VIRTUAL AND CLASSROOM LEARNING IN HIGHER EDUCATION:

A GUIDE TO EFFECTIVE ONLINE TEACHING

Editors:

Vakul Bansal

Atul Bansal

Muhanned I. Alfarras

D.N. Rao

Rajendran Thavasimuthu

Bentham Books

Virtual and Classroom Learning in Higher Education: A Guide to Effective Online Teaching

Edited by

Vakul Bansal
PRINCIPAL, J.V. Jain College (Affiliated to Chaudhary Charan Singh University)
Praduman Nagar, Saharanpur
India

Atul Bansal
Department of Accounting, College of Business Administration
Univerity of Bahrain
Kingdom of Bahrain

Muhanned I. Alfarras
Department of Computer Communication Engineering,
Gulf University
Kingdom of Bahrain

D.N. Rao
Shri Venkateshwara University
Venkateshwara Nagar, Rajabpur Gajraula
Amroha, U.P
India

Rajendran Thavasimuthu
Makeit Technologies (Center for Industrial Research)
Coimbatore, Tamil Nadu
India

Virtual and Classroom Learning in Higher Education: A Guide to Effective Online Teaching

Editors: Vakul Bansal, Atul Bansal, D.N. Rao, Muhanned I. Alfarras and Rajendran Thavasimuthu

ISBN (Online): 978-1-68108-928-7

ISBN (Print): 978-1-68108-929-4

ISBN (Paperback): 978-1-68108-930-0

need for a court order if at any point you breach any terms of this License Agreement. In no event will any delay or failure by Bentham Science Publishers in enforcing your compliance with this License Agreement constitute a waiver of any of its rights.

3. You acknowledge that you have read this License Agreement, and agree to be bound by its terms and conditions. To the extent that any other terms and conditions presented on any website of Bentham Science Publishers conflict with, or are inconsistent with, the terms and conditions set out in this License Agreement, you acknowledge that the terms and conditions set out in this License Agreement shall prevail.

Bentham Science Publishers Ltd.
Executive Suite Y - 2
PO Box 7917, Saif Zone
Sharjah, U.A.E.
Email: subscriptions@benthamscience.net

CONTENTS

PREFACE

Covid-19 has changed the whole scenario of the education sector. Till now, virtual learning/online learning platforms were used to increase the interest of students in different subjects and to learn something apart from the course curriculum in educational institutions. Virtual learning was used as a support to the available physical infrastructure. But since April 22, 2020, this scenario changed, and by default, virtual learning has become the main platform for teaching and learning. All the classes are now being delivered online in all the higher educational institutions. The majority of the higher education institutions across the world practice blended learning or a combination of traditional and e-learning. However, the challenges of the coronavirus crisis have brought the higher education providers in a situation to restructure the philosophy of teaching, learning and assessment without compromising with the quality and serving the interests of the learners in best possible ways. Online teaching is the best way to combat the covid crisis, where social distancing is the only way to eradicate covid. Educational institutions have adopted virtual learning across the world. For higher educational institutions, senior management has taken up the responsibility to supervise and monitor the effectiveness of virtual learning towards achieving strategic goals. The whole onus is on the course instructor to design the contents and delivery of the course in such a way as to promote self-learning and better engagement in the class. Effective knowledge starts with learner's engagement. Hence, students' engagement has emerged as a fundamental subject in Higher Education in the recent past. In turn, it has become a pervasive indicator for measuring the education quality of institutions.

Various researches on the relationship between student engagement and learning reveal that engagement is a predictor of academic achievement, student performance, and educational development. Engaged students exhibit interest to study, active attention, motivation, and participation, while their disengaged counterparts demonstrate poor motivation, boredom, low grades, and passiveness. As students' performance remains a top priority for educators and engaging students is a challenge faced by lecturers all over the world, many efforts on how higher education might further inculcate and strengthen student engagement have been explored. With the increased exposure to the online world, all the traditional systems are being transformed into a virtual world like online shopping, banking, booking tickets, watching movies, *etc*. Hence now the education system is no more an exception to it. In the past two decades, the government has played a pivotal role in boosting E-learning. It initially started with satellite-based classrooms and subsequently followed by NKN (National Knowledge Network), NMEICT (National Mission on Education through Information and Communication Technology). It has also created e-access to information and library databases like INFLIBNET (Information and Library Network). It is also predicted that it shall create a new paradigm of National Academic Credit Bank (NACB), which shall ultimately transform the concepts of new generation degrees in the overall education system.

The current pandemic has introduced everyone to new normal not only *via* increased hygiene but transformed the learning process too. The MOOC (Massive Open Online Courses) gained momentum after this pandemic. After the immediate announcement of lockdown, all the schools and colleges were shut which forced the students to return to their native; this period also brought a milestone in academics. It was a drastic change overnight with the pandemic, and all the educators and learners were forced to equip themselves as they were all at the culmination of the academic year. The major questions posed before educators were - How can data be transformed into knowledge? How to reach them, so it doesn't compromise the quality of the learning process in face to face lectures and How to get immediately equipped with this new technology? The ones who especially lack experience in technology faced

major issues. This posed a big challenge to all the institutions and administrations for efficient delivery of learning, especially the ones who lacked organized and efficient online infrastructure. It was also supposed to ensure impeccable learning as the academic year was about to be completed.

It was again a challenge to enthrall students in the current scenario as their mental health was also affected. So many questions, but gradually, Virtual learning has now become the new ritual. The Internet has made it possible to reach every corner of the world, and educators and researchers have adapted to this virtual world as no other option was left to them. In contrast, it was combating with minimal infrastructure resources that was the biggest challenge as well bounty opportune to the IT sector, as many software professionals bolstered to bridge the gap created by the current pandemic by developing various new applications. Some of the applications or platforms used for online lectures include - WebEx, Zoom, MS Team, Google Meet, Google Classroom, *etc*. This also proved to be an overnight cost to the schools and college institutions as immediately those licenses of the software were bought to keep the learning going without disruptions. Though the pandemic is transitory, it has given new milestones in academics as it was a meteoric development in the educational system. With this drastic development in the education system, which moved towards e-world, an attempt is made to study and check if traditional "brick and mortar" can lose its strength and possibility of being replaced with the online mode of teaching. An in-depth analysis is made to find out how the current generation is experiencing online learning and what challenges does it pose, also the level of acceptance in comparison to the face to face learning.

Vakul Bansal
Principal
J.V. Jain College (Affiliated to Chaudhary Charan Singh University),
Praduman Nagar, Saharanpur,
India

Atul Bansal
College of Business Administration
University of Bahrain
Kingdom of Bahrain

Muhanned I. Alfarras
Department of Computer Communication Engineering,
Gulf University,
Kingdom of Bahrain

D.N. Rao
Shri Venkateshwara University
Venkateshwara Nagar, Rajabpur Gajraula
Amroha, U.P
India

Rajendran Thavasimuthu
Makeit Technologies (Center for Industrial Research),
Coimbatore, Tamil Nadu
India

List of Contributors

Abhi Bhattacharya	Department of Commerce, College of Business Administration Finance University of Bahrain, Tamil Nadu, India Faculty of Economic and Business, University of Groningen, Groningen, Netherlands
Aditi R Khandelwal	Department of Business Studies, IIS (Deemed to be University), Rajasthan, India
Amine Moulay	Department of Architectural Design, College of Art & Design, Royal University for Women, Sakheer, Bahrain
Ankita Chaturvedi	Department of Accounting and Taxation, IIS (Deemed to be University), Rajasthan, India Department of Business Studies, IIS (Deemed to be University), Rajasthan, India
Asha Bhatia	Universal Business School, Mumbai, India K. J. Somaiya Institute of Management Studies, Mumbai, India
David Littlefair	Northumbria University, Newcastle, UK
David Nichol	Northumbria University, Newcastle, UK
Debashis Bhowmick	Jhulelal Institute of Technology, Nagpur, India
Dhiraj Dhirwani	VESIM, Chembur, Mumbai, India
Daouia Chebab	Department of Architectural Design, College of Art & Design, Royal University for Women, Sakheer, Bahrain Department of Economics &, College of Business Administration Finance University of Bahrain, Riffa, Bahrain
E. Kamatchi Muthulakshmi	Department of Management Studies, Rathinam Institute of Management, Coimbatore, India
Elizabeth Mathews	Department of Commerce, C.K.T.A.C.S. College, Maharashtra, India
Glovin Kumar	Xavier Institute of Management and Research, Mumbai, India Strategic Management and Planning, Pune, Maharashtra, India
Indrani B. Das Sarma	Jhulelal Institute of Technology, Nagpur, India
Indu Sharma	MITCON Institute of Management, PuneIndia, Maharastra
Mel Lindley	College of Health, Wellbeing and Life Sciences, Sheffield Hallam University, UK
Meena Sharma	VESIM, Chembur, Mumbai,
Mrinal Mukherjee	Department of Teacher Education, The West Bengal University of Teacher's Training, Education Planning and Administration (WBUTTEPA), Kolkata-700019, India
Neha D'Souza	Xavier Institute of Management and Research, Mumbai, India Strategic Management and Planning, Pune, Maharashtra, India
Radhika Juneja	Universal Business School, Mumbai, India K. J. Somaiya Institute of Management Studies, Mumbai, India

CHAPTER 1

How Effective is Online Education During the Current Pandemic Due to COVID-19?

Ravindra Dey[1,2], Indu Sharma[2,*], Neha D'Souza[1,2] and **Glovin Kumar[1,2]**

[1] *Xavier Institute of Management and Research, Mumbai, India*

[2] *Director, IQAC, MITCON Institute of Management, Pune, India*

Abstract: The COVID-19 pandemic has forced educational institutions and universities across the country to suspend classes and lectures, forcing them to resort to online education to continue educating students. While the change could have been smooth for the more technologically adept institutions, many others are still coping. The change affects students, and even more importantly, educators, who have to revamp their lesson plans and pedagogy. While many articles state the infrastructural disparities between regions within the country, few speak about the effectiveness of the online courses. This study aims to investigate the effectiveness of online education in the current scenario. The subjects of this study were students currently pursuing a master's degree in business administration, all of who are attending online lectures. Using online questionnaires for students and in-depth interviews with faculty members, data was collected *via* convenience sampling. A total of 141 students in business school responded to the questionnaire, and interviews were conducted with ten professors in Business Schools. The findings of the study reveal that despite the lack of adequate infrastructure, the students have found means to adopt this new medium of learning. The motivation is high amongst the teachers and students, who are equally enthusiastic about learning *via* the new platform.

Keywords: Classroom, Corona Virus, COVID 19, Education, Effective Online Education, Electronic Learning, E-learning, Faculty, Higher Education, India, Online Courses, Online Education, Online Learning, Online Lectures, Pandemic, Pedagogy, Students, Teachers, Technical Infrastructure, Technology.

INTRODUCTION

The novel Coronavirus was declared as a pandemic by the W.H.O (World Health Organization) on the 30th of January 2020, and by the 11th of February, it was renamed as COVID-19. The virus that originated from Wuhan, China, brought the

* **Corresponding author Indu Sharma:** Director, IQAC, MITCON Institute of Management, Pune, India; E-mails: drindusharmamima.edu.in/drindusharma09@gmail.com

entire world to a standstill putting tremendous pressure not just on the economy but also on daily routine tasks.

With nearly all countries worldwide going through a lockdown, this epidemic has brought a Global crisis of a very high magnitude. Every industry has been affected by the onset of this pandemic; with organizations adopting the 'Work from home' culture, nothing stands different for the education sector. Online Education has been the area of focus for quite some time now and has not been an entirely new learning mode, but the constant debate of this medium being effective or not has always brought doubt in one's mind.

There are both pros and cons when it comes to this mode of learning ranging from different areas of having the right technological infrastructure, being technologically sound and comfortable with the platform, the pace at which one adapts to it, the course material or modules used for teaching and the methodology/techniques used to keep the concentration levels of students from wavering. The issues that existed in the traditional classroom setup do not cease to appear in the online mediums of learning. Low concentration level remains an area of concern, as one cannot discern if the student is attentive and benefiting from what is being taught. Though technology eliminates geographical boundaries, a lack of physical interaction leaves much to be desired.

LITERATURE REVIEW

Electronic-learning or E-learning is an umbrella term for a wide variety of methodologies, including supported learning, blended learning (a combination of interaction with the instructor and online teaching resources), and a completely online course, without student-interaction interaction (J. Pearson & S. Trinidad, 2005). Owing to its vastness, numerous factors decide the effectiveness of the learning course for the student; a few of these are the availability of necessary infrastructure: the quality of the course and teaching aids, the relevance of the content for the student, the availability of support systems for solving queries, and a competent peer support system, for both the student and the instructor alike (Macnish, Trinidad, Fisher & Aldridge, 2003, J. Pearson & S. Trinidad, 2005).

After initial research was carried out by Walberg (1979) on classroom learning environments, consequent research papers focused on the efficacy of technology being used to innovate in education and the widespread adoption of the internet with mediums like web-based learning growing in popularity. Results from these researches have established links between classroom environments and student learning (Goh *et al*. 1995; Fraser 1999a, b), and the results focused on the technology-savvy learning environments in encouraging the retention of students, achievement, attitudes, and equity (Trinidad *et al*. 2001; Aldridge *et al*. 2003).

The studies prompted educators to re-assess their understanding of teaching modes and examine the role of teaching mediums in learning outcomes for the students before establishing the said mode in an educational institution. The findings of various studies seem to be contrasting; Rivera and Rice (2002) found similarities in the results of students who took up an online class *vis-à-vis* traditional face to face classroom training or video-based learning. Contrasting the above findings was the research carried out by Hughes *et al*. (2007) and Maki, Maki, Patterson, and Whittaker (2000) shows students who took web-based classes performed better than the students in the traditional face-to-face class. However, students who enrolled in a web-based class achieved lower grades than those who took up face-to-face classes. Wang and Newlin (2000), Waschull (2001) suggested that their findings may be an outcome of how the learning was measured across these groups and suggested varying the methods for assessments that would result in different outcomes.

These studies pertain to entire courses, which bring many other factors that could affect student performance, namely the course content, which ideally should be identical to traditional and online courses. The instructor's teaching styles also have a vital role to play here; the depth of explanation offered, student-teacher interaction, expertise in the field, are bound to be different for individuals. These could essentially be what 'makes or breaks' the course for a student; when it comes to online teaching, the extent and the frequency of student-teacher interaction *via* various means of engagement are also worth exploring (Lisa Emerson and Bruce MacKay, 2010).

A correlation has been shown to exist between student learning and the compatibility of learning environments with their personal preferences (Aldridge *et al*., 2003, 2004). Therefore, it is fair to infer that designing learning environments that are more in line with student preferences would certainly lead to more positive outcomes for the student, both in achievements and cognitive learning. It is also interesting to note that the rapid change and adoption of online learning as a medium with more benefits, and better learning than traditional classes, is not supported by very firm evidence. Studies conducted have highlighted this rapid change and adoption of e-learning as a medium in higher education. The claims that e-learning has more rewards than dangers and is a great time saver for students, is not sufficiently backed with evidence and has led researchers to support claims with empirical evidence. Knowing that in the current scenario where the world has reached new heights and achieved the unachievable, it still has not matured when it comes to the quality of technology in many countries.

CHAPTER 2

Teaching and Learning with Technology – Analysis of the Impact of Technology on Higher Education

David Nichol[1,*] and **David Littlefair**[1]

[1] *Northumbria University, Newcastle, UK*

Abstract: Technology is central to learning in Higher Education. This learning style has been in the vanguard of ensuring continuity of study for many students worldwide during the 2020 pandemic. This chapter examines the impact of teaching and learning using technology from a theoretical and practitioner perspective. It utilizes the experiences of a practitioner who has worked in this field over the past 20 years. This chapter contends that there are both positive and negative impacts of technology in learning and teaching. However, technology is now central to enhancing learning, and using a constructivist approach can be the most effective learning strategy when using technology. Professional development is potentially a key focus area of added value when using technology as a learning medium.

Keywords: Academic, Constructivist Classrooms, Constructivist Learning, Digital Classrooms, Digital Technology, Education, Higher Education, Impact of Technology Upon Learning, Laptops, Learning Management, Pedagogy, Pedagogical Practices, Post Compulsory Education and Training, Smartphones, Students, Teaching and Learning, Technical Infrastructure, Technology, Technology-Enhanced Learning, United Kingdom.

INTRODUCTION

This chapter will critically explore the use of digital technology in Higher Education (HE) through the lens of a constructivist learning approach and its relationship with technology through analysis and the potential impact on practice. It will further investigate techniques developed by teaching professionals in education to evaluate and monitor the effectiveness of using technology in their own environments while finally, aiming to illuminate the theoretical perspectives with practice by focusing upon and highlighting case study examples of a practitioner with over 20 years experience of developing and delivering

[*] **Corresponding author David Nichol:** Senior Fellow HEA, Northumbria University, Newcastle, UK; E-mail: david.nichol@northumbria.ac.uk

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

technology-enhanced learning opportunities in an HE setting. Across the literature, the evidence suggests a wide range of impacts, both negative and positive, related to digital technology, and it is used within Higher Education.

Researchers report benefits concerning the use of digital technology in education for both teaching and learning, including enhanced learning opportunities, academic attainment, greater motivation towards learning, and increased creativity (Selwyn 2016; McKnight 2016; Henderson 2017; Gillen, 2018). Conversely, research by Timmis *et al*. (2016), Fox (2017), and Molin (2018) express concerns, mainly where it can be seen as distracting for students within the learning environment, especially where educators lack the appropriate skills for its effective use. Furthermore, Higgins (2012), examining these ideas, argues that the positive findings are related to how the technology was employed using an instructional design theory instead of technology itself.

The evidence indicates that a constructivist approach to learning facilitated through technology can be one of the most effective with the promise to enhance both teaching and learning activities through student's engagement to construct their knowledge through collaborating with peers to help escalate their satisfaction and motivation towards learning (Aldoobie 2015; Wilson 2017 and Reid 2016). What is also evident is the implementation of constructivist approaches does present challenges. As Schnell (2013) and Albert (2017) argue, it is both opportune and expensive to train educators to be able to comprehend and then develop the pedagogical strategies to provide an effective constructivist approach through technology.

Finally, the evidence is presented in this chapter, which suggests that existing evaluation and monitoring methods for the use of technology in education still lack consistency in assessing the impact and quality of technology in the environment (Tamim *et al*., 2011). Contemporary models used by educators lack the underpinning theoretical scope that is to be addressed in the future to verify their validity and reliability to evaluate and monitor the use of technology in practice effectively.

The implementation of technology to support learning and teaching in higher education is nothing new. The potential impacts offered by numerous technologies have encouraged governments, researchers, and professionals from around the globe to suggest its development and use will modernize and improve education (Picton 2019; Bodsworth 2017 and Greenwald 2017). During the previous two decades, there has been a steady increase in the embedding of technology use across all phases of education in the United Kingdom, with devices, for example, laptops, smartphones, computers, tablets, and learning management systems all being utilized in educational settings with the potential of

supporting and enhancing learning in all environments. However, there are still many academics and practitioners who remain skeptical. Miniawi (2015) and Francis (2017) argue that although technology has evolved in educational establishments, all enhancement are not always met by the significant change in pedagogy needed to achieve its full potential to enhance learning.

There is, however, a plethora of research available offering a range of benefits technology can offer. For example, student engagement, knowledge retention, teaching and learning, personalized and collaborative learning are all offered by Selwyn 2016, Henderson 2017, McKnight 2016, and Gillen 2018, as benefits gained through technology integration. However, Timmis 2016, Fox 2017 and Molin 2018 all claim the use of technology is not without drawbacks, namely, the cost that can lead to exclusion, a distraction for students in the classroom, lack of skillset with teachers to use it effectively and, perhaps most importantly, safeguarding issues remain at the forefront of potential problems with technology. Therefore, these discussions have ensured that researchers and practitioners challenge the extent to which technology should be used and how reliable it is in fulfilling its promise of enhancing learning (Schindler *et al*., 2017 and Olofsson, 2019).

Further research, Higgins (2012); Graham (2008); Avramides (2016), and Ertmer (2016) continue to argue that it is not the technology itself that enhances the learning of students, but instead the pedagogy employed by educators which facilitates the enhancement of learning. The work of Voogt (2017) and Grant (2015) develop this further, suggesting educator's technological needs and pedagogical knowledge are combined for technology to reach its potential. What is of interest here is that it is being suggested that introducing technology or an underpinning learning theory does not unilaterally enable effective learning. Instead, the technology should be rooted within an explicit learning theory that supports the methodology. Learning theories, and their role in education, are not without their detractors. However, according to Mattar (2010), technology underpinned by constructivist pedagogy effectively enhances learning.

Constructivism can be broken down into two main categories, namely cognitive constructivism and social constructivism. Constructivism can be described as a self-regulated learning process, taking place through exploration, evaluation, and self-reflection. An active and socially dependent learning construction, where learners bring their experiences into new learning environments, is unrestricted by the developmental stage (Mayer 2009; Nichol and Littlefair, 2019).

Gilakjani (2013) claims the quality of teaching damages student performance and becomes more apparent when applying constructivist approaches to learning

CHAPTER 3

Virtual Learning: An Effective Tool for Quality Assurance in Higher Education

Rumpa Roy[1,*]

[1] *Gulf University, Sanad, Kingdom of Bahrain*

Abstract: In an era of revolution in digital technologies, virtual learning has gained momentum in the educational process. This research aims to identify the role of virtual learning as an effective tool for quality assurance in higher education. This will further explore the performance indicators of virtual learning at program and institutional levels. To understand the impact of virtual learning in organizational performance and achievement of strategic objectives, the interview method has been selected to receive a comprehensive view of the senior management towards virtual learning and its future in reshaping the paradigm of education. The interview questions will be designed to know senior management's perception across the universities regarding the effectiveness of virtual learning in measuring learning outcomes and stakeholder satisfaction. The research will finally propose an innovative approach towards successfully implementing virtual learning from a futuristic perspective. This will open the avenues for competitive advantage in delivering quality education and achieving institutional vision and mission.

Keywords: CILO, Constructivist Approach, Corona Virus, COVID-19, Digital Resources, Digital Technology, E-Learning, Education, Engagement, Higher Education, Learning Outcome, MOOCs, Online Assessment, Online Class, Online Learning, Pandemic, Performance Indicators, Self-Learning, Technological Advancements, Virtual Learning, Virtual Learning Environment (VLE).

INTRODUCTION

In an era of revolution in digital technologies, virtual learning has gained momentum in the educational process. Virtual learning has complemented traditional face to face learning. There is no shortage of research in the 21st century focusing on the transition of education system from instructor-driven, face-to-face classroom learning to learner-driven online learning, especially in higher education. Traditional learning is oriented towards an instructive approach of instructor-driven knowledge and delivery. Virtual learning corresponds to the

* **Corresponding author Rumpa Roy:** Gulf University, Sanad, Kingdom of Bahrain; E-mail: dr.rumpa.roy@gulf-university.edu.bh

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

constructivist approach, which is distinct in terms of co-construction of knowledge due to communication between instructor and learner, the collaboration between learners in a dynamic environment.

Both the pedagogical methods differ in terms of content and delivery, coordination and communication between instructor and learner, resource requirements, academic and administrative support, monitoring, and evaluation. Virtual learning has in-built nature of collecting and analyzing data in terms of learner and instructor engagement during delivery, conducting online tests, and learner performance resulting in measuring performance indicators in the context of higher education. Virtual learning environment integrates with technology and digital resources enabling the instructor and the learner to interact on a wider platform irrespective of time and location.

Due to the recent COVID-19 pandemic, higher education institutions are at crossroads, and virtual learning has become inevitable to continue the learning process. Virtual learning has been directly linked with economic benefits, sustainable development, ensuring widening access to higher education. The majority of the higher education institutions worldwide practice blended learning or traditional and e-learning, given the rapid revolution in ICT. However, the challenges of the coronavirus crisis have brought the higher education providers in a situation to restructure the philosophy of teaching, learning, and assessment without compromising with the quality and serving the interests of the learners in the best possible way. To combat the crisis where social distancing is the only norm, educational institutions have adopted virtual learning worldwide. Senior management has taken the responsibility to supervise and monitor virtual learning effectiveness towards achieving strategic goals for higher education institutions. The onus is on the course instructor to design the course's content and delivery to promote self-learning and better class engagement.

LITERATURE REVIEW

The literature review explores the various definitions of quality from the perspective of education and multiple stakeholders. Virtual learning, its benefits, and its impact on student performance in higher education have been reviewed. There is no universal definition of quality in higher education. Quality Assurance Agencies across the world have developed standards and criteria to measure the quality of academic programs. Scholars have defined quality as value-based (cost-effective); user-based (user satisfaction); transcendent (subjective); manufacturing-based (ensuring standards) and product-based (measured variables). Each definition has a business, education, and impact on stakeholders (Tanweer, Qadri, 2016).

Virtual learning is not restricted to share course content and material online, delivering real-time or recorded video lectures, conducting an online assessment (quiz, assignment, case study, project, research, written tests, *etc*.) but explores immense opportunities to interact with the instructor and within learners through posts, chats/messages, forums, blogs, wikis, reflective journal at individual and group level (Al-Obaydi, 2019). The advent of mobile applications has facilitated online learning access anytime and anywhere globally, even from the workplace, focusing on digital literacy.

As a dynamic concept of boundary-less education, virtual learning has widened the market for higher education providers. The learners from high school and adult learners can be enrolled with flexibility, allowing them to balance study, work, and family responsibilities. In their endeavors to the massification of education, universities are adapting to technological advancements to promote virtual learning in offering academic programs. To cope with the learners' diverse needs, online learning diffusion in higher education is practiced widely in higher education institutions. Virtual learning has a vital role in providing higher education access to a wider audience at local, regional, and international levels. Through online learning, instructor and learners are physically separated, but it does not affect the learning process, and constructive engagement of learners takes place provided there is the arrangement for ICT to make the learning more efficient and outcome-based, aligned with the requirement of accreditation bodies (Iseni, 2015).

Blended learning is the most common form of online learning that integrates different delivery modes, including face-to-face learning and distance learning, in sharing learning resources, communication, collaboration, online classes, assessments, *etc*. It is often termed as hybrid or mixed delivery, where teaching and learning activities occur in both modes. This has become popular in recent years triggering enrollment into Massive Open Online Courses (MOOCs), Micro-credentials catering to a larger audience irrespective of socio-economic status. Blended learning has proved to be more efficient and effective in learners' achievement of intended learning outcomes. This is how the inference is drawn between virtual learning and quality assurance in higher education to meet various stakeholders' expectations. The entire process can teach knowledge, skill, and attitude essential for future graduates who are fit to enter the professional world or pursue higher studies or scientific research in a relevant discipline. Experts around the world have highly recommended virtual Learning Environment (VLE) for two reasons, namely, students get the opportunity to communicate and collaborate more on the digital platform; digital learning is more effective in terms of learners' motivation, adapting to prior knowledge and experience, flexibility in terms of using the mobile application (Kümmel *et al*., 2020).

CHAPTER 4

Futuristic Teaching and Learning of Millennials: By Consumer (people)-based Marketing Approach and Multi-channel Approach of Retailing

Sunil Kulkarni[1,*]

[1] *Associate Professor, Vivekanand Education Society's Institute of Management Studies, Chembur, Mumbai, India*

Abstract: COVID-19 has created the final push required for learning by/with Technology in higher education. Many institutes were already trying to offer higher education with Brick and Mortar kind of models using the various options starting from Audio-Video, E-learning, MOOCS, Virtual classroom, *etc*. The focus of offering higher education from the institute's (our) point of view is slowly shifting to their (millennials) point of view, meaning; providing education in the way and the place the (Millennials) wants to learn. Hence, understanding Millennials as consumers first and offering the education perhaps the same way (as consumers) could be the starting point. Later on, and after finding their specific learning abilities/requirements, one can develop a customized model of millennials' learning, combining the basic consumer model plus the student model. People-based marketing approach and multichannel approach of retailing come under the former, *i.e*., millennials as (consumer) learning models.

Keywords: Audio-Visual Learning, COVID-19, Digital Learning, Education, E-Learning, Higher Education, Learning, Millennials, MOOCs, Multi-channel approach of Retailing, ODE, Online-Education, Online-Learning, Online-Teaching, Pandemic, People-based Marketing Approach, Students, Teaching, Technology in Education, Virtual Classrooms.

INTRODUCTION

Education has been an important factor in the development of societies. In fact, one could say that, because of sound and structured Education Policies established, right at the beginning itself, have made the Developed countries what they are today (*e.g*., Singapore). The continuous learning attitude of these Developed societies, which in itself is a fundamental characteristic of Education

* **Corresponding author Sunil Kulkarni:** Associate Professor, Vivekanand Education Society's Institute of Management Studies, Chembur, Mumbai, India; Tel: +917020951028; E-mail: sunilkulkarni65@yahoo.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

(continuous learning) has made them further stronger. They also recognized the importance of bringing Technology into Education quite early, and that helped them, even in Pandemic times like the COVID.

Unfortunately, developing countries like India, which were under Colonial regime, for a much longer time, were still carrying out the policies and structure of education prescribed by them. The idea of Colonial rulers then was to prepare clerical mind-set people who will obey them simply.

The Government of India has now decided to de-link itself from this old education policy and come out with its own/indigenous education structure and policy which will benefit the Millennials of India today. The New Education Policy (NEP, 2020) has been a much-awaited decision and is going to be a revolutionary initiative for Indian education. The pandemic has triggered the Indian education system to adopt technology at a much faster pace and with the NEP also now under Implementation, this is the right time to put the Millennial Indian Generation (almost 50% of the population) on the right path of Glocal (Global plus Local) education. While doing all this, we should seek assistance from Developed countries like Singapore in implementation.

REVIEW OF LITERATURE

According to McPherson (2016), Millennials make the retailers re-invent and assess whether they are consumer-ready. In a way, he observed that the millennials want the strategies to make them engaged on Facebook or Twitter and expect a reciprocal relationship with the brands. He further explains that Millennials need to be involved in more fashionable and trendy loyalty programs in which their friends and peers are participating.

Boston Consulting Group (BCG) observed in its press release in 2014 that, Millennials who make a $1.3 trillion market, engage vigorously with brands than the older generations, and prefer a better relationship with the brands and the marketers. According to Orden (2015), Generational groups are significant, as they have common values and experiences which influence their purchase intentions and shopping patterns. In their research report for Accenture, Christopher Donnelly and Renato Scaff (2013) identified that millennials customers could be the most loyal ones if treated right.

Nimon (2007) explained that Millennials are considered the techno generation because of the technologies like Cell phones and Social media, which have also reflected and influenced their attitudes and values of lives. Belleau and Sommers (2007) observed that millennials are three times bigger generation than generation X. Millennials' impact is visible in their increasing buying power. Sullivan, in his

article-Supermarket and Retailer (2013) elucidated that, E-commerce redefined the concepts of the place, which enabled the companies to be available online and offline.

Considering the salient features of Millennials, the following could be incorporated while designing a marketing strategy.

- Personalization is the Mantra.
- Offer Choices of shopping (online *vs.* offline).
- Delayed family starting, not by choice.
- They are brand loyal.
- Primary consumption-(BHF)-Beauty, health, fashion.
- Peer-advocacy is best for engaging millennials.

Consumer-based marketing strategy keeps the Millennials at the center. The millennial generation being comparatively self-centered, demands personalized communication. Since all marketers know this by now, they have to do something unique than the competition to retain their respective market shares.

Consumer-based Marketing Strategy

It denotes a specialized targeting approach followed by a marketer, wherein he follows a single individual potential consumer on every device, any browser, or the different channels, wherever he or she is operating on. This targeting happens both on the company's website and on the other sites. This way, the marketer draws a reasonably good picture of the consumer's behavioral profile and captures his attention. In this process, he manages to generate exotic digital experiences for the identified consumers. Eventually, people-based marketing integrates the traditional Brick and Mortar experience with digital involvement. By making the consumer go through the digital experience, the marketer, through his technical know-how, figures out the consumer's purchase intentions and patterns. Thus, the so-called 'black-box' that is the consumer buying behavior becomes comprehensible to the marketer to make a faster return on investments.

Managerial Implications of Consumer (People)-Based Marketing

As the millennials are also content creators and produce videos, image experiences, *etc*., they get connected with those brands, which gives them space to create content for them and tools to do the same. The expanded social networks facilitate peer affirmation before a purchase decision is made. Millennials like the experience-based marketing world, which allows them to co-create an innovation.

CHAPTER 5

Taking a Fresh Look at the Value of Video in Online Learning

Ross Mallett[1,*] and **Mel Lindley**[1]

[1] *College of Health, Wellbeing and Life Sciences, Sheffield Hallam University, South Yorkshire, UK*

Abstract: The chapter explores video to facilitate learning in Higher Education by discussing the literature about the effectiveness of video use in teaching and considering underpinning pedagogy. Many institutions and academics worldwide are trying to make sense of students' emerging expectations, requirements, and the means to meet these uncertainties surrounding every aspect. The landscape of education is evolving with changes to where students study and technological advances driving the need for comparable or improved learning experiences online. One of the most challenging areas to transition online may be developing complicated practical or professional skills that have historically been acquired in a classroom or on work placements, *e.g*., difficult negotiations or technical engineering skills. Strategies such as asynchronous video and synchronous video conferencing have been commonly used to transition learning online to date. Evidence exists for the supplementary use of video in addition to traditional online methods to augment learning attainment only if carefully designed. The evidence supporting video to develop practical professional skills is reviewed to highlight key findings and summarise applications to practice. The chapter concludes with a discussion of the growing body of evidence supporting learning design considerations in this area and offers an underpinning theoretical framework to consider how video materials can be incorporated with other activities. Online curriculum design with integrated video is highly challenging to those who may be inexperienced, display low digital fluency, inflexible views, or limited digital tool access. However, this chapter aims to offer a coherent stepped approach to video construction within online curriculum design that is evidence-based and theoretically reasoned.

Keywords: Behaviourism, Cognitivism, Constructivism, Curriculum Design, Digital Education, E-Learning, Flipped Learning, Higher Education, Multimedia, Online learning, Online Media, Pedagogy, Professional Skills, Practical Skills, Social Cognitive Theory, Students, Teachers, Video, Video Learning, YouTube.

[*] **Corresponding author Ross Mallett:** College of Health, Wellbeing and Life Sciences, Sheffield Hallam University, South Yorkshire, UK; E-Mail: Ross.Mallett@shu.ac.uk

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

INTRODUCTION

This chapter will explore video to facilitate learning in Higher Education through the discussion of the literature about the effectiveness of its use in teaching and consideration of underpinning pedagogy. Future educational practice and recommendations for learning design will be presented in light of these discussions.

BACKGROUND

There has been a seismic move towards blended and online learning in HE over the past five years (Lee, 2019; Rasheed, Kamsin, & Abdullah, 2020) that will likely continue, if not escalate, in light of global, geopolitical, and technological influences. Coronavirus's worldwide impact has further instigated a digital shift in Higher Education, with a swift relocation of educational delivery into wholly online spaces (Lee, 2020b), with the use of video within these spaces increasing (Houlden & Veletsianos, 2020). The 2020 pandemic will have lasting effects on all aspects of our lives and education, the extent to which it is unknown and often difficult to envisage. Changes to where students study and technological advances will likely remain after pandemic recovery and heighten educational providers' need to offer high-quality, practical, and accessible learning experiences online. This move towards online learning being a mainstay of many Higher Education courses (Leszczyński *et al*., 2018; Morris, Swinnerton, & Coop, 2019).

Evidence-based educational practices are known to be the gold standard; however, adopting new and emerging practices is not without its challenge, often causing delays in implementation (Herodotou *et al*., 2019). This may be due to embedded historical approaches, the limitations of the institutions and environments in which they work, or the lack of good quality evidence for specific disciplines. To confound this, the world is changing quicker than ever before (Herodotou *et al*., 2019), especially with respect to technology and how we choose to interact with it (Floridi, 2014). This creates a lag between good quality educational evidence and the adoption of new and emerging tools. Future curriculum design will need to review established practices and balance this against emerging evidence and even newer emerging technologies to meet prospective learners' needs, constraints, and expectations. This chapter will explore video's relationship with educational practice, both historically and in light of the upswing in online learning adoption.

THE EVOLUTION OF VIDEO IN EDUCATION

The use of a motion picture to entertain and, to a lesser extent, educate has been present for over 100 years. There can be considered many phases of development that coincide with technical advances in cinematography, television, personal

video recorders, the internet, and smartphones (Saettler, 2004). A recent report estimates in 2020 that YouTube accounts for more than 25% of mobile internet use, with 65% of use being attributed to streaming video alone (Sandvine, 2020).

It is in this most recent phase, as widespread access to high-quality video recording and production that has enabled the substantial growth of instructional video in formal and informal educational settings (Mayer, Fiorella, & Stull, 2020).

The use of video in education has rapidly become commonplace in the last ten years, with a shift away from expensive equipment and high-quality production to low-cost, flexible solutions to support or supplement the campus experience. This has been possible due to reduced equipment cost and the relative automation of the recording and production process (Brooks, Erickson, Greer, & Gutwin, 2014). This has also occurred in response to the demands of students who increasingly expect digital resources as their social lives are framed by online content and digital interaction (Dziuban, Graham, Moskal, Norberg, & Sicilia, 2018). External University pressure to engage with this technology also filters through employers, partnership organizations, governments, and parents (Marshall, 2018). Synchronous (*e.g*: Microsoft Teams, Zoom) and asynchronous (*e.g*. Youtube) videos have been amongst the most common digital strategies employed to transition curricula online (Houlden & Veletsianos, 2020; Lee, 2020a). Furthermore, YouTube is the preferred video repository for medical students, with the content being deemed both suitable and appropriate when peer-reviewed by medical educationalists (Karim, Marwan, Dawas, Esmaeel, & Snell, 2020).

The Higher Education sector has explored different means to educate workforces with many studies investigating the use of video as a substitute for traditional teaching (Maloney, Storr, Paynter, Morgan, & Ilic, 2013; Moore & Smith, 2012; Gradl-Dietsch *et al*., 2018; Ilic *et al*., 2015; Valizadeh, Feizalahzadeh, Avari, & Virani, 2016), particularly in healthcare (Rolfe & Gray, 2011; Schreiber, Fukuta, & Gordon, 2010; Wakode & Wakode, 2018) where learning by "see one, do one, teach one" has long been a steadfast approach (Rath & Holt, 2010; Tarpada, Hsueh, Newman, & Gibber, 2017). However, there are questions and unease regarding the unabridged move to online modes of teaching with criticism about using video to facilitate deep, meaningful learning (Edwards & Clinton, 2019), especially if overloaded by content (Morris *et al*., 2019).

VIDEO AS TOOL FOR LEARNING

Many cited reasons why video has been utilized to supplement and, more recently, substitute traditional teaching methods. Digital technology affords greater access and flexibility to support the personalization of learning (Morris *et al*., 2019), with the use of video enabling students the ability to self-pace and

CHAPTER 6

Micro-learning: An Effective E-learning Resource with Poor Net Connectivity

Debashis Bhowmick[1,*] and **Indrani B. Das Sarma**[1]

[1] *Jhulelal Institute of Technology, Nagpur, India*

Abstract: The modern era is a digital era. From banking to healthcare services to business, everything is becoming digitalized. So is education. Online education is a metamorphosed version of Distance Learning. Distance learning started more than 150 years ago. It was initiated by Sir Issac Pitman (1840) to teach shorthand. This paves the way for a more structured model of distance education by the University of London (1858) and the Society to Encourage Studies at Home (1873) in the United States of America by Anna Eliot Ticknor. Online education was started with the School of Management and Strategic Studies (1982) by Western Behavioural Sciences Institute, California. The earlier versions of online education relied on computer conferencing, but online education flourished with internet web browsers. Online education in India began with the use of satellites for Education way back in the 1970s. However, the version of online education in its modern form started with the advent of the National Programme on Technology Enhanced Learning (NPTEL) in 1999. It is an initiative by seven Indian Institutes of Technology and the Indian Institute of Science (IISc) for creating course content in engineering and science. Ministry of Human Rights Development (MHRD) announced SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) in 2014. It is India's national platform for Massive Open Online Courses (MOOCs) under its National Mission on Education through Information & Communication Technology (NME-ICT). The online course was designed as a four-quadrant approach.

Keywords: Education, E-Learning, Gamification, Infographic, IISc, MHRD, Micro-learning, Micro-Teaching, Mobile-Learning, MOOCs, NME-ICT, NPTEL, Nuggets, Online-Course, Online-Learning, Online-Teaching, Pandemic, Pedagogy, Retention and Completion Rate, SWAYAM.

INTRODUCTION

The art of teaching is not a merely simple transfer of knowledge from one to another. It is a complex process; instead, that facilitates and influences the process of learning. The quality of a teacher is estimated by how much the students under-

* **Corresponding author Debashis Bhowmick**: Professor in Physics, Vice-Principal, Jhulelal Institute of Technology, Nagpur, India; Tel: +917020951028; E-mail: d@jit.org.in

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

stand from their teaching. The classrooms cannot be used as a learning platform for acquiring primary teaching skills.

Training of teachers in specific teaching skills is a significant challenge in education programs. The pedagogic skill for teaching can be acquired only through scientifically structured faculty training techniques. One such technique is Microteaching. Microteaching is a teacher training technique currently practiced worldwide, allowing teachers to enhance their teaching skills by improving some core teaching skills such as presentation and reinforcement. It employs a real teaching situation for developing skills and helps to get deeper knowledge regarding the art of teaching. This technique of "plan, teach, observe, re-plan, re-teach and re-observe" and has evolved as the core component of teaching development programs, with the significant reduction in the teaching complexities with respect to the number of students in a class, scope of content, and timeframe, *etc*. and it is a proven method to attain gross improvement in the instructional experiences.

In view of the present pandemic situation, the world relies on online teaching, and many underdeveloped countries, along with India, face a novel challenge in performing as an online teacher. The reasons may be varied, ranging from lack of know-how of the technology to lack of infrastructure; hence it is needed to give a fresh thought in designing microteaching content for facilitating assistance to the suffering teachers. This chapter focuses on the evolution of micro-teaching/ micro-learning from conventional online education.

HISTORY & CHALLENGES OF ONLINE EDUCATION

The modern era is a digital era. From banking to healthcare services to business, everything is becoming digitalized, so is education. Online education is a metamorphosed version of Distance Learning. Distance learning started more than 150 years ago. It was initiated by Sir Issac Pitman (1840) to teach shorthand. This paved the way for a more structured model of distance education by the University of London (1858) and the Society to Encourage Studies at Home (1873) in the United States of America by Anna Eliot Ticknor. Online education was started with the School of Management and Strategic Studies (1982) by Western Behavioural Sciences Institute, California (Holmberg, 2008). The earlier versions of online education relied on computer conferencing, but online education flourished with the internet web browser.

Paradigm Shift from Education 1.0 to 4.0

The mode of education went a sea change with time and evolution of new technologies (Tandon and Tandon, 2020). This change is depicted in Fig. (**1**).

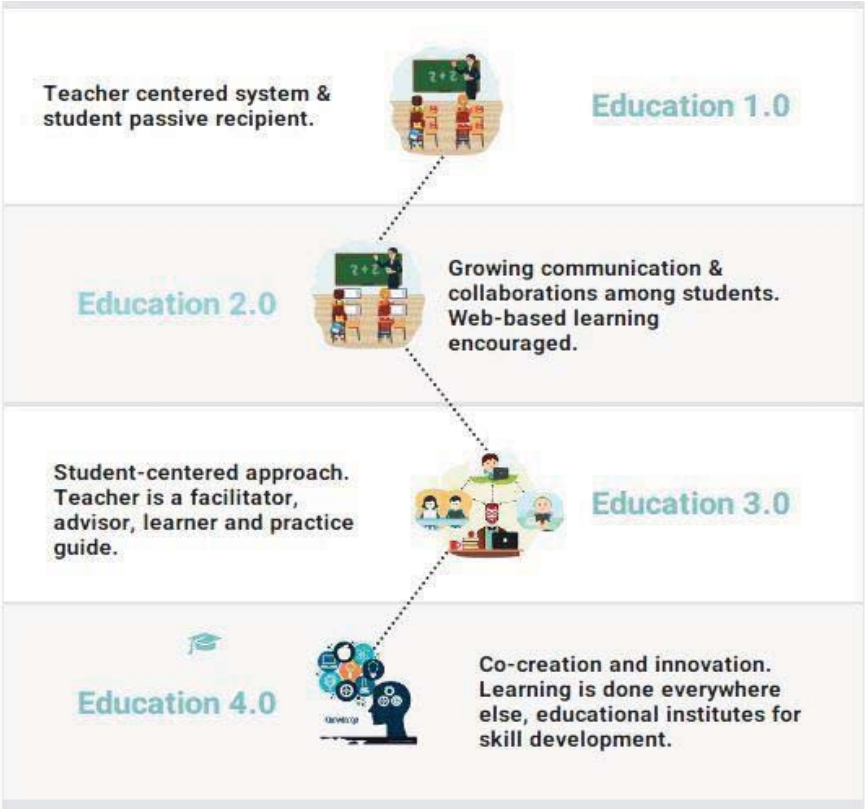

Fig. (1). Change from Education 1.0 to 4.0.

Education 1.0 was the initial stage where web-based learning was introduced. It was a teacher-centered system where the teacher was authoritarian and the student a passive recipient. The teacher was the absolute leader in the classroom who supplied information to the students as class notes, handouts, textbooks, videos, and in recent times the World Wide Web. The advent of technology led to the advent of Education 2.0. The communication and collaborations among the students started to grow. They communicated, collaborated, and connected for learning. The educators talked about learning outcomes but did not practice much. However, to some extent of project-based learning, experiential learning, and web-based learning were encouraged. However, Education 2.0 relied more on an exam-based approach. In this scenario, the students had better knowledge of technology than the teachers, which created confusion.

Education 3.0 has a student-centered approach. The major change is from the classical style classroom to flip classrooms. The Lesson Plans are termed Learning Plans. The teacher is a facilitator, advisor, learner, and practice guide. There is more dialogue, technology is used, and the students are self-learners.

CHAPTER 7

Virtual Synchronous Classroom Leading to Asynchronous Learning: Perspective of Teacher Education Pedagogy

Mrinal Mukherjee[1,*] and **Subha Das Mollick**[1,2]

[1] *Department of Teacher Education, The West Bengal University of Teachers' Training, Education Planning and Administration (WBUTTEPA), Kolkata-700019, India*

[2] *Aliah University, Kolkata and Maulana Abul Kalam Azad University of Technology, Kolkata, West Bengal, India*

Abstract: The most significant experiment underway in the history of teaching-learning during the forced closure of educational institutions is to identify and collect evidence on both the strength and drawbacks of teaching-learning in virtual mode. Teachers are at the epicenter of a massive scale switch over of practice of learning-teaching. Teachers need to possess skills that are instrumental in ensuring desired learning outcomes. Research data shows that there are effective teaching strategies for the virtual environment. Still, there are disconnect and inadequacies in the application of these strategies and teachers' perception of the outcomes, which demands capacity building for practicing teachers. Considering the emergency of designing unique models of the capacity building program for traditional teachers, in early June 2020, 'Bichitra Pathshala' conducted a short online course for teachers to help them overcome technical hurdles and create learner-centric environments in the virtual model. A combination of data collection methods, including the validated open-ended questionnaire and focus group discussion, was conducted on the synchronous virtual digital platform. The findings revealed that during the switch over to virtual learning-teaching mode, initially, the teachers were at a loss to address the students satisfactorily, but gradually the teachers learned to apply techno-pedagogical skills in their teaching-learning designs, and gradually they could ensure components of social presence and teaching presence in the virtual environment. Teachers felt further empowered when they could adopt asynchronous learning mode and showed confidence in their professional role.

Keywords: Asynchronous Mode, Behaviorism, Cognitivism, Cognitive Presence, Constructivism, COVID-19, Digital Platform, E-Learning, Focus Group, Online Course, Online Learning, Pandemic, Pedagogy, Social Presence, Students, synch-,

[*] **Corresponding author Mrinal Mukherjee:** Department of Teacher Education, The West Bengal University of Teachers' Training, Education Planning and Administration (WBUTTEPA), Kolkata-700019, India; E-mail: dr.mmrinal@gmail.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

ronous Mode, Teachers, Teaching Presence, Virtual Classroom, Virtual Learning Teaching.

INTRODUCTION

The biggest experiment is underway in teaching-learning history during this forced closure of educational institutions due to the COVID-19 pandemic. The experiment requires identifying and collecting evidence of the strengths and drawbacks of teaching-learning in virtual mode. In the unprecedented context of pandemic-2020, globally, the schools have remained closed for the last couple of months, but learning teaching has not ceased. The use of digital communication tools and learning platforms for remote teaching-learning is the main instrument for ensuring this buoyancy. It is a fact that despite teachers' favorable attitude towards technology, their use in classrooms has not been sufficient till time (Gülbahar and Güven, 2008; Kaur, 2019). Teachers have started taking classes in a virtual platform in the absence of a viable alternative to continuing learning teaching, with whatever technological resources and skills are available to them. This sudden paradigm shift in teaching-learning has brought up some unique problems, but at every step, the teachers are evolving and adapting innovative mitigation strategies to address and overcome the challenges. In a way, it is an opportunity to investigate and showcase the best practices of these emergency remote virtual learning teaching practices. Apart from other factors, teachers' affirmative attitude, eternal desire to remain engaged in teaching-learning and their capacity to re-skill themselves to such a digital platform are key in virtual teaching-learning.

The discourse of research in teacher education, specifically on the pedagogy of in-service teacher education, is inadequate. The perception of teachers about their effectiveness in virtual learning teaching is not well understood. Capacity building of teachers to facilitate meaningfully with technology to involve digital generation learners is a priority (Vargas & Tian, 2013). India's new education policy (2019) strongly advocates embedding technology in learning teaching. The same policy reiterated the necessity of teachers' preparation to achieve competency to address the relevant challenges. In the Indian context, the NPE 1986 and subsequent POA-1992 was framed as a follow up NEP-1986 in the pre-internet revolution era and failed to reflect the ongoing change in educational technology. For nearly the last three decades, India has shown a slow adaptation rate in embracing technology in education (MHRD. Draft, NEP, 2019). The contemporary policy discourse with special reference to NEP-1986, NEP-POA-1992, NCF-2005, NCFTE-2009 not only emphatically advocated the need of employing assistive technology for upscaling the quality of learning to teach but also through the

flagship program like Sarva Shiksha Abhiyan (SSA), promotes ICT as a main essential input for quality up-gradation of classroom teaching-learning.

The learning outcome will be designed through NCF in all the scheduled subjects for lower secondary and secondary sections. Such an effort of learning-teaching will boost up by supplying digital gadgets and skilled teachers as per recent policy recommendations. Such aspiration and intention suddenly became immensely more relevant in the context of pandemic 2020 as we are steadily shifting towards a hybrid model of learning teaching in all spheres of education, including the particular area of school education and teacher education with a 'physical-digital' combination. In-service teacher education is becoming a much more crucial agenda on a global scale and in India to continue learning-teaching and ensure the quality of education in a virtual environment. The in-service teachers' education may not be confined to effective technology adaptation in regular classroom teaching-learning, but considering the alternative evolving reality of 'neo normal,' teacher education is liable to prioritize the capacity-building skills of virtual education management.

'Virtual Learning Teaching System' denotes a process supported by multiple mobile digital agents with different efficacy. For example, a digital tool might be responsible for learner categorization, while another set of agents might serve as assistive learning tools for finding electronic learning material. Another tool might facilitate interactions with peers and teachers/facilitators/trainers. Such VLTS provides opportunities for all participants to share learning teaching material and allow the learners to work with such material in the same virtual space and time with real-time experience. The continuous innovation in digital technology based on artificial intelligence amplifies the probability and potential of constructivist learning dynamics. Kimovski *et al*. (2001) suggested that virtual teaching created an opportunity to select appropriate resources with flexibility in a unique standard platform.

Virtual Learning is a learning experience that learners might construct through interaction with teachers and peers in a virtual or online environment, more clearly speaking when learning happens and enhanced through a design of instruction, utilizing electronic device through the internet with and outside the education campus. While teacher and learners can make their presence with their unique identity and remain to engage in cognitive exchange, while they remain separated physically space, time, or both. In virtual learning, the instructional design might employ electronic study material crafted for self-paced that is in asynchronous mode or live group interaction in web conference mode, that is, through synchronous mode.

CHAPTER 8

Online Learning – Effectiveness and Challenges Across the Globe

Asha Bhatia[1,2,*] and **Radhika Juneja**[1,2]

[1] *Universal Business School, Mumbai, India*

[2] *K. J. Somaiya Institute of Management Studies, Mumbai, India*

Abstract: Online classes or digitized learning is not a novel concept; rather, it has evolved over 60 years. Its roots can be traced back to the 'University of Illinois,' where the researchers created a rudimentary intranet, where students could access previously recorded and compiled study material entailing documents audio-video lectures. Today, it has radicalized the global education system, wherein now there are various online platforms like Coursera, Udemy, Edx, Skillshare, Codeacademy, Future Learn, *etc*. In the present-day COVID'19 era, institutions are forced to go online, adopt, and adapt quickly to this highly dynamic technology-space. Therefore, the faculty embraces and imbibes the online mediums' technical nuances of teaching and uses them to deliver effective and interactive lectures. This chapter will uncover various types of e-Learning methods, especially delving deeper into the concepts of Synchronous and Asynchronous e-Learning. The following pages uncover the outcomes derived from various journals, books, and articles as part of the academic research to measure online learning methodology effectiveness. It talks about online classes' clear advantages, disadvantages, and exchanging ideas between students and teachers.

Keywords: Adaptive E-Learning, Asynchronous, Collaborative Online Learning, Computer-Assisted Instruction (CAI), Computer Managed Learning (CML), COVID-19, Digitalization, E-Learning, Fixed E-Learning, Higher Education, Individual Online Learning, Interactive Online Learning, Linear E-Learning, LMS, MoEC, Online Classes, Online Education, Online Learning, Pandemic, Students, SPADA, Synchronous, Virtual Classroom.

INTRODUCTION

The transition of learning from offline to online can help in enabling flexibility and ease of teaching and the process of learning anywhere, anytime, and at one's own pace. In the present day, the speed at which digitized learning is evolving is nothing like ever seen before; rather, it is staggering.

[*] **Corresponding Author Asha Bhatia:** Universal Business School, Mumbai, India; E-mail: asha.bhatia@ubs.org.in

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

In regular/normal times, the campus support staff and their concerned crews are largely present to help educators wrap their heads around the online learning systems and their operating mechanisms. Generally, the concerned aiding staff can only help out just a few tutors who intend and are interested in adopting the online mode as their preferred genre of imparting knowledge.

Given the present constraints on time and human resources, attributed to the hyper-prevalence of the COVID-19 pandemic, the support staff's overall efficacy is highly restricted. These individuals cannot provide the same high level of assistance to every lecturer who intends to follow the digital style of tutoring. As a result, the faculty might feel overwhelmed, as they have to adapt to the new methodology all by themselves in an extremely fast-paced environment with a constant need for improvising and that too in less-than-ideal/desirable circumstances. Therefore, irrespective of any number of solutions, there will always be some tutors who will find this change enormously difficult and utterly stressful.

Over the past few decades, a lot has been written about online teaching and learning. These illustrations range from numerous research studies, a host of theories, several models, national and international standards, and evaluation criteria, which focus on quality rather than quantity of online learning. Research shows that effective online education results from effective teaching design; elaborate planning while employing a systematic model to implement the same. This, in turn, has a massive impact on the quality of lectures created and delivered. To summarize, to create an effective online learning module, a temporal, fiscal, and resourceful investment towards the learner and support structure's ecosystem are of utmost importance.

Now we evaluate a contrast of two diverse experiences – first, which was planned and designed online from the very beginning, whereas the second, which got translated to the online mode as a temporary shift to serve the general populous in the current state of crisis. These would entail the practice of complete distant teaching methods for learning or else the hybrid teachings, which would consist of both some segment of online learning and some part of face-to-face delivered lectures.

In the present-day scenario, the prime objective under the COVID-19 pandemic crisis is not to re-instate a complex educational schema rather traverse through in a manner in which it is quick to set up and broadly available to all during such a period. To illustrate those above, we put forth an array of steps taken by numerous nations to counter the closures of their schools and universities by instigating various models like mobile-based learning, radio transmission, unified learning,

e-learning, *etc*., which proves to be the way more feasible and logical step to proceed. To quote a few cases, we present several case studies to exhibit the roles and responsibilities of the 'Inter-Agency Network for Education' in the state of an emergency.

Since this change is being forced on the education sector in an extremely fast-paced manner, the institutions and teaching faculty must realize that students' entirety would not participate in these courses from the word go. Consequently, asynchronous or non-time bound e-learning would prove to be more reasonable than synchronous or temporally coherent e-learning. Thus, flexibility on project reports, assignments, course completion deadlines and a host of institutional policies would act as the prominent differentiating factors. From a global perspective, we elucidate an example of the US Department of Education, which counteracted the COVID-19 situation by relaxing bouquet requirements and policies (Hodges C. *et al*. 2020).

The World Bank is also playing a key role in helping out countries facilitate the transition from the much-jaded classroom-oriented education model to the modern age of online or e-Learning. This global establishment collaborates with bureaus of many countries and has coordinated efforts to help adept the targeted nations upgrade their respective educational systems and create ample resources to reverse the educational institutes' impacts.

Elaborating on the Indian education system, the Human Resource Development Ministry, on March 21, 2020, brought to light numerous open-source online e-Learning programs that would enable students to log into respective portals to continue their courses during COVID-19 lockdown closures of schools and colleges. Further, the ministry introduced the 'DIKSHA' portal, which created a platform for all the stakeholders ranging from students to teachers and parents, to enable digital learning by providing a plethora of online content in the form of video lectures, practice worksheets, pdf textbooks, and assessments sheets.

The aforementioned digital content has been created and uploaded as per the National Boards of Education's strict guidelines, namely CBSE and NCERT. The governing body has achieved this mammoth task with over 250 teachers, educators, and tutors, who provided their insights and expertise in several languages. The accomplishment of this project marked the crossing of a never before milestone in the field of Asynchronous learning. More so, the advent and usage of the QR code technology for student reference and textbooks have taken the former way beyond the conventionally orthodox concept of being a physical entity of knowledge sharing and nothing more.

CHAPTER 9

Challenges of Virtual Classroom

Shahid Husain[1,*]

[1] *Department of Accounting, College of Administrative and Financial Science, Saudi Electronic University, Jeddah, Kingdom of Saudi Arabia*

Abstract: Due to the spread of the pandemic COVID-19 across the world since December 2019, every sector, field, and organization has faced a severe lockdown. The education sector that was following the traditional method of learning has been affected worst. The interaction between the instructor and learner was not possible in such a situation. Their learning process was completely stopped due to social distancing during the lockdown. However, the educational institutions running on the virtual model could continue to work and promote learning. Viewing the uninterrupted teaching-learning process of such institutions in this scenario, the traditional institution also tried to adopt the virtual learning mode. Apart from the advantages, numerous virtual (online) mode challenges hinder the effectiveness and learning outcomes. These obstacles of the virtual (online) mode of learning can be removed primarily when they are identified. So, the first and foremost objective to overcome these obstacles is to find them. This chapter attempts to elaborate on various facets of these challenges: technical, Economic, Security, Practical or Experimental, Assessment or Evaluation, *etc*.

Keywords: Challenges, COVID-19, Digital Technology, Economic Challenges, Effectiveness, E-Learning, Internet, Laptop, Learning, Online Classes, Online Issues, Online Learning, Pandemic, Smartphones, Security Issues, Social Challenges, Students, Teachers, Technological Challenges, Virtual Classroom, Virtual Learning.

INTRODUCTION

Saudi Electronic University follows a blended learning method where online (Virtual) and traditional face-to-face (Physical) formats of learning have been adopted. I have been an instructor of Accounting at this University since September 2013. Therefore, I have got the opportunity to teach students in both formats. Due to the spread of the pandemic COVID-19 across the world since December 2019, every sector, field, and organization has faced a severe lockd-

[*] **Corresponding author Shahid Husain:** Department of Accounting, College of Administrative and Financial Science Saudi Electronic University, Jeddah, Kingdom of Saudi Arabia; Email: s.husain.bhu@gmail.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

own. The education sector that was following the traditional method of learning has been affected worst. The interaction between the instructor and learner was not possible in such a situation. Their learning process was completely stopped due to social distancing during the lockdown.

Whereas those educational institutes who were running on the virtual mode could continue to work and promote learning. Viewing the uninterrupted teaching-learning process of such institutions in this scenario, the traditional institution also tried to adopt the virtual learning mode. There may be evidence that shows no remarkable difference between traditional face to face learning and modern online learning. Despite this, significant differences still exist in the perception of students who learn virtually. The ultimate goal of learning can only be achieved when it is effective. Apart from the advantages, numerous virtual (online) mode challenges hinder the effectiveness and learning outcomes. These obstacles of virtual (online) mode of learning can be removed primarily when they are identified. So the first and foremost objective to overcome these obstacles is to find them. This chapter is an attempt to elaborate on the challenges of virtual classrooms faced by educators and learners. The virtual mode of learning's effectiveness depends upon how these challenges are tackled, and such challenges have been discussed here.

CHALLENGES

Technological Challenges

Technical problems are one of the main obstacles to online classes.

Availability of Suitable Hardware and Software

Under the traditional learning mode, when students and teachers meet in a classroom, learning is possible even with minimal equipment such as a blackboard, marker, and duster. On the contrary, learning is not possible with these types of equipment in online mode. The virtual (online) mode of learning requires the availability of hardware and software on both sides, *i.e.*, instructor and student. A student must be equipped with any or more of these devices such as desktop, laptop, tablet, smartphone, headphones, microphone, *etc*. Merely, the availability of these types of equipment is not sufficient; it should be compatible with the software application to be used with it. If the device does not support a particular application or program proposed by educational institutions, it is obvious that an online classroom cannot be held. If the university is reluctant to change its learning application, students must purchase a new device compatible with the learning application. Some students may find difficulty purchasing new devices on account of their financial problems or considering it a waste of money

because they might already have similar devices.

Moreover, even the availability of hardware is not sufficient for learning online. At least a software application is required by both parties (instructor and students) to indulge in the learning process. If universities and college have their own learning application and students are given access to log in for virtual classroom, it is,

Connectivity Issues

For the smooth running of a virtual class, a high speed or at least a moderate internet speed is required. Generally, internet connections are to be arranged by the students themselves. Many students may not have high bandwidth or strong internet connection required by an online classroom, so they fail to log in to the virtual class or engage in online discussions. The signal strength of telecommunication service providers is different at different locations. It is usually found that remote locations and rural areas have poor signal or low internet connectivity. Due to poor internet connection, online content is not visible to them, consequently heading towards a problematic situation.

Compatibility Issues

A family of computer models is said to be compatible if certain software runs on one of the models can also be run on all other family models. Computer or smartphone models may differ in performance, reliability, or some other characteristics. These differences may affect the outcome of the running software. There are often compatibility issues with operating systems, browsers, or smartphones, where the hardware does not fulfill the software's requirement for virtual classes. These problems lead to the instructor's frustration and the learner; consequently, the learning experience is adversely affected.

Need for Training and Development

If we get the victory over the challenges of availability of required hardware and software, the other challenge is to learn the handling of this hardware and software. Computer literacy and skill is very important for those who want to learn online or pursue any online course. Suppose students or instructors do not have the operational knowledge and skill of even some common programs like Microsoft Word, Microsoft PowerPoint, and Microsoft Excel. In that case, they will be struggling and finding the online classroom a tedious task. Many students find fixing basic computer problems troublesome, as they do not know this area. All those engaged in an online learning environment must have some basic computer knowledge and be capable of troubleshooting common problems

CHAPTER 10

Enhancing Students' Lack of Engagement in the Virtual Learning Platforms: The Role of Theory of Knowledge and Certain Basic Communication Skills

Amine Moulay[1,*] and **Chebab Daouia**[1,2]

[1] *Department of Architectural Design, College of Art & Design, Royal University for Women, Sakheer, Bahrain*

[2] *Department of Economics & Finance, College of Business Administration, University of Bahrain, Riffa, Kingdom of Bahrain*

Abstract: Various researches on the relationship between student engagement and learning reveal that engagement is a predictor of academic achievement, student performance, and educational development. A student's performance remains a top priority for educators, and engaging students is a challenge faced by lecturers worldwide. Many efforts on how higher education might further inculcate and strengthen student engagement have been explored. This is truer when emphasizing the virtual learning platforms, especially during the actual COVID-19 pandemic, which has stimulated and propelled the virtual classes' platform. However, among the tripartite nlms influencing students' engagement in the virtual learning platforms, the students, technology, and the instructor, lecturers received little emphasis in the virtual learning debate. The present research focuses on certain basic instructor skills that might help overcome the students' disengagement issue to address this gap. Instead of dealing with the condition of students' disengagement in virtual classes, this review tackles the roots of the instructor's mission and fundamental role, which can be traced back to the primary aim of delivering knowledge, hence, related to the "theory of knowledge." Also, efficiently communicating knowledge is related to certain basic communication skills. Hence, the present research is designed with two main objectives. To advance the debate on overcoming students' disengagement in virtual classrooms by emphasizing the crucial role of basic instructor's skills and implementing strategies that support student engagement by digging in both the theory of knowledge and some basic communication skills.

[*] **Corresponding author Amine Moulay:** Department of Architectural Design, College of Art & Design, Royal University for Women, Sakheer, Kingdom of Bahrain; Email: amoulay@ruw.edu.bh

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

Keywords: Communication Skills, COVID-19, E-Learning, Digital Classrooms, Higher Education, Internet, LMS, Online Classes, Online Courses, Online Teaching, Online Learning, Online Platform, Pandemic, Pedagogy, Student Engagement, Technology, Theory of Knowledge, Virtual Classes, Virtual Learning, Virtual Platforms.

INTRODUCTION

Effective knowledge starts with the learner's engagement. Hence, student engagement has emerged as a fundamental subject in Higher Education in recent years. In turn, it has become a pervasive indicator for measuring the education quality of institutions. Various researches on the relationship between student engagement and learning reveal that engagement is a predictor of academic achievement, student performance, and educational development. Engaged students exhibit interest to study, active attention, motivation, and participation, while their disengaged counterparts demonstrate poor motivation, boredom, low grades, and passiveness. As students' performance remains a top priority for educators and engaging students is a challenge faced by lecturers worldwide, many efforts on how higher education might further inculcate and strengthen student engagement have been explored. This is truer when emphasizing the virtual learning platforms and the contested impact of digital devices on classroom attention and learning. The interaction process is considered more important than the lecture itself (Ilie & Frăsineanu, 2019; Mercer & Howe, 2012). The worldwide pandemic due to the COVID-19 virus has stimulated and propelled the virtual classes platform to gain ground. Simultaneously, the pandemic context emphasized that we are in the grip of sector-wide anxiety about student engagement's rigor and value in digitally augmented spaces, hence reaching a new level of urgency.

Student engagement is a multidimensional construct. Hence, to address the existing gap between learners and educational systems, a large body of literature emphasized different methods and procedures to overcome this issue. It encompasses using different personalization technologies, improving the quality of user interface, and applying design principles to boost engagement (Anabalon *et al*., 2017; Soflano *et al*., 2015), using augmented reality, simulation based-learning, and incorporating games in a non-game context to enhance user experiences in a virtual classroom, such as Kahoot learning games (Zainuddin *et al*., 2020; Atherton, 2020), Web-based and Personal Learning Environments, and Visualization techniques (Mulqueeny *et al*., 2015), and others. Most of these methods and procedures directly relevant to today's patterns and habits of student scholarship aim to tackle the learner's cognitive, emotional, and social domains. Also, all these methods' standpoint is that enhancing students' engagement

necessarily passes through the quality of technologies and fulfilling the learners' needs. This is because technology is increasingly utilized to assist and ease collaborative and active learning to engage students further and guide them towards diverse learning experiences and meet students' needs and expectations from different cultural backgrounds and learning styles' perspectives.

In this regard, the present review argues that among the tripartite nlms influencing students' engagement in the virtual learning platforms, the students, technology, and the instructor, lecturers received little emphasis in the virtual learning debate. Indeed, genuine student–lecturer interactions in virtual learning stimulate learners to participate in class activities as they foster an emotionally favorable and supportive classroom environment (Rodrigues *et al*., 2019; Lara *et al*., 2014). The present research focuses on certain basic instructor skills that might help overcome the students' disengagement issue to address this gap. Instead of dealing with the condition of students' disengagement in virtual classes, this review tackles the roots of the instructor's mission and fundamental role, which can be traced back to the primary aim of delivering knowledge, hence, related to the "theory of knowledge." Also, efficiently communicating knowledge is related to certain basic communication skills. Undoubtedly, contemporary and future students are different than they were a few decades ago. Nonetheless, the primary instructor's mission to deliver and communicate knowledge effectively remains the same. Hence, the present research is designed with two main objectives. 1) To advance the debate on overcoming students' disengagement in virtual classrooms by emphasizing the crucial role of basic instructor's skills. 2) To gain and implement strategies that support student engagement through digging in both the theory of knowledge and some basic communication skills.

Among the different axioms developed in the following sections that help mitigate students' disengagement, understand, "How do our students acquire knowledge?" In this regard, according to Plato's theory of knowledge, the information should not be conveyed from one mind to another in a direct way, but through an interactive process between the instructors at the learner. A well-illustrated metaphor by Plato's teacher Socrates describes his teaching method as similar to the midwife. Referring to the fact that the instructor's genuine role should be to bring out knowledge from within the learner through back and forth and interaction to deliver their minds of thoughts and allow them to discover their own truth (Cornford, 1935).

On the other hand, as interaction is a key communication attribute of engagement, and communication is a primary feature of human existence, the second segment this review emphasizes is the essence of certain basic communication skills that increase focus, empathy, and trust between the instructors and their students in the

CHAPTER 11

Opportunities to Enhance Wide Knowledge Among Young Aspiring Minds Through MOOC

V. Selvam[1,2,*] and **Abhi Bhattacharya**[1,2]

[1] *Department of Commerce, SSL, VIT, Vellore 632 014, Tamil Nadu, India*

[2] *Faculty of Economic and Business, University of Groningen, Groningen, Netherlands*

Abstract: The Higher Education Institution (HEI) moves from the face to face and chalk and talk traditional method to the online learning method. Higher education in India has witnessed remarkable expansion in the last few years regarding access, equality, and inclusiveness. In recent years the focus is on quality, inculcation of wide knowledge and employability enhancement. India is the world's second-largest market in terms of subscriber base, after the US, and amongst the fastest-growing markets for such digital platforms. Globally, more than 800 universities offer 9,400+ courses on Massive Open Online Courses (MOOC) digital platforms. MOOC offers creative and innovative modern approaches to the growth, distribution, and application of enhancing knowledge in teaching, learning, and research. The main aim of MOOC is that knowledge should be shared freely, any time access to material, self-learning, cost-effectiveness, the interface among diverse learners, and the desire to study should be met without financial, economic, demographic, and geographical constraints. Seeing the importance of MOOC, the Government of India has also introduced an indigenous digital program named Study Webs of Active Learning for Young Aspiring Minds (SWAYAM), with the aim to serve a huge domain of learners and to fulfill the increasing needs of learners as well as the demands for economy and society. Based on the above importance of virtual/open online education, this empirical book chapter identifies the real opportunities to enhance wide knowledge among young aspiring minds through MOOC.

Keywords: Digital Learning Platforms, Economic, Educational Institutions, E-Learning, Enhance Knowledge, Face-to-Face, Globalization, Higher Education Institutions, Internet, Knowledge, MHRD, MOOC, Online Education, Open Online course, Online Learning, SWAYAM, Virtual Learning.

[*] **Corresponding author V.Selvam:** Professor, Department of Commerce, SSL, VIT, Vellore-632 014, Tamil Nadu, India; E-mail: veeransel@gmail.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

INTRODUCTION

Higher education and the economy have been a subject of discussion globally. The change from an agrarian society to a developed society has resulted in sea changes in the economy, finance, social, political, and education.

Higher Education (HE) in India has undergone a revolution due to the rapid changes in the eco-friendly and globalization of education. It has been changed from the traditional face-to-face and chalk and talk model of learning to online learning standards. The HE in India has perceived remarkable expansion in the last few decades regarding access, equity, and completeness. At present employment has become the keyword for all our graduates for getting educated. "There is an increasing pressure in the higher education system to equip students with not only the knowledge derived from traditional academic programs but also to give the students sufficient range of transferable technical and employable skills to enable them to play an effective role in the employment" (Mariamma Varghese, 2019).

Higher education's online age gradually hiked up and recorded exponential progress in recent years and even after the COVID-19 global lockdown. However, a higher percentage could be brought under the online footprint with certain strategy improvements. The Government of India initiatives like Digital India, make in India, and so on, has stimulated people to move towards a digital way of communicating, accessing, and delivering services on e-platforms. The important changes in the use of technology in online education have seen the emergence of Massive Open Online Course (MOOC). "The Ministry of Human Resource Development (MHRD) has launched the MOOC program in India for higher secondary, bachelors and master's degrees." In India, the MOOC culture has brought wonderful hope for the underprivileged society deprived of formal education (Neha M. Joshi, 2019).

GROWTH OF MOOC

MOOCs are called huge because they are available for the general population. These courses can be completely taken online, expected at boundless investment, and open access through a web-based interface (Nisha and Senthil, 2015). Initially, the term MOOC was instituted in 2008 to depict a specific model of open online courses created by Canadian scholastics Stephen Downes and George Siemens based around a spread companion learning model. Afterwards, the drive started in North America, with its inclinations rapidly developing over the world. The MOOC has later developed quickly, with a developing volume and decent variety of MOOC and style activities controlled by HEI, Universities, and academicians (Universities, UK, 2013). MOOC's advancement is profoundly

established inside the standards of transparency in training, that data ought to be shared uninhibitedly and the craving to learn ought to be met without segment, social, financial, and topographical requirements (Yuan and Powell, 2014). MOOCs are online courses planned for huge quantities of members gotten to by anybody anyplace as long as they have a web association, are available to everybody without passage capabilities, and offer full course information online for nothing (Mulder and Jansen, 2015). Everything began in 2011 when some looked after Stanford University teachers put their courses online for nothing. The buzz was to such an extent that in 2012 the New York Times MOOCs year, with the diagram of a large group of locales, for example, Coursera and Edx, bolstered by top colleges around the globe (Neha M Joshi, 2019).

DEVELOPMENT OF MOOC IN INDIA

According to Mohapatra and Mohanty (2016), Indian understudies are familiar with conventional study hall education. There are numerous difficulties in remaining the understudies for the online courses. To fortify the nature of the information passed on, guaranteeing the student's and suppliers' responsibility, guarantee culmination and estimating the worth of students, managing the dropouts, and absence of web availability is the mindful center territories in the spread of advanced education through MOOCs. According to Nath and Karmaker (2014), MOOCs that progressed locally and joined with those given by top colleges internationally could convey advanced education on a measure and at a quality unrealistic in India. The broad utilization of MOOCs can accomplish access to advanced education by protecting quality and decreasing expenses. Seeing the prevalence and pertinence of MOOCs in India, Indian Institute of Science (IISc), Bangalore, and every single Indian Institute of Technology (IIT) in India as a piece of a venture National Program on Technology Enhancing Learning (NPTEL) financed by the Ministry of Human Resource Development (MHRD) have consolidated hands to convey MOOCs. NPTEL has likewise propelled the NPTEL Online Certificate Courses (NOC) in relationship with Google and the National Association of Software on Services Companies (NASSCOM) (Nisha and Senthil, 2015).

India is the world's subsequent significant market by supporter base, after the US and between the quickest developing markets for such computerized stages. All around, over 800 colleges offer 9,400 or more seminars on Massive Open Online Courses (MOOC) through computerized stages. There were 81 million or more MOOC clients and 23 million or more new learners joined internationally in 2017. Coursera is the greatest computerized stage by client base, trailed by Edx. Coursera has 30 million clients, 7.8 million are in the US, and 3.4 million are in India (Economic Times, September 25, 2018).

CHAPTER 12

Impact of Virtual Learning Environment on Effective Education

Ankita Chaturvedi[1,*] and **Aditi R. Khandelwal**[1,2]

[1] *Department of Accounting and Taxation, IIS (Deemed to be University), Rajasthan, India*

[2] *Department of Business Studies, IIS (Deemed to be University), Rajasthan, India*

Abstract: COVID-19 has changed the whole scenario in the education sector. Till now, virtual learning/online learning platforms were used to increase students' interest in subjects and learn something apart from the course curriculum in educational institutions. Virtual learning was used as a support to the available physical infrastructure. But since April 22, 2020, this scenario changed, and by default, virtual learning became the main platform for teaching and learning. All the classes are now being taken online for all the students, whether in schools or higher education institutions. In this study, researchers have tried to find the effectiveness of virtual learning environment on education. A total of 440 students pursuing undergraduate and postgraduate courses from different Universities of Rajasthan were asked to rate different aspects of virtual learning. Weighted Average, Rank Analysis, Correlation, Regression are applied to analyze the data. It is concluded that VLE is an effective technique for teaching the students and its major advantages are effective communication with the whole class, board visibility, doubts clarification, *etc*. However, there are some technical issues connecting to the virtual classroom, which has been the students' biggest problem. It still has been proving an effective and all the more necessary tool for learning and evaluation at a time when physical classrooms have become unfeasible. It is keeping the students on track and in sync with the courses in all subjects.

Keywords: COVID-19, Demography, Discussions, E-Learning, Education, Evaluation, Indian Education, Internet, Lectures, Lockdown, Notes, NPTEL, Online Classes, Online Platforms, Pandemic, Students, SWAYAM, Technical Features, Technology, Virtual learning Environment (VLE).

INTRODUCTION

An increase in the use of digital devices, better internet speed, and widespread use is changing how everything is being done in today's world. This is also true for

[*] **Corresponding author Ankita Chaturvedi:** Associate Professor, Department of Accounting and Taxation, IIS (Deemed to be University), Rajasthan, India; Email: ankita.chaturvedi@iisuniv.ac.in

education. More and more platforms are being created by the government (like SWAYAM, NPTEL) and the private sector to bring together highly qualified educators and learners.

In higher education, the adoption of new technology has created a virtual learning environment (VLE). VLE uses internet technology for communication and dissemination of information to the students to facilitate learning (Seale and Mence, 2001). From a pedagogical perspective, the latest technologies must not be limited to communication and disseminating topics only. They should also be capable of establishing if VLE impacts the subjects' learning outcomes (Butler and Mautz, 1996; Reeves, 1997). For the integration of virtual learning, software companies have also created products to suit the requirements of varied subjects such as ZOOM, Google Meet, Blackboard, Loom, *etc*.

If we talk about the Indian education sector, virtual learning was regarded as a tool for increasing the new generation's interest as they spend most of their time online. However, major teaching and learning were still happening in physical classrooms. But the COVID-19 pandemic has changed the whole scenario. A few industries have gotten an advantage over others in this pandemic and those include industries which were dependent heavily on technology, *viz*, distance learning, Digital and Contactless payments, online shopping and robot deliveries, telehealth, online entertainment, and application facilitating work from home (Chaturvedi and Kalyani, 2020). After the COVID-19 first lockdown, educational institutions quickly shifted from physical classrooms to online teaching using virtual learning tools. Higher education institutions were very quick to adapt to this change. They not only transformed the lecture delivery mode; rather, they also moved to evaluate students for internal components online using Google Quiz, Moodle Quiz, and other such tools.

TECHNOLOGY IN EDUCATION

Teaching in virtual classrooms is an interesting way of making classes more interesting for students' present generation. They spend most of their time online and suffer from a reduced concentration span. The most important aspect of virtual classes is the ease of attending them from anywhere without being physically present at a designated place. This makes it easier for the students to attend the class in their own environment. However, there is a difference between taking classes online when it comes to accounting papers and theoretical papers. Some may say that taking virtual classes for accounting papers is not a very effective tool. But there is overwhelming consensus from the academic profession (American Accounting Association (AAA), 1985, 1989; Accounting Education Change Commission (AECC), 1990), academics (Preston, 1992; Mayfield and

Ali, 1996; Biggs, 1999) and broader society (see, Senate Committee Report on Web-Based Education, 2000) that there is a need to incorporate new technologies into the classroom. In numerical papers, there is a need to use a board and show the students how to solve the questions and problems systematically. This requires special features in the virtual classroom application. Almost all the virtual classroom applications have fulfilled this requirement by providing a whiteboard option where teachers can solve the sums in real-time and attend to any problems that students may face during the class by using chat boxes, discussion boards, *etc*.

LITERATURE REVIEW

Paul de Lange (2010), discussed in an Australia based study on students pursuing an undergraduate course which include different subjects in the accounting domain, opines that the use of virtual learning tools in teaching students has the potential to increase motivation to learn the subject and also increase satisfaction while learning which leads to enhanced learning outcomes in students. Bryant and Hunton (2000), in their analysis of the use of technology in the delivery of instruction, found that research within the domain of general education could be classified into the following five-category evaluation research, media comparison studies, intra-medium studies, aptitude–treatment interaction studies, and alternative research designs. Reeves (1997) observed that many institutions had adopted the distribution of study material in soft copy through the internet. Faculties have also started experimenting with new VLE tools incorporating them in a traditional setting. Butler and Mautz, (1996) wrote a review paper and observed that most of the research already done in this field was mostly descriptive and worked only on the perceived benefits of incorporating VLE in education. Richardson (2000) concluded that the students' motivation and interest in the material and subject play a major role in absorbing the content circulated and taught through VLE material. His findings were based on a literature review done by him on the works of Craik and Lockhart (1972), Dahlgren (1975), Marton and Saljo (1976), and Svensson (1977). (Baldwin and Howe, 1982; Eskew and Faley; 1988; Gul and Fong, 1993) as per them, the association between students' motivation to earn the subject, their goal commitment, and enhanced learning outcomes is not real and more intuitive. Koh and Koh (1999) researched the same field to find the association between motivation and learning. They found that the conclusion drawn by Baldwin and Howe was more of a methodological problem and an association between motivation and enhanced learning.

CHAPTER 13

Effectiveness of Virtual and Traditional Teaching and Learning in Current Scenario

Trupti M. Joshi[1,*] and **Elizabeth Mathews**[1]

[1] *Department of Commerce, C.K.T.A.C.S. College, New Panvel, Navi Mumbai, Maharashtra, India*

Abstract: The purpose of this chapter is to understand the Effectiveness of Virtual teaching-learning when integrated with Traditional teaching and learning in the current scenario. The study attempts to determine the opinions of teachers and learners and their acceptance and readiness level to adopt virtual teaching and learning. The role of technology is to facilitate e-mail, web database, audio/video conferencing, online conferencing, *etc*. which will help the participant interact with each other on various grounds. Many software tools like Google classroom, WebEx, MS teams, *etc*., are also available to teachers and learners in teaching and learning and sophisticated and complex tasks. The study's conclusion is also based on various literature reviews on Virtual and traditional teaching and learning environment. Data was collected from two types of respondents, *i.e* ., teachers and learners, from urban and rural areas. Data were collected from 116 respondents of the teacher's category and more than 217 respondents of the learner's category, using a stratified random sampling method. The structured questionnaire was used for collecting the data considering various factors like the adoption of new technology, availability of resources, the effectiveness of virtual teaching and learning, Evaluation pattern, *etc*., and the SPSS package was used to analyze the data.

Keywords: Blended Learning Approach, COVID-19, Education, Effectiveness, E-Learning, Higher Education, India, Internet, Learning, LMS, Online Classes, Online Platforms, Online Teaching, Pandemic, SSPS, Teachers, Technology, Traditional Approach, UGC, Virtual and Traditional Way of Teaching.

INTRODUCTION

The higher education system is a system where one will be awarded a Diploma, Degree, or certificate of higher studies after the end of the course. The higher education system in India is that the third-largest system within the world governing by University Grants Commission (UGC), enforces its standards, advises the government, and helps coordinate between the center and the state.

[*] **Corresponding author Trupti M. Joshi:** Assistant Professor (BMS), Research Scholar, C.K.T.A.C.S. College, New Panvel, India; Email Id: trupti2880@gmail.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

During and after COVID-19, a transformation in higher education takes place. Higher education has shifted from the traditional teaching method and learning to the virtual teaching method and learning, which is a real challenge for both the teachers and the learners.

COVID-19 Pandemic situation has started sometimes during the second week of March. During that time, the government has started announcing shutting down all sectors as a precautionary measure, including the education sector. March and April are the peak-end months of the academic year every year. When mostly all exams are announced and conducted every year. But as a temporary measure, every state government across the country has announced the lockdown and shutting down of Institutions to resist the spread of the novel coronavirus (COVID-19). There is no immediate solution to overcome the outbreak of COVID-19; it has started affecting the due to closures, which has impacted the continuity of teaching and learning and started affecting the economy and created social consequences.

Before COVID–19, the school and college majority's structure was based on the traditional approach and Blended learning approach. The low-income private and government Institutions were following the basic teaching and learning approach, *i.e* ., the Traditional approach (Chalk and Duster). The Institutions which had some financial support were following the blended approach in teaching and learning. Only a few private institutions have adopted the online class management approach.

The current pandemic has revolutionized the way teaching and learning are conducted. This COVID-19 situation has compelled policymakers to figure out e-learning solutions for higher education, which will manage to come out from this situation of discontinuity in education and help streamline the system and help rebuild the policy for an education system for the long term.

Significant measures need to be considered while reframing the policy should be based on,

- Availability of online resources and E-content development
- Connectivity and bandwidth
- Proper training for faculty and learners
- Develop a model that is blended in nature

The primary prompt measure that should be taken for the establishment for progression of learning is the availability of online resources at the institutional level and at learners' locations along with the E-content development by teachers

by using different tools. The e-content should be developed in such a way that will make the virtual classroom more interactive. The various tools that can be used by faculties for students' engagement and involvement are the application like render forest application, pear deck application, PowToon, Wiki page, creating an interactive session with insert learning, Canavan for graphic designing, *etc*.

The subsequent measure, which should be considered by reframing the policy, is about Connectivity and Bandwidth. Simultaneously, virtual teaching and learning connectivity and bandwidth is the important factor that needs to be considered. In the case of poor connectivity, the effective delivery of the lecture will not be possible. Effective delivery without interruption is possible only when the host of the virtual lecture has good bandwidth with high-speed connectivity. As the host, one has to decide the mode of e-content and the data consumption during sharing that E-content.

The third important measure that needs to be included while reframing the education policy is to provide proper training to faculty and the learner. The training which is to be provided to the faculty is about the platform by which they have to deliver the lecture. Every aspect of the platform should be elaborate in detail with the help of conduct of online training to faculties, which should include the following like, how to create an account, How to schedule the meeting, how to control the learners during virtual teaching, how to do annotation, how to share the e-content with the learners, assessment and evaluation tools available in that platform, how to give rubrics, *etc*. On the other side training should also be given to learners by the faculty about the platform which they have decided to use for delivery of lectures. The following things need to be considered while giving the learners the training, like how to access the class with a link or with a code or with a mail, submit the assignments in a virtual classroom, attempt the test virtually, *etc*.

The fourth measure, which is very important to be considered, is to establish a model that is blended in nature. The blended model is a combination of traditional and virtual methods. In traditional methods, one uses chalk and duster to deliver the lectures, whereas the whole process becomes online in the virtual method.

CHALLENGES FACED BY MANAGEMENT OF EDUCATIONAL INSTITUTIONS, TEACHERS, AND LEARNERS

This Pandemic situation has brought about challenges for management, teachers, and learners.

CHAPTER 14

Impact of Cybernetic Classroom Learning on Students Academic Performance

S. Lara Priyadharshini[1,*] and **E. Kamatchi Muthulakshmi**[2]

[1] *Department of Management Studies, GRD Academy of Management, Coimbatore, India*

[2] *Department of Management Studies, Rathinam Institute of Management, Coimbatore, India*

Abstract: The chapter received an expressive way to analyze the effects of cybernetic classrooms on MBA learning. Cybernetic classrooms are mechanically determined class halls that help self-coordinated and self-directed learning. The examination was done inside MBA students in the Coimbatore area. The research is handled with different sectors of virtual classroom-related factors. The example involved 233 MBA students. Stratified random sampling was utilized. Other example procedures utilized were; those students who have been associated with online projects as of late and those at present in the program. Students' assent was likewise looked for determination. The different factors of questionnaires were analyzed with experts and finalized for further investigation. Inward reliability was processed utilizing Cronbach alpha of the virtual classroom questionnaires. In this manner, the factorial reliability values for the different sections of the questionnaires were 0.83, 0.85, 0.77, and 0.89. The detailed descriptions of the factors were analyzed and executed properly. The information gathered stayed dissected utilizing implies to examine the virtual classroom factors. The outcomes appeared among others that cybernetic study halls have constructive effects on the understudies of MBA, they revealed emphatically on their proceeded backing and readiness for cybernetic classrooms. In light of the discoveries, the proposal was that a lot more students ought to be made to be progressively mindful of the effects of the cybernetic study halls. They ought to likewise be persuaded to be taking an interest more in cybernetic classrooms.

Keywords: Academic Performance, Constructivist Learning, Cronbach Alpha, Cybernetic Classroom, Cybernetic Study, E-Learning, ICT, Internet, Inward Reliability, MBA, Online Education, Online Learning, Online Platforms, Questionnaires, Stratified Random Sampling, Students effectiveness, Virtual Classroom, Virtual Learning, VLE, Web-based Learning.

[*] **Corresponding author S. Lara Priyadharshini:** Department of Management Studies, GRD Academy of Management, Coimbatore, India; E-mail: laralincy@yahoo.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

INTRODUCTION

The learning platform is not new to any grooming leaders based on cultural development, and changes in the political scene made many changes in the methodologies of the learning platform.

But, whatever the changes, the attitude towards the learning process remains the same. Essentially, cybernetic learning situations (VLE) are not structuring the management leaders to a specific structure, or confined to significant categories or second".

Pham *et al*. (2019) portrayed a cybernetic study hall as an online situation that permits a person to participate in live preparing occasions without venturing out to some other spot. You can sit in the solace of your condition and tune in to addresses. You can take part in the lab works out, pose inquiries, and successfully communicate with the instructor as though the move is taking place in a traditional study hall; however, it is finished with the comfort of innovative contraptions as a work area web and telephone association. The web then again gives such points of interest and better approaches for imparting, interfacing, and evaluating data for the two instructors and understudies.

The advanced arrangement of utilizing the web in instructing and learning is getting incredible consideration the world over. The utilization eliminates the customary technique for teaching the concepts and theories of management strategies and critical thinking (Clarke and Linda, 2013). The students resemble the crude materials in training creation while the educators are the delivering machines. The instructors guide the management, grooming leaders to capture the meaning and methodologies, and the implementation process. In this connection, the following benefits of Virtual classroom have been initiated:

It gives the students the adaptability of the new platform and curriculum encounters at that point, spot, and absorption pace. The cybernetic study can lead the students in design thinking and critical way of thinking through that they can get a better knowledge of data usage and also, they can change the overall content of the web in their own way of data.

Cybernetic study procedures can help students have flexible time schedules and utilize web content and material content during their free time. Regardless of the benefits of cybernetic study halls as recorded above, there are a few bad marks related to concepts and methodologies. Virtual learning incorporates the accompanying:

The flexibility of the framework: The high negative impact of virtual learning is whatever the frameworks impacting the students on virtual learning such as time flexibility, content modification, and some other viable factors may also lead the students in a negative perspective.

AFFILIATION ASSOCIATION BETWEEN NORMAL LEARNING PROCESS AND CYBERNETIC TYPE OF PROCESS

Many researchers developed many structural concepts based on the virtual environment, and the following statements lead the positive way for this situation: (Tanner, 2009). Constructivist learning is continually intriguing, alluring, issue speaking to with relevant issues that encompass the issue. However, a cybernetic classroom can introduce students' issues in a three-dimensional condition that can depict this present reality circumstance.

Constructive learning can give translations of an issue to empower different perspectives. In contrast, the cybernetic study hall can introduce numerous perspectives, free controlled perspectives for every student. It can get rid of negative components that would occupy the student's consideration in the learning procedure.

MAJOR PERSPECTIVE OF THE STUDY

This paper's fundamental point is to discover the effects of the cybernetic classrooms on the scholarly exhibition of students who have drawn in or are as yet captivating in the cybernetic study class program.

In particular, this paper tried to:

- Decide the positive effects of cybernetic classrooms on students learning.
- Recognize the antagonistic effects of cybernetic rooms on students learning.
- Research the degree of MBA students' readiness to be taking an interest in cybernetic study halls.
- Discover the territories of progress as apparent by the MBA aspirants through cybernetic classrooms.

RESEARCH QUESTIONS

What are the major aspects of implementing the cybernetic classroom with MBA aspirants?

What are the antagonistic effects of cybernetic classrooms on students learning?

CHAPTER 15

Virtual Learning in Higher Education and Its Impact on the Students- A Study of Mumbai Region

Meena Sharma[1,*] and **Dhiraj Dhirwani**[1]

[1] *VESIM, Chembur, Mumbai, India*

Abstract: Virtual learning is a part of the new technology development among learners globally, with the help of technology from anywhere anytime as per your convenience. Virtual learning has gained momentum recently after the lockdown in almost all the countries in the world due to the corona pandemic. There is a flood of webinars, workshops, FDP's, and online learning, be it a school or college or any other institute. Everybody is using virtual classrooms for the teaching and learning process and to conduct all educational activities online. But the question here is; Are the learners learning and improving their performances through virtual learning? Are they enjoying virtual learning than the traditional face-to-face leanings? What do they think about the future of the learning system? All these questions were asked to the post-graduate students in the Mumbai region in an online survey who have attended the virtual classrooms. The results were analyzed based on their responses.

Keywords: COVID-19, Educational Activities, Educational System, E-Learning, Face-to-Face Learning, Higher Education, ICT, India, Information Technology, Internet, Online Applications, Online Courses, Online Education, Online Learning, Pandemic, Performance, Technology, Traditional Learning, Virtual Classrooms, Virtual Learning, Virtual Teaching.

INTRODUCTION

The learning culture is changing in this modern era of technology. It has given a new way of learning-anytime from anywhere at your convenience. The teacher teaches using online technology to deliver academic courses with various media tools for learning like audio, video, text, and images. It enhances the learning experience by using computers and the internet in an online environment. Information technology has been extensively used by educational institutions worldwide due to the numerous advantages to all the participants who want to

* **Corresponding author Meena Sharma:** VESIM, Chembur, Mumbai, India; E-mail: contactmeenasharma@gmail.com

Vakul Bansal, Atul Bansal, Muhanned I. Alfarras, D.N. Rao, Rajendran Thavasimuthu (Eds.)

learn. In India, many prestigious universities, colleges, and educational institutions started online courses to enhance their knowledge.

Those who were restricted due to many reasons found this online learning a very helpful tool to update them and prepare for the global market. This learning became a blast after the corona lockdown recently all over the world. COVID-19 forced all educational institutions to think about technology and follow their curriculum using various online applications for their academic purposes. In this new world of social distancing, all educational institutions adopt a virtual teaching-learning model with the help of technology, often with far less experience and fewer resources for teachers and students.

Objectives

The use of technology for learning is not so developed in India as the traditional teaching-learning method. To date, all educational institutes used traditional methods except for some distance learning online courses. Thus, there are very few research studies on virtual learning and its impact on education. The lack of these studies motivated me to write this paper as virtual learning has become a very important tool for educational institutions during this pandemic situation.

The paper tries to find out the views and experiences of the students in virtual learning. A comparison of virtual vs. traditional face-to-face learning techniques is also included based on students' responses to the learning methods and their views on the future of learning.

Research Methodology and Sample

The data for the paper is collected using both primary as well as secondary data sources. A structured questionnaire was prepared for the students to collect their views on virtual learning and traditional learning methods. The secondary data for the study is collected from various research papers, articles, websites, *etc*.

The sample size for the survey is 205 students who are pursuing their post-graduation in the Mumbai region and have attended virtual classrooms. The data analysis and results of the study are based on the responses of the respondents.

LITERATURE REVIEW

Alves, Miranda & Morais (2017), in their research, discussed the relationship between the virtual learning environment and the performance of the students, and the result gave a positive indication. Barker, Jenny, Gossman & Peter (2013), in their online survey report, discussed that teachers could know the areas of attention while using virtual learning and enhancing knowledge. Agarwal &

Pandey (2013) explored the time when the concept of e-learning was introduced and discussed how it is superior as compared to traditional learning. Demian & Morrice (2012), in their study used two modules to compare virtual learning and the performance of the students and tried to find out the relationship between them. Olle (2012) examined and identified the impact of five key themes to constitute research in virtual space and learning with its effects. Barrett B (2010) mentioned that with the internet's impact, a new type of student population has emerged in higher educational institutions. The online courses have changed drastically, making the instructors update their teaching skills, practices, and methods to accommodate the learners' dynamic needs in the classroom.

Falakmasir & Jafar (2010), in their research, presented the application of the data mining process to know the students' activities in a virtual learning environment and based on that to boost students' performance by specializing in the foremost vital activity. Shehabat, Mahdi (2009) discussed on the knowledge management process that teachers' knowledge should be managed so that the institutes can be benefitted even after the teacher's retirement, and it is possible only with the help of e-learning systems. Walker & McCrone (2006), in their survey, found that the majority of lecturers used e-learning in their teaching practices. Condie & Livingston (2006) replicated how teachers and students responded to the online program's implementation and the influence of information and communication technology (ICT) in their learning experience. The teaching pedagogy used and the learning experience are dependent on the roles adopted.

Although the use and benefits of virtual learning are increasing day by day in educational institutions, it becomes important to understand the learners' views about their virtual leanings and what they feel when compared with the traditional method of learning.

DATA ANALYSIS

According to the survey, all the respondents have attended classes on virtual platforms at one time or the other. Particularly in the lockdown time, wherein all the schools, colleges, and offices have been shut; therefore, to continue with the academic operations, virtual teaching methods are used.

According to the survey, 51% of the respondents found the virtual class good, and only 5% said it's the best. 34% of the students were neutral in their responses. 6% of the students did not find it good when compared to the traditional method of teaching. The students gave their positive feedback for the virtual learning platform because of the schedule flexibility, knowledge retention, increased engagement, increased convenience, immediate feedback, *etc*. On the other hand, the neutral respondents did not find any differences in the virtual classroom and

SUBJECT INDEX

A

B

C

D

E

F

G

H

P

R

S

T

U

V

W