PEDAGOGY
for Online Learning

Theory and Practice

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editors

This is an original copy of the book chapter.

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Preface

During this unprecedented time, almost all educational institutions have shifted from traditional learning to online learning. When the COVID-19 hit the world, online teaching was no longer an option but a necessity. Due to government restrictions and other related protocols, schools, colleges, and universities opted to deliver academic instructions into online to ensure that students still receive quality learning they deserve. Online learning is a tool in which teaching and learning process still become student-centered, innovative and flexible. However, online learning can also become a disadvantage as there are many challenges associated with online teaching and learning. This e-book offers the different perspectives on online learning: framework, learning experiences both on students and teachers and its associated future management.

The introductory part of this book gives an overview and framework of online learning. It provides technical discussions of learning management systems and teaching and learning modalities used in online learning. It serves as guide in the development of the appropriate learning management system and modality relevant to the capacity and necessity of the academic institutions. The authors shared their actual experiences in the development and management of the systems and programs in online learning.

Part 2 of the book contains the efficacy of online learning experience as per the students' perspective. It highlights the attitude of students towards distance learning at the peak of

the pandemic termed as 'behavioral Coronaphobia.' This part also highlights the expectations of high school and higher education students on online learning and teacher-created videos as a tool in the online learning. The authors shared the results of their studies on the actual experience of their students which unveiled the various positive and negative facets of online learning.

In part 3, the efficacy of online learning as per teachers' perspective is presented. This part highlights the experience of the rural science teachers and the school administrator during the new normal in education. Recommendations outlined on this part serve as bases for further analysis in terms of online teaching-learning implementation. Meanwhile, the future of online learning is outlined in part 4, which can be a basis for further review. The model contained in the paper can be particularly applied in higher education where online platform may be adapted for long in the post-pandemic new normal.

This e-book offers major research results on the conduct and implementation of online teaching and learning in the context of COVID-19 pandemic. It provides a unique perspective on the research issues regarding the effects of online learning from many experts in this field.

Let us learn from the various personal experiences and perspectives of the researchers from various fields of specialization!

About the editors

Dr. Rodrigo M. Velasco has a multicultural perspective of education and research having worked as a professor and administrator in the Philippines, CNMI, USA and Sultanate of Oman. His orientation on multiculturalism and diversity trained him to cope with different cultural and geographical settings. He is currently an assistant professor of business management and accounting at Gulf College, Sultanate of Oman. As an academician, he has professional qualifications such as Doctor of Business Administration, Diploma in Strategic Management and Leadership from School of Business London, and Certified Human Resource Professional and Certified Marketing Professional from Qualifi, United Kingdom. As a researcher, he is the founding president of the Institute of Industry and Academic Research Incorporated as a platform for open access publications.

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Wai Wai Than is a former lecturer at Department of Educational Psychology in Sagaing University of Education. From that university, she got her bachelor's degree (BEd) in 2008 and Master's degree (MEd) specializing in Advanced Educational Guidance and Counselling in 2012. At present, she is also studying as a fourth year PhD student at Yangon University of Education. Her PhD dissertation focuses on student satisfaction in the field of higher education. She has delivered lectures on educational psychology to undergraduate and post-graduate students, conducting her PhD dissertation, and supervising MEd theses.

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Part 4 – The Future of Online Learning

Part 4

The Future of Online Learning Experience

Source: https://www.educationge.com/2021/06/18/why-online-learning-is-the-future-of-education%EF%BC%9F/

Future Management of Online Learning in Higher Education

Wai Wai Than

Introduction

Online learning is considered to be essential in the 21st century and its popularity increases more radically among the people all across the world. It is said in a most recent survey from Babson Survey Research Group that over 30 percent of higher education students in the States take at least a distance course through online learning (Gemma Josep, 2021). Not only in the States but also all over the world, the number of people who study online increases day by day because of the coronavirus pandemic. According to an article from Insider, Zoom, a teleconferencing application typically used by businesses, has become the hot new way for people to connect and study online while social distancing during the coronavirus pandemic (Ben Gilbert, 2020). Like Zoom, other learning management systems are becoming popular in this time of favoring online learning. Some higher education institutions are trying to develop and utilize their own learning management systems. Because of this popular nature, there is the need for selecting the efficient learning management systems for education institutions for the effective management of online learning.

Although online learning is an inevitable road to continuous education during Covid-19 crisis, there are still many difficulties in establishing online learning in every education institutions. This creates a need for reviewing the current establishments of online learning during this crisis in order to learn the facilitating factors and challenges of online learning and develop a comprehensive framework for the future management of online learning.

Among the various sectors of education such as primary education, secondary education, higher education, and vocational education, higher education sector is the field in which online

learning is highly possible to establish and also really developed to some extent. As of the conduct of this study, there are very few systematic review of studies focusing online learning in higher education during Covid-19 crisis. To fill this need in higher education field, this study aimed to review the studies to explore the learning management systems, factors influencing online learning and challenges encountered in online learning establishment in higher education during the Covid-19 Pandemic by the use of systematic review technique. The purpose of this review is to develop a framework that can assist educators and designers in the future management of online learning in higher education by systematically reviewing the previous papers focusing online learning establishments during the Covid-19 pandemic. Three research questions drive this systematic review of online learning establishments.

1. Which types of learning management systems (LMSs) are mostly used in online learning establishment in the field of higher education during Covid-19 Pandemic?
2. What are the main factors facilitating online learning effectiveness in higher education institutions during Covid-19 Pandemic?
3. What challenges are students and teachers faced with in the real online learning classes in higher education institutions?

Methodology

This study utilized the systematic review approach to analyze the previous researches, journal articles and reports on online learning establishments in higher education institutions during the Covid-19 Pandemic. A systematic review is a piece of work that asks a research question and then answers it by summarising the evidence that meets a set of pre-specified criteria. The specific procedures for conducting this systematic review are presented step by step.

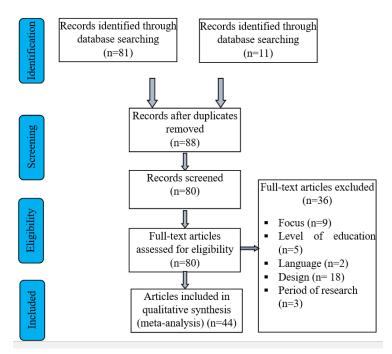Inclusion criteria for this study were formulated as in the table 1.

Table 1

Inclusion Criteria

Criterion	Inclusion criteria
Focus	LMSs, Factors and Challenges of Online Learning Establishments
Level of education	Higher education
Language	Published in English
Design	Qualitative, Quantitative, Reports
Period of research	During Covid-19 pandemic

Since the coronavirus pandemic started in December 2019, in China and spread out nearly all over the world in 2020, the search period of the relevant studies covered from 2020 to September 2021, both included. Studies were collected via available search engines: Google, Google Scholar, Research Gate, Academia and ERIC. In searching the relevant studies, the keywords "Online learning establishments in higher education during Covid-19 period", "Learning management systems used for online learning in higher education during Covid-19 period", "Factors facilitating online learning in higher education during Covid-19 period", and "Challenges encountered in online learning in higher education during Covid-19 period" were used. In addition, the references of the studies retrieved were also checked in order to get additional studies compatible with the inclusion criteria.

Figure 1 shows a flowchart describing the selection process of the studies.

Figure 1
Flowchart of Selection Process of Studies

Identification	Records identified through database searching (n=81)	Records identified through database searching (n=11)

Records after duplicates removed (n=88)

Records screened (n=80)

Full-text articles assessed for eligibility (n=80)

Articles included in qualitative synthesis (meta-analysis) (n=44)

Full-text articles excluded (n=36)

- Focus (n=9)
- Level of education (n=5)
- Language (n=2)
- Design (n= 18)
- Period of research (n=3)

After the studies are selected based on the inclusion criteria, data are extracted and entered into the excel sheet. The authors, year, nation, target population, sample size, type of learning management systems, factors influencing online learning and challenges encountered in online learning.

To analyze the qualitative data of factors and challenges of online learning, thematic analysis is used in this study. The qualitative data are examined to identify the common themes: topics, ideas and patterns of meaning. This thematic analysis is conducted by means of the six-step process: familiarization, coding, generating themes, reviewing themes, defining and naming themes and writing up.

Findings and Discussion

Question 1: Establishment and Effectiveness of Learning Management Systems

The learning management systems applied in online learning establishment are reviewed by means of systematic review technique. Although 44 studies focusing online learning establishments in higher education during Covid-19 Pandemic are selected in this study, only 11 studies described their learning management systems used in online learning.

Table 2

Learning Management Systems (LMS) mostly used in Online Learning in the field of Higher Education

LMSs	No. of Studies	Names of Studies
Zoom	7	Ritonga, et al., 2020; Mahyoob, 2020; Mishra, et al., 2021; Jurgen & Tan, 2020; Parvin 2021; Awal, 2021; Affouneh, et al., 2021
Google Classroom	5	Agormedah, et al., 2020; Soeryanto, et al., 2020; Mahyoob, 2020; Mishra, et al., 2021; Gurung & Bhutia, 2021
WhatsApp	5	Ritonga, et al., 2020; Mahyoob, 2020; Mishra, et al., 2021; Gurung & Bhutia, 2021; Affouneh, et al., 2021
Emails	4	Mahyoob, 2020; Mishra, et al., 2021; Awal, 2021; Affouneh, et al., 2021
Moodle	3	Agormedah, et al., 2020; Murugesan & Chidambaram, 2020; Affouneh, et al., 2021
Facebook	3	Ritonga, et al., 2020; Mishra, et al., 2021; Affouneh, et al., 2021
YouTube	3	Ritonga, et al., 2020; Mishra, et al., 2021; Affouneh, et al., 2021

The platforms mostly used in online learning during Covid-9 crisis are Zoom app, Google classroom, WhatsApp, Emails, Moodle, Facebook and YouTube. Other used systems are Blackboard Interactive, Webiner, Alison, Canvas, Google meet, Instagram, Jenzabar, Microsoft, Own LMS, Panopto, Sakai, Schology, Skept, Telegrams, Telephonic conversation and Web conferencing platforms (Mishra, et al., 2021; Turgen & Tan,

2020; Mahyoob, 2020; Agormedah, et al., 2020; Murugesan & Chidambaram, 2020; Gurung & Bhutia, 2021; Ritonga, et al., 2020).

Question 2: Factors Influencing Online Learning in Higher Education

By systematically reviewing the 44 selected previous studies conducted during the crisis of Covid-19 Pandemic, there are five major factors influencing the online learning effectiveness in higher education.

Table 3

Factors Influencing Online Learning Effectiveness in Higher Education during the Covid-19 Pandemic

Factors	Descriptions	References
Technological factors	Technological knowledge, Technological communication skill, IT skill, Proficiency in using online tools, Ability to access online courses	Gautam & Gautam, 2021; Slimi, 2020; Elumalai, et al., 2020; Mohamed & Sami, 2021; Butnaru, et al., 2021; Siaw & Jiang, 2021
Personal factors	Self-management skill, Problem solving skill, Communication skill, Language proficiency, Online learning readiness, Perceptions on remote online learning	Slimi, 2020; Dong, 2020; Siaw & Jiang, 2021; Gautam & Gautam, 2021
Social factors	Social interaction with teachers, Social interaction with peers, Cultural aspects, Isolation with boredom and frustration	Febrianto, et al., 2020; Dong, 2020; Mok, et al., 2021; Elumalai, et al., 2020; Bhowmik & Bhattacharya, 2021; Tsang, et al., 2021
Instructional factors	Teacher expertise, Teacher consultation, Course content, Course design, Active learning activities, Blended learning	Gautam & Gautam, 2021; Paudel, 2021; Mok, et al., 2021; Elumalai, et al., 2020; Butnaru, et al., 2021; McDougall, et al., 2020; Tsang, et al., 2021
Support factors	Infrastructure, Economic support, Availability of recorded videos, Administrative support, Financial support	Gautam & Gautam, 2021; Febrianto, et al., 2020; Mok, et al., 2021; Elumalai, et al., 2020; Bhowmik & Bhattacharya, 2021

According to the result of this systematic review, there are five categories of factors influencing online learning effectiveness in

higher education: namely, technological factors, personal factors, social factors, instructional factors and support factors. The specific conceptual characteristics behind each factor are clearly presented in the above table.

Question 3: Challenges Encountered by Students and Teachers in establishing Online Learning in Higher Education

Based on the current establishments of online learning in higher education institutions, major challenges that are encountered by students and teachers are categorized and presented in the following table.

Table 4

Major Challenges of Online Learning in Higher Education during the Covid-19 Pandemic

Challenges	No. of Studies	Names of Studies
Technological skill	21	Agormedah, et al., 2020; Dlamini, 2020; Paudel, 2021; Slimi, 2020; Dong, 2020; Rajab, et al., 2020; Mok, et al., 2021; Mahyoob, 2020; Banji, et al., 2021; Mohamed & Sami, 2021; Marin & Bocos, 2021; Al-Akabi, 2021; Jili, et al., 2021; Williams, et al., 2021; Mollah & Parvin, 2020; Awal, 2021; Kaur & Kaur, 2021; Gurung & Bhutia, 2021; Affouneh, et al., 2021; Gautam & Gautam, 2021; Sarkar, et al., 2021
Internet and data access	24	Agormedah, et al., 2020; Paudel, 2021; Slimi, 2020; Febrianto, et al., 2020; Dong, 2020; Egielewa, et al., 2021; Mok, et al., 2021; Demuyakor, 2020; Mahyoob, 2020; Mishra, et al., 2021; Banji, et al., 2021; Mohamed & Sami, 2021; Gonzalez-Ramirez, 2020; Fatoni, et al., 2020; Bhowmik & Bhattacharya, 2021; Marin & Bocos, 2021; Al-Akabi, 2021; Williams, et al., 2021; Parvin, 2021; Mollah & Parvin, 2020; Kaur & Kaur, 2021; Gurung & Bhutia, 2021; Gautam & Gautam, 2021; Sarkar, et al., 2021
Social interaction	17	Slimi, 2020; Yang, 2021; Febrianto, et al., 2020; Dong, 2020; Rajab, et al., 2020; Mok, et al., 2021; Mahyoob, 2020; Means & Neisler, 2020; Mishra, et al., 2021; Banji, et al., 2021; Fatoni, et al., 2020; Bhowmik & Bhattacharya, 2021; Marin & Bocos, 2021; Kaur & Kaur, 2021; Affouneh, et al., 2021; Gautam & Gautam, 2021; Sarkar, et al., 2021

Challenges	No. of Studies	Names of Studies
Facilities	17	Agormedah, et al., 2020; Febrianto, et al., 2020; Egielewa, et al., 2021; Demuyakor, 2020; Means & Neisler, 2020; Mishra, et al., 2021; Banji, et al., 2021; Mohamed & Sami, 2021; Gonzalez-Ramirez, 2020; Marin & Bocos, 2021; Jili, et al., 2021; Williams, et al., 2021; Parvin, 2021; Mollah & Parvin, 2020; Gurung & Bhutia, 2021; Gautam & Gautam, 2021; Sarkar, et al., 2021
Teaching Learning Capability	15	Moawad, 2020; Dong, 2020; Rajab, et al., 2020; Mok, et al., 2021; Mahyoob, 2020; Means & Neisler, 2020; Mishra, et al., 2021; Fatoni, et al., 2020; Bhowmik & Bhattacharya, 2021; Al-Akabi, 2021; Parvin, 2021; Mollah & Parvin, 2020; Gurung & Bhutia, 2021; Gautam & Gautam, 2021; Sarkar, et al., 2021
Personal readiness	13	Paudel, 2021; Ritonga, et al., 2020; Rajab, et al., 2020; Mok, et al., 2021; Means & Neisler, 2020; Mishra, et al., 2021; Banji, et al., 2021; Bhowmik & Bhattacharya, 2021; Parvin, 2021; Mollah & Parvin, 2020; Kaur & Kaur, 2021; Affouneh, et al., 2021; Gautam & Gautam, 2021
Online culture	10	Dlamini, 2020; Paudel, 2021; Slimi, 2020; Dong, 2020; Mok, et al., 2021; Means & Neisler, 2020; Gonzalez-Ramirez, 2020; Fatoni, et al., 2020; Bhowmik & Bhattacharya, 2021; Gurung & Bhutia, 2021
Health problems	8	Rajab, et al., 2020; Mok, et al., 2021; Means & Neisler, 2020; Banji, et al., 2021; Marin & Bocos, 2021; Mollah & Parvin, 2020; Kaur & Kaur, 2021; Gautam & Gautam, 2021

Technological Skill. Lack of formal orientation and training, instructor's use of technology tools, instructor's ability of content creation, instructor's experience in online teaching, teacher and students' computer application technology, digital skill, difficulties in connecting on certain platforms, language difficulties in online classes are categorized under the challenge of technological skill. These challenges are presented in 21 studies of online learning in higher education during Covid-19 Pandemic.

Internet and Data Access. Among 44 selected studies, 24 studies reported the challenges of internet or data access for online

learning. The difficulties involved lack of constant access to internet connectivity, lack of reliable internet speed at work, network issues, poor internet infrastructure, lack of electricity, unstable network connection, uninterrupted electricity connection, intermit- tent signal issues, insufficient/ unstable internet connectivity, interruption of internet due to lack of and poor broad band internet, unavailable of internet in rural areas, rare availability of high-speed broadband or cellular internet connection outside the city areas and daily data limit.

Social Interaction. The 17 studies out of 44 studies reported the challenges related with social aspects of online learning. These challenges are mainly related with students' cooperation, social engagement and the learning benefits from face-to-face interaction with instructors and peers, missing the presence of instructors and peers, interaction with teachers, and lack of personal contact with teachers.

Facilities. The facilities-related challenges are encountered by teachers and students in establishing online learning in higher education field to a large extent. The notable challenges are unavailability of devices/equipment, lack of device and unsupported learning environment at home, lack of electronic devices (Laptop, computer, and Smart Phone), inequities in digital access, the lack of resources and exposure to remotely use information and communication technology, lack of a high-performance computer, tablet or phone, high cost of participating in online learning, and unavailability of supporting facilities.

Teaching learning capability. Among 44 selected studies, 15 studies reported the challenges of teaching learning capability in various online learning fields of higher education. Teachers' challenge on lack of control on their students' class participation, uncertainty regarding exam, the end of semester and assessments, the voice of lecturers, asynchronous teaching materials, absence of immediate feedback, lack of schedule for regular class, less attendance, lack of practical, lab and field visit, writing problem/ issue of whiteboard, difficulty in demonstration of steps as in on-class mode, and loss of authentic and hands-on experiences are the

real and intense challenges in online teaching learning aspects during Covid-19 Pandemic.

Personal Readiness. The challenges related with personal readiness of students and teachers are also presented in 13 studies focusing online learning in higher education during Covid-19 Pandemic. To create effective online learning, students and teachers' personal aspects also play an important role. These aspects include self-motivation, time-management skills, favourable attitude towards online learning, awareness of addiction in social media, self-discipline, and expectation of employment opportunities. Today online establishments frequently encounter inadequacy of these personal aspects of the persons involved as the challenges of personal readiness.

Online culture. During Covid-19 Pandemic, majority of students and teachers in higher education have been trying to aware and accept the online culture for the successful establishment of online learning. However, policy initiatives, lack of autonomy and freedom to the teachers and learners, compliance with educational policies, need of a quiet space or separate rooms in home, students' pilling up of their work, and planning to fit the course schedule with the work are considered by teachers and students as challenges in their online learning.

Health Problems. Among 44 selected studies, 8 studies reported the challenges of health problems during online learning. Students and teachers frequently encountered the problems of eye fatigue caused by staring at the screen for a long time, feeling too unwell, physically or emotionally, to participate, inability to focus on screens for long time and physical fatigue, mental fatigue and emotional problems related to the suspension of the university courses or to the evolution of the current epidemiological context. These are the major physical and mental health problems reported by students and teachers as challenges of online learning during Covid-19 Pandemic.

In summary, this study reported that the challenges of technical skill, internet and data access, social interaction, facilities, teaching learning capabilities, personal readiness, online policy awareness, and health problems are the major challenges mainly

encountered by students and teachers in establishing online learning in higher education sector during the Covid-19 Pandemic.

Conclusion

The main aim of this review is to develop a framework that can assist educators and designers in the future management of online learning in higher education by systematically reviewing the previous papers focusing online learning establishments during the Covid-19 pandemic. The three research questions are: "Which types of learning management systems (LMSs) are mostly used in online learning establishment in the field of higher education during Covid-19 Pandemic?", "What are the main factors facilitating online learning effectiveness in higher education institutions during Covid-19 Pandemic?", and "What challenges are students and teachers faced with in the real online learning classes in higher education institutions?"

According to the results of this systematic review, the platforms mostly used in online learning during Covid-9 crisis are Zoom app, Google classroom, WhatsApp, Emails, Moodle, Facebook and YouTube. Then, the five major categories of factors influencing online learning effectiveness in higher education are technological factors, personal factors, social factors, instructional factors and support factors. Finally, the challenges of technical skill, internet and data access, social interaction, facilities, teaching learning capabilities, personal readiness, online policy awareness, and health problems are the major challenges mainly encountered by students and teachers in establishing online learning in higher education sector during the Covid-19 Pandemic.

Finally, it is expected that the result of this study may provide a framework for future management of online learning, especially in the field of higher education. It provides the comprehensive factors facilitating the online learning effectiveness and the most possible challenges for students and teachers in establishing the successful online learning. By being aware and incorporating the concept of the factors and challenges in managing the online leaning systems, higher education institutions will accelerate the

benefits of online learning for students and teachers, and minimize the drawbacks of online learning in cultivating the educational objectives. For the mentioned implications, it is anticipated that this study may be a valuable one conducted during this pandemic period.

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