style="list-style-type: none"> • Free internet connections in the college
<ul style="list-style-type: none"> • Students use their own laptops in classrooms 	<ul style="list-style-type: none"> • Zoom accounts are provided • Access to Canvas • All reading material and notes are provided • Online library

Structure of students' learning time (SIT)

- A degree programme has 120 credit hours
- One credit is equal to 10 hours
- According to MQA one-third of the credit hours must be taken as contact hours. Therefore a module of 120 credit hours must have 50 contact hours
- Fifty contact hours are tabulated in students' time table for each module
- It takes six months to cover a module
- Four modules are covered every six months which is a semester

Technology / Platform used for delivering online courses

1. Canvas
2. Zoom
3. Google Meet

4. Smart School

- Training of students and lectures or guidelines provided to students and lecturers to adopt online learning
- A 3-hour student orientation prior to starting any online course. Students are explained how to login to the platform used, how to interact, and submit the assessments
- Lecturers are also given a full orientation to carry out online classes. The training consists of:
 - Scheduling of classes
 - Conducting classes
 - Marking attendance
 - Preparing interactive activities
 - Doing group work
 - Designing the material on LMS

Benefits of virtual programmes

The main aim of MI College's virtual campus is providing comprehensive, accessible, effective, and affordable learning opportunities to all the students across Maldives and internationally. This is done through an innovative use of learning and communication technologies within and outside the classroom, powered by True-Conference, Google Classroom, Canvas, Smart School, Questia, and various other electronic social communication platforms and data management systems. Its major advantages include flexibility, costs, and broad choices.

Flexibility: Adults with full-time jobs and families find it impossible to attend daily classes in a traditional campus setting. Virtual classes allow students to work at their own pace and study along with their busy lives.

Cost: Many of the students might not find it financially feasible or comfortable to travel to other islands for attending college education.

MI College enables students to enjoy the government's first degree loan scheme for first-degree programmes.

Broad choices: Students can remain at home and have the scope of getting degrees, which are not offered by universities or colleges nearby.

Differences between a Virtual Classroom and a Traditional Classroom

For students who have only taken courses in a traditional classroom, transitioning to the virtual classroom can be a bit of an adjustment. Students may wonder what to expect in a virtual learning environment, including how they will communicate with instructors and fellow students and how different the two types of classrooms really are. MI College's virtual classrooms are similar to traditional ones in many ways, and it tries to replicate the face-to-face classroom experience in the virtual classroom.

However, there are differences related to the administration and some other services:

Process involved in students' enrolment in virtual programmes

Application

Like on-campus students those applying for the virtual mode of study can apply in one of three ways to any of the campuses:

- 1) Online applications
- 2) Applications via mail
- 3) Hardcopy

Enrolment and Registration

The enrolment and registration process is also similar to on-campus students. Though the students are registered as virtual mode students, they are attached to the closest branch for administrative purposes and are considered students of that branch.

Fee

There is no difference in the fee that has to be paid by virtual students compared to on-campus students in relation to registration fee, monthly fee, fine, and graduation fee. Students can pay the fee in cash or through online banking.

Travelling

Virtual mode students are ONLY required to travel for the exams in the enrolled campus. Virtual students need to register their exam campuses in advance. There is no need to travel for other activities including classes, orientation, information sessions, and group work.

Software Installation and Hardware

Every virtual student gets a personal log-in ID and password. The college's technical and IT departments' staff calls the students and assists them in downloading, installing, configuring, and using the applications that they require to proceed throughout the study period. It is the students' responsibility to arrange for laptops or desktops with microphones, headphones/speakers and cameras. In case students require any assistance the IT team remotely guides and assists them.

During the early stages of the virtual arrangement, students were provided with an internet facility by giving them a 4G internet broadband modem. However, due to the global pandemic, the distribution and management of dongles was stopped and internet service providers intervened to provide an internet arrangement for the whole education industry to assist during the global pandemic in the educational requirements of online education.

On the discontinuation of this backing provided by the service providers and there being a large number of students MI College decided that students should be responsible for their internet arrangements till a solution was found.

Therefore, as of now the students are responsible for arranging and managing their internet connections.

The Learning Management System

The main LMS is executed through Canvas. However, the material is also shared using various other electronic platforms such as Google Mail and Drive.

Students are given access to course and module portals in the Canvas and they submit assignments, projects or activities through the student portal in Canvas. Canvas also provides details of the marking scheme, rubrics, lecturer comments, marks obtained, and other details related to their assessment.

Student Support Systems for facilitating virtual learning

In March 2020 due to the global pandemic, MIC shifted all its programmes to virtual mode. Without any discontinuity in students' enrolled duration every student was catered to in the virtual campus. With this paradigm shift there was a need for strong student support systems. The unit was established in mid-March 2020.

The student services unit makes sure that students are on the right track in their studies and also provides academic and administrative support. Moreover, the unit makes sure that students' problems are addressed in an organized manner. The unit also engages in making a student database (smart school system) aligned with the marketing and administration departments. This arrangement is made solely due to the major difficulties faced during the global pandemic. Issues related to student fee, enrolments, and continuing academic engagement are closely monitored by the unit, where necessary assistance is directed at students with close attention to assistance to the senior management team's decisions. Moreover, all students are provided counselling, guidance, and assistance.

For the unit's understanding, there is a unit's mandate.

Mandate for the student services unit (SSU)

1. Ensure all student attendance is up to date
2. Ensure all fee is updated on smart school (SS) (to be assisted by the financial department)
3. Ensure dropouts are given proper counselling and proper action is taken
4. Ensure students who are changing a course get proper counselling and proper guidance
5. Proper counselling to students who are irregular in attendance
6. Identify students who are potential leads and assist them for the next intake (to assist marketing with a list)
7. Identify the students who require financial support and provide them the opportunity of easy payments
8. Guide interested students in the government's free degree programme

SSU's mission is making all enrolled students study their programmes, understand what the college offers during difficult times and difficult situations related to their personal lives, and other difficulties faced, and guide them to the right path to help them complete the programmes that they started.

SSU envisions that every student of MIC is studying a course that s/he will complete despite the barriers faced, with assistance and guidance given by SSU.

SSU's role is ensuring that all the students are given proper guidance in continuing their courses and for academic and administrative issues. SSU's role also involves seeking assistance in compiling the information after communicating with the branch managers and providing counselling to those students who need it through the branch managers. The SSU virtual

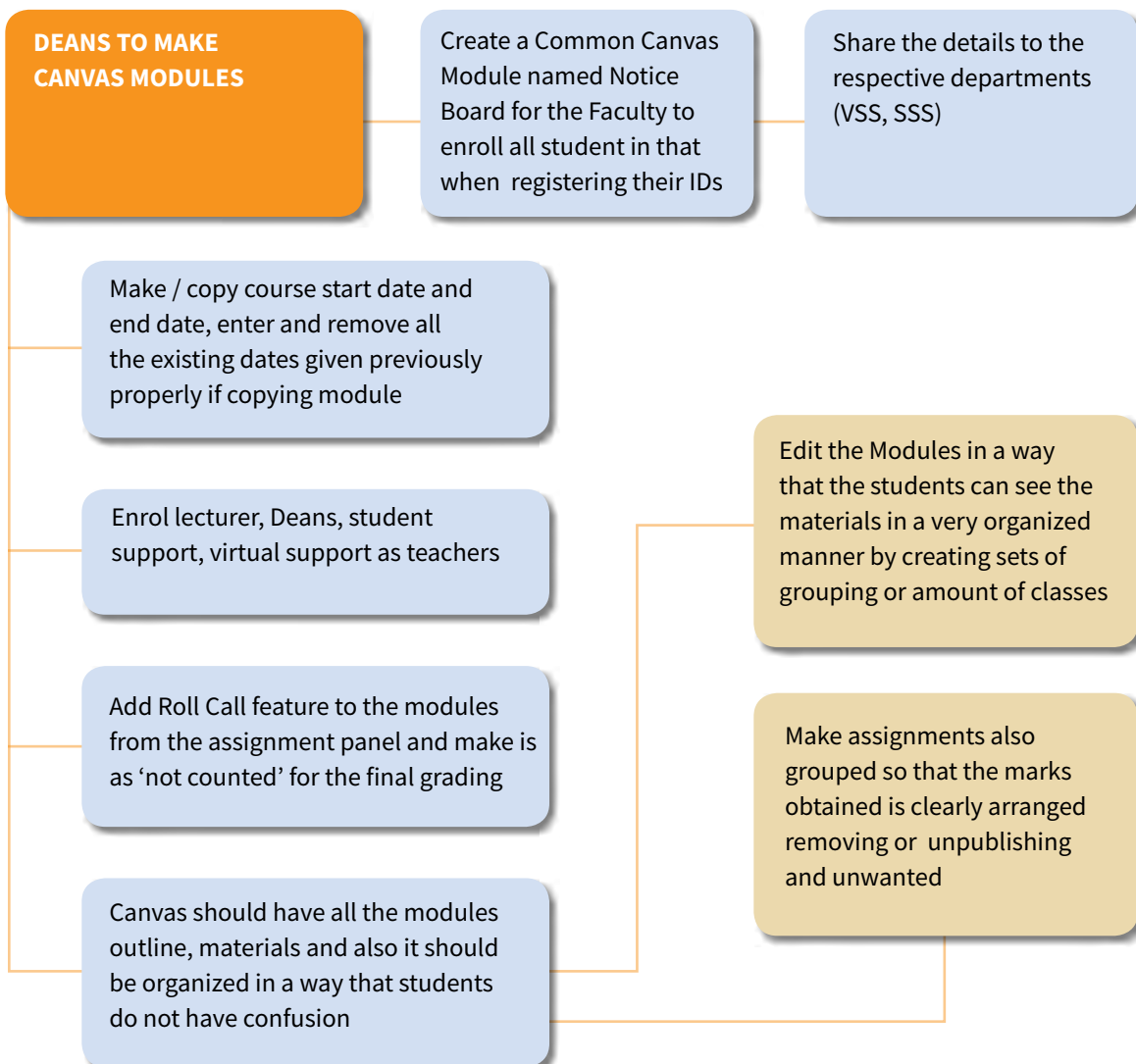
call assistant ensures that students are given a professional call about simple issues that do not require counselling and can be handled easily; it updates the administrative lists based on the calls made and reports these to the department supervisors.

Protocols for Canvas Management

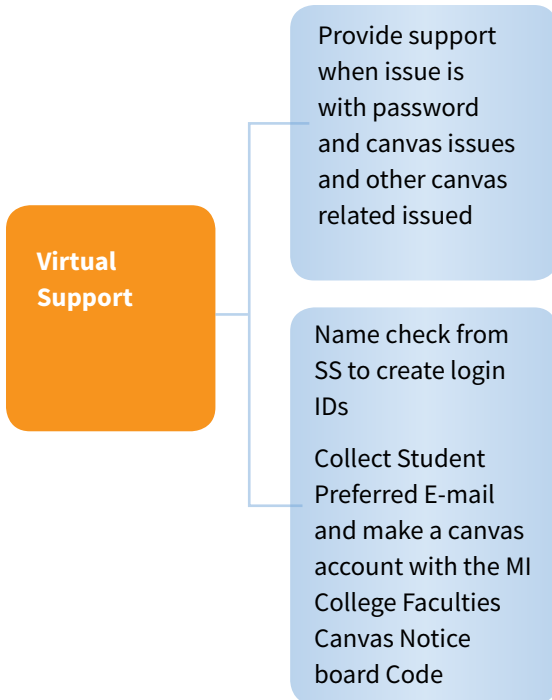
Canvas has the potential to collect proper attendance, assignment marks, and provide learning material when certain protocols are followed.

Canvas Process

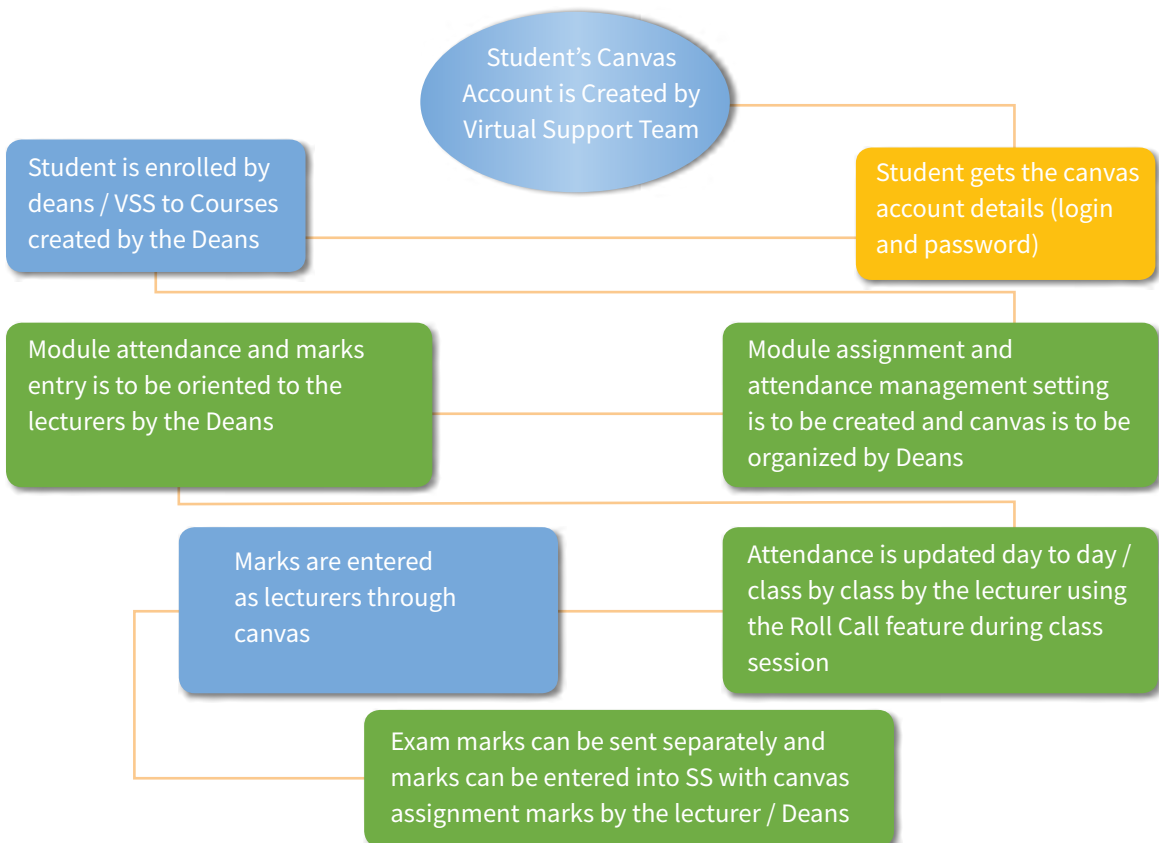
To ensure that students use Canvas every now and then and become more familiar with it, classes are arranged by integrating a Zoom link to Canvas. This can be added by creating a session and copying the link to join with Canvas. Students can go to Canvas and select the links under the modules for joining classes.



Student Support Services



SSU can go to Canvas modules and check the ongoing sessions that the students are attending or not attending. Based on the attendance updated on Canvas, SSU can generate attendance reports using Canvas and further analyse students having attendance issues and contact them regarding their classes. The deans / lecturers and students are informed about this and called and given proper counselling about classes being an essential part of their studies. The report shows a summary of the date on which the class started and which class a student did not attend. It is generated and sent to the administrator and can be downloaded as an excel file.



CHANNELS OF CUSTOMER SERVICES MANAGEMENT

Formal Channels	Informal Channels
Website Chat Bot <ul style="list-style-type: none"> Team of two people to monitor and answer students' queries 	Direct to deans, rector / CEO / lecturers / BMs
E-mail to Admin Attended to by the Rector / Haleem	Through MICSA
Hotlines <ul style="list-style-type: none"> Finance Marketing Department Hotlines Branch Hotlines 	Facebook and other social media comments
Facebook Marketing	Student referrals
Account Viber Numbers Department Numbers	
Students' Official Viber Groups Deans	
Walk-in Inquiries Administration front desk	

Challenges involved in Designing and Delivering Online Programmes

Virtual or online programmes can only be conducted after they are approved by MQA. The biggest challenge is that the time taken for programme approval is too long. Programme approvals do not keep pace with technological advancements and sometimes the content becomes outdated by the time a programme is approved.

Internet providers in the country have monopolized the service making internet costs very high. In addition, poor internet speed and coverage have been challenges in conducting the programmes virtually. According to a survey conducted for MIC students, 59 per cent of the students had signal issues in online classes and

66 per cent students complained about slow internet connections.

Students' awareness about learning management software is poor. Hence, a lot of time and energy is required to ease them into online learning. MIC students' survey showed that 76 per cent of the students were new to learning management software (LMS). However, after the first orientation 69 per cent of the students were able to use LMS without further assistance.

There are fewer experts for developing learning material in some areas and they are very expensive. Hence, it is not possible to run some programmes unless large student groups are available for them.

Students' Feedback Regarding Virtual Learning

In to a survey conducted regarding MIC's virtual programmes, 86 per cent of the students agreed that they got technical assistance during class time if they had any problems, 76 per cent of the students agreed that virtual classes were interactive and engaging, 80 per cent of the students felt that the audio and video were clear during online classes, and 92 per cent said that they would recommend MIC online programmes to others who want to continue with higher education.

Further Directions

For further improvements, MIC has approached network service providers for better internet services and feasible internet rates especially for students. The same concern has also been raised with the Ministry of Higher Education. MIC plans to conduct more training sessions to develop interactive online learning material. In addition, more monitoring will be done to ensure that the online classes are effective. Based on a proper analysis, MIC will be providing more professional development programmes for lecturers and support staff.

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OPEN UNIVERSITY OF SRI LANKA, SRI LANKA

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Institution Profile

The Open University of Sri Lanka (OUSL) is a premier ODL university in Sri Lanka, which celebrated 40 years of existence in July 2020. OUSL is one of the 15 national universities under the purview of the University Grants Commission (UGC) of Sri Lanka. It has the same legal, institutional, and academic status as any other national university but it is unique in the system as it is the only university delivering all its academic programmes through the ODL mode. Since its inception in 1980, OUSL has made a significant contribution to the higher education system in Sri Lanka by providing a multitude of opportunities for diverse learners. Through its exclusive ODL approach, OUSL offers open and flexible access to higher education and continuing professional development opportunities for any person above the age of 18 years, especially catering to the educational needs of working adults thus promoting lifelong learning (see OUSL's home page- <http://www.ou.ac.lk>).

At present, there are six faculties at OUSL -- Education, Engineering Technology, Management Studies, Natural Sciences, Health Sciences, and Humanities and Social Sciences comprising of 29 academic departments, as well as a Post-Graduate Institute of English (PGIE). These offer 72 study programmes and over 1,500 courses in a variety of disciplines (Statistical Handbook, OUSL, 2018). The university has structured its study programmes in a flexible manner enabling students to progress academically from the

foundation and certificate levels to diplomas, undergraduate degrees and post-graduate diplomas, and master's degrees with lateral entry and exit points up to MPhil and PhD levels. These study programmes range from levels 1 to 12 according to the Sri Lanka Qualifications Framework (SLQF, 2015). Such multiple 'ladders of opportunities' provided by OUSL enable learners to gradually progress on their preferred pathways of studies, at their own pace, place, and time.

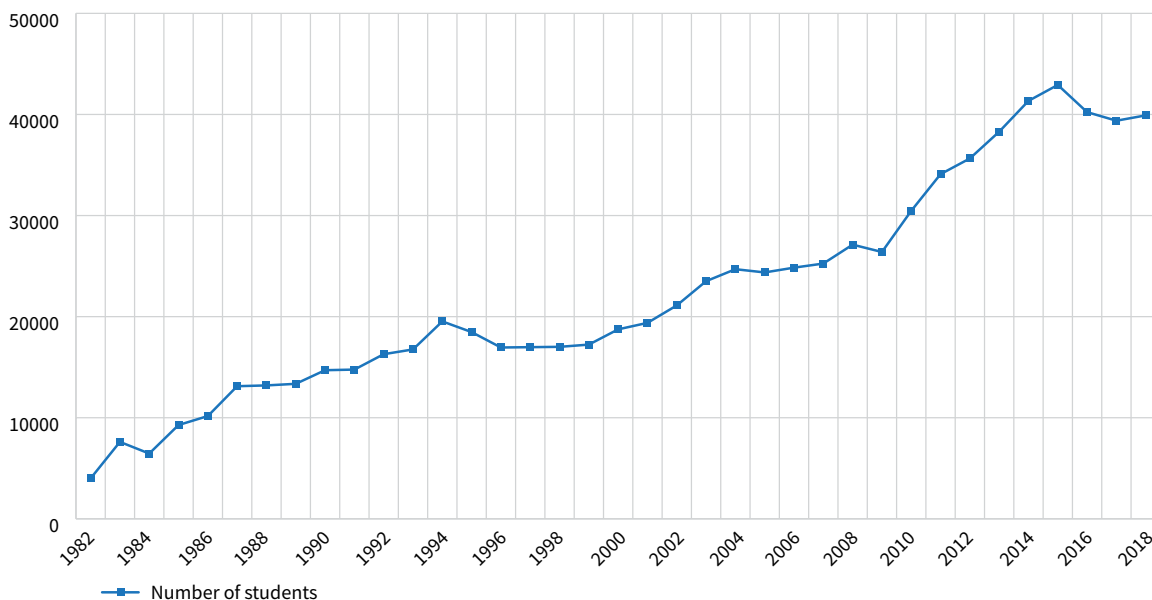
Student Population

Currently, the student population at OUSL exceeds 40,000 students spread throughout the country. Since the beginning, there has been a steady increase in student enrolments from 4,000 in 1982 to 40,000 by 2019. The total number of students enrolled in 2019 was 43,571.

Similarly, the student output also shows an overall increase with some fluctuations between years. In 2019, 6,804 students graduated.

Staff

The number of permanent staff in all categories including academic, academic-support, administrative, and non-academic exceeds 1,000 at present (the number was 1,355 in 2018). In addition, there are around 300 temporary staff members. Further, the university obtains the services of more than 1,400 external staff members comprising of visiting lecturers,



Source: Statistical Handbook, OUSL, 2018, p.24.

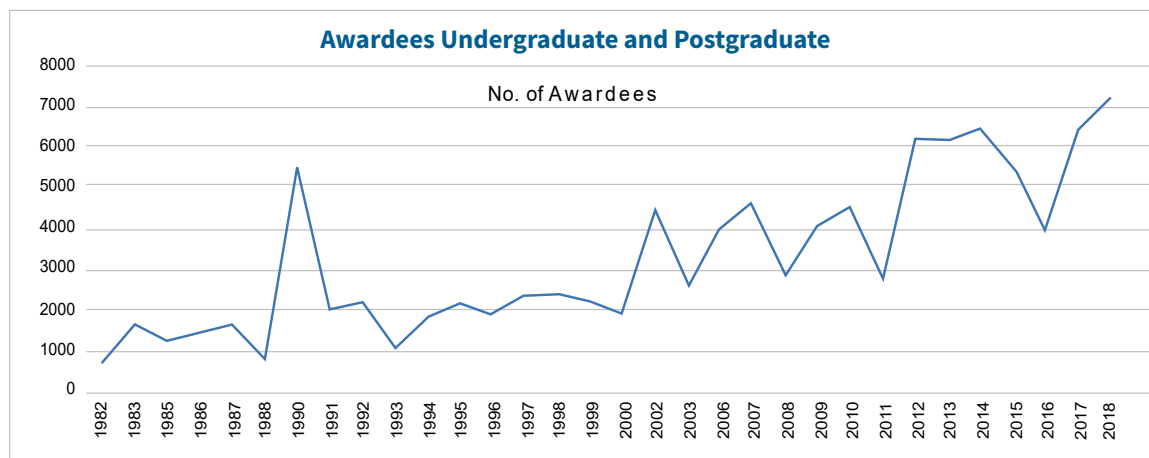
FIGURE 3.26: STUDENT ENROLMENTS AT OUSL (1982-2018)

marking examiners, tutors, and master teachers (Statistical Handbook, OUSL, 2018).

Outreach

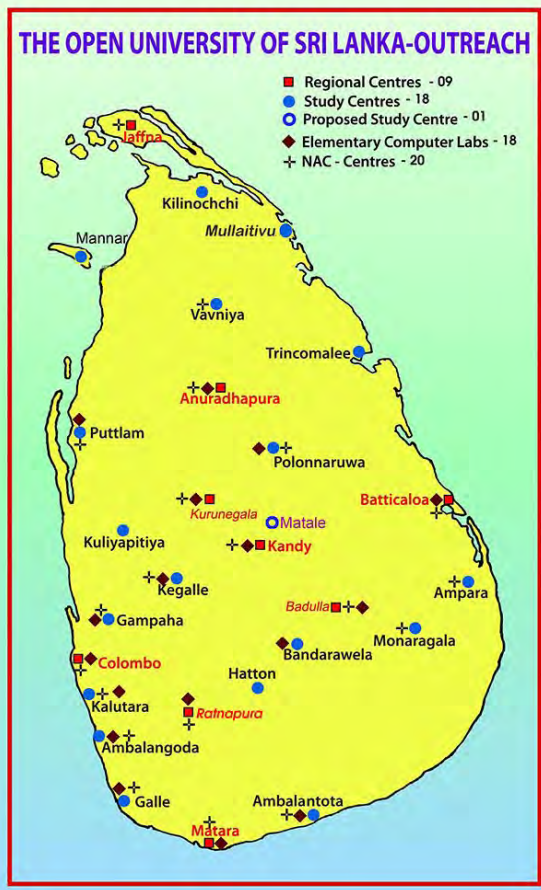
Students are served through a widespread network of nine regional centres and 19 study centres located in every district and covering all the nine provinces of Sri Lanka.

OUSL's Regional Education Services (RES) Division (see <https://www.ou.ac.lk/regional-educational-services/>) is the focal entity which provides support to learners spread throughout the country via various facilities and services such as a well-resourced library network and computer laboratories located in the main campus as well as regional study centres.



Source: Statistical Handbook, OUSL, 2018, p.71.

FIGURE 3.27: STUDENT OUTPUT AT OUSL (1982-2018)



Source: <https://www.ou.ac.lk/regional-educational-services/>.

FIGURE 3.28: NETWORK OF OUSL'S CENTRES ACROSS SRI LANKA

Strategic Directions for Online Learning

Various strategic directions for enhancing online teaching and learning at OUSL have been followed since 2003, when online teaching-learning was first introduced at OUSL. The 5-yearly corporate plans / strategic management plans (SMPs) at OUSL have given significant attention to this aspect. For instance, Corporate plan's (2006-10) objective was to "establish the use of appropriate modern technologies to disseminate knowledge including online delivery of courses" (OUSL Corporate Plan 2006-2010, p. 50). Similarly, SMP (2015-20) envisaged to "transform all degree and postgraduate study

programmes into the blended mode by 2018," as a strategy to promote e-learning and distance education activities under the goal of increasing opportunities for students' access and success (OUSL Strategic Management Plan 2015-20, p.32). The action plans were made, implemented, and monitored by the relevant divisions, departments, and faculties.

Quality Assurance

OUSL is committed to continuous quality enhancement in all aspects of ODL including curriculum and course development, teaching and learning, assessments and evaluations, learner support, and training and research. OUSL has a well-established Centre for Quality Assurance (CQA), in liaison with the Quality Assurance Council (QAC) of UGC (see <https://www.eugc.ac.lk/qac/index.html>). QAC serves to enhance the quality of education offered by state universities and other HEIs to strengthen their internal quality assurance mechanisms. For instance, the universities undergo external reviews conducted by QAC such as institutional reviews and reviews of undergraduate study programmes. Further, the universities adhere to the quality of their study programmes and award of qualifications by implementing the Sri Lanka Qualifications Framework published by UGC (see https://www.eugc.ac.lk/qac/downloads/SLQF_2016_en.pdf). CQA aims to establish and implement mechanisms to maintain quality standards in all academic and operational activities at OUSL to ensure quality educational programmes for learners offered through the ODL mode of study (see <https://www.ou.ac.lk/iqau-home/>).

The university has clear policies, guidelines, procedural manuals, and standards of practice (SoPs) in place to standardize all matters pertaining to the design, development, and delivery of study programmes, including development of instructional material. For instance, different types of instructional material development models for ODL have been

introduced including developing course material based on OER. OUSL is the only institution in Sri Lanka to adopt an open educational resources (OER) policy. Continuing professional development (CPD) programmes on various aspects are implemented for staff through the Staff Development Centre (SDC).

Managing the quality of the design, development, and delivery of online courses at OUSL is entrusted to the Academic and Research Unit of CETMe. This is carried out through a clear and a systematic process from the initiation of an online course creation by a staff member up to its delivery to students. CETMe also provides the necessary guidance, training, and technical support for academic staff for developing and delivering quality online courses. Further, a University Committee on Advancement of Online Learning (UCAOL) has been established for continuous monitoring of the online teaching-learning process at the university and for providing required enhancements.

Online Course Design and Delivery

Online teaching and learning at OUSL started in 2003 following a capacity building workshop organized by the Commonwealth Educational Media Centre for Asia (CEMCA), in partnership with the (then) ETD of OUSL. It resulted in a group of trained academic staff members creating the first online courses at OUSL, termed 'Virtual Classes,' using the *Manhattan* Learning Management System (LMS), which was a simple LMS. In 2006, OUSL moved its online courses from *Manhattan* to Moodle LMS, which has more advanced features and facilities (Jayasooriya et al., 2008; Jayatilleke, 2005; Karunanayaka, 2007).

The Asian Development Bank (ADB)-funded Distance Education Modernization Project (DEMP) implemented in Sri Lanka during 2003-10 had an immense influence on the enhancement of online teaching and learning at OUSL. Under DEMP, since

2005 the online course design, development, and delivery at OUSL has been further formalized, strengthened, and accelerated, with provisions for infrastructure including the establishment of 20 network access centres (NACs). Further, there has also been capacity development of staff in online course design, development, and delivery (DEMP- Sri Lanka Performance Evaluation Report, 2016).

The experience of engaging in online delivery of courses for 17 years at OUSL indicates certain innovative strategies over the years (Jayatilleke & Kulasekera, 2020). These include delivering the first exclusively online course (Karunanayaka, 2008b, 2009), implementing OER-integrated online courses (Karunanayaka & Naidu, 2014; Karunanayaka et al., 2015), a cross-border exclusively online international course (Jayatilleke et al., 2017), development of a mobile learning application for tablet computers (Jayatilleke, et al., 2018), and implementation of the first MOOCs (Karunanayaka, 2018, 2019). All these initiatives have contributed to strengthening the online course design, development, and delivery at OUSL.

At present, OUSL is steadily progressing towards achieving the objective of providing online support to all courses in its study programmes. Online courses are mainly offered through OUSL ELearn, OUSL's official online LMS (see <http://elearn.ou.ac.lk/>). As of September 2020, 1,032 online courses (more than 50 per cent of all courses) had been developed in the OUSL eLearn platform (CETMe Report on Progress of Online Courses, September 2020). In addition, under the World Bank funded Accelerating Higher Education Expansion and Development (AHEAD) project, OUSL started offering online courses through a cloud-based server, OpenLearn.LK (see <https://www.openlearn.lk/>), with over 75 courses and short courses. It has also been decided to move the current university LMS to the cloud server. The early version of Moodle 1.9 was used at the beginning, but gradually it was converted

to newer versions, and currently Moodle 3.9 is being used. In recent years, the university has taken many strategic decisions and made recommendations for promoting teaching and learning online at OUSL.

The Processes of Online Course Design, Development, and Delivery

The processes involved in the design, development, and delivery of online courses at OUSL have been formalized since the start of the delivery of online courses via the Moodle LMS in 2006. These procedures are implemented in accordance with the OUSL Council and Senate-approved guidelines which are continuously reviewed and improved. While the University Course Development Committee (UCDC) is responsible for drawing up relevant mechanisms and overseeing the design and development of online courses, CETMe is responsible for online course template creation, assisting in instructional design, reviewing online courses, and uploading online courses on LMS. The academic departments are responsible for managing the delivery of online courses to students.

A clear mechanism is followed in the creation, design, development, and delivery of online courses:

- Academic staff members make a request for an online course creation by forwarding an online course creation request form through the relevant heads and deans to CETMe.
- CETMe creates the relevant course template in the Moodle LMS.
- The course team engages in the online course design and development, with technical support from CETMe.
- Once the course is developed, a course team leader/teacher informs CETMe to do the

course review for quality assurance (checklists are used for this).

- After the review is complete, CETMe informs the course team leader/teacher about the modifications needed (if any), and re-reviews the modified course and approves it.
- The finalized and approved course is uploaded by CETMe ready for delivery to students.

The university-approved course design models, online course templates, and review checklists provide general guidance for course teams to adhere to the basic requirements of the creation of OUSL online courses. While having the essential elements in place, the course teams have the flexibility to have variations in terms of activities, resources, and learner support, depending on specific course requirements.

Instructional Design Adopted in Online Course Design

Instructional design (ID) is the practice of creating instructional experiences to facilitate effective learning. Over the years, instructional design and development models offer a systematic approach for developing instructions, helping designers simplify the complex processes of ID, and applying generic components across multiple contexts (Gustafson, & Branch, 2002). For instance, the ADDIE model (Branch, 2009), which is fundamental to most ID models, provides a generic process including five phases - Analyse, Design, Develop, Implement, and Evaluate representing dynamic and flexible guidelines for ID. Thus, ID models create standardized approaches to design in an organization.

During DEMP, the Instructional Design and Development (IDD) counterpart team of the OUSL Capacity Enhancement (OUSL-CE) project was involved in applying ICT to instructional material development. This resulted in an IDD model introducing three types of online

courses: *Supplemental*, *Blended*, and *Online Plus* (Jayasooriya et al., 2008). The then ETD (now CETMe) played a significant role during DEMP in supporting online course design, development, and delivery at OUSL, and continues to take the leadership in this process.

The three types of online courses: *Supplemental*, *Blended*, and *Online Plus* introduced during DEMP, are categorized based on specified features in relation to access, use of technologies, interactions, types of activities, and online assessments. Accordingly, a Blended online course is defined as a course where at least 20 per cent of the assessments are computed by using online activities/assignments/tests, while an *Online Plus* course has more than 20 per cent online assessment activities based on online content. Supplemental courses do not require any online assessment activities (Jayasooriya et al., 2008).

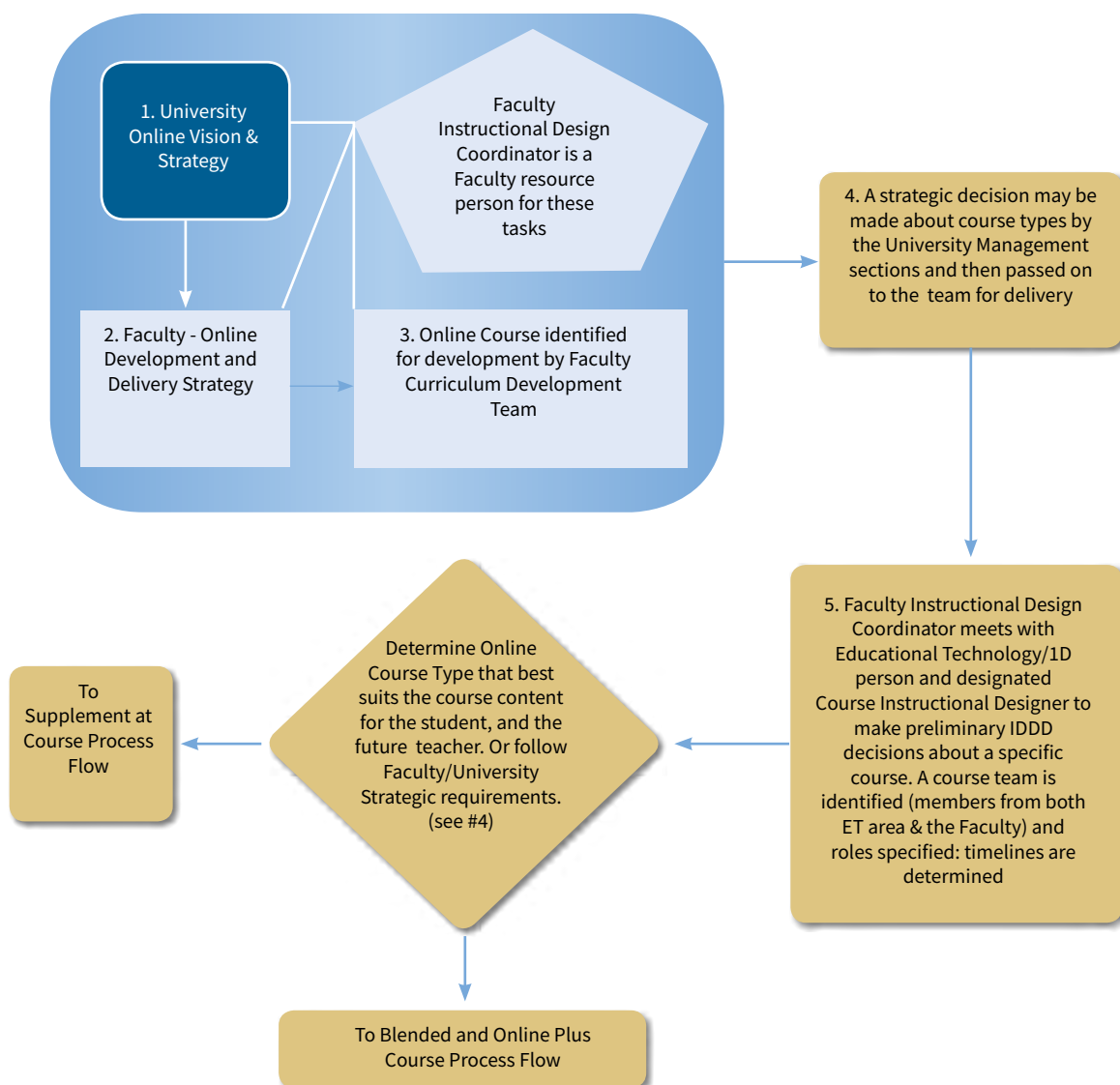
Further, instructional design and development models for online course delivery have been initiated and improved while the model has been in practice since 2007.

Depending on the type of online course, the pedagogical design adopted for specific courses may vary. Supplemental online courses in which the main purpose is providing information and course material to students without having teacher-student or student-student interactions, thus takes more of an instructivist pedagogical approach, whereas the Blended and Online Plus courses adopt more constructivist pedagogical approaches in their learning designs. For instance, the first OER-integrated Blended online courses as well as the first set of MOOCs developed at OUSL adopted a scenario-based learning design, based on situated learning principles within the constructivist pedagogy (Karunanayaka & Naidu, 2014; Naidu & Karunanayaka, 2020).

TABLE 3.9: CATEGORIES OF ONLINE COURSES

Features	Supplements	Blended	Online Plus
Students need access to online courses to be successful	N	N or Y	Y
Educational Technology is used extensively to assist with the comprehension of course concepts and terms	N	Perhaps but not necessary	Y
Students submit most work online	N	N	Y
Day schools offered is drastically reduced due to the online course content	N	N	Y
Online students to student interaction is a required part of the course	N	Perhaps but not necessary	Y
Teacher communities to students through online means	Perhaps but not necessary	Y	Y
Teacher provides feedback to students within online course	Perhaps but not necessary	Perhaps but not necessary	Y
What % of Assessed activities occur online or are based upon online content	0%	>20%	>20%
Number of students registered in course	Doesn't matter	Depends upon interactivities included in course	Maximum 50 and ideally ratio of 1 tutor to 30
Types of activities in your course - labs, practicals, (activities requiring f2f interaction) etc.	Y	Y	Rarely

Source: Jayasooriya et al. (2008).



Source: Jayasooriya et al. (2008).

FIGURE 3.29: INSTRUCTIONAL DESIGN AND DEVELOPMENT MODEL FOR ONLINE COURSE DELIVERY

Interactivity in Online Courses

Interactivity is built in the online course design process in terms of learner-content, learner-instructor, and learner-learner interactions (Moore, 1989), as well as learner-interface interactions (Hillman et al., 1994). These vary, depending on the type of course -- Supplemental, Blended, or Online Plus, as well as the pedagogical designs adopted in different

courses. Various features available in the Moodle LMS are used for fostering and encouraging learner engagement with content, instructors, and peers.

The Supplemental courses mainly allow learner-content engagement via provision of learning resources using built-in media support. In addition, Blended and Online Plus courses also provide learner-instructor and learner-learner

interaction opportunities via both synchronous (for example, chats) and asynchronous (for example, discussion forums) communication tools, which are customized according to the course's needs. For instance, the discussion forum facility has been able to foster student collaborations (Karunanayaka, 2009), encourage peer facilitation (De Zoysa et al., 2019; Karunanayaka et al., 2016), and build learning communities (Karunanayaka, 2008a).

Time Factor

The time taken to develop an online course varies according to the type of course. The Supplemental courses take the least time, since they do not essentially require designing online activities and assessment tasks due to minimal teacher-student and student-student interactivity. Currently, CETMe reviews the Supplementary online courses before the first delivery and once in every five years, while the teachers self-evaluate their Supplementary online courses in the 2nd, 3rd, and 4th cycle of course delivery using a QA checklist. However, the Blended and Online Plus courses take more time for the design and development process and these are reviewed by CETMe every year before delivery.

Staff and Student Training

Regular training sessions for academic staff on online course development and online delivery are conducted by CETMe every year; these are also conducted when there are special requests by the faculties. These sessions are conducted using face-to-face as well as online modes. Training of students on how to use the Moodle LMS and adopting online learning is done by the teachers of online courses by conducting orientation programmes, providing user guides, and having relevant links to Moodle training documents in LMS.

Infrastructure for Supporting Online Course Delivery

Well-established infrastructure and technological facilities are available at OUSL for its ODL operations, which are regularly improved. These provide access to ICT facilities to both staff and students. While CETMe is responsible for managing the front-end applications related to online course development and delivery, ITD is responsible for back-end issues including hardware provisions and maintaining the LMS infrastructure.

Right at its inception, the university established elementary computer laboratories (ELCs) in OUSL centres across the country which have been expanded both in number and facilities over the years. NODES which was originally established as a unit in the Ministry of Higher Education in 2010, consisting of a Network Operation Centre (NOC) and 26 NACs, including the 20 NACs housed at OUSL's premises (DEMP Validation Report, 2013), was handed over to OUSL in 2016. It is now functioning as an entity of OUSL and has been re-named C-NODES (Centre for NODES).

Currently, all students registered with OUSL have access to ICT facilities in the NACs as well as the ELCs established in the OUSL centres throughout the country all of which are now collectively re-named OUSL Computer Laboratories. The central campus and OUSL centres come with enhanced internet connectivity via a fibre-optic network as well as a wi-fi facility (OUSLAIR), providing access to online courses through the Moodle LMS for all staff and registered students. These centres have video conferencing facilities through the open-source web conferencing system Big Blue Button (BBB) through which all centres can be connected at the same time.

The university is also being supported by various ICT facilities and services by the Lanka Education and Research Network (LEARN) - the National Research and Education Network of Sri Lanka,

which interconnects educational and research institutions across the country and provides network related services including a high-speed backbone network (LEARN – home page <https://www.ac.lk/>). These facilities, which are continuously being upgraded and expanded, provide enhanced internet connectivity enabling efficient online course delivery.

Learner Support Systems

Due to the heterogeneity of the students' profile at OUSL with different age-groups, educational levels, and educational aspirations, the extent of learner support required also varies and has been designed to cater to the diverse needs of the learners. However, since the transformation from a conventional teacher-dependent educational system to that of a self-directed distance learning system is a common challenge for OUSL students, specific learner support systems are in place for addressing this need. For instance, all students who wish to enrol in a programme of study leading to a degree at OUSL undergo the Student Academic Readiness Training programme (StART@OUSL), implemented in 2014. The main objective of this programme is preparing students to study in the ODL system practiced at OUSL and help them develop relevant study skills to become independent learners. The My OUSL online student portal provides updated information related to studies to all registered OUSL students. In addition, the Learner Support Unit, Career Guidance Unit, and Counselling Unit facilitate learner support in diverse ways (see <https://www.ou.ac.lk/students-facilities/>).

A wide variety of ODL methodologies and technologies are being used to bridge the gap that is created by the physical separation of learners from teachers and the institution. The study system mainly relies on self-study learning material distributed to students including printed as well as digital learning resources available in three languages – English, Sinhala, and Tamil. These are supplemented with interactive day-

schools, audio/video conferencing, online learning management systems, social media tools, seminars, workshops, and laboratory and field work, depending on the specific course requirements. Print was the principal medium of delivery available at the time OUSL started. A well-equipped in-house printing press plays the main role in the production of good quality self-study printed learning material.

The Educational Technology Division (ETD) established in 1993 with a fully-fledged digital studio and other facilities, enables the production of high quality audio-visual learning resources. ETD, renamed the Centre for Educational Technology and Media (CETMe), has a production unit – a media house with a state-of-the-art studio complex through which academic staff are supported in the production of audio and video instructional material (see <https://www.ou.ac.lk/centre-for-educational-technology-and-media/>). A dedicated YouTube channel of the university (OpenUTube) and an intra-university video channel (OpenCast) host the video material produced at OUSL. CETMe also plays a role in online course development and delivery with support from OUSL's Information Technology Division (ITD).

The first online learning experience can be daunting for students due to lack of confidence, inadequate technical skills, and feelings of being isolated. Shifting from conventional face-to-face learning to the online mode of learning essentially requires effective learner support services considering systematic functions such as having learner-friendly administrative procedures, and most importantly cognitive and affective functions including tutoring, assessment, guidance, and counselling (Tait, 2000).

The administration and uploading of registered students to online courses at OUSL is managed by CETMe with support from ITD. Enrolled students are given clear step-by-step general guidelines in print on how to access and login to the relevant online course/s in the OUSL eLearn LMS. They are

also provided with a list of computer laboratories available in OUSL's regional/study centres, to get access to LMS from their nearest centres. While the RES staff in these centres provides technical support to students and does troubleshooting when required, Moodle administrator/s at CETME provide support for any login issues on a one-to-one basis. Teachers provide course-specific support to students, as required through face-to-face orientation workshops, online synchronous/asynchronous communication including e-mails, chats, instant messaging, and discussion forums, as well as using social media such as Facebook, WhatsApp, and Viber groups.

The online course design also plays a major role in learner support. Inclusion of an icebreaker activity (for example, 'Let's introduce ourselves'), a space for students to clarify their issues via a Q/A forum (for example, 'Help-wanted – Help-given'), and a space for social interactions (Virtual Canteen) are some examples that are used in OUSL's online courses to keep students connected and reduce their feelings of isolation. Further, providing opportunities for collaborative and cooperative learning activities ('Online debates') help community building. In addition, encouraging students to maintain a 'reflective journal' in LMS helps in developing their self-regulatory skills. Various strategies that are incorporated in the course design attempt to create the social, cognitive, and teaching presence required in online communities (Garrison, 2006).

Student Assessment

The three types of online courses at OUSL are categorized based on graded online assessments: Supplemental- none; Blended- at least 20 per cent; Online Plus- above 20 per cent. Different types of online assessments are integrated in the online courses, which are mostly of a formative nature. For example, multiple choice quizzes with automated grading and instant feedback are used for self-assessment by students to monitor their

progress. Discussion forum activities designed in different ways are also widely used as formative assessments, where both peer-assessments and teacher-assessments may take place. Teachers monitor, facilitate, provide feedback, and assess both individual and group contributions in discussion fora on specific topics. Wikis, blogs, questionnaires, reflective journals, and e-portfolios are some other online assessment strategies used for certain courses. Students are also allowed to submit their written assignments in the assignment drop box in the Moodle LMS.

All the strategies are continuous assessment's (CA) component of the courses, which may contribute up to 40 per cent of a student's final marks. So far, only very limited summative assessments (final examinations) have been conducted online under a supervised environment at OUSL centres.

Challenges in Designing and Delivering Online Courses

Despite the measures taken by the university to enhance online teaching and learning, its full potential has not been tapped yet due to various constraints and challenges (Ariadurai, 2020). The continuous expansion of technical infrastructure at OUSL has tried to address the technical requirements of both staff and students to a great extent. Yet, access to high speed internet connectivity and suitable devices and the associated costs still exist, which may also create an equity issue. Hence, offering fully-online courses is a challenge, unless good internet access to all students is ensured.

A majority of the online courses (above 80 per cent) currently offered at OUSL are Supplementary type, which is a matter of concern since student engagement and interactivity are crucial factors for effective online learning. Encouraging staff to offer more Blended and Online Plus courses, and facilitating active student participation in those are challenges

which have to be gradually overcome at the institutional level.

Design, development, and delivery of quality online courses entails a high level of proficiency of the academic staff in terms of both technology and pedagogy, a commitment to spend adequate time on online course design and delivery on top of their regular workload, as well as overcoming a 'resistance to change' from their conventional practices (Bates, 2019). While the existing guidelines, frameworks, and training and support systems at OUSL help the faculty in overcoming such challenges to some extent, the dynamic nature of emerging learning technologies requires continuous interventions for achieving the expected levels of academic staff engagement. Presenting an annual award for the best online course is a strategy implemented for motivating staff members.

Increasing student participation and improving their retention in online learning are common challenges in higher education which are observed in OUSL as well. Due to various barriers such as technical issues, inadequate computer literacy, limited English language proficiency, and time constraints, students' full participation in online courses is often not achieved as expected. This poses a challenge for teachers in designing online courses to motivate continuous student participation. Strategies such as inclusion of essential learning resources in different media formats, compulsory activities with constructive feedback, awarding marks, and the use of Sinhala and Tamil languages are followed in some online courses for overcoming these challenges.

Research Findings

Since the initiation of online teaching and learning at OUSL in 2003, researchers have explored the impact of this venture in relation to various aspects. These include experiences of teachers who delivered their first online

courses at OUSL (Jayatilleke, 2005, 2010; Karunanayaka, 2006, 2007; Tantrigoda, 2010), which reveal successes as well as challenges faced by both teachers and students. For instance, perceptions about the first fully-online course implemented at OUSL in 2006 - 'The Teacher Educator as an Educational Technologist' revealed high satisfaction among learners and their appreciation of the flexibility offered in place, pace, and time of learning (Karunanayaka, 2006, 2008c). The significance of designing an interactive online learning environment grounded in constructivist pedagogy is stressed for enhancing students' knowledge (Karunanayaka & Thanaraj, 2010).

Low student participation is observed in Supplementary online courses which can be attributed to non-compulsion of online interactions, non-familiarity with online learning, and lack of an 'e-culture' (Kanchana, 2018; Siriwardena et al., 2018). In contrast, studies in Blended and Online Plus courses in various disciplines such as English Literature (Pullenayegem, 2017), Civil Engineering (Liyanage, 2010), Medical Education (de Silva & Kulasekara, 2010), and Teacher Education (Karunanayaka, 2008a, 2008b) show active student participation. The design of carefully structured collaborative online learning environments with discussion forum's activities is a key factor which facilitates student interactions in online learning.

The crucial need for examining the cultural frameworks and students and teachers' expectations bring with it the need to build inclusive online learning environments (Jayatilleka & Gunawardena, 2016). Further, a study on the first cross-border professional development course at OUSL offered exclusively online for training online tutors and mentors. This showed many challenges in pedagogical, organizational, and technological aspects (Jayatilleka et al., 2017). Recent studies show a tendency to adopt social media and mobile technologies for Blended learning at OUSL

(Janz et al., 2019; Jayatilleke et al., 2018; Peramunugamage et al., 2018; Selvaras, 2019). It has also been shown that while m-learning is accessible, appealing, and pedagogically constructive for learners, optimization, development time, technical and organizational issues, academic workload, and production costs are major challenges (Jayatilleke et al., 2018).

The implementation of OER-integrated online courses at OUSL has also resulted in several research publications. For instance, stories by teacher educators (Karunanayaka & Naidu, 2014) and stories by school teachers (Karunanayaka & Naidu, 2016) which share motivations, successes, frustrations, challenges, and achievements. Investigations in different aspects such as OER-integrated science education (*OER4ScEd*) (Karunanayaka et al., 2013, 2014), peer-facilitated discussion forums (Karunanayaka et al., 2016), and reflective practices (Karunanayaka et al., 2017) highlight the significance of an innovative learning experience design for enhancing OER-based e-learning (Karunanayaka et al., 2015). Another study showed how OER-integrated online teaching and learning helped in bringing about social change in a post-traumatic social setting in Sri Lanka (Kugamoorthy et al., 2017).

Research has also been conducted in relation to the first MOOCs initiative at OUSL. This collaborative venture, which adopted an innovative approach to MOOCs' design for continuing professional development of practitioners in OER and OEP was very challenging, yet productive (Karunanayaka & Naidu, 2020; Karunanayaka et al., 2018; Naidu & Karunanayaka, 2020). For instance, investigations of the effect of scenario-based videos (Premaratne et al., 2018) and peer-facilitated online discussions (De Zoyza et al., 2019) in the MOOC learning process showed positive outcomes.

These research-based initiatives provide useful insights for further enhancing and strengthening

the processes of online course design, development, and delivery at OUSL.

After COVID-19

The COVID-19 global pandemic in 2020 disrupted teaching and learning in educational institutions, creating an urgent compulsion to move online. Due to the already available well-structured systems for online education at OUSL, teaching, learning, and assessment activities continued to a great extent with certain interventions and changes.

Creation of new online courses by staff members was expedited and there was a significant increase in the number of online courses. For instance, the number of online courses offered in OUSL-eLearn increased from 653 in December 2019 to 1,032 in September 2020 (CETMe Progress Reports, OUSL-eLearn). Student participation in online courses also improved, with increased communication, access to resources, and assignment submissions. Based on the government's directives due to COVID-19, all internet service providers (ISPs) in Sri Lanka started providing free internet access to university-hosted web servers including LMS. This too helped in enhancing online teaching and learning at OUSL.

Teachers made changes to their existing practices and started using alternative teaching, learning, and assessment activities. For example, the limited face-to-face day school sessions were conducted via the LEARN Zoom conferencing facility which is also provided free of charge to HEIs after COVID-19. In addition, Google Meet and Microsoft Teams' video conferencing tools are also being used. The recorded day school sessions at OUSL are shared via OUSL's OpenCast video channel. In addition, extensive use of social media tools such as WhatsApp, Viber, and Facebook groups enabled quick communication with students to support their learning related issues.

Use of online strategies for alternative assessments are increasingly being introduced in courses using the facilities in the Moodle LMS. These include both formative assessments (continuous assessments) and summative assessments (final examinations) using different tools such as quizzes, essays, discussion forums, and reflective journals. Further, plug-ins such as the Moodle mobile app for enhancing students' access to LMS from their mobile devices is also being used. In addition, other plug-ins such as the Safe Exam Browser to carry out e-assessments securely are also being considered. For the first time, an online 'selection test' was administered at OUSL in August 2020 using the Moodle LMS in all three languages (English, Sinhala, and Tamil) for the Bachelor of Education (Hons.) in the primary education programme. This was conducted in the computer laboratories at OUSL's regional and study centres, under a supervised environment in which over 5,000 candidates participated. Further options are being explored for using online strategies more effectively and efficiently, moving towards better teaching, learning, and assessment practices.

Future Directions and Plans

The senior management, senate, and council of the university are discussing future directions for OUSL in the light of new scenarios and associated requirements. A comprehensive concept paper titled 'Repositioning the OUSL in the post-COVID-19 pandemic scenario' presented by the present Vice-Chancellor of the university (Ariadurai, 2020) is being discussed by the faculties and senate. It highlights the need for enhancing online education at OUSL under three essential components: technical requirements, learning resources, and learner support.

Accordingly, several interventions have been suggested to be investigated and implemented. Some key recommendations relevant to online

teaching and learning are:

- Provide online support to all the courses offered by the university
- Further strengthen the computer facilities and internet connectivity in all OUSL regional and study centres
- Provide all students an affordable device for online access to courses and resources
- Promote creation of quality open educational resources (OER) and online courses, and share them through a dedicated platform
- Expand the use of different web-conferencing systems
- Increase the creation of multi-modal resources and build a repository
- Enhance use of social networking tools
- Use alternative online assessment methods (Source: Ariadurai, 2020)

These recommendations will be considered in the development of the next 5-year Strategic Management Plan (2021-25) for OUSL, which will contribute to future advancements of online teaching and learning practices at OUSL.

Conclusion

Completing 40 years of its existence in 2020 as a premier ODL institution in the country, OUSL has made a significant contribution to the higher education system in Sri Lanka. Since the start of online teaching and learning at OUSL in 2003, it has gradually expanded and now provides flexible access and multiple pathways for learners to fulfil their higher educational needs. Online teaching and learning practices at OUSL are continuously being enhanced along with innovative technological and pedagogical affordances.

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Institution Profile

The Universiti Brunei Darussalam (hereinafter UBD or the university) is a premier national university in Brunei Darussalam (hereafter Brunei). The university is located about 15 km from the city centre, nestled among the tropical rain forest along the beaches of South China Sea. The university was established in 1985, a year after the country gained full independence with a first intake of 176 students. Being a young university in the South East Asian region, UBD has produced over 20,000 graduates in the last 35 years. At present there are about 3,000 students enrolled in its programmes ranging from UniBridge (the university's fast-track foundation programme), bachelor's, master's, and doctorate programmes (History of UBD, n.d.). The statistics from the last three years show an average dropout rate of about 5 per cent, including

students whose studies were terminated and those who withdrew from the programmes offered at UBD at any given time during their candidature period.

International students account for about 23 per cent of the student population coming mainly from ASEAN countries, East Asia (specifically China and Japan), the Middle East, Africa, and Europe. Prospective students apply directly to UBD (Applying to UBD, n.d.). Local applicants for the bachelor's programmes are also required to apply through the Higher Education Centralized Admission System (HECAS) (Higher Education Division, 2020) under the Ministry of Education to coordinate applications to local HEIs and for government scholarship to overseas HEIs. Several other scholarship schemes are also available for prospective local and international students, notably the newly revived and competitive UBD

Graduate Research Scholarship that has attracted several quality international PhD applicants (Scholarships, n.d.)

There are approximately 500 academic staff members with more than 50 per cent comprising of international academicians and about 450 non-academic and support staff, including administrative and clerical staff, librarians, laboratory and ICT technicians, and so on.

The GenNEXT Programme

The university underwent major curricula transformation in 2009 with the introduction of the 'Next Generation programme' commonly referred to as the GenNEXT programme. The GenNEXT degree is an educational curriculum framework designed for students to excel according to their individual learning styles. The curriculum has changed to liberal-arts style broad-based curriculum. Undergraduate students are expected to spend 50-55 per cent of their modules in major areas and the remaining outside their major areas within their faculty or outside the faculty, thus promoting cross-disciplinary and trans-disciplinary experiences. With trans-disciplinary, the students are expected to contribute their knowledge and skills by collaborating with their peers to collectively come up with agreed outcomes and solutions, with their lecturers guiding them as the 'facilitators' of learning (History of UBD, n.d.; Mundia, 2012).

The GenNEXT curriculum is a student-centric approach to education and lays the foundation for lifelong learning. In addition, the GenNEXT programme is built on three cross-cutting principles: Leadership and Innovation, Entrepreneurship, and Environmental Awareness. One of the aims of the university's flagship GenNEXT programme is producing graduates who are able to cope in the ever-changing and highly competitive 21st century work environment and bearing in mind that most jobs that are available now were not available 10 to 15 years ago. Therefore, a university needs to adopt a

more holistic approach to ensure its graduates stay relevant in the 21st century. Through curricula changes, UBD aspires to produce graduates equipped with a variety of life skills.

UBD in the Rankings

UBD is so far the only university in the country to be ranked in the Times Higher Education (THE) World University Rankings with a global position in the 351 to 400 band, the fourth highest ranked university in ASEAN, ranked 60th in the The Asia University Rankings, and 78th in the Young University Rankings 2020 (UBD breaks into Times Higher Education World Rankings, 2019; UBD breaks into top 400 in THE world university rankings, 2020). Concurrently, UBD has risen steadily in the Quacquarelli Symonds (QS) World University Rankings to a position of 349 in 2018, 323 in 2019, 298 in 2020, 254 in 2021, and most recently, 250 for 2022. A continual rise has also been achieved in the QS Asia University Rankings from 123rd position in 2017, 105th in 2018, 100th in 2019, 86th in 2020, and 75th in 2021.

These accomplishments are major milestones for the university and the country as it has given UBD international recognition as a university of teaching and research excellence with the establishment of joint degree programmes with top peer universities, more research collaborations with international academicians, and for attracting potential students from the country, the region and around the world (UBD breaks into Times Higher Education World Rankings, 2019; UBD improves in QS ranking, 2019; UBD is now 254 in the QS world university rankings, 2020; Othman, 2020; UBD breaks into top 400 in THE world university rankings, 2020).

Faculties, Institutes, and Centres in UBD

UBD has nine academic faculties, eight research institutes, and two support centres. In 2017, UBD collaborated with FPT University in setting up

an English Language Training Facility called the UBD-FPT Global Centre in Da Nang, in central Vietnam. The centre is the first UBD campus outside the country, and also the first overseas campus established in the region by an ASEAN university.

Strategic Directions in Supporting the Adoption of Online Teaching and Learning

Most research in the adoption and implementation of learning technologies can be split into top-down (macro-level) and bottom-up (micro-level) studies. Top-down studies are concerned with radical and systemic developments that transform the

entire institution through organizational and structural change. The main focus of studies in this category is developing organizational theories in which technology is a major driver for the change. Such studies have generally focused on the development of technologies, top-down e-learning strategies, role of the senior management, and support and reward structures. However, focusing only on the macro-level factors has been criticized for limiting the opportunity to take account of the complex, ambiguous, and networked nature of technologies. Bottom-up approaches on the other hand, focus on the various parts and rich tapestry of the institution that may benefit the most from innovations. Typically, these approaches are less concerned with radical

9 Academic Faculties		8 Research Institutes		2 Support Centres	
APB	Academy of Brunei Studies	CAMES	Centre for Advanced Material and Energy Sciences	LC	Language Centre
C3L	Centre for Lifelong Learning	CARe	Centre for Advanced Research	ICTC	Information Communication Technology Centre
FASS	Faculty of Art and Social Sciences	IADA	Institute of Applied Data Analytics		
UBDSBE	UBD School of Business and Economics	IAS	Institute of Asian Studies		
FOS	Faculty of Science	IBER	Institute for Biodiversity and Environmental Research		
FIT	Faculty of Integrated Technologies	ILIA	Institute of Leadership, Innovation and Advancement		
IPS	Institute of Policy Studies	SOASCIS	Sultan Omar ‘ Ali Saifuddien Centre for Islamic Studies		
SHBIE	Sultan Hassanal Bolkiah Institute of Education	INNO LAB	FPT-UBD Innovation Lab		
PAPRSB IHS	PAPRSB Institute of Health Sciences				

FIGURE 3.30: UBD'S ACADEMIC FACULTIES, RESEARCH INSTITUTES, AND SUPPORT CENTRES

transformations of the entire educational system. The aim of research studies using this approach is developing theories of technology adoption that will aid their widespread application. There has been a significant surge in the number of studies that focus on the views and perspectives of academic teaching staff. The focus of these studies is mainly on staff attitudes and motivations for using technology, and they place prominence on organic and emergent changes driven by innovators and early adopters of e-learning. UBD has been involved in an open and deep dialogue on the adoption and implementation of e-learning that is underpinned by lifelong learning.

The university's current strategic plans for online teaching and learning are a blended learning mode, where both online and physical classes are available for all undergraduate and graduate modules offered by the university. These measures were recently started by UBD as a result of the ongoing strategies in controlling the COVID-19 outbreak in the country that occurred in the first quarter of 2020 (Jamil et al., 2021; Shahrill et al., 2021). This was in alignment with the latest developments on de-escalation measures taken by various agencies around the country and advice from relevant authorities on the easing of restrictions (UBD in the COVID-19 Pandemic, (n.d.). Appendix 1 gives the university's 'Operational Readiness Levels' related exclusively to teaching and learning. At present, all lectures are and will be delivered online and any sessions with face-to-face lessons or interactions with students on-campus are allowed provided that teaching venues or rooms have been booked and assigned in advance with respective assistant registrars of the faculties, institutes, and centres.

Quality Assurance

There is widespread consensus that a number of factors influence the adoption of e-learning including the impact of technologies on teaching

practices, personal motivations, attitudes to technology, and psychological motivations within the institutional context. Within an institution these influence strategy management, resources, and support. Many studies highlight the difficulties with top-down e-learning strategies that 'push' learning technologies. The thrust of research examining top-down and bottom-up approaches is that there needs to be increased support by top managers for e-learning projects that come from an individual staff member or a small group, which requires flexible, open, and responsive structures and strategies. Research has attempted to reconcile top-down and bottom-up approaches to gain a shared commitment by academic staff and senior management. Reconciling the top-down and bottom-up approaches to e-learning underpinned by the lifelong learning perspective has been the approach adopted by UBD since 2016 and this provided a platform for more rapid changes during COVID-19.

UBD's senior management comprises of the Vice-Chancellor or the President, and five assistant Vice-Chancellors or Vice Presidents, who oversee the offices of i) Corporate and Administration, ii) Global Affairs, iii) Innovation and Enterprise, iv) Academic Affairs, and v) Research. The Office of the Assistant Vice-Chancellor of Academic Affairs (hereafter OAVC AA) manages quality assurance of all modes of delivery for the modules or courses in the university alongside the Director and Deputy Director of Studies of OAVC AA, as well as the deans and directors of the faculties, institutes, and centres. Quality assurance on the administrative side is managed through the registrar's office that has a Registrar and Secretary, Deputy Registrar for Academic Affairs and the Assistant Registrar for Examinations and Registrations.

For online delivery there are two centres in the university that are instrumental in supporting OAVC AA's activities. Established in 2013, the Teaching and Learning Centre (TLC) focuses on pedagogical issues and practices for the

academic well-being of the teaching staff by providing workshops, seminars, webinars, and training related to teaching and learning and continuing professional development of academicians. TLC's main activities are geared towards the development of teaching strategies for effective and efficient learning including technology-enhanced teaching, non-traditional teaching approaches such as problem-based learning (PBL) and team-based learning (TBL), curriculum development, online assessment and e-learning, and other relevant in-demand topics. TLC also oversees the administration of the teaching and learning software for the university such as Turnitin, the Evaluation Kit for the 'Student Feedback Exercise' every semester, and UBD Qualtrics, which is a subscription software platform for an online survey tool (OAVC AA, 2019).

The Centre for Lifelong Learning was established in 2016. The centre has led the way in pioneering and implementing innovative approaches in continuing education, professional development, and blended learning. The Centre for Lifelong Learning (C3L) is a leading centre of excellence for lifelong learning in Brunei which seeks to integrate emerging industry's needs with innovative digital learning. C3L provides stackable certification solutions based on blockchain for lifelong learning by accessing level courses through to PhD. Providing digitally led lifelong learning pathways complement Brunei's core needs for higher level skills and research in emerging areas of growth.

C3L provides support for lifelong learning through the programmes it offers with infrastructure that is inclusive and flexible. The innovative blended learning programme provides students an opportunity to customize their studies so that they are best aligned with their individual educational needs and career objectives while also giving them the opportunity to study at their own pace, place, and path alongside their existing careers or daily activities. C3L has made

it possible for the university to introduce short courses that incorporate face-to-face and online experiences seamlessly (About C3L, n.d.; Lifelong Learning Key to Facing Future Challenges, 2018; Mahmud, 2019).

Online Course Design and Delivery

In the last two decades, some faculty members started using several online learning platforms in the delivery of their modules such as the use of Moodle by the Faculty of Science and Edmodo by the Sultan Hassanali Bolkiah Institute of Education. However, these are no longer used due to differences in outcomes and the convenience of lecturers and students' usage. Students nowadays are tech-savvy and as educational providers the university needs to constantly evolve with the latest technologies. It needs to align and update to the current educational trends to attend to students' ever evolving learning needs and the constantly changing educational learning environment around the globe.

During October to December 2014, the university embarked on a pilot project to support the testing and evaluation of a campus-wide solution for UBD online learning or UBD e-learning. This was intended to enable a more flexible and open approach to learning. The project's objective was providing a blended approach to teaching and learning with online support in classroom learning that enabled a more personalized approach bringing together the campus, home, and work. More specifically, the UBD Canvas as the main learning management system (LMS) makes it possible to deliver student-centred teaching and learning for enhancing team-based learning (TBL), problem-based learning (PBL), and technology enriched instruction (TEI).

The Canvas working group piloted two modules in education and health sciences with an initial test on over 200 students. Due to the success

of the pilot's initial testing, in the follow-up semester, 27 new modules were registered on the Canvas platform. Several workshops were conducted by TLC members for over 90 academicians and more than 10 one-on-one sessions with the programme leaders and by the Canvas support staff for the ICTC technical support staff. Additionally, faculty learning technology advisors were appointed to handle any faculty technical administration and provide support for colleagues in their respective faculties.

Canvas is now recognized as one of the top five learning management system (LMS) solutions. A key reason for the need for Canvas is because it is based on a user license and it is a cost effective option particularly for a small institution such as UBD. Most importantly Canvas represents a rich solution that bridges the best of a traditional LMS such as Blackboard or Moodle, with the ability to plug in a wide range of social media tools. UBD has its own app store with apps from major suppliers of e-learning tools like communication, assessment, plagiarism, and mobile apps. In addition, Canvas integrates hundreds of apps, thus empowering teachers or lecturers and students with countless tools to make learning simpler and accessible with exciting progression and outcomes. Canvas is also able to assist in various aspects of learning such as the dissemination and organization of lecture material, assignment submissions, grading by the lecturers, online quizzes, group discussions among the students and lecturers, as well as a systematic way of attendance taking. The online system is accessible through various platforms such as mobiles and tablets allowing greater access to students and teachers. Users are able to communicate and share digital resources throughout a course (including assignments, announcements, discussions, and blogs) on Canvas. These features offer a valuable and accessible learning experience. Canvas has a clear impact on realizing UBD's desire to be more innovative, creative, and embracing lifelong

learning in its learning and teaching, and further enhances the interaction between faculty and students more dynamically, easily, and efficiently.

During academic year 2015-16, all the modules taught at UBD were incorporated into Canvas. Canvas' use at UBD is now compulsory for all lecturers and students in teaching and learning. This was reiterated during UBD's 27th Convocation in 2015, in His Majesty Sultan Haji Hassanal Bolkiah, the Sultan and Yang Di-Pertuan of Brunei Darussalam's *Titah* (a royal address): *"With sufficient facilities and UBD's future goals in line, the practice of blended learning – whereby some parts of education can be done online – will be introduced in the near future."*

The use of Canvas is not only compulsory for all UBD lecturers teaching GenNEXT modules but it is also a major component of lifelong learning modules. Canvas helps deliver teaching material on GenNEXT and lifelong learning programmes. Canvas has been specifically designed for higher education universities for supporting professional practices and in providing an accessible and specialized learning experience. When a module is published in Canvas, the teacher (or instructor) may or may not be an active user. Based on observations on the use of Canvas, an active instructor may be seen as doing all or some of the following: Moreover, OAVC AA oversees continuous monitoring of Canvas' implementation.

- Posts announcements to interact and/or remind his/her students;
- Uploads his/her notes and/or assignments in Canvas as a file depository;
- Uploads reading material in advance for online discussions and interactions with his/her students;
- Uses the 'quizzes' in Canvas for assessment;
- Uses 'conferences' in Canvas by giving a video or audio lecture using the Big Blue Button application readily available in Canvas; and

- Allowing his/her students to upload weekly reflections of their assignments or teaching e-Portfolio.

Although UBD introduced the use of the university subscribed LMS (Canvas) in 2015, the journey for transitioning the academic staff to use it was quite challenging. However, with the current situation, academicians have fully embraced the platform and this is also why it was able to implement online learning in the university on 12 March 2020, within three days of the first positive COVID-19 case in Brunei (Shahrill, Noorashid & Keasberry, 2021). After detailed discussions with deans and directors of the respective faculties, institutes, and centres, OAVC AA provided general guidelines for academic staff of the university that covered measures pertaining to lectures, tutorials, and seminars; submission of academic requirements and academic related presentations; laboratory and practical classes, clinical sessions, and final year projects; and examinations. These were necessary as precautionary measures to minimize potential pathways for the community spread of the virus and simultaneously minimizing any interruptions to all teaching and learning activities. There is no specific mechanism to ensure that academicians from the faculties, institutes, and centres are implementing the guidelines, yet they are monitored through their respective programme leaders and deans or directors.

Other processes involved in developing and delivering online courses include online training via webinars by TLC and C3L for lecturers on teaching and learning, the dissemination of the online teaching starter pack, step-by-step guide on online lectures, creating tests and assignments using Canvas, and step-by-step guides on using online meeting apps such as Zoom and Google Hangouts. Appendix 2 gives a list of webinars and other related training sessions offered during the long semester break and at the beginning of the new semester to academicians to assist them during the COVID-19 pandemic. Lifelong learning

supports Brunei's vision for 2035 with world-class excellence in digital learning for higher education. C3L facilitates and embeds the ethos of lifelong learning directly into the design and development process for digital learning. This directly supports the development of a digital nation, employability, and sustainability for Brunei.

Interactivity between academicians and their respective students is built using the chat room function provided on Canvas which facilitates any issues or concerns during or after online classes. Some also use e-mails, WhatsApp, texts, and phone calls for communication. The time taken in developing an online course may be immediate (a few hours) for some courses while for others it may take a while especially in learning the new ways of teaching. All these developing processes evolve and may show improvements along the way as it is a process of learning that one needs to adopt and adapt. Academicians are not restricted to the online platforms that they can use. What is important is that they are comfortable using them especially during online teaching delivery and the ease of usage for their students as well.

In relation to the infrastructure for supporting the delivery of online modules during the COVID-19 pandemic, the original class timetable set before the start of the semester was followed. Any additional timing or changes to the schedule were arranged and agreed upon between the lecturers and their students. The university did encounter several setbacks after decisions were taken to convert examinations to full coursework, such as students complaining about the increase in coursework assignments and clashes in submission due dates. An extended one-week for revision solved the problem.

Learner Support Systems in Facilitating Online Learning

As mentioned earlier, the university implemented the blended learning approach in facilitating the

students' online learning delivery. In fact, even before the COVID-19 pandemic, the synchronous and asynchronous teaching and learning method had already been used in programmes offered in C3L. However, during the pandemic, there were some lecturers who stated that they preferred the synchronous nature of the online real time (live) lectures and tutorials, while others favoured the asynchronous recorded video lectures so that their students could watch the recordings at any time they wanted.

Students nowadays can quickly adapt to changes in their learning. Most of UBD's students are familiar with the use of Canvas because undergraduate students in general, are required to register for four compulsory breadth modules. The mode of learning, instructions, and assessments for all the four modules are through Canvas. Similarly, graduate students undergoing the 'by coursework' or 'by research' programmes, too are familiar with Canvas.

During the pandemic, it was vital to have clear communication. Communicating clearly and transparently is pertinent to all staff and students about what is happening through a series of letters (Aziz, Hamid, Petra and Jacob,

Personal Communications March to July 2020). The academicians and the relevant university management offices communicated with the university community via e-mails and WhatsApp. The university also used 'ubdbuzz,' the official Instagram and Facebook accounts to convey the messages. Importantly, students, parents, and the public were informed about the university's hotline number in case they had any concerns regarding their studies and year placements locally and abroad. This hotline served as a support system for them.

Student Assessment

With the introduction of the GenNEXT model in 2009, the university took the opportunity to revise the existing modules. It also introduced new modules to suit current trends and needs of individual programmes and global best practices. In particular the assessments component of a module incorporated both formative and summative assessments in the outline. Academicians were given guided explanations with blank and sampled templates of the module outlines and module descriptions. The module outline covered the contents and details whereas

Example: If the module outcomes are almost 80% knowledge and understanding, 10% application and analysis, and 10% skills (i.e. 8:1:1), it can be interpreted as about 20% should be coursework (for application and skills part), and 80% should be examination (for knowledge and understanding part).

UBD Coursework Assessment Calculator*: Example

Level of outcomes	(%) of CW within each level of Learning Outcome (A)	Distribution, Proportion of each level (out of 10) within the module (B)	[A x B]/10	Course-work (%) (C)	Exami-nation (%) (D)
Lower order	10%	8	8%		
Middle order	50%	1	5%	20%	80%
Higher order	100%	1	10%		
		Sum of this column must be 10			

Source: Perera et al. (2015, p. 23).

FIGURE 3.31: CALCULATING USING THE UBC COURSEWORK ASSESSMENT CALCULATOR

the module description had comprehensive content which helped provide information to be given to the students.

A handbook of assessment was also prepared by TLC to regularize the assessment practices across all faculties, institutes, and centres (Perera & Hassan, 2015). Despite different degree programmes being offered in a wide range of disciplines, global best practices demand that all bachelor's degree holders, for example, must have certain generic attainments in the cognitive, psychomotor, and affective (knowledge, skills, and values) domains of educational outcomes. In addition, the UBD GenNEXT programmes are built on the three principles of Leadership and Innovation, Entrepreneurship, and Environmental Awareness. The assessment practices must inform UBD and the stakeholders what the graduates have achieved in these domains and principles. The handbook serves as a guideline for achieving these assessment goals for both new and experienced academicians at the university.

Also provided in the handbook of assessment is a guide on how to consider the proportion of the required outcomes of a particular module, and how to calculate the proportion of coursework and examination. For an assessment of lower order outcomes, examinations alone may be sufficient. Similarly, a module focusing on higher order outcomes may be best assessed by coursework only. For middle order outcomes and/or a combination of lower order and higher order outcomes or skills and attitude outcomes (an ideal module should have a combination of all knowledge, skills, and attitude outcomes) a combination of both examination and coursework is essential for a reliable evaluation of students learning. An Excel based 'UBD Coursework Calculator' to calculate the proportion of coursework for a module based on distribution of levels of learning outcomes in a module was designed for this purpose (Perera et al., 2015). Figure 2 below shows an example

calculation for a module with 80% examination component.

It is typical for the summative assessment of fourth year bachelor's and the graduate modules to be designed as 100 per cent coursework, that is, no examinations, aligned with a bigger percentage or a full 100 per cent for the higher order learning outcome level. The type of coursework expected may consist of written presentations such as essays and reports, portfolios, and others. While other modules with examinations may have a weightage of 20 per cent to 80 per cent sandwiched with some coursework. The examinations are set after the 14-week semester and one week for revisions and are usually held physically in a classroom or laboratory setting or in a big hall with a maximum duration of two hours. Invigilation is tasked to the respective module lecturers supported by members and volunteers from the examination office of the university.

Before the COVID-19 pandemic, apart from C3L, the remaining faculties in the university typically had proctored or invigilated examinations in the main hall or other venues on campus and did not officially allocate any online assessments (coursework, proctored, and non-proctored examinations). All this changed during the pandemic.

Challenges in Designing and Delivering Online Modules

As one would expect, there are many challenges in designing and delivering online modules. One particular challenge is the one-way transfer of knowledge where only the instructor is talking in the video. Students' attentiveness may be diverted or distracted if the video lecture is longer than 10 or 15 minutes. Additionally, it is not interactive or may have reduced interactions with students through online activities. Unlike the traditional classroom setting, some lecturers also lamented about the difficulties in recognizing

their students' reactions or responses during the online lectures.

From the health perspective, with the increased use of online delivery, the lecturers also raised concerns about the excessive use of screen time and mobile phones in attending to, for example, lectures and assessment material and the students' lecture and assessment queries. Other physical health related concerns included stiff necks, back pain, dry eyes, and frequent eye strains and headaches.

On the positive side, by adapting well to the practice in designing and delivering online modules, lecturers can be organized in creating the lecture content and this may leave extra time for discussions, more engaging student-centred interactions, and constructive feedback during the blended approach for tutorials.

Findings from Online Surveys among Academicians and Students at UBD

The university did several online surveys following the full launch of online learning due to the COVID-19 pandemic. These were necessary for the university to continuously review the progress and development of online learning by studying the best ways of supporting delivery and achieving the university's learning objectives.

The first set of surveys for academicians and students were done three weeks after full online teaching and learning was started, approximately three-quarters within the initial 14-week semester. The objectives of the surveys were investigating the experiences and challenges faced by academic staff and students in going through the sudden and unexpected changes in their teaching and learning during the pandemic. Some of the findings showed that among the top three challenges that the academicians faced were: some limitations in the use of the free application

software (78.2 per cent), the requirements to learn new online tools (76.4 per cent), and redesigning questions or assessments (76.1 per cent). While for students the top three challenges in relation to teaching sessions such as lectures, tutorials, and practical or clinical sessions were: distractions while being at home (80.2 per cent), increase in overall workload (77.2 per cent), and increase in given assignments (74.1 per cent). There were also other important findings of the surveys that made the university take further action such as extending the allocated one-week revision to two weeks so that the students were able to submit their assignments and converting all examinations online.

Even though Canvas allows assessments to be conducted online, it was the first time that the university was conducting online examinations. Therefore, the registrar's office also conducted an online survey that focused mainly on students' online examination experience. There were 728 responses to the 89 module codes that had online examinations during the new dates of the two-week examinations. The findings showed that a majority of the students sat for the online examinations at home (93.6 per cent) with the use of home broadband or wi-fi (81.3 per cent). When asked if they got disconnected during the examination, 92.5 per cent said 'No', but those who got disconnected reconnected. One student stated, "My laptop was suddenly not responding." Overall, 91.8 per cent of the students rated their online examination experience as being average to excellent. Among the common responses to suggestions for improvements in the online examination experience was the need for additional time for examinations and uploading answer scripts. Feedback was given to respective faculties so that the findings gained from this survey may help them decide whether they will consider converting their examined modules to 100 per cent coursework and if they will continue they will need to review their respective module examination questions and time duration.

Immediately after the online examinations ended, a follow-up survey was done among students specifically with the goal of understanding their learning experiences and challenges throughout the semester due to the pandemic. Among the top challenges that the students experienced were difficulty with the internet connection at home (58.8 per cent), there was a problem in the assessment due to limited online teaching (54.6 per cent), and during the online examination, there were problems with internet connections (56.7 per cent).

The university was swift in its action when certain issues were raised regarding the hardships and challenges faced by some students in relation to the full online learning programmes, such as not having fixed broadband at home and not owning their own devices such as computers or mobile phones. From the students' survey at least 170 students were identified who required further assistance. Funds were raised from several communities to assist the students from underprivileged backgrounds in the form of subsidies for data top-ups and SIM cards for mobile internet connections (UBD Alumni & Donors Contribute Towards Students' Online Education, 2020; Shahrill et al., 2021).

Changes to Module Delivery and Assessments during COVID-19

In responding to the nation's decision to prohibit mass gatherings in light of the COVID-19 pandemic and importantly, to safeguard the well-being of the university community, the university took the decision to replace on-site (on-campus or physical) examinations with remote examinations and assessments conducted online. The university also continued evaluating those affected by these changes by assessing whether the students could achieve the learning outcomes as stated in their modules and programmes through alternative means. For example, a module that initially carried an examination component was either converted to

full 100 per cent coursework or the examination was conducted online using Canvas. Meanwhile, all clinical, laboratory, and practical sessions had to be delivered in a staggered manner strictly following the guidelines prescribed by the Ministry of Health of Brunei.

The decision to transition to online teaching and learning and online examinations for both semesters this year were left to the lecturers concerned with guidance from their programme leaders and deans or directors of the faculties, institutes, or centres. They were guided using the university examination flowchart (refer to Figure 3 below) that was provided to them earlier.

In ensuring fairness and equity for all students, the university also decided to give them the option of selecting the format of their results pertaining to breadth modules only, which were either a Pass or Fail format or a graded format. The breadth modules specifically applied to the existing breadth modules, compulsory breadth modules, and major modules taken by students who had already declared their major in the first semester and before the commencement of their fourth semester.

For the present semester, students are no longer being given the option to choose the Pass or Fail format or a graded format because after the examination meetings last semester, it was found that some students were at a disadvantage. For example, when students chose the Pass option and if they knew that they did very well in the assessment, the graded mode would boost their cumulative grade point average (cGPA) calculations. It was a matter of 'not one size fits all' situation. Autonomy was given to the faculties and they were given the basic guidelines. But ultimately, they are the ones who can give concrete feedback to the university regarding students' performance.

There were many concerns on how online examinations should be conducted and also concerns about how to prevent students

UBD EXAMINATION DUE TO COVID-19 PANDEMIC FOR SEMESTER 2, AY2019/2020

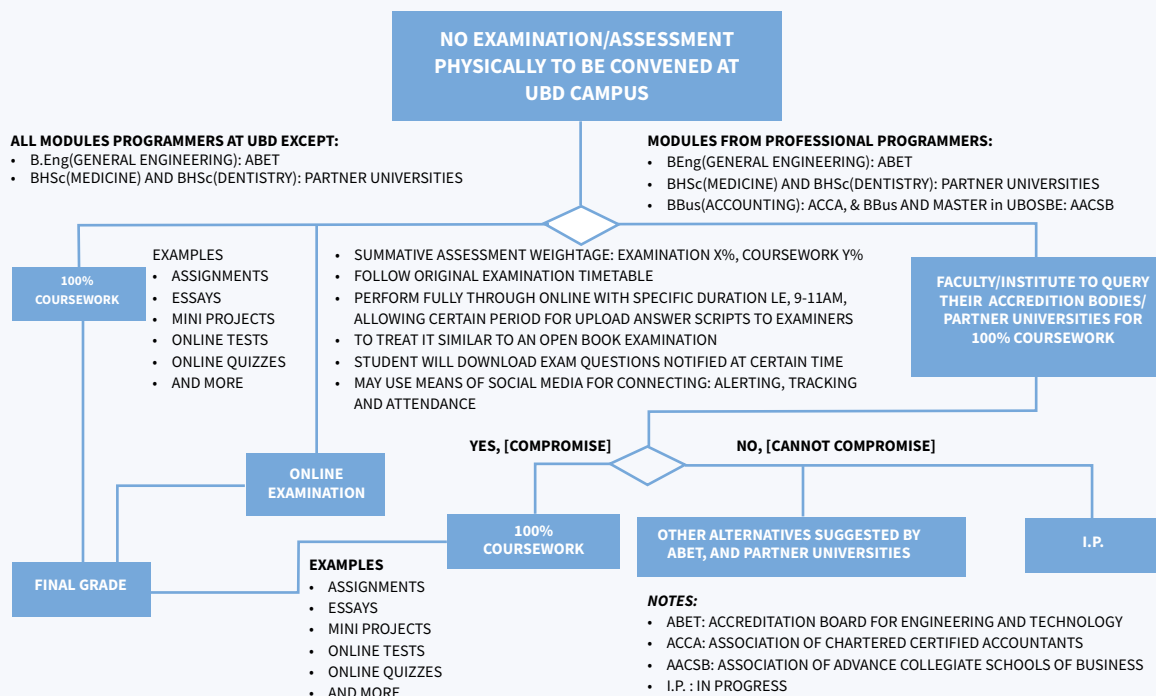


FIGURE 3.32: UBD'S EXAMINATION FLOWCHART DUE TO COVID-19 PANDEMIC FOR SEMESTER 2, AY 2019/2020, PREPARED BY OAVC AA

from cheating and plagiarising during online assessments. Lecturers who had decided to retain the online examination component of their modules were instructed to indicate to the Examination and Registrar Office whether their module would be an open or a close book examination. The flexibility of open book examination would have been ideal but the examination questions had to be re-designed to incorporate critical evaluations of a particular examined topic. Most of the modules had open book examinations, which are categorized as non-proctored online examinations where students sat for the examinations mainly at home without their respective lecturers watching them. Nonetheless, the lecturers are required to invigilate their students (being on stand-by) whilst the examination was live in case they required any assistance. A close book examination required stricter rulings for monitoring the students while taking

the proctored online examinations, such as setting up a video using a hand phone with a full unobstructed view of the student and the computer screen simultaneously. The close book proctored online examinations were mainly for those registered in the Bachelor of Health Sciences in Medicine and Dentistry programmes due to clinical assessments, specifically the Objective Structured Clinical Examination or OSCE.

All academic staff were directed to a document prepared in advance by OAVC AA via the Examination and Registration Office titled 'Staff Guidelines for Online Examinations' that included guidance on preparing questions, the duration of two hours for all online examinations, alerting students to log in 15-30 minutes prior to the start of the examination, to give a maximum of an extra 30 minutes at the end to upload any documents, invigilation by the lecturer teaching the module,

and scoring procedures and checklists for the open and close book examinations. Similarly, all the students who sat for the online examinations were also guided to use the document ‘Special Examination Procedure for Online Examinations (for Exam Candidates).’ These documents were made available on the staff and student portals called myUBD.

To safeguard the credibility and integrity of online assessments, that is, in solving problems in relation to cheating including plagiarism, all students were informed through a document prepared by OAVC AA titled ‘Information on Academic Matters - Frequently Asked Questions (FAQs)’ also available on the myUBD portals, that although the mode of delivery of the examinations was online, the university examination rules and regulations still applied and violations would carry serious penalties if they were caught. An online ‘Submission Declaration’ form for all online examinations detailing that they had declared, authorized, understood, and read all the rules had to be accepted by every student before proceeding to the online examination questions.

Typically, after a 14-week semester, the university had one-week of revision for the students before the examinations on campus. In allowing the recent changes in assessment modes, the revision week was extended by an extra week and new dates for the examination week were put forward. It is important to note that all students in the university were also updated regularly about all the necessary and relevant information via mass e-mails and accessing the university students’ portal.

Online teaching has made UBD more accessible to international students without leaving their doorsteps. One such example is the University’s Global Discovery Programme (GDP). First launched in 2011, UBD’s GDP is designed to offer international students an opportunity to experience student-life in this culture-rich kingdom, in an academic setting which is

stimulating, challenging, and progressive. However, due to the global COVID-19 pandemic and travel restrictions by many countries, the GDP programme that typically runs during summer was restructured to a synchronous online programme called e-GDP (Abdul Aziz, 2020). e-GDP is an intensive virtual summer school programme where the first part involves interactive sessions on Brunei’s biodiversity, culture, language, and local delicacies. The second part of e-GDP is the blended component which is conducted in-person after travel restrictions have been lifted. The first e-GDP was held between 6 to 11 July and the second e-GDP on 17 to 22 August 2020.

Future Directions and Plans

Since the COVID-19 pandemic, the university has moved rapidly to a blended learning approach that is underpinned by a lifelong learning perspective. The blended approach to e-learning with lifelong learning offers UBD a unique opportunity for bringing forth a unique approach to digital education, which is shaped by the traditions of Brunei with international innovations in digital education. Technology evolves so fast in the 4th Industrial Revolution (IR 4.0), hence training and re-training on design and delivery will never stop. It will continue to evolve with the changes and all this points to lifelong learning for academicians (Shahrill & Yacob, 2021). Relevant training workshops, seminars, and webinars were scheduled by TLC to supplement, compliment, and support academicians in designing and delivering their online modules.

UBD also implemented the Skills Upgrading Point (SUP) system for academic staff in August 2020 (Abdul Aziz, 2020). The main purpose of this was promoting quality assurance in teaching through developing competencies among academicians in diverse areas of teaching and learning. All academic staff are required to develop necessary skills for blended learning, particularly online

teaching, as one of the widely used methods in the university. In general, the university aspires for its entire academic staff to become highly skilled educators who are well-versed with up-to-date teaching and learning knowledge. The point system for SUP provides a quantitative measure of staff's competencies based on activities that they have undergone to upgrade their relevant teaching skills. The SUP system is considered a part of the requirements for staff promotions, contract renewals, appraisals, nomination of awards, and academic migration applications. The point collection is on an annual basis, covering the two semesters of each academic year. The idea behind the academic SUP scheme may be compared to the processes that medical professionals go through in their Continuous Medical Education or CME, where they acquire CME points when they present papers on the latest medical updates and share them with their peers.

COVID-19 has re-shaped perceptions about digital education and in particular resulted in UBD seeking a blended pedagogy that supports both teachers and learners in re-imagining their educational experience. UBD was well placed to take a more innovative approach as the university had already established university-wide learner management systems. In addition, the university had also invested in specialized tools for enhancing the university-wide e-learning platform and this included digital portfolio software, video streaming with analytic tools, and most recently micro-learning software for further enhancing the personalization of learning. UBD entered the new normal where it has now

decided that all lectures will be delivered online beyond COVID-19, and tutorials will form the basis for in-person teaching and learning.

Conclusion

The design and development of teaching and learning online is often the responsibility of an individual academic member of staff, or a small team in HEIs. The development of e-learning modules has challenged this conception, requiring a need for closer collaboration between different functional groups. Apart from structural barriers (departments), there are also administrative barriers (bureaucracy and hierarchical structures) and human aspects (individual characteristics and personalities of different academicians) that could bring challenges to many collaborative approaches in HEIs. In UBD the 'departments' were removed with the GenNEXT programme to reduce structural barriers and for promoting inter or multi-disciplinary approaches to learning.

The case study presented here is intended to contribute to practice through providing a better understanding of the issues associated with implementing rapid changes for moving to a blended pedagogy underpinned by e-learning in the COVID-19 time. The findings may provide recommendations for managers and policymakers in managing boundary interfaces, communication, power and devolution, social positioning of team members, and the role of project managers.

Appendices

APPENDIX 1. THE OPERATIONAL READINESS LEVELS OF UBD (SOURCE: UBD IN THE COVID-19 PANDEMIC, N.D.)

Operational Readiness Level 4 (Effective from 27 July 2020)

- Restructured blended learning mode where students will experience both online and physical classes.
- All lectures will continue to be delivered online.
- Face-to-face lessons/interactions for tutorials, practical, laboratory sessions, and clinical sessions on campus in the assigned teaching venues/rooms.

Operational Readiness Level 3 (Effective from 7 July to 26 July 2020)

- Resume face-to-face lessons and practical/clinical sessions except lectures (online lectures).

Operational Readiness Level 2 (Effective from 18 June to 6 July 2020)

- Face-to-face lessons will resume, in addition to the practical/clinical sessions that are already taking place on-campus, except for lectures. Such face-to-face lessons include tutorials and small discussion groups.
- Faculties, institutes, and centres will ensure that attendance at any one time in a particular teaching venue does not exceed 40 per cent of the room's capacity.

Operational Readiness Level 1 (Effective from 29 May to 17 June 2020)

- Face-to-face practical/clinical sessions only for graduate students.
- Faculties, institutes, and centres will ensure that attendance at any one time in a particular teaching venue does not exceed 30 per cent of the room's capacity.
- Online examinations at the end of the semester.

Operational Readiness Level 0 (Effective from 12 March to 28 May 2020)

- All lectures and tutorials to transition to online platforms for the rest of the semester to minimize face-to-face interactions on campus.
- Online submission of academic requirements.
- Limited practical and clinical sessions. Faculties, institutes, and centres will ensure that attendance at any one time in a particular teaching venue is done in a staggered/cohorting manner, observing the guidelines on hygiene and physical distancing set by the Ministry of Health.

APPENDIX 2. LIST OF WEBINARS AND OTHER RELATED TRAINING SESSIONS ORGANISED BY UBD TLC AND C3L

No.	Organiser	Title	Facilitator	Date	Time	Mode of Delivery & Venue
1.	TLC UBD	Motivation for Blended Learning beyond Technicalities	Dr Roslinawati Mohd Roslan	22 June 2020	9.00 – 10.00 am	Sharing Session via Zoom
2.	TLC UBD	Planning Online Activities Strategies on Giving Online Lectures	Dr Hj Sallimah Hj Mohd Salleh	24 June 2020	9.00 – 10.00 am	Sharing Session via Zoom
3.	TLC UBD	Available resources (apps, open source programs, etc.) & Helpful tips (converting PowerPoint to video, video recording & editing, etc.)	Dr Hj Sallimah Hj Mohd Salleh	June 24 2020	2.00 – 3.00 pm	Sharing Session via Zoom
4.	TLC UBD	Canvas Session 1 (Canvas for Blended Learning & Student Centred Learning)	Prof Mohd Ayub Sadiq	27 June 2020	11.00 – 12.00 pm	Sharing Session via Zoom

No.	Organiser	Title	Facilitator	Date	Time	Mode of Delivery & Venue
5.	TLC UBD	Canvas Session 2 (Creating online exercises, assignments, tests, group work, and conferences)	Prof Mohd Ayub Sadiq	27 June 2020	2.00 – 3.00 pm	Sharing Session via Zoom
6.	TLC UBD & C3L	Digital Innovations Sharing Session (Online Teaching & Learning I Curriculum design module handbook as a tool for designing a shared learning experience)	Prof Glenn Hardaker	29 June 2020	9.00 – 10.00 am	Sharing Session via Adobe Connect Meeting
7.	TLC UBD & C3L	Digital Innovations Sharing Session (Online Teaching & Learning II Collaborative teaching & learning design video recordings, discussion forums, tutorial sessions)	Prof Glenn Hardaker	29 June 2020	2.00 – 3.00 pm	Sharing Session via Adobe Connect Meeting
8.	TLC UBD & C3L	Digital Innovations Sharing Session (Online Teaching & Learning III Digital assessment design facilitating, the formative to enable the summative)	Prof Glenn Hardaker	1 July 2020	9.00 – 10.00 am	Sharing Session via Adobe Connect Meeting
9.	TLC UBD	Webinar on Microsoft 365	Tech One Solutions Sdn. Bhd.	22 July 2020	9.30 – 11.30 am	Webinar via Microsoft Teams
10.	TLC UBD & C3L	10 Practical Tips for an Online Class	Dr Annie Dayani Ahad & Ak Md Wafiq Ghiyathuddin	29 July 2020	10.00 – 11.00 am	Sharing Session via Webex Meeting
11.	TLC UBD	Webinar on SharePoint Online	Tech One Solutions Sdn. Bhd.	26 August 2020	2.30 – 3.30 pm	Webinar via Microsoft Teams
12.	TLC UBD	Using Microsoft Teams for Blended Learning	Dr Hjh Sallimah Hj Mohd Salleh	2 September 2020	2.00 – 4.00 pm	F2F Workshop, SHBIE G.94

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Acknowledgments

We would like to acknowledge the Vice-Chancellor of UBD, all assistant Vice-Chancellors, Deans and Directors, and all academic and support staff as well as all the students of UBD, especially those who worked tirelessly behind the scenes with dedication to transition smoothly in the journey during the COVID-19 pandemic.

WAWASAN OPEN UNIVERSITY, MALAYSIA

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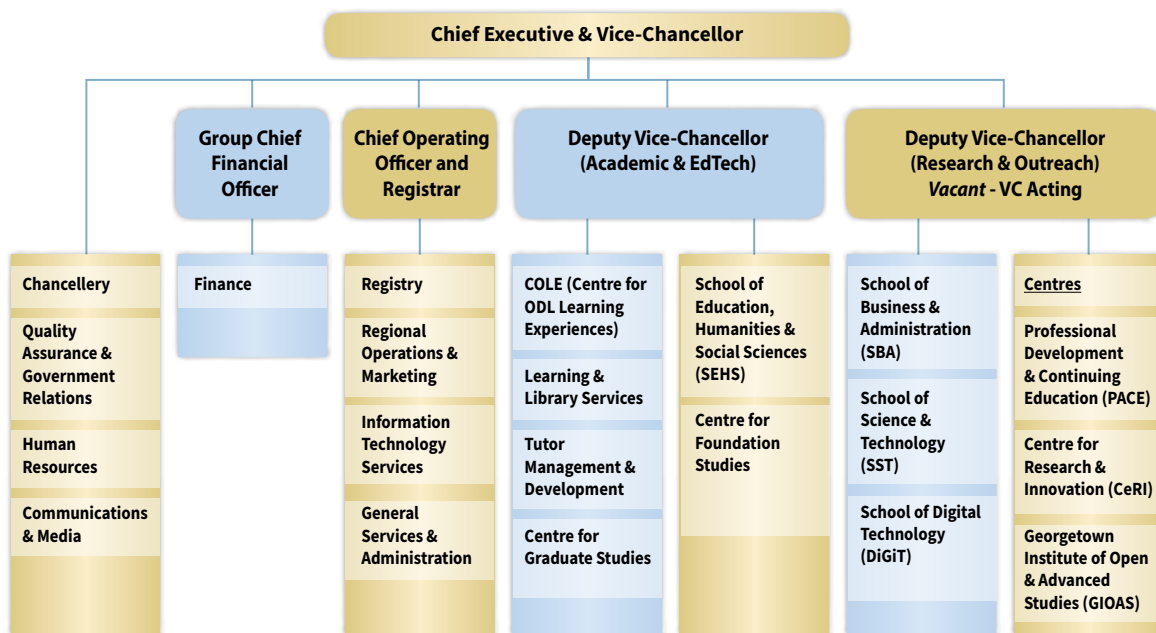
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Institution Profile

Wawasan Open University (WOU) was established in 2006 with a unique and socially responsible objective of providing working Malaysians access to quality higher education via open distance learning (ODL) regardless of their educational, ethnic or socioeconomic background. The university spread its wings in September 2013 to offer full-time degree programmes for STPM school leavers and diploma holders at its main campus in Penang. It offers ODL to enable working adults to pursue their educational dreams without disrupting their professional and personal commitments, and affordable on-

campus undergraduate programmes in Penang for school-leavers and diploma holders.

The university equips its students with industry-relevant knowledge and skills that serve them well in today's competitive work environment. WOU students come from all walks of life, including school leavers, mature workers, full-time parents, and even those between jobs. Many of them join university studies through the open entry system and not via traditional routes. Most of the students are over 21 years old; there are also students in their 70s. For most students, English is the second or third language and their primary motive for studying is professional



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FIGURE 3.33: WOU's ORGANIZATIONAL CHART

development. WOU course material is prepared and delivered by qualified staff members from industry and academia and its tutorials are delivered in English. WOU programmes are accredited by the Malaysian Qualifications Agency (MQA) and approved by the Ministry of Higher Education (MOHE).

Currently, there are three schools at WOU -- School of Business Administration, School of Science and Technology, and School of Education, Humanities, and Social Sciences. These offer 62 programmes, ranging from graduate certificates to PhD programmes. They are supported by the Centre for Foundation Studies that offers compulsory courses required by the Ministry of Education as well as university courses. There is a Centre for Graduate Studies that takes care of post-graduate programmes, a Centre for Research and Innovation, and a Centre for Professional Development and Continuing Studies.

Student Enrolments at WOU

WOU students comprise mainly adult learners between the ages 21 and 74 years with a majority (76.4 per cent) in the 21 to 35 years age group who may be in one of the following categories: working adults who need to upgrade their knowledge and skills, older workers who have the time and the confidence to return to tertiary education, and retirees who are engaged in study for personal fulfilment.

With competing priorities of work, home, and personal obligations, adult learners need a learning pathway that is highly flexible. WOU's structure provides its learners with flexibility in their progression pathway. WOU registers students on a semester basis. In any given semester its students are given the flexibility to register for two to three courses (with a maximum credit value of 15 credits) or none at all. Due to the nature of their work or family commitments, WOU students sometimes skip one or more semesters, returning when their personal circumstances are more conducive for them to

resume their studies. WOU classifies students as active (when the students are registered).

In conventional universities 'attrition' is usually taken to mean 'failed and not allowed to continue.' In the WOU model, this description is not meaningful since the university does not bar students from registering to study. Students who pass all courses in a semester may not register for any course the following semester due to work related constraints while a student who fails all the courses s/he registered for in a semester can still continue to take other courses in the following semester.

However, WOU does have instances where students formally 'withdraw' from their studies. Generally, the reasons given are personal, job related, and a few course related ones.

TABLE 3.10: WOU'S STUDENT NUMBERS AND ATTRITION RATES

Year	Total Students	Number of students leaving the institution without graduating	Attrition rate*100
2019	4765	134	2.81%
2018	5338	196	3.65%
2017	5028	179	3.56%
2016	5011	212	4.23%
2015	5122	270	5.27%

Since its inception, WOU has had 25,885 students in both conventional and ODL streams; 4,494 students both from ODL and conventional streams have graduated. The number of active students as of October 2020 was 4,488 students.

Geographical Regions Covered by WOU

Wawasan Open University operates five regional centres in Malaysia: the main campus in Penang; Persiaran Green Hill in Ipoh; Cheras in Kuala Lumpur; Skudai in Johor Bahru; and Kuching in Sarawak. In addition, one regional support

centre has been established in Bandar Utama. Regional centres enable face-to-face interaction between tutors and their students within the ODL environment. Formal tutorials and counselling are offered and informal peer support and group study sessions are also organized. The regional centres are equipped with tutorial rooms, computer laboratories, audio-visual equipment, reference books, and study material in print and CD-ROM format. In addition, WOU has three additional learning centres in Penang, Miri in Sarawak, and Kota Kinabalu in Sabah.

Total Academic and Support Staff on the Rolls

For an ODL institution to function effectively and efficiently, an integrated system is required for supporting planning and routine administration. Operational planning, which is done on a yearly basis to match financial and academic requirements, focuses on areas of staff development, quality assurance, and support staff. From an administrative perspective, the management sub-system in ODL comprises of planning and monitoring systems, budgetary and accounting systems, student admission systems, and other systems which involve the administering of learning and teaching procedures, assignments, and assessments as well as monitoring the examinations. A range of other personnel with different expertise are also recruited, either as full-time staff or as external consultants such as planners, instructional designers, developers and producers, media experts, marketing experts, and administrative staff.

WOU has 46 permanent academic staff and 147 administrative staff (193 staff members). About 435 tutors support the students in every semester so the yearly count of tutors is about 850.

Strategic Directions and Plans for Online Teaching and Learning

The university is currently re-looking at the assessment structures of all its courses. An

increased number of courses are being offered as full coursework courses without exams. Other courses have increased the percentage of marks for formative coursework and reduced the percentage for the examination component. All the university's compulsory and MPU courses are being taught totally online from January 2021. The master's and doctorate courses are being considered for this route. With the introduction of a new learning management system Bright Space, it will be easier to go fully online as there are increased opportunities for highly interactive online engagement.

Quality Assurance

The established Quality Assurance Directorate in WOU works closely with the Vice-Chancellor/deputy Vice-Chancellor(s) and the various schools/departments to promote quality culture in the WOU community. This directorate coordinates, oversees the implementation of quality assurance policies across the university, monitors compliance, and proposes continuous improvement plans where needed. This directorate reports directly to the Vice-Chancellor. The QA Directorate also manages and maintains the documentation for the quality management system of the university, that is, the quality policy, quality manual, document procedures, and quality records. A quality task force has also been formed in all the schools to cascade the established quality policy and processes and related matters at the school and programme levels. QA has clear policies, guidelines, and standards of practice for standardizing all matters pertaining to the design, development, and delivery of the study programmes, including development of course material.

The university, its schools, and centres are fully aware and mindful of the need to ensure that programme curricula are contemporary and benchmarked against national and international standards through regular monitoring and

review. This need is necessitated by the rapid development and emergence of new knowledge.

The schools and centres have the overall responsibility of:

- ensuring that the programmes remain current and valid in the context of rapid changes in the knowledge in the discipline and in its applications in managerial practices;
- evaluating the extent to which the intended learning outcomes are being attained by students in each course and on completion of the programme;
- evaluating the continuing effectiveness of the curricula and assessment in relation to the intended learning outcomes; and
- ensuring that recommendations for appropriate actions are followed up to

address any identified shortcomings in the courses and the programme as a whole.

All WOU programmes are comprehensively reviewed every three to four years unless the school decides on a shorter/ longer cycle for academic reasons such as a rapidly changing situation.

Blended/Online Course Design and Delivery

Course blueprints are developed based on the learning outcomes of the course by the course team which consists of the course lead, other academicians from the field, and an instructional designer. This team is supported by personnel from the information technology, library, and publishing services. Course writers are experts in their fields, from professors emeritus, professors, to doctorates with relevant and numerous years of academic experience. The role of the university

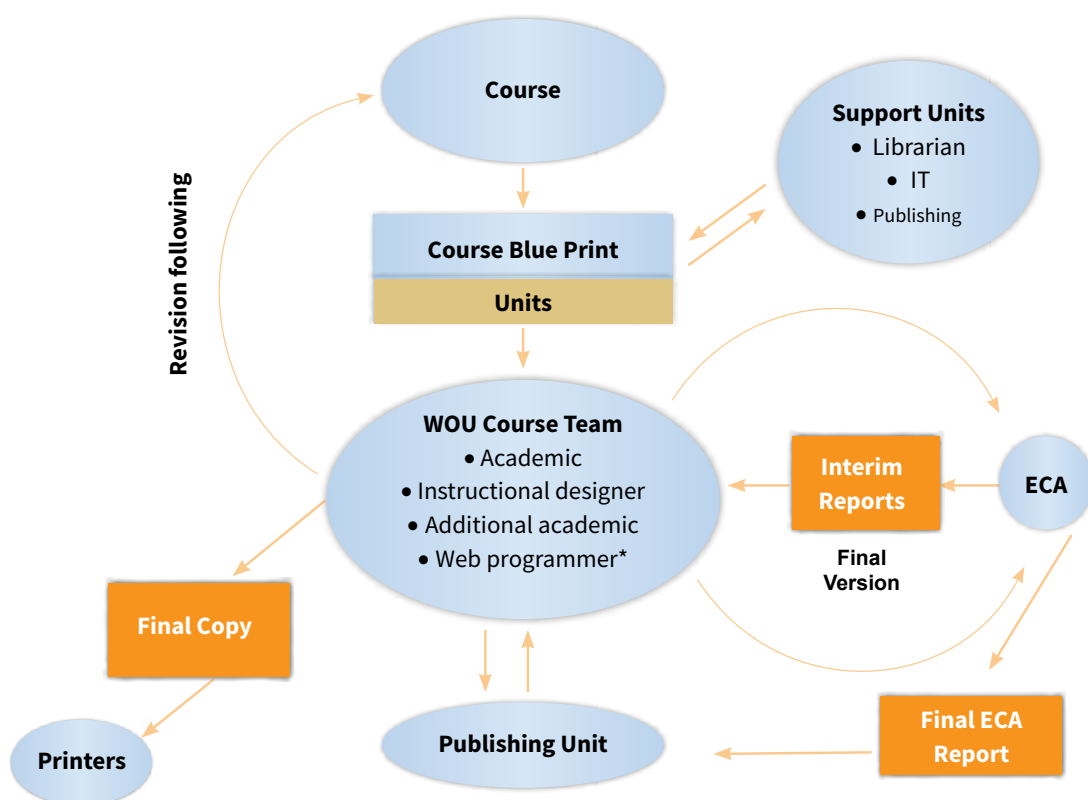


FIGURE 3.34: WOU'S WORK FLOW FOR COURSE DEVELOPMENT

core academic staff or course coordinators (CC) is ensuring quality of the material by contributing both academically and pedagogically whereas the external course assessors (ECA) are subject matter experts with many years of experience in the field.

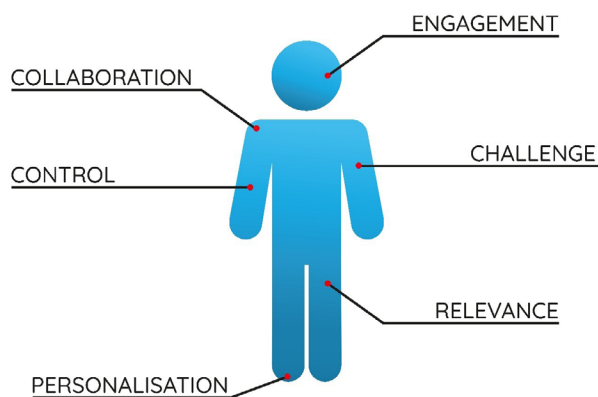
Since late 2019, WOU has been moving to the development of course content using the wFlex mode and soon all the course modules will use this format. WOU Interactive Flipbook or wFlex is an interactive multimedia e-book that integrates text, audio, images, video, graphics, and animation. It can be viewed online and offline and be downloaded on to a desktop computer or mobile device. wFlex has the potential to attract learners, increase their engagement, and help learners manage and experience their learning at WOU better. The ODL lab handles both the instructional design and layout of wFlex.

Flex's Benefits and Advantages

- Mobile – wFlex allows ‘learning-on-the-go’ anywhere, anytime, and on any device.
- Keyword search – students can use the search function to locate text easily and quickly.
- Highlight and underline – the functions for highlighting and underlining specific words and paragraphs in wFlex help students prepare their notes.
- Copy and paste– This function is available in both the online and offline versions.
- Downloadable and printable – wFlex can be downloaded as a pdf file and printed.
- Green – wFlex encourages learning to go paperless.
- Zoom – wFlex users can use the zoom function to expand the view of any page.
- Annotatable – ODL students can make notes in wFlex and save them for future use.

Interactivity in Online Courses

Numerous studies have shown that a learner centred approach helps students become more autonomous and active learners. Gutierrez (2013) discusses six key ingredients of learner-centred approaches and these are used when the course content and activities for WOU courses are developed to encourage interactivity. Figure 3 gives the ingredients of a learner-centred approach.



Source: Adapted from <https://www.shiftelearning.com/blog/bid/301962/Six-Key-Ingredients-of-Learner-centered-eLearning-Courses>

FIGURE 3.35: INGREDIENTS OF A LEARNER-CENTRED APPROACH

- **Challenges** force a learner to think about her/his prior knowledge, process the new information, reflect, and then take a decision. In some courses, a learning scenario is created and developed throughout the modules. Other activities that students do in the course are a pre-test and group and self-activities that get them **engaged** with what they have learnt.
- Being able to make sound and logical decisions is an outcome of a learner centred approach. Some of the activities have also been **personalized** to accommodate students' different learning styles. Multiple formats like videos, quizzes, and activities have been incorporated in the course content using student profile as a point of reference. Personalized feedback too is given in

forums and via e-mails to answer students' questions.

- Course activities empower students by giving them a sense of **control** and responsibility. The content and activities have an element of pace so that students can, within the boundaries of time, spend time on content that they have not mastered. Since learning is a symbiotic relationship, students are given opportunities for collaboration especially in assignments and the ice breaking activity. There are also forum discussions for each module. Working together helps students see different perspectives. Being in dialogue with their peers promotes social interaction and helps them take ownership of the learning process. Collaborative work and smaller group discussions are also a way of breaking communication down to a more manageable dialogue (Sherry et al., 2001). Some students may not favour group work as they feel not all students will contribute equally, the scale that has been designed must be fair and encompass the kind of participation required. Besides, students need to be encouraged to do group assignments as it is part of academic learning and they will also be doing so in their workplaces.
- Another key area that the course material considers is course **relevance** and student learning gaps. Opportunities for providing feedback are given to students so that their needs are met. This is important as the course content needs to form a bridge between the learned world and the real world.
- Finally, the courses provide avenues for students to learn at their own pace, using their own techniques, and their ability to network and communicate. Numerous opportunities are provided for problem-solving and critical and reflective thinking to

enhance the students' learning processes. This is supported by Vasey (2014) who states that it is important for students to be able to think for themselves, take initiatives, manage time, be able to use the computer, and acquire the art of networking and communication skills. Courses usually go through revision after five presentations and changes are made regularly to keep them relevant and interactive.

Tait (2000) identifies three primary functions for learner support in ODL – 'cognitive,' 'affective,' and 'systemic,' all of which are extremely important for a student's success. Cognitive support ensures learning through the mediation of standard and uniform elements of course material and learning resources for individual students; affective services provide an environment which supports students, creates communities, and enhances self-esteem; and systemic support services establish administrative processes and information management systems which are effective, transparent, and student-friendly.

All these three functions are kept in mind while developing the courses. A lot of information about how these are put together and their relevance to the course as a whole is also provided. This will help students see the course in context and provide a learning environment that can give necessary support to learners, both cognitively and emotionally. The course page starts by providing students the basics for learning at a distance by including information about how to study, enrolment requirements, and student support services. Then they are given more specific information about the course, assessments, the study plan, how to gear for success, FAQs, netiquette, and what they have to do once they start the course. A welcome note from the tutor including her contact details (e-mail and phone number) and the time when she will be available is also provided.

The way the course is presented, there is a consistent flow of content and activities. The course design maintains a consistent template. The titles are kept brief and the language is warm and conversational. It is also clearly structured and is used for challenging and motivating students. A lot of scaffolding has also been provided so that learners know what to do and when to do it. The content also ensures that the tutor is a 'guide by the side' and learning is facilitated in a systematic way. The facilitator's workload is also considered in the following ways: breaking up activities into chunks and incorporating photos and activities, forming groups and discussion forums, using course announcements rather than individual e-mails, and including topics for 'debates' where students give their opinions and comments.

Online activities used are also 'balanced' in a way that they can be attempted by both *digital immigrants* and *natives*. As suggested by Feldstein and Neal (2006), *personas* have been developed to identify important characteristics of our learners so that courseware that better meets their needs can be developed. This also considers the large number of learners in the programmes who are over 40-years-old. Activities like groups and forums may be seen as less tech challenging for the older generation and help them adapt to e-learning better.

Time taken to Develop a Blended /Online Course

The course material takes at six 6 months to a year for development from course writing to uploading the final module on the LMS. This is due to the rigorous quality assurance process involved. wFlex material takes less time and can be ready in about four months.

Costs Involved in Developing an Online Course

For now, the cost breakdown for course module writing using external writers is:

- RM7,000 for a diploma level course.
- RM8,000 for an undergraduate level course.
- RM10,000 for a post-graduate course.

Other costs include payment to the external course assessor, costs for obtaining copyrights and images, and developing multimedia content. Hence, the cost of developing one course can go up to RM15,000.

Infrastructure to Support Delivery of Online Courses

WOU has put in place an extensive system of student support for its learners that comprises of:

- Study centre facilities with internet connected terminals for self-study or accessing the university's LMS and the central electronic library.
- Modest physical libraries across all the regional centres and a main campus library.
- Academic counselling and support through a tutorial system provided by trained tutors with subject expertise.
- Advisories through the registry and the communication division on administrative matters.
- A regular newsletter (also available online) informing learners about both academic and non-academic developments in the university.
- An online learning environment in the form of a Moodle-based learning management system as well as easy digital connections for the entire university and its learning

community. This enables WOU students from across the country to engage in forum discussions with members of their own tutorial group and other members of the WOU learning community located in other parts of the country.

- An online assignment submission system where students can submit their assignments.
- A student portal where they can find all the information that they need for their studies.
- Induction programme (student orientation) for new students at the beginning of their first semester.
- Formation of student associations at the regional centre level and study circles to encourage peer to peer learning.
- Workshops such as the 'Returning to Learning' workshop at the beginning of each semester and the Exam Preparation Skills workshop prior to the final examination.
- A compulsory course known as Learning Skills for University Studies which is a starter course to help students adjust and acclimatise themselves to learning in a self-directed manner.
- Course material in pdf and w-flex formats.

WOU recognizes that ODL learners need face-to-face (f2f) sessions for academic and social support. WOU's f2f sessions aim to help learners overcome difficulties related to matters such as course content and study skills and also provide them with greater opportunities to interact with their tutors and peers. Every course has a provision for five f2g tutorials that have a duration of two hours each at the various regional centres. As WOU is dealing overwhelmingly with mature working adults, particularly for undergraduate programmes, the need for a personal counselling service is not seen as being critical. Academic services are provided by qualified tutors and senior members of the

regional centres' staff. Students are also free to contact the academic staff at each school as well as other senior staff members via telephone or e-mail. The university has recruited a qualified counsellor to provide counselling services to students who require it.

Beginning September 2020, WOU moved to a new learning management system in stages. This offers an adaptable suite of applications to encourage social learning and has built in learning analytics and rubrics which have the capability to analyse the performance of an individual, department, or organization. It has more options for learners to interact with tutors as its engagement tools are very good. In addition, it provides various ways in which learners can stay up to date if they are absent from their tutorial sessions. The provider gives support and training and this new LMS is on a pilot run now.

Structure of Student Learning Time

Three credit courses require 120 hours and five credit courses, 200 hours of learning time. For example, for a five credit course, 150 hours are allocated for both guided and independent learning. Twenty-four hours are allocated for each assignment, making it a total of 48 hours for both assignments. Two hours are allocated for the final examination.

Technology/ for Delivery

At the moment, WOU uses Moodle 3.5. As stated earlier, WOU has moved to Bright Space from September 2020 in stages. For the development of the flipbook (wFlex), the ODL lab uses Adobe Creative Cloud. Adobe software is used for designing the course material before it is converted to pdf. Various platforms are used for online classes such as Microsoft Teams, the official platform, Zoom, Google Meet, Skype, and Wiziq.

The screenshot displays the Brightspace LMS interface for the course MPU3313/03 COMPARATIVE RELIGIONS (2020-SEP). The top navigation bar is green and contains links to various course components. The main header area features a banner image with the course title. The content area is organized into three main sections. On the left, the 'D2L Content Navigator' shows the course structure and progress: 'About the Course' is 100% complete, 'Assignments and Specimen...' is 50%, and weeks 1 through 4 show progress of 21.1%, 50%, 0%, and 0% respectively. The middle section, 'Announcements', contains two posts: 'Declaration form' by SATHIAVATHY AP SATHIAVAN dated 22 September 2020, and 'Timetable and course listing for ODL-i' by Michelle Loh dated 17 September 2020. The right sidebar includes a 'Calendar' section showing 'Monday, 12 October 2020' and a list of 'Upcoming events'.

FIGURE 3.36: SCREENSHOT OF THE BRIGHTSPACE COURSE PAGE

Training of Students to Adapt to Blended/Online Learning

When students register for a course, the regional centre's staff members walk them through how to use WOU's online services. This is further enhanced on orientation day when students attend face-to-face or video sessions on how to use the digital platform, the digital library, and other WOU online sites.

It is also compulsory for all students to take the Learning Skills for University Studies course,

which is a starter course when a student starts his/her academic journey. The course's main aim is developing and enhancing a set of attitudes that will lead to successful and independent lifelong learning in an ODL environment. The course content includes how to learn effectively, manage stress and time, prepare for tutorial sessions, write assignments, make oral presentations, prepare for various types of assessments, manage the LMS/OAS in WOU, use the electronic library, search for information from various sources, resources, and using evaluation criteria to select the most

accurate, relevant, and credible data. In the first tutorial or this course, students are given hands on training on how to use LMS, the online assignment submission system, Turnitin, and the digital library. A study skills survivor kit has also been placed on the WOU website so that students can refer to it. A few flipbooks related to study skills have also been designed and developed by the ODL lab and these have been uploaded for the students.

A few weeks after their first tutorial, all new students are invited to attend the Returning to Learning workshop which is offered free at all regional centres where students interact with their tutors and are taught techniques for doing assignments and how to manage their lives at the university. Towards the end of the semester, students have to attend another free Exam Preparation workshop just before the final exams begin.

During the COVID-19 pandemic, when all classes went totally online, tutors had trial runs before scheduled classes to prepare the students on how to use Zoom, MS Teams, and Google Meet which were the main platforms used. Students were specifically trained on how to use MS Teams as it is WOU's official online platform. A pdf booklet on how to use MS Teams was also given to every student.

Training of Faculty and Tutors in Blended and Online Education Delivery

All academic staff are provided with short courses on how to deliver blended and online education. They also have to enrol for a certificate in ODL core competencies which covers eight modules. In addition, they are given training on course development and exposure to how to set up a course in LMS. Other training includes how to develop programme and course learning outcomes and outcome based education. When the wFlex course development came into the

picture, they were made to participate in hands-on writing workshops where they were guided by facilitators about the process. Staff members are also encouraged to attend training and workshops on their own to further enhance their expertise.

All newly appointed tutors are given a day of training in generic, course specific, and administrative skills needed for their roles. During the COVID-19 pandemic, they were also given online training on how to use MS Teams to conduct classes. A guide on using this platform was also prepared by WOU's information technology team and distributed to all tutors at the onset of the pandemic.

Since December 2019, it has been made compulsory for all tutors and academic staff to register for three online tutor training modules:

- Introduction to WOU, ODL, and core tutoring skills
- Tutors and tutorial support
- Outcome based education and constructive alignment

In September 2020, two more modules were added to this suite:

- Managing online classes using Microsoft Teams
- Using the community of inquiry framework in ODL

In future, other relevant modules pertaining to enhancing online learning will be added.

Learner Support Systems

Face-to-face tutorials, laboratories, online learning through LMS, self-instructional material, video conferencing tutorials, MS Teams, Zoom, Google Meet, and other technology mediated learning modes are learner support given to students to help facilitate learning. Each class also has a WhatsApp chat that can be used if the students need quick answers.

Student Assessment

The teaching and learning process in an ODL institution is separated in time and/or space and students learn via the self-study of purposed designed course materials at any time and from any place. These materials contain numerous self-tests and quizzes as formative assessment tools to assist the students in their learning. As WOU's students are mainly working adults who are dispersed geographically across the country, the design of the assessment strategy for its courses takes these two factors into consideration. Mastery of the learning outcomes in WOU courses is accessed via two main components -- continuous assessment and a final written examination. The percentage of the assessment components varies based on the nature of the course content. To pass a course in WOU, a student must pass both the continuous assessment and the final examination components.

The continuous assessment component helps pace students' learning and covers the learning outcomes contained in different parts of the course content. Students are required to submit course work (may be in the form of assignments, case studies, presentation, quizzes, laboratory reports, and portfolios) on the prescribed dates with the objective of pacing their studies. This course work (which assesses a student's mastery of key concepts and learning outcomes) is marked by tutors who are required to provide comments and feedback to assist students in their learning.

The final examination is a closed book examination conducted under stringent proctored conditions at secure venues at the various regional centres or rented examination halls in the nearby HEIs. These examinations are held at the end of the semester and provide a secure method for assessing whether students have achieved the desired course learning outcomes.

Challenges involved in Delivering an Online/Blended Learning Course

The accessibility of the internet and flexibility of online courses have made online education a very vital part of higher education all over the world (Luyt, 2013). Learners' expectations of a course or programme can be very challenging and can also greatly affect the teaching and facilitating of blended or online courses. Some learners may have unfounded expectations such as expecting instant feedback via WhatsApp, e-mail or the learning management system. They can be over demanding even to the point of being rude to their peers and tutors. Some may question their grades and others may not take the assignment deadlines seriously. It is very important for tutors and course coordinators to help address these unwarranted expectations by communicating the course's rules and deadlines at the beginning of the course.

In Malaysia, like in various other countries, students are very used to rote learning and being spoon fed in the classroom during their school days. Hence, there are issues related to student readiness to be able to be self-directed learners as they have always been overly teacher dependent. As many of WOU's students come from vernacular school backgrounds, there is a culture shock when the medium of instruction is English. A lack of English language proficiency is another major challenge.

Time management skills, especially the ability to juggle family, work, and study commitments is another major challenge. Learners can also feel socially isolated and this can affect their learning experience. It is important that students feel affiliated to the university and the student community as this will help strengthen their identity and learning abilities. Therefore, it is critical to help learners to develop a shared sense of belonging, purpose, and norms (Koole, 2014).

There is also the issue of students being technically savvy or the lack of it. Many of the

older students may not be very comfortable about going online. Students face the issue of bandwidth in rural areas and not possessing their own laptops or having adequate wi-fi services, which are other problems.

The nature of learner participation and engagement is another major issue. Many students remain very silent and hardly post on LMS. Some are very conscious of their poor language abilities and are afraid that they will be embarrassed if they say something wrong. Hence, tutors or facilitators may not be able to know if learner engagement is taking place.

Another challenge is that instructors themselves need to be trained on how to prepare content for an online course as this is not the same as generating material for a face-to-face class. Koehler et al. (2004) encourage instructors to take content, pedagogy, and technology into account when designing online courses. Course content developers may not be willing to change their teaching strategies when designing content for online and blended courses. Hence, it is important to help them change their mindsets which is a greater challenge.

It is important to include various multimedia options in the content as these will provide students with an opportunity for multiple attempts at mastering the lesson's content (Miller, 2014). Student engagement is enhanced with the use of more than plain text. The challenge here is that course developers need to be aware of how to use the constructivist approach effectively in course content. Hence, developers need more exposure to multiple learning tools to engage students in an online or blended classroom.

One of the major issues faced by tutors is the demand on their time, as more effort is needed to prepare, plan, and teach an online class. The other challenge is how best to present the concepts for the best student learning outcomes. The tutor is the single most important factor in determining students' success in an online class

(Tunks, 2012). The tutor's ability to communicate, establish a community, and present the lesson effectively makes all the difference in student learning outcomes.

Research Findings

Since the launch of WOU, some major research projects pertaining to the university have been initiated and completed. One of the main ones was 'A study of factors that are hindering students' success in ODL programmes of WOU and designing strategies to enhance students' success' which was led by Professor Phalachandra Bhandigadi.

Major Findings

Some of the major findings of this project were that for every 100 students enrolled in WOU, 40 students continued the programme and 60 students became inactive/withdrew over a period of time. The programme completion rate was about 20-26 per cent at different points of time.

To combat the attrition issue, some interventions were initiated in January 2017 for 14 courses that were identified as starter courses and the impact on students' performance was measured:

- For the January 2017 intake, 14 courses were identified as starter courses to provide additional inputs which included appointment of best tutors, continuous interaction with students by course coordinators and tutors, formulation of student friendly assignments, and short videos on unit contents.
- Four courses were modified/adopted to the requirement of the diploma in early childhood programmes. Additional material was provided for seven courses. Two to 20-minute videos were developed. Seventy-four of the best rated tutors were appointed/activated including nine new tutors. For four courses, assignment questions were simplified and

the number of questions reduced. For three courses, changes were made to the pattern of the final examination papers.

- In relation to the earlier semester the withdrawn/deferred cases reduced from 3.3 per cent to 2.1 per cent and withdrawal cases from 3.5 to 2.1 per cent and non-submission rate for Assignment 1 from 16 per cent to 12.5 per cent and for Assignment 2 from 19.6 per cent to 17.1 per cent. Hence, there was an improvement in the final exam performance rate, passing rate, and exam completion rate.
- Interventions for starter courses resulted in improvements in course scores and passing rates (six out of nine courses).

As a follow up to this project, the following strategies were added to the earlier strategies:

1. Assignments- to ensure that they are set at appropriate and relevant levels as well as a variety of question types including quizzes are included. Guidelines on how to answer each individual assignment are also given.
2. Exam questions –refining, orientation/ guidelines for students on how to attempt questions. Updated versions of specimen papers have been added to LMS.
3. Ensuring continuous interaction with students through WhatsApp group chats. Every class has a WhatsApp group for quick questions that need immediate answers.
4. Enhancing LMS' participation/engagement by providing a variety of interactive learning modes.
5. Revised slides to include unit wise past years' questions.
6. Setting up of a student engagement task force where students can voice their issues.
7. Revamping of the student call centre for a quick turnaround time for students' questions.
8. Changing pdf course material to a fully or partially w-Flex mode.

9. Introducing a new learning management system called Bright Space.
10. Re-looking the coursework component of the courses and in accordance with programme standards (where appropriate) increasing the coursework component and reducing the exam component's weightage. For example, from a 50/50 ratio to a 70/30 ratio.
11. All compulsory university courses have been made 100 per cent coursework courses from January 2021.

A Student Satisfaction Survey on Learning and Teaching Effectiveness carried out at the end of June 2020 showed the following results for the effective conduct of online tutorials. Most of the students agreed that the online tutorials were conducted effectively. In their feedback, they stated that though they missed attending face-to-face tutorials, there were numerous benefits that they derived from the online tutorials, for example, recordings of missed tutorials which they could view at any time, attending tutorials from the comfort and security of their homes, and participating in tutorials via the phone.

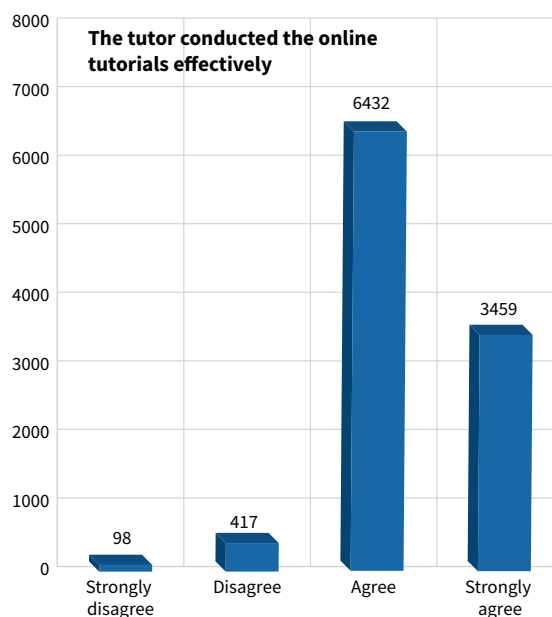


FIGURE 3.37: STUDENTS' RATING OF THE EFFECTIVENESS OF ONLINE TUTORIALS

Student Assessment (online) during the COVID-19 Pandemic

The COVID-19 global pandemic resulted in many countries, including Malaysia, enforcing movement restrictions and social distancing to help curb the spread of the virus in March 2020.

In relation to this, the Ministry of Education announced that all institutions of higher learning (IHL) were to conduct online classes till December 2020. In compliance with this, the university started conducting all its classes and tutorials online in March 2020 and conducted its January 2020 semester exams using alternative assessment methods including online quizzes and alternative assessments which included reflection essays, case studies, portfolios, open book exams, and others.

For assignment-based assessments, students were given three weeks to submit their answers and only one submission was allowed. For quizzes, students were given three days to attempt the questions and only one try was allowed. All final assessment questions were uploaded on LMS and were only available for a specific duration. The answers for assignments were submitted on the online assignment submission system, marked online, moderated by the academic staff, and then transferred to the registry for processing.

Future Directions and Plans

Some key recommendations relevant to online teaching and learning that are being suggested are:

- Strengthening the IT support team and services provided including internet connectivity and computer facilities provided by the university
- Changing locations for the Johore Bahru regional centre so that the space can be increased and other activities like workshops and training can be hosted there

- Providing students with assistance for getting laptops and wi-fi cards
- Promoting the creation of online course material with the continued use of open educational resources
- Strengthening the use of various online platforms especially MS Teams which is the official WOU platform
- Converting fully to Bright Space as the main learning management system for WOU
- Increasing the use of alternative online assessment methods which require students to perform tasks that demonstrate meaningful application of essential knowledge and skills related to what they have learnt so that the university can focus on preparing competent students who are ready with the skills necessary for the workplace
- Working on hybrid programmes and courses to enhance their relevance and contemporariness with the workplace
- Introducing micro-credential courses so that prospective learners can enrol in bite sized packages
- Converting more WOU courses to a fully online mode
- Maximizing the APEL entry process for student enrolments
- Considering a policy on advanced standing credits for MOOCs
- Changing from a 5-credit system to a 3-credit system and moving into a tri-semester mode from the original dual semester mode.

Conclusion

This report discussed the many facets of the design and delivery of blended and online learning at WOU as it was and how it has changed to accommodate the demands of the present age especially during the COVID-19 pandemic. The university's management continues to consider

how blended and online learning can be further strengthened and enhanced so that students can be engaged in a holistic learning experience that is totally relevant to the workplaces today and in the future.

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CHAPTER IV SUMMARY AND DISCUSSION

SUMMARY AND DISCUSSION

In this chapter, we analyse the issues discussed in the country and institutional reports and make certain recommendations for a future plan of action. This chapter is organized into two sections. Section 1 deals with the status of online education with respect to policies and standards currently being practiced in seven countries — Bangladesh, Brunei, India, Malaysia, Maldives, Pakistan, and Singapore. Section 2 answers some of the questions related to online course development, delivery, student support, assessments, and quality assurance mechanisms/ processes being practiced in seven (five open

universities, one conventional university, and one college) institutions:

1. Bangladesh Open University, Bangladesh
2. Universiti Brunei Darussalam, Brunei
3. Indira Gandhi National University, India
4. Wawasan Open University, Malaysia
5. Asia e University, Malaysia
6. Mianz International College, Maldives
7. Open University of Sri Lanka, Sri Lanka

REVIEW AND SUMMARY OF COUNTRY REPORTS

If the profile of every country is examined, variations with respect to the number of higher education universities in view of demand for higher education and the students' population to be catered to can be found. India has the maximum number of universities followed by Pakistan; Maldives has the least number. Each university has a number of affiliated institutions. Another point to be noted is that India has the maximum number of open universities catering

to adult learners. There are many conventional universities which also offer distance education programmes. One university in Malaysia is a fully online university. Singapore has quite a few international universities. In the near future, many higher education institutions are likely to go for a dual mode of teaching as conventional institutions have the additional advantage of academic resources.

TABLE 4.1: NUMBER OF UNIVERSITIES, QA AGENCIES AND YEAR OF ESTABLISHMENT IN THE 7 COUNTRIES STUDIED

Country	Number of Higher Education Universities	Number of Open Universities	Quality Assurance Agency	Year of Establishment	Remarks
Bangladesh	157	One OU and one digital university	The Bangladesh Accreditation Council (BAC) Quality Assurance Unit (QAU)	2014 (QAU) /2019 (BAC)	QAU which was part of UGC established in 2014 was renamed as BAC which is autonomous
Brunei	7 HEIs	-----	The Brunei Darussalam National Accreditation Council (BDNAC)	1990	BDNAC recognised the Open and Distance Learning in March 2011.
India	981	14	National Assessment and Accreditation Council (NAAC)	1994	Distance Education Bureau regulates ODL programmes
Malaysia	71	4 (one is fully online)	Malaysian Qualification Agency (MQA)	2007	
Maldives	2	-----	Maldives Accreditation Board (MAB)	2000	
Pakistan	186	4	Quality Assurance Agency (QAA)	2005	
Singapore	6	-----	Higher Education Policy Division (HEPD)		

Note: A few countries have universities that provide a dual mode form of education -- 251 universities in India and seven in Malaysia have provisions for a dual mode of education.

Quality Assurance

All countries discussed in this handbook have an external accrediting agency. They are called by different names. They have designed quality framework guidelines for institutions to ensure that quality standards are met by the institutions. In addition, countries also have professional regulatory bodies to ensure that good quality education is offered which meets the required professional standards.

In Malaysia, for example, the MQA has a major say in assuring the quality of education provided by the higher education institutions. The Malaysian Qualifications Agency (MQA) supervises and coordinates quality assurance as well as the accreditation of national higher education.

In Malaysia, MQA has published two documents: 'Good Practices: Monitoring, Reviewing and Continually Improving Institutional Quality' (GGP: MR-CIIQ) which provides guidance for Higher Education Providers (HEPs) by suggesting ways of implementing a comprehensive and cohesive approach to programme monitoring and review, which in turn, impacts institutional quality.

The second is 'Code of Practices for Programme Accreditation: Open and Distance Learning' (COPPA:ODL) which aims to assist HEPs achieve the standards outlined in each of the seven areas of evaluation: Programme Development and Delivery, Assessment of Student Learning, Student Selection and Support Services, Academic Staff, Educational Resources, Programme Management and Programme Monitoring, and Review and Continual Quality Improvement.

This document "contains clear, specific indicators and benchmark standards that will guide the institutions in the development, delivery, assessment as well as the monitoring and review of the ODL programme." Programme accreditation is carried out in three stages -- provisional accreditation, full accreditation,

and maintenance audit (compliance evaluation) (mqa.gov.my).

In India all higher education universities are regulated by the University Grants Commission (UGC) and ODL institutions and their programmes are regulated by the Distant Education Bureau (DEB in UGC). Accreditation is mandatory through the National Assessment and Accreditation Council (NAAC) for all the higher learning institutions, particularly state universities. In 2019, NAAC introduced a separate manual for open universities for submission of applications for accreditation (OpenUniversity-Manual-11-12-2019.pdf (naac.gov.in)).

Five-year-old institutions in India can apply for NAAC accreditation. Without NAAC accreditation, universities are not eligible for UGC grants, RUSA grants, and financial aid. On the other hand, NAAC accreditation determines the quality of the institution in terms of education, infrastructure, research, and teaching and learning. Institutions with top NAAC grades such as 'A++', 'A+', and 'A' are most sought-after institutions, as they offer high-quality education. NAAC assesses the higher learning institutions based on seven parameters or indicators: Teaching-Learning & Evaluation, Infrastructure & Learning Resources, Research, Innovations & Extension, Curricular Aspects, Governance, Leadership & Management, Student Support & Progression, and Institutional Values & Best Practices.

The National Accreditation Council is responsible for assuring quality of higher education in Bangladesh. BAC provides accreditation to HEIs and their curricula and determines grades/ranks against the benchmark given in the National Qualification Framework.

The Brunei Darussalam National Accreditation Council (BDNAC) is the sole accrediting and quality assurance agency or body in the country. It ensures and maintains the quality and standard of educational credentials in accordance with the provisions. The council is also responsible for considering and evaluating

the status and quality of qualifications awarded by various local and overseas institutions.

The Maldives Accreditation Board's (MAB) mission is, "to facilitate quality assured higher education and training available to the citizens of the Maldives, locally and internationally."

In Pakistan, there are nine accreditation councils and five professional bodies. Their role is ensuring the quality of the programmes offered by HEIs. The council's activities include formulating education standards and reviewing the ongoing processes in institutions periodically.

In Singapore, the Higher Education Policy Division (HEPD) of the Ministry of Education (MoE) is responsible for drafting and implementing policies related to tertiary institutions. The quality of institutions is maintained by way of implementing quality assurance frameworks.

Online Education

All countries have certain guidelines for promoting online education in ODL institutions in place, and of late for other conventional institutions especially in the context of the COVID-19 pandemic.

In Bangladesh, the government's directives on online teaching during COVID-19 appear to be a 'stop gap' measure, although most of the private universities and a few public universities have adapted their systems and enhanced their capacities for online teaching.

In India, UGC unveiled regulations to recognize degrees, diplomas, and certificates offered by universities and institutions with certain conditions which include:

- Only non-technical courses can be offered through the online mode;
- Courses or programmes should be the same or similar to the courses/programmes offered through the conventional or ODL modes and at least one batch of students should have completed the programme;

- HEIs offering online programmes should have been in existence for five years, accredited to NAAC with a minimum score of 3.26 (on a 4-point scale), and be in the top-100 in the overall category in the National Institutional Ranking Framework (government and state open universities are exempt);
- HEIs should have the ability to conduct examinations either using technology enabled online tests or through proctored examinations; and
- Online learning should consist of four components comprising tutorials, e-content, web resources, and self-assessment (the four quadrant approach).

In addition, UGC has proposed that all HEIs should go for 40 per cent online presentation of programmes compared to the present 20 per cent, indicating an aggressive push for online education.

In **Pakistan** the vice-chancellors of the universities certify readiness for the online mode by indicating in writing that they meet the six elements of readiness:

- a) University Readiness
- b) Faculty Readiness
- c) Course Readiness
- d) Library Readiness
- e) Technology Readiness
- f) Student Readiness

Only then can HEIs initiate online learning. The other conditions stipulated include class size not exceeding 100 students for engineering and 240 students for non-engineering fields, assessments to cover all course learning outcomes, and attaining the programme learning outcomes appropriately.

Brunei recognizes ODL or the online learning mode of delivery and a policy is currently being worked out for overcoming and integrating the accreditation criteria set forth by BDNAAC. The Ministry of Education has directed that all

teaching and learning sessions in all schools be conducted online. Some schools provided home-based learning packs for students who did not have access to the internet. Educational TV programmes were broadcast as additional support for teaching and learning through the mass media.

The Ministry of Higher Education (MOHE) in Malaysia recognized that higher education needs to evolve in tandem with the fourth industrial revolution (4IR) to be current, relevant, and competitive in the global arena. MOHE has brought out the Malaysia Education Blueprint (MEB) for higher education (2015-25). MEB outlines 10 shifts to meet the advancements in 4IR. The ninth shift focuses on 'Globalized Online Learning' (GOL).

In Maldives most of the higher education institutions took the initiative of arranging

for online/virtual education. Some colleges established their online/virtual teaching modalities and further strengthened their protocols and procedures in view of the COVID-19 pandemic. The government too suggested some changes in the rules and regulations on how online education was to be conducted.

In Singapore, the online education option seems to be in demand among mid-career professionals and adult learners who would like to have the flexibility in time and space, as they are pursuing full time or part time jobs. Basically, they would like to upgrade their skills and knowledge. However, online education degrees are not widely perceived to be on par in quality with conventional degrees. Though all the countries attempted to go for online education at their own pace, each country seems to be having certain constraints in offering online programmes/courses.

Challenges Involved in Offering Online Education

TABLE 4.2: COUNTRY-WISE ISSUES/CONCERNS/CHALLENGES INVOLVED IN OFFERING ONLINE EDUCATION

Country	Issues /Concerns/Challenges involved in Online Education
Bangladesh	<ul style="list-style-type: none"> Investments in equipment and infrastructure. Teacher preparedness for designing and facilitating online learning modules in synchronous and asynchronous modes. Accessibility to national curricula courses. Capacity building of teachers and other university staff. Rules and regulations to set up dual mode institutions or to allow existing institutions to offer online courses. Standards, rules, and regulations by Bangladesh Accreditation Council to assure quality of online learning.
Brunei	<ul style="list-style-type: none"> Need to adapt to new styles of delivery. Digital literacy skills for teachers and students. Online resources and innovative assessment methods. Meeting international standards for accessibility and inclusion. Aligning institutional level qualifications with country level accreditation criteria for online learning. Students with special needs and other vulnerable groups are particularly at risk of exclusion in times of radical change through the unprecedented global pandemic. The challenge is mainstreaming and continuity of efforts that ensure sustainable quality for online education beyond COVID-19.

Country	Issues /Concerns/Challenges involved in Online Education
India	<ul style="list-style-type: none"> • OER repositories. • Infrastructure and connectivity for accessing online education. • Faculty members' ability in using online education platforms. • A robust online examination system with secure platforms, processes, and policies. • Engaging e-learning content and interactive platforms. • Integrating SWAYAM with already existing popular platforms. • A unified platform integrating several MOOCs offered by HEIs and pooling educational resources and subject experts.
Malaysia	<ul style="list-style-type: none"> • Bandwidth and connectivity. • Computer literacy and digital divide. • Scarcity of high-quality online learning content/e-content. • Lack of expertise in designing and developing online learning materials • Financial resources for developing e-content and other online learning material. • Self-motivation and commitment among learners.
Maldives	<ul style="list-style-type: none"> • Lack of pedagogical experience in preparing and delivering teaching and learning. • Lack of time for preparing for online education. • Internet connectivity and the digital divide. • Technical difficulties.
Pakistan	<ul style="list-style-type: none"> • Trained persons and resources to plan, design, and execute a good quality online course. • Institutional policies and frameworks for course design, minimum teaching standards as well as access to technology and student assessments. • Availability of platforms and funding. • Training in e-learning pedagogy and student acceptability to move to new learning modes. • Students' affordability in procuring computers.
Singapore	<ul style="list-style-type: none"> • Optimizing technological platforms for their pedagogical affordances. • Investments of time and effort in learning design to maximize learning. • Adequate time to reflect on the teaching practices and pondering over strategies of technology inclusion that add value to learning efficacy. • Difficulty in managing, monitoring, and assessing the learning achievements of individual students. • Creating an educational climate that fully understands and enhances the potential of digital literacy.

MOOC/Micro-credential and Credit Transfers

Among the countries discussed India, Malaysia, and Singapore have some policy and regulations concerning the transfer of credits gained from online courses (MOOCs and micro-credentials) to a regular programme whereas as of now Bangladesh, Brunei, Maldives, and Pakistan do not have any such policy.

In India, the impetus to online education and MOOCs started with the establishment of the platform ‘Study Webs of Active Learning for Young Aspiring Minds’ (SWAYAM) in 2016. This was started for the purpose of hosting MOOCs. The credit framework for online learning courses through SWAYAM allowed 40 per cent credit transfers. The purpose of this unified platform for, “integrating several MOOCs offered by higher education institutions in the country, pooling educational resources and subject experts will help in reaching out to a large number of learners who are otherwise deprived of higher education opportunities” (<https://swayam.gov.in>).

The Government of India through UGC has been encouraging HEIs to design and deliver MOOCs through the SWAYAM platform. UGC provides funding to institutions for developing MOOCs. It has published a detailed set of guidelines for this ([https://www.ugc.ac.in/pdfnews/3885329_MOOCs-Guideline-\(Development--Funding\).pdf](https://www.ugc.ac.in/pdfnews/3885329_MOOCs-Guideline-(Development--Funding).pdf)). A separate document, ‘Instruction Manual’ has also been published to help institutions intending to develop MOOCs (8449573_Instruction-Manual.pdf ([ugc.ac.in](https://www.ugc.ac.in))).

The SWAYAM platform hosts almost 2,000+ courses taught by about 1,300 instructors from 135 universities. Since 2017, over 10 million learners have taken courses on SWAYAM. For each semester, UGC communicates to the universities’ vice-chancellors the list of courses being offered. Every university’s academic council then identifies the courses for students

to enrol in. All courses are free but students pay an examination fee of Rs 1,000 per course. If they pass the examination, the fee paid is returned. Students can choose between two options (whether they require a certificate or they do not require the pass certificate). If they apply for a ‘Need Certificate’ then they have to appear for an online examination along with assignment completion and task completion.

Institutions developing MOOCs take the responsibility of matching the content across institutions, designing and developing content, and setting assignments and examination papers. At the end of the semester, students are expected to visit a nearby designated centre to take online examinations.

The other landmark development in India currently under discussion is the introduction of an Academic Bank of Credits (ABC) by UGC which provides a, “variety of services including credit verification, credit accumulation, credit transfer/redemption and degree authentication.” An institution or university opens an account in the names of all students and the credits earned by them and after verification by the university the credits deposited in the students’ credit accounts. Some of the objectives of the ABC policy are:

- enabling students to select the best courses/combination of courses to suit their aptitude and ‘knowledge thirst’ and to allow, “students to tailor their degrees or make specific modifications/specialisations rather than undergoing the rigid, regularly prescribed degree/courses of a single university/autonomous college.”
- allowing multiple entry/exit options for courses.
- facilitating lifelong learning among both formal and informal students using full time and part time modes.

ABC allows student mobility within two colleges, universities, campuses or any recognized

HEIs, mobility between a campus and the ODL system, and mobility between inter and intra-national degree, diploma, and certificate programmes.

Malaysia has developed two documents concerning credit transfers, with one referring to MOOCs and the other to micro-credentials. Higher education providers (HEPs) collaborate for developing MOOCs by leveraging the expertise available in the respective institutions and establishing mutual recognition of courses. Secondly, MOHE expressed its commitment to enable credit transfer for courses completed by learners via MOOCs. This resulted in the development of the Guidelines on Credit Transfer for MOOCs (CTM) by the Malaysian Qualifications Agency (MQA) implemented in 2016 (<https://www2.mqa.gov.my/qad/v2/ggpnew.cfm>). The guidelines have been set based on the underpinning principle of recognition of prior learning (RPL), which provides recognition for learning acquired through formal, informal, and non-formal means. In the Malaysian context, RPL is referred to as the Accreditation of Prior Experiential Learning (APEL). MOOCs are categorized as non-formal learning. A total of 23 institutions (14 public institutions/ polytechnics and nine private institutions) are offering 394 MOOCs during 2021.

Guidelines to Good Practices (GGP): Micro-credentials as a guide for HEPs to make micro-credentials effective were made effective in August 2020. This enabled the unbundling of accredited programmes in HEPs, making them accessible to non-traditional learners in line with the national lifelong and life-wide learning agenda. In May 2019, MQA issued guidelines on micro-credentials to launch the micro-credentials initiative.

Transfers up to 30 per cent of the credits in an accredited programme under CT (Credit Transfer)

for MOOCs, APEL(C), and micro-credentials are allowed. For credit transfers, there are a few conditions like the requirement of course content mapping involving mapping, comparing, and evaluating the extent to which the course content of the MOOC and/or a combination of a few MOOCs to the course applied for credit transfers. This is required to be done by the institution which is allowing credit transfers to its programme. Another interesting condition is that the credits will contribute to the total graduating credit requirements but are not used in the calculation of Grade Point Average (GPA)/ Cumulative Grade Point Average (CGPA) of the programme pursued.

When it comes to ensuring QA, the guidelines highlight that “an effective Quality Management System (QMS) covering all aspects of the design, development, delivery, assessment, monitoring, review and improvement of the micro credentials must be established, maintained and improved by the HEP or provider.”

In Singapore, almost all the HEIs have been using online learning in some form or the other for delivering teaching and learning resources. Since 2014, two universities (NTU and NUS) are offering MOOCs on platforms like Coursera. The credits earned from MOOCs are permitted to be used as part of a qualification towards a degree. SUSS has largely part timers and adult learners and has been subscribing to online e-learning modes for quite some time.

The European Centre in Singapore also offers courses through MOOCs. In May 2020 NTU announced that all its 23,000 undergraduate students could earn selected academic credits from about 86 MOOC courses on Coursera, edX, and FutureLearn platforms by top ranked universities.

REVIEW AND SUMMARY OF INSTITUTIONAL REPORTS

Institution Profiles

As mentioned earlier, out of the seven institutional reports, five were of open universities, there was one f2f university, and one college. Among the seven, four are offering programmes through distance mode, two have dual mode systems, and the last one is offering

programmes through the f2f mode. The Indira Gandhi National Open University (IGNOU) in India is the largest university with 3.3 million students with 2,012 centres and the smallest is Mianz International College (MIC) in Maldives with 1,600 students and 16 campuses. Every institution has certain distinct features and achievements.

TABLE 4.3: INSTITUTIONAL PROFILES

Institution	Year of Establishment	Institution Type	Number of campuses/ Centers	Students Number	QA unit	Additional Information
Asia e University, Malaysia (AeU)	2002	Distance Mode	10 learning centres, 13 local, and 16 international partners	28,800 Including 5000 international students (34 countries)	Audit & Quality Assurance and Regulatory Affairs (QARA)	<ul style="list-style-type: none"> AeU is the main facilitator of the Asian Credit Transfer System (ACTS) to facilitate mutual credit transfers, accreditation, and recognition of degrees. Promotes the joint development and delivery of collaborative study programmes across the 35 countries. The AeU MOOC portal (https://mooc.aeu.edu.my/).
Bangladesh Open University, Bangladesh (BOU)	1992	Distance Mode	12 regional centres, 80 sub-regional centres, and 4 overseas centres	About one million (995838) cumulative enrolment during 2015-2020	The Institutional Quality Assurance Cell (IQAC)	<ul style="list-style-type: none"> Implementing Annual Performance Agreement (APA) with the government. Designing innovation hubs for schools, regional centres, and sub-regional centres. Launching overseas programmes for expatriate Bangladeshis.

Institution	Year of Establish-ment	Institution Type	Number of campuses/ Centers	Students Number	QA unit	Additional Information
Indira Gandhi National University, India (IGNOU)	1985	Distance Mode	67 regional centres and 1,961 learner support centres	3.33 million including overseas students	Centre for Internal Quality Assurance (COQA)	<ul style="list-style-type: none"> • NAAC grading A++. • Question bank and on-demand examinations. • Five star rating in innovations and start-ups by the Ministry of Education's innovation cell during 2019-20. • National coordinator to offer certificate and diploma MOOC courses.
Mianz International College (MI College)	2006	Distance and F2F	17 branches across Maldives	2500+ students Local and International Combined	In accordance with Maldives Qualification Authority (MQA) guideline	International affiliations include affiliations for research, publications, and courses.
Open University of Sri Lanka (OUSL)	1980	Distance Mode	9 regional centres and 19 study centres	43571.	Centre for Quality Assurance (CQA)	<ul style="list-style-type: none"> • OUSL hosted the 34th annual conference of the Asian Association of Open Universities in June 2021 (AAOU) for the first time as a virtual conference. • OUSL is the only educational institution in Sri Lanka with an institutional OER policy.
Universiti Brunei Darussalam, Brunei (UBD)	1985	F2F	In addition to the main campus a centre in central Vietnam for English language training	3000, about 23% International students	Office of Strategy, Delivery, and Institutional Advancement (SeDIA): Established in June 2016	<ul style="list-style-type: none"> • 75th in Quacquarelli Symonds (QS) Asia University Rankings (2021). • 60th in the Times Higher Education (THE) Asia University Rankings. • 250th place for 2022 QS World University Rankings.??
Wawasan Open University, Malaysia (WOU)	2007	Distance and F2F	5 regional centres and 1 regional support centre	4765	Quality Assurance (QA) Directorate	Award of Excellence for Institutional Achievement from the Commonwealth of Learning (PCF7) in 2011-12.

Quality Assurance

All institutions are assessed by their respective country's quality assurance agencies. Over a period of time, the institutions have established quality assurance units within the institutions to ensure that the education that they offer is of a certain quality and meets the requirements of the respective country's quality assurance agency. The institutional quality agency unit does an internal audit and has the mandate to ensure its compliance with regulations of the local and national authorities including the national quality assurance agency. The unit also ensures that the standard operating procedures (SOPs) are followed in the development and delivery of courses, student assessments, and learner support systems.

In WOU, a quality task force has been formed in all the schools to cascade the established quality policy and processes related to matters at the school and programme levels. In BOU, the unit plays a role in accessing the faculty's performance. Though MIC does not have an internal QA unit, the college follows the guidelines of the Maldives Qualification Authority (MQA) and has established various approaches for maintaining this quality. In UBD, the teaching and learning centre (TLC) takes care of pedagogical issues and the development of teaching strategies for effective and efficient learning.

Course Design, Development, and Delivery

The programmes and courses are designed and developed by following the institutional SOPs. The procedures for designing, developing, and launching programmes vary from institution to institution which have been described in the respective institutional reports. Course design, development, and delivery involve the efforts of many people such as internal and external subject experts, instructional designers, and

editors. As part of the blended learning approach five ODL institutions have developed learning material based on the key principles of self-instructional materials (SIMs) and aligned these with course learning outcomes/objectives. Usually the ADDIE model (instructional design model) guidelines are adopted while developing the material, which involve five phases -- Analyse, Design, Develop, Implement, and Evaluate.

SIM is the core of the blended learning approach. This is developed to facilitate self-learning among learners to acquire knowledge and skills in the given area. Learning activities, self-check questions, assignments, and online discussion forums in LMS and f2f tutorials/classes in the learning centres are done to promote higher order cognitive skills like critical inquiry, problem solving skills, decision making, and analytical thinking skills.

OUSL and WOU have designed a few changes with respect to course development in recent years. OUSL has developed three types of courses -- *Supplemental*, *Blended*, and *Online Plus* courses. They are categorized based on specified features in relation to access, use of technologies, interactions, types of activities, and online assessments. WOU has started developing course content using the wFlex mode. The WOU Interactive Flipbook or wFlex is an interactive multimedia e-book that integrates text, audio, images, videos, graphics, and animation. It can be viewed online, offline, and downloaded on to a desktop or a mobile device. BOU mostly uses a mix of print, face-to-face tutorials, and audio-video broadcasts through the state-owned national TV channel, Bangladesh Television (BTV). BOU has started transforming its courses into LMS-based online courses since the COVID-19 pandemic struck.

The learning materials are uploaded on institutional platforms. WOU has WawsanLearn, OUSL has ELearn and OpenLaern .LK (cloud based), eGyankosh of IGNOU. MyPLS of AeU. Whereas UBD uses Canvas as the main Learning

Management System (LMS) to deliver student-centred teaching and learning activities to enhance Team-Based learning (TBL), Problem-Based Learning (PBL) and Technology Enriched Instruction (TEI). MIC has been using Canvas as platform along with other platforms like ZOOM, Google Meet and Smart School.

OUSL and WOU have developed OER based courses; IGNOU, AeU, and OUSL have been offering MOOC courses. BOU has been encouraging its staff to develop OER based courses.

IGNOU, OUSL, and WOU have received PCF awards in Excellence for Distance Education Materials; WOU for creation, use, and re-use of open educational resources (OER) - ICT in education during PCF 7 (2011-12); OUSL for print or other 'low-end' media materials such as audio/video tapes or a combination of these - Master of Arts in Teacher Education during PCF 5 (2007–08); and IGNOU during PCF 1 (1998-99).

Duration and Cost of Course/ Programme Development

The time taken to develop course material and the cost involved varies from institution to institution and it is very difficult to capture the actual cost. In BOU, the course development takes about 11-17 months, and the cost is around **\$3633**; in MIC it takes about 17-26 months to develop a programme of 120 credits and the cost is about **\$5,000-\$5,500**. In WOU, 6-12 months' are needed for developing a course which costs about **\$827**. The wFlex material takes lesser time and can be ready in about four months. In AeU, SIMs generally take about 3-4 months to develop and the cost is about **\$500-\$1,200** per course.

Changes made during the COVID-19 Pandemic

The COVID-19 pandemic led institutions to make various changes with respect to their day-to-day

functioning, course delivery, and student support and assessments. In AeU, synchronous online final examination (SOFE), online examination (to be submitted within 24 hours), and extended assignments (to be submitted within one week) were introduced in the January 2020 semester.

In IGNOU face book live lectures were used for addressing students' needs. During the pandemic, 110 lectures were delivered through Facebook and were archived on eGyankosh for further references by students. During COVID-19, all internet service providers (ISPs) in Sri Lanka started providing free internet access to university-hosted web servers including LMS.

In OUSL the recorded day school sessions were shared via OpenCast, the institution's video channel. In addition, extensive use of social media tools like WhatsApp, Viber, and Facebook groups enabled quick communication with students to support their learning related issues. Use of online strategies for alternative assessments were introduced using the facilities in the Moodle LMS which included both formative assessments (continuous assessments) and summative assessments (final examinations) using different types of tools such as quizzes, essays, discussion forums, and reflective journals.

WOU conducted all f2f tutorials online and conducted its January 2020 semester exams using alternative assessment methods like online quizzes, reflection essays, case studies, portfolios, and open book exams. UBD moved rapidly to a blended learning approach that is underpinned by a lifelong learning perspective. MIC converted all its courses to a virtual format. MIC also converted all its f2f programmes to a virtual format.

Stakeholders Training

The institutions have been conducting orientation and training programmes for their faculty, instructors, and students. In the context of the COVID-19 pandemic, the focus of training

was on the changes made related to the delivery, learner support systems, and assessments.

In BOU, the focus of training of faculty and instructors was on how to create and manage an online course and for students it was taking them through LMS and also explaining the procedures of assignment submissions and forum discussions. Video tutorials were also shared with the students explaining the protocols and techniques for attending online courses. UBD organized online training programmes through webinars to train teachers, academicians, and administrators used video conferencing tools, podcast tools, and social media tools to provide student support. CTEMe at OUSL conducted training for academicians on online course development and online delivery, training students was on how to use the Moodle LMS and adopting online learning, and it provided user guides and links to Moodle training documents in LMS. All students who enrolled in a degree programme at OUSL were required to undergo the Student Academic Readiness Training Programme (StART@OUSL).

Similarly, for WOU students, it is compulsory to take the Learning Skills for University Studies course. Tutors at WOU had trial runs before scheduled classes to prepare the students on how to use Zoom, MS Teams, and Google Meet which were the main platforms used. Students were specifically trained on how to use MS Teams as it is WOU's official online platform. A pdf booklet on how to use MS Teams was given to every student. Training inputs for tutors consisted of five modules -- *Introduction to WOU, ODL, and core tutoring skills, tutors and tutorial support, outcome based education and constructive alignment, managing online classes using Microsoft Teams, and using the community of inquiry framework in ODL.*

Research Activities

Research activities are expected to be an integral part of institutions as they help policymakers

take informed decisions and bring in changes to institutional practices for improvements. Research is supposed to be a continuous process. To facilitate in-house research activities some institutions provide funding to their staff to carry out research activities. For example, WOU has set up a centre to oversee institutional research activities.

Institutions like AeU, BOU, OUSL, and WOU have been conducting surveys on a regular basis to get feedback from stakeholders, specifically from students to know their views on areas such as learning material, facilitators, assessments, and resources. In addition, on certain occasions a few researches are also undertaken to understand stakeholders' views about the changes made by an institution in its practices. One such occasion arose due to the COVID-19 pandemic due to which institutions brought changes in their delivery of courses and assessments.

UBD conducted surveys to investigate the experiences and challenges that the academic staff and students faced in going through the sudden and unexpected changes in their teaching and learning during the pandemic. WOU conducted a Student Satisfaction Survey on Learning and Teaching Effectiveness and about online tutorials. BOU conducted a students' survey to understand their views and satisfaction levels regarding BBA, MBA, Commonwealth MBA/MPA, and Professional MBA programmes with respect to tutorial sessions, communication mechanisms, and feedback on the assignments. MIC conducted a survey on virtual learning to know students' feedback on the technology used, audio and video inputs, and online interactions.

Future plans envisaged by the Institutions

AeU aims to provide a flexible and personalized learning experience anywhere, anytime using any device to meet the demands of a new generation

of learners. AeU has started a MOOC portal (<https://mooc.aeu.edu.my/>) and a website on Degree by Bits and Bytes (<https://degreebybits.aeu.edu.my/>).

IGNOU has started On-Demand Term End Examination, On-Demand Individualized Assignments (TMAs), On-Demand Online Examinations, and the Online Question Paper Delivery System (OQPDS)-an encrypted online question paper to deliver term end exam papers to exam centres. It is also creating more online courses / programmes in various disciplines.

MIC proposes reaching out to network service providers for better services and feasible rates for students. It also proposes to organize sessions to develop interactive online learning material and professional development programmes for lecturers and support staff.

In OUSL the creation of new online courses by staff members has been expedited. Use of online strategies for alternative assessments are increasingly being introduced in courses using the facilities in the Moodle LMS. OUSL is promoting the creation of quality open educational resources (OERs) and online courses and sharing them through a dedicated platform and using alternative online assessment methods.

Online teaching has made UBD more accessible to international students without leaving their doorsteps. UBD is attempting to work on alternative assessments. It has published Staff Guidelines for Online Examinations that include guidance on preparing questions for all online examinations and 'Special Examination Procedure for Online Examinations (for Exam Candidates).' UBD has decided that all lectures will be delivered online beyond COVID-19 and tutorials will form the basis for in-person teaching and learning.

WOU is working on hybrid programmes and courses for enhancing their relevance and

the contemporariness with the workplace, introducing micro-credential courses so that prospective learners can enrol in bite-sized packages, converting courses to fully online mode, maximizing the APEL (Accreditation of Prior Experiential Learning) entry process for student enrolments, creating a policy on advanced standing credits for MOOCs, and providing students assistance in purchasing laptops and wi-fi cards.

BOU has plans to develop a well-structured e-learning policy and has implemented training of teachers to meaningfully integrate technology with their teaching and learning practices, creating online courses, and facilitating learners' learning process on online platforms and how to use OER for content development.

To summarize, some encouraging events have taken place in the last few years including:

- Developing policies on MOOCs, credit transfers, and establishing and managing LMS at the national level to promote MOOCs.
- Establishing and continuous efforts for strengthening external and internal quality assurances.
- Developing or adopting LMS at the institutional level to ensure students' continuous engagement and facilitating online education.
- Developing alternative assessment strategies to replace conventional assignments and proctored examinations.
- Initiating on-demand assignments and examination systems.
- Universities converting existing courses to online courses.
- More and more conventional institutions are proposing a dual mode of education.
- Extensive use of different online platforms and social media for delivering content and engaging students in learning.



CHAPTER V

RECOMMENDATIONS

RECOMMENDATIONS

After analysing seven country and seven institutional reports, one can notice certain aspects which need to be strengthened to ensure and maintain certain standards in the development and delivery of online education, though there have been continuous efforts at the national and institutional levels to promote and expand online education to meet the ever-growing demand for higher education:

1. Though many institutions have adopted strategies either due to COVID-19 or as an institutional policy to offer courses either partially or fully online, there is a need to work out a comprehensive strategy to offer online courses to include most of the features of online courses.
2. Most of the institutions which participated in this study are ODL institutions. Hence, it was easy for them to change over to a fully online mode during the pandemic by converting f2f classes to online classes and going for alternative ways of student assessments like online quizzes and examinations or assessments by coursework and assignments. Having the experience of going partially or fully online, the institutions need to work out detailed plans for re-structuring courses to suit online requirements including student assessments. This includes how much weightage of time is to be given for synchronous and asynchronous activities. For an online course a study on what should be reasonable students' instructional time in terms of synchronous and non-synchronous activities in terms of percentage of time spent on online engagement, self-study, participation in discussion forums, assessments (like quizzes and assignments and proctored online examination is needed. This will be very essential for designing, developing, and delivering online education. In India, UGC has introduced a set of guidelines for developing MOOCs which says that a MOOC should have 20 modules for a three to four credit course (15 hours per credit), each module to have a 30 minute video, and 3,000 words of text.
3. All countries have brought out guidelines and standards for conventional higher education institutions with respect to quality assurance and a few countries have exclusive guidelines for institutions following blended teaching and learning approaches practiced in ODL institutions. These guidelines seem to be inadequate when it comes to online education. In view of the rapid expansion of ICT infrastructure, internet penetration, and demand for expansion of higher education to meet the educational aspiration of the youth, it is likely that more institutions are going to opt for online education. To ensure quality with respect to content and its structure, delivery, and student assessments there is a need to develop guidelines and standards specifically for institutions offering online education with some performance indicators to take care of quality assurance as one of the criticisms against online education is the quality of teaching and learning.
4. A set of indicators is required to be developed by the regulatory agency to be used by the institutions for self-assessment before applying for approval to offer online education. The broad categories to be covered in the checklist could be as suggested in the Pakistan report. The

categories include: a) University Readiness (b) Faculty Readiness (c) Course Readiness (d) Library Readiness (e) Technology Readiness and (f) Student Readiness.

5. India and Malaysia already have a credit transfer policy and other countries are working towards formulating their policies. In view of this it will be wise to critically analyse the existing policies from the perspective of academic institutions and suggest broad guidelines to facilitate their easy implementation.
6. Another important aspect is the capacity building of faculty in the development and delivery of online courses. Probably one could think of developing and offering a short (3-month) course to faculty members across institutions on online course development and delivery instead of each institution developing its own courses. Similarly, a short certificate course for tutors and instructors in delivery of online courses could be made mandatory by institutions offering online education.
7. UGC in India has announced a policy on the Academic Bank of Credits (ABC) Scheme. If this idea is fully implemented then it will be a revolution in online education as it brings parity across institutions and saves a lot of resources in the form of faculty requirements, money, and infrastructure. It facilitates easy mobility of students across institutions. It will be very interesting and useful to find out how it is really working on the ground. Certainly, there are some hiccups and challenges involved in its implementation. A documentation on how it is being implemented, challenges involved, and possible ways of handling them will be a very useful reference for UGC for effective implementation and promoting the concept and its adoption in countries in the region like Bangladesh, Malaysia, Pakistan, and Sri Lanka.
8. India has implemented a credit transfer policy which allows an institution to develop a MOOC and students of other universities can enrol and earn credits and get them transferred to the programme that they are planning to pursue. A critical case study of at least a few MOOCs based on certain parameters like development and delivery of content, utilization of LMS, students' engagement, and assessment should be shared with other countries.
9. Research studies at the level of a country and big institutions on the quality of online courses from the perspective of stakeholders like course developers, instructors, and students will be very useful for furthering the cause of online education. Promoting a research culture in the institutions will help policymakers take informed decisions based on research findings.
10. It is reported in many researches that dropout rates are about 50 to 60 per cent in an online programme. It is also likely that the dropout rates in MOOCs are more than 50 per cent. So an efficacy study in terms of enrolments, completion, and success rates of online education including MOOCs and possible interventions to minimize dropout rates and working out strategies to minimize dropout rates by way of suitable interventions is very important and an absolute requirement for policymakers and managers of HEIs to minimize wastage of resources.
11. The actual cost of developing a programme and courses is difficult to gauge as many institutions are not capturing the opportunity costs involved. The actual unit cost involved in developing technical and non-technical programmes/courses and running costs will help upcoming institutions to work out student fees. Programmes/courses developed and running for about four to five

years should result in a lesser fee as the costs involved are only for updating and running the programmes.

12. Free MOOC and credit transfers should lead to reduced cost of higher education. A thorough study on how the benefits of free MOOCs in terms of how money is passed on to students is required. If this has not been done so far, a policy on this by the regulatory body to work out a strategy is required.
13. Like India, other countries should explore the possibilities of establishing one platform (national level) to enable public and private institutions to share and offer MOOCs instead of each institution having its own platform and courses.
14. Institutions should be encouraged to develop OER integrated courses and share them with other institutions.
15. A few arguments were put forward while advocating for OER development and use in the context of development and delivery of MOOCs:
 - a) MOOCs development will reduce the cost of content development and open-source platforms will facilitate the delivery of content with least expense.
 - b) HEIs can offer a university certificate/ diploma/degree programmes through MOOCs for a lower fee which adults in poorer countries can afford.

These suggestions seem to be elusive as we may have lost our way either because of lack of planning or determination to reach the expected goals. Can something be done?

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- MQA Guidelines_MOOC.pdf
- OpenUniversity-Manual-11-12-2019.pdf (naac.gov.in)

Handbook on Online Education in Commonwealth Asia: Case Studies

Author Guidelines for Country Case Writers

We want you to know that this is just a guide to make the Chapter (Case Study) finalisation easier. Our job as editors is to provide your support wherever required and particularly with APA formatting. We want your conceptual, creative, and critical perspective in the chapter, while taking note of the guidelines.

Submission

Please submit your chapter (case study) by email to:

- Prof. Phalachandra Bhandigadi
(bphala@gmail.com)
- Dr. Manas Ranjan Panigrahi
(mpanigrahi@col.org)

Timeline

- Author Contract signed by 10 July 2020
- Draft chapter due by 15 August 2020
- Review comments by 30 August 2020
- Revised chapter by 10 September 2020
- Copyedit by 30 September 2020
- Final Publication by 15 October 2020

Please plan on submitting the first draft of your chapter by 15 August 2020 with approximately 3,000 words, excluding references, tables, and appendices, figures and author bio. We plan to review all submissions soon as they come in, and thus we strongly encourage early submissions if your complete the draft before 15 August 2020.

Section A: Issues to be covered by the case writers

Country report

- Introduction/ Background Data (2 to 3 pages)
 - Overview of Higher Education: Its vision, mission and regulatory bodies overseeing higher education
 - Number of Conventional / Dual Mode / Open Universities
 - Number of Universities Offering online programmes
 - Total Number Enrolled in HEIs in 2019/2020
 - The discipline and level of Education
- Need for Online Education (1 page)
- Government Policy and Regulations on Online Education (including credit transfers from MOOC + Micro credentials delivered through online) (2 pages).
- Quality Assurance Agency/Body in the country developing Quality Standards to guide the delivery of online learning (1/2 page)
- Platforms used for delivery Online Education Funding and support from the government (2 pages)
- Changes/modifications in the policy/regulations in view of Covid-19 (1 to 2 page)
- Research findings if any on the impact of online education (1 page)
- Challenges, if any (1 page)
- Concluding remarks (1/2 page)
- Appendix
- References

Section B: Format and Style

Length

A chapter should be approximately 3,000 words, excluding references, tables, and appendices, figures and author bio. Please include a brief professional bio for each contributor (about 150 words per author).

Chapter Focus

Please keep the focus on your chapter within the scope of the book (as per the Concept Note) and as well as advice of the Editor/s.

Format Guidelines

Text Format

Please follow APA 6 carefully for the text and reference styles and place all references in a section at the end of your chapter. Please use 12-point Times New Roman throughout your manuscript. Keep maximum three levels of headings: Main heading (14 Point Bold), 2nd level heading (12 Point Bold), 3rd level heading (11 Point, italic). Use 16 Point Bold font for the chapter title.

Reference format

See APA websites for guidelines and examples:
<https://apastyle.apa.org/learn/faqs/index>
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Author Note

On the title page of your chapter, please include the following information for each author:

- Full name of author
- Professional title and affiliation
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Tables, Figures, and Images

Your chapter should include callouts (i.e. [insert Figure 2.1 Here] or [insert Table 4.3 Here]) to note where your figures and tables should appear. Tables and Figures should be included at the end of your document. Figures and Tables should have separate sequences.

Table Format

- Please each table on a separate page at the end of your manuscript, after the reference list.
- Use 12-point Times New Roman.
- Margins must be at least 1in. (2.54cm).
- Tables may use single-spacing or one-and-a-half spacing.
- Information necessary for understanding the table and definitions of abbreviations used within the table appear in a table note.
- Number all table with Arabic numerals sequentially. Do not use suffix letters (e.g. Table 3a, 3b, 3c); instead, combine the related tables.

Figure format

- Please each figure on a separate page at the end of your manuscript, after any tables (or after the reference list, if there are no table).
- Please a caption below each figure describing its contents and defining any abbreviations used in the figure.
- For the figure number, type *Figure X*. then type the title of the figure in sentence case. Follow the title with a legend that explains the symbols in the figure and a caption that explains the figure:

Figure 1. How to create figure in APA style.
- If the image is reproduced from another source, include the citation at the end of the caption.

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Any images included will need to be clear enough in their resolution for printing and delivered as JPGs or TIFFs. Halftones (images with tonal range such as photographs or paintings) must be submitted at 300dpi (at a minimum of 1500 x 1500 pixels). Line art (black-and-white or tinted graphs, diagrams, etc.) must be submitted at 1200 dpi (at a minimum of 6000 x 9600 pixels). You can check the dpi of your image file by opening its Properties (usually found in the “File” dropdown menu). Images that were created within Microsoft Office (such as simple charts), however, should be sent as individual Microsoft files (in Word, Excel, or PowerPoint formats).

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Handbook on Online Education in Commonwealth Asia: Case Studies

Author Guidelines for Institutional Case Writers

We want you to know that this is just a guide to make the Chapter (Case Study) finalisation easier. Our job as editors is to provide your support wherever required and particularly with APA formatting. We want your conceptual, creative, and critical perspective in the chapter, while taking note of the guidelines.

Submission

Please submit your chapter (case study) by email to:

- Prof. Phalachandra Bhandigadi
(bphala@gmail.com)
- Dr. Manas Ranjan Panigrahi
(mpanigrahi@col.org)

Timeline

- Author Contract signed by 10 July 2020
- Draft chapter due by 15 August 2020
- Review comments by 30 August 2020
- Revised chapter by 10 September 2020
- Copyedit by 30 September 2020
- Final Publication by 15 October 2020

Please plan on submitting the first draft of your chapter by 15 August 2020 with approximately 3,000 words, excluding references, tables, and appendices, figures and author bio. We plan to review all submissions soon as they come in, and thus we strongly encourage early submissions if you complete the draft before 15 August 2020.

Section A: Issues to be covered by the case writers

Institution case report

- a) Institution's profile (2 pages)
 - Brief history
 - Number of students (online/conventional) enrolled since inception, graduated and number on roll
 - Geographical regions covered
 - Number of learning centres/branch campuses (whichever is applicable)
 - Total academic and support staff on roll
 - Strategic directions/plans on online teaching and learning
- b) QA of the institution: Department/Centre within the institution that manages the quality assurance of the online delivery. Process involved. (1/2 page)
- c) Online Course design and delivery (3 to 4 pages)
 - Processes involved in developing an online course
 - Instructional design adopted
 - How interactivity is built while designing a course
 - Time taken to develop an online course
 - Cost involved in developing a course (including opportunity cost)
 - Infrastructures to support to delivery of online course
 - Structure of students learning time (SIT)
 - Technology /Platform used to deliver online course

- Training of students or guidelines provided to students to adopt online learning
 - Training of faculty and instructors/tutors on online education delivery
- d) Student/Learner support system to facilitate online learning (2 pages)
- Mode/s of support (Online, F2F), synchronous/asynchronous
 - Social media used, if any, purpose, strategy
- e) Students assessment, process involved, nature/type of assessments, weightage for online assessment and proctored examination – and how did the institution safeguard the credibility and integrity of the online assessment (1 page)
- f) Challenges involved in designing and delivering online course (1 page)
- g) Research findings (including impact studies) , if carried out on students satisfaction and other issues/concerns. Feedback from stake holders (1 to 2 pages)
- h) Changes made if any due to Covid -19 regarding course delivery and assessment on the courses delivered for conventional learning (1/2 page)
- i) Future directions including plans for improving online course design and delivery (1/2 page)
- j) Appendix
- k) References

Section B: Format and Style

Length

A chapter should be approximately 3,000 words, excluding references, tables, and appendices, figures and author bio. Please include a brief

professional bio for each contributor (about 150 words per author).

Chapter Focus

Please keep the focus on your chapter within the scope of the book (as per the Concept Note) and as well as advice of the Editor/s.

Format Guidelines

Text Format

Please follow APA 6 carefully for the text and reference styles and place all references in a section at the end of your chapter. Please use 12-point Times New Roman throughout your manuscript. Keep maximum three levels of headings: Main heading (14 Point Bold), 2nd level heading (12 Point Bold), 3rd level heading (11 Point, italic). Use 16 Point Bold font for the chapter title.

Reference format

See APA websites for guidelines and examples:
<https://apastyle.apa.org/learn/faqs/index>
<https://apastyle.apa.org/learn/quick-guide-on-references>

Author Note

On the title page of your chapter, please include the following information for each author:

- Full name of author
- Professional title and affiliation
- Mailing address
- Email address

Tables, Figures, and Images

Your chapter should include callouts (i.e. [insert Figure 2.1 Here] or [insert Table 4.3 Here]) to note where your figures and tables should appear. Tables and Figures should be included at the end of your document. Figures and Tables should have separate sequences.

Table Format

- Please each table on a separate page at the end of your manuscript, after the reference list.
- Use 12-point Times New Roman.
- Margins must be at least 1in. (2.54cm).
- Tables may use single-spacing or one-and-a-half spacing.
- Information necessary for understanding the table and definitions of abbreviations used within the table appear in a table note.
- Number all table with Arabic numerals sequentially. Do not use suffix letters (e.g. Table 3a, 3b, 3c); instead, combine the related tables.

Figure format

- Please each figure on a separate page at the end of your manuscript, after any tables (or after the reference list, if there are no table).
- Please a caption below each figure describing its contents and defining any abbreviations used in the figure.
- For the figure number, type *Figure X*. then type the title of the figure in sentence case. Follow the title with a legend that explains the symbols in the figure and a caption that explains the figure:

Figure 1. How to create figure in APA style.

- If the image is reproduced from another source, include the citation at the end of the caption.

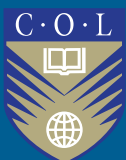
Image format

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