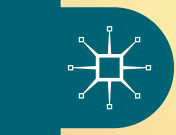


SOUTH ASIAN EDUCATION POLICY, RESEARCH, AND PRACTICE

COVID-19 and the Future of Higher Education in India

Edited by
Saraswathi Unni
Raosaheb Bawaskar
K.V.S. Sarma
Santishree Dhulipudi Pandit

palgrave
macmillan

South Asian Education Policy, Research, and Practice

Series Editors
Radhika Iyengar
Earth Institute
Earth Institute Columbia University
New York City, NY, USA

Matthew A. Witenstein
University of Dayton
Dayton, OH, USA

Erik Jon Byker
University of North Carolina at Charlotte
Charlotte, NC, USA

Tackling topics in education relevant throughout South Asia, the books in this series demonstrate the linkages between research, policy and practice. Titles employ varied methodological approaches (qualitative, quantitative, mixed) to address specific topics in policy and practice, such as teacher education, technology, educational planning, and globalization of education. Books have a regional scope, focusing on interactions and developments across the region as opposed to single-country case studies. The series developed out of the work of the South Asia Special Interest Group of the Comparative and International Education Society, which brings together policymakers, practitioners, and researchers to discuss pertinent issues, and welcomes work from non-SIG members and SIG members alike.

More information about this series at
https://link.springer.com/bookseries/15224

Saraswathi Unni • Raosaheb Bawaskar
K. V. S. Sarma
Santishree Dhulipudi Pandit
Editors

COVID-19 and the Future of Higher Education In India

palgrave
macmillan

Editors
Saraswathi Unni
Water Policy Centre
Aurangabad, India

K. V. S. Sarma
Maharashtra National Law University
Aurangabad, India

Raosaheb Bawaskar
Maharashtra National Law University
Aurangabad, (MH), India

Santishree Dhulipudi Pandit
Jawaharlal Nehru University
New Delhi, India

South Asian Education Policy, Research, and Practice
ISBN 978-3-031-20424-1 ISBN 978-3-031-20425-8 (eBook)
https://doi.org/10.1007/978-3-031-20425-8

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG.
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

The Depth and Breadth of Covid-19 Impact on Higher Education in India

Abstract
The purpose of this chapter is to introduce and summarize the volume's theme related to the COVID-19 pandemic and its impact on higher education in India. In early 2020, the World Health Organization (WHO) identified a new strain of coronavirus—called COVID-19—as a global pandemic. The outbreak of the COVID-19 pandemic spread quickly and had a devastating effect on the regions of the world, including in South Asia. In response to the global pandemic, many institutions of higher education pivoted to online-only education. Indeed, the COVID-19 pandemic changed much of the day-to-day life for colleges and universities and for their students, staff, and professors. This volume provides a comprehensive documentation of the breadth and depth of the COVID-19 pandemic on institutions of higher education in India.

Introduction

This is the third volume of our *South Asia Education Policy, Research and Practice* book series. In our first volume (Kidwai et al., 2017), we described and reported on the implementation of Participatory Action Research (PAR) throughout South Asia. We asserted that PAR was a grassroots research design with the potential for community transformation through action research. The second volume (Setty et al., 2019) of the series was about the role of teacher education across South Asia and the degree to

which teacher education is constructed in service to the larger community. We argued in the second volume about how South Asian educators can be and are responsible agents in producing knowledge to improve their practice. At the time of publishing the second volume in early 2019, we would not have predicted the seismic, global shift that would be caused by the COVID-19 pandemic. The COVID-19 pandemic changed the day-to-day operations for colleges and universities and for their students, staff, and professors. This volume describes those changes in India. The volume is titled *Covid-19 and the Future of Higher Education in India* and is primarily edited by Dr Saraswathi Unni (Water Policy Centre, Aurangabad, Maharashtra); Raosaheb Bawaskar (Founding Director of Water Policy Centre, Aurangabad, India); Prof. K.V.S. Sarma (Vice-Chancellor, Maharashtra National Law University, Aurangabad, India) and Prof. Santishree Pandit (Vice-Chancellor, JNU, New Delhi). The volume represents a comprehensive review of the impact of the COVID-19 pandemic on the sectors of higher education in India.

In their lead chapter of this volume, Unni and Bawaskar assert that the purpose of the volume is to summarize and examine the multiple ways that COVID-19 affected India's higher education system. The effects were long-ranging and continue to resonate today. As Unni and Bawaskar explain, the COVID-19 pandemic produced a collective type of trauma on the systems of higher education. The chapters in this volume describe the trauma of COVID-19 in India related to the following themes and systems within higher education in India: (1) campus resources and infrastructure; (2) digital integration and online learning; (3) exposure of the persistent inequities related to the digital divide; (4) renewed focus on the systems of HIE or Health Information Exchange on campus; (5) student life and well-being; and (6) teacher preparation. The volume is largely organized around these themes and inquires about a critical set of questions related to the impact of the COVID-19 pandemic on higher education in India. Unni and Bawaskar explain how the volume inquires about the degree to which India will emerge from COVID-19 with a new outlook for improving the system of higher education? Another inquiry of the book relates to the role of India's educators—including professors and instructors in higher education—in navigating the post-COVID-19 challenges? Finally, the volume also examines how the role of students in India's higher education could evolve in relation to COVID-19? These are important questions considering the plethora of universities and colleges as well as the growing demand for higher education in India.

Framing the Challenges with SDG 4

One of the compelling features of this volume is the variety of research methodologies and collected studies to show the breadth and depth of the impact of COVID-19 on India's higher education system. The chapter authors investigated their research questions using mixed-methods, quantitative, and qualitative research methods. Indeed, the volume features a robust mix of research designs in order to report on the compelling findings related to the research questions under examination. Another feature of this volume is that most of the chapter authors are currently located in India's universities and colleges. Thus, the chapters provide a type of first-hand account by South Asians of the impact of COVID-19 pandemic on the systems of higher education in India. There is also an interesting degree of connection between participatory action research—which, as stated earlier, was the topic of our first volume in this South Asian book series—within the chapters. The COVID-19 pandemic certainly seemed to spur on a type of self-reflection—or what some may deemed self-preservation—among academics in order to effectively pivot to new modes and pedagogies for the online delivery of instruction during the COVID-19 pandemic. Robin McTaggart (1991) posits: "Participatory action research involves responsible agency in the production of knowledge and improvement of practice" (p. 171). The chapters in this volume echo this McTaggart quote. The chapter authors produce knowledge of the impact of the COVID-19 pandemic in India. The volume also discusses the ways to improve higher education in India post-COVID-19. The chapters represent the dynamic tenet of participatory action research, which is the construction of knowledge *by the* community in service *to the* community (Kidwai et al., 2017). In this sense, the community featured is higher education institutions in India.

The chapter authors make clear that some of the most deeply entrenched challenges of the COVID-19 pandemic relates to the existing inequalities in India. Naik (1975) names these challenges as part of an "elusive triangle" (p. 3) of ensuring an equitable system of education that is high quality and accessible to the greatest number of learners. The United Nations (2015) Sustainable Development Goals (SDGs) provide ways to frame these challenges in relation to the equitable responses to the pandemic. For instance, SDG #4 is about quality education. The goal of SDG #4 is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2015, p. 19). Ensuring equal access

to higher education for all is Target 4.3 of SDG #4. In light of the COVID-19 pandemic, this target is becoming much more paramount and presents great challenges in attaining. This volume presents those challenges across India. Many of the chapters include a call for rethinking and even redesigning higher education models in India to ensure greater equity of access for India's young population.

Framing the Volume

Trauma is a key word and often repeated theme in this volume. The impact of COVID-19 on higher education in India and on many realms of the South Asian society has been traumatic. In addressing trauma in teaching and learning, Responsive Mindfulness Theory, or RMT (Byker & Davis, 2021), can be an instructive framework. RMT is a conceptual model that helps educators navigate and be responsive trauma. RMT incorporates a four-step process of support in addressing trauma. RMT uses the acronym ARMS to explain the steps for: (1) acknowledging trauma, (2) responding to trauma in equitable ways, (3) mitigating the trauma with resources and social-emotional support, and (4) sustaining the response to the trauma. Another important feature of RMT is how ARMS is grounded in prosocial practices and linkages to the community. We encourage readers of this volume to use RMT as a lens for reading the chapters in relation to how trauma is discussed and managed.

Another framework for reading this volume is outlined in the UNESCO (2022) report, titled *Reimagining Our Futures Together: A New Social Contract for Education*. This report was published by UNESCO's International Commission on the Futures of Education. The report explains how education in this time of post-COVID-19 pandemic takes a process of reimagining education and renewal. In order to engage in reimaging and renewal it is important to know the challenges. This volume reports on those challenges in the context of India's higher education. After the challenges are reported, the next step is to assess the challenges in terms of size and complexity. Such an assessment is part of the process of "mobilizing knowledge to help navigate a transforming and uncertain world" (UNESCO, 2022, p. 60). The mobilization of knowledge demonstrates the power of research to inform and inspired evidence based action (Byker & Banerjee, 2016). The mobilization of knowledge can help unite people around the world in a spirit of citizenship a global common good (Byker & Sadula, 2022) to increase awareness about the challenges and

enduring impact of the COVID-19 pandemic on higher education. Such awareness can, as UNESCO (2022), explains "help to ensure that our futures are more socially inclusive, economically just, and environmentally sustainability" (p. 61). In this spirit, we encourage the readers to adopt the UNESCO's *New Social Contract for Education* as a framework for reading the chapters writ large.

The systems of higher education also have a prominent place in UNESCO's (2022) *New Social Contract for Education*. The document calls for systems of higher education to help foster ethics and "support students to be better and more capable citizens with greater awareness of their civic and environmental responsibilities" (UNESCO, 2022, p. 61). More capable citizens include the development of students in higher education who are equipped to critically engage with research and be committed to defending human rights while calling out all forms of ableism, classism, discrimination, ethnocentrism, racism, and sexism. The impact of COVID-19 has rendered many challenges to higher education systems in India and beyond. The impact may also provide opportunities for reimaging and renewal. We encourage the readers of this volume to read the chapters with a bifocal lens of becoming aware of the challenges and the opportunities in advancing higher education toward the *New Social Contract for Education,* which UNESCO has outlined.

New York City, NY, USA — Erik Jon Byker
Dayton, OH, USA — Radhika Iyengar
Charlotte, NC, USA — Matthew A. Witenstein

References

Byker, E.J. (2017). Reading and rewriting South Asia. In H. Kidwai, R. Iyengar, M. Witenstein, E.J. Byker, & R. Setty's (Eds.) *Participatory Action Research and Educational Development: South Asian Perspectives,* (pp. 271–279). New York: Springer International Publishing.

Byker, E.J., & Banerjee, A. (2016). Evidence for action: Translating field research into a large scale assessment. *Journal of Current Issues in Comparative Education, (18)*1, 1–13.

Byker, E.J. & Davis, M. (2021). Introduction to Responsive Mindfulness Theory: a model for trauma-informed practices. Retrieved from: https://www.cwbr.center/

Byker, E.J. & Sadula, M. (2022). Mainstreaming the sustainable development goals: advancing global citizenship education through the SDGs. *ed Journal of Global Citizenship Education, 2*(1), 1–4.

Kidwai, H. Iyengar, R., Witenstein, M., Byker, E.J., & Setty , R. (2017). *Participatory action research and educational development: South Asian perspectives*. New York: Springer International Publishing.

McTaggart, R. (1991). Principles for participatory action research. *Adult Education Quarterly*, *41*(3), 168–187.

Naik, J.P. (1975). *Equality, quality, and quantity: the elusive triangle of Indian education*. New Delhi: Allied Publisher.

Setty, R., Iyengar, R., Witenstein, M., Byker, E.J. & Kidwai, H. (2019). *Teaching and teacher education: South Asian perspectives*. New York: Springer International Publishing.

United Nations [UN]. (2015). *Transforming our world: The 2030 agenda for sustainable development*. New York: United Nations General Assembly.

United Nations Education Scientific and Cultural Organization [UNESCO]. (2022). *Reimagining our futures together: a new social contract for education*. Paris: International Commission on the Futures of Education – UNESCO.

Contents

Notes on Contributors

Javid Ahmad Ahanger did his Bachelor of Arts (BA) from Degree College Sopore, Jammu and Kashmir, Bachelor of Education (BEd) and postgraduation in Political Science from the Department of Political Science, University of Kashmir, Srinagar. Dr Ahanger was awarded his PhD in Political Science from Aligarh Muslim University and is an ICSSR (Indian Council of Social Science Research) postdoctoral fellow at the Department of Political Science AMU, Aligarh. His research focuses on Indian politics with special reference to Jammu and Kashmir. He has several papers/chapters to his credit in peer-reviewed, UGC (University Grants Commission) CARE-listed journals, and edited volumes such as Sage and Palgrave Macmillan. His academic interests include politics in Jammu & Kashmir, party systems, elections, governance, insurgency, party politics, and policy analysis. He also participates in international and national conferences and seminars across India and presents papers on diverse themes regarding his research. Dr Ahanger previously taught as an Assistant Professor at Lovely Professional University, Punjab, and Government Degree Boy's College, Baramulla, Kashmir.

Anamika works at Xavier Institute of Management, XIM University, Bhubaneshwar, and is a professional with 19 years of blended experience that combines the best from both the worlds, academic and corporate. Her PhD thesis was on "Outbound Training and Its Effect on Employee Performance." Her teaching interests include business communication, persuasive communication, advertising and marketing communication, group

communication and corporate etiquette. Her research interests include socio-economic growth, entrepreneurship, training and development, management education, and advertising communication, and she has had her work published in journals of repute. She also imparts training to executives in management development programmes on improving oral and written communication skills and other soft skills across sectors in India.

She won the Dr G.D. Sardana Memorial Young Scholar Award in an International Conference on Management Cases, 2016 organized by BIMTECH, Greater Noida (NCR), India, and George Mason University–Schar School of Policy & Government, Arlington, Virginia (USA). She also won the Best Paper Award that she received in KSOM's (Kalinga School of Management) 7th National Management Convention on "The Dynamics of Education to Employment Journey: Opportunities and Challenges" in 2014.

Kshitij Badade is Senior Resident, Orthopedic Department, MGM Medical College, Navi Mumbai. She completed MBBS and MS Orthopaedics in October 2021 from MGM Medical College and Hospital. He is working as Senior Resident in the Department of Orthopaedics.

He was awarded a short-term studentship by the Indian Council of Medical Research, ICMR, New Delhi, for the project titled "Using STEPS Approach for Surveillance of Established Risk Factors of Major Non Communicable Diseases in Rural Population of Maharashtra."

He has also published research papers on "Clinical, Functional and Radiological Outcomes of Proximal Femoral Nail (PFN)" and on "Outcomes of Proximal Femoral Nailing Antirotation Asia (PFNA2) with Dynamic Hip Screw (DHS) in Treatment of Intertrochanteric Femur Fractures."

Zunjarrao Badade is Professor of Biochemistry, MGM Medical College, Navi Mumbai. He is former Director, MGM School of Biomedical Sciences, Navi Mumbai; former Head, Radioisotope Department of MGM Hospital; and former Registrar, MGM Institute of Health Sciences, Deemed University, Navi Mumbai.

Dr Badade has completed MSc and PhD in Biochemistry. He is working as Professor of Biochemistry in MGM Medical College, Navi Mumbai.

He has over 66 publications (30 national and 36 international publications) with 282 citations, and a score of 6 in h-index and i10-index. He has 14 ongoing research projects. He has 4 published books and has 31 awards for best paper. He has presented papers in 158 conferences and has organized 7 conferences.

He has received the World Academic Championship-2018 in Biochemistry (Oxidative Stress) (World's 500 Most Influential Experts in Biochemistry for the year 2018 by the International Agency for Standards and Ratings, which plays a vital role in the advancement of scientific knowledge in Biochemistry (Oxidative Stress).

Raosaheb Bawaskar is a faculty in the Department of Political Science at Maharashtra National Law University, Aurangabad. He is the Founder of the Water Policy Centre (Aurangabad), India. Formerly, he was Assistant Professor of Politics & International Relations in various prestigious colleges in Mumbai for more than eight years. He is also associated as Guest Faculty at the National Law University, Odisha; University of Mumbai; and the SNDT Women's University. Bawaskar is a recipient of the ICSSR-Doctoral Fellowship to research the Rise of BRICS and Global Power Shift at the University of Mumbai. He is a recipient of the prestigious Shanghai Government Fellowship at Fudan University (China, 2016); ICSSR Travel Grant (South Africa, 2017), and ISA-travel Grant (Singapore, 2015). He has published numerous research articles, book chapters and commentaries in prestigious academic journals. He has delivered lectures in various forums and presented papers at National and International conferences in Singapore, China and South Africa.

Dattatray Bhusare He is Professor and Head, Emergency Medicine, MGM Medical College, Navi Mumbai, and has done his MBBS from Seth G. S. Medical College & K.E.M. Hospital, and is a recipient of Bhargav State Entrance Scholarship in the year 1988. He has done MS in General Surgery from T.N. (Topiwala National) Medical College & B.Y.L. Nair Hospital and MCh. (Paediatric Surgery) from LTMMC (**Lokmanya Tilak Municipal Medical College)** Mumbai. He was awarded the Best Super-Speciality Resident in Lokmanya Tilak Municipal Medical College and Hospital in the year 2002–03. He has additionally qualified as FCPS (General Surgery) and DNB (Paediatric Surgery).

He has 28 years of experience in teaching undergraduate and postgraduate students. He was actively involved over a period of two years as Covid Task Force In-Charge and Clinical Co-ordinator of the Institute for managing COVID patients in line with government guidelines.

Kamalika Chowdhury is Associate Professor in Speech and Hearing, Department of Speech & Hearing, Sri Aurobindo University, Indore, Madhya Pradesh. She has completed her graduation and postgraduation in Audiology and Speech Language Pathology from Ali Yavar Jung National

Institute of Hearing Handicapped, Eastern Regional Centre, Kolkata. She has 11 years of experience of teaching speech language pathology to undergraduate students of B.ASLP programme. She has six international and one national publication and has authored chapters in two books. Her core areas of interests are: adult neurogenic language disorders, articulation and phonology and developing indigenous intervention resources.

Usha A. Dalvi is a distinguished Professor of Speech Language Pathology, working in the Department of Audiology and Speech Language Pathology, School of Rehabilitation and Behavioural Sciences, Vinayaka Mission's Research Foundation, Deemed University, Puducherry, India. She has worked in the field for over 40 years as a teacher and researcher. She worked for the UNICEF-funded Joint project of Ali Yavar Jung Institute for Hearing Handicapped (AYJNIHH), Mumbai and Regional Rehabilitation Training Centre, Chennai, titled "The Development and Standardization of Articulation and Language Test" in Hindi, Gujarati and Marathi. She was the Principal Investigator of a project titled "Hindi Learning Package" funded by the Science & Technology Mission Mode Scheme, Government of India, for developing resource material for parents and teachers of children with Hearing Impairment. She has to her credit a number of publications at national and international levels and conducting Rehabilitation Council of India (RCI)–accredited workshops and seminars. Her subjects of interest and specialization are augmentative and alternative communication, childhood language disorders, dysphagia and neuromotor speech disorder. She has extensive clinical experience. She is the first recipient of "'Teacher-in-Residence," an international award conferred by the International Society for Augmentative and Alternative Communication and The Bridge School for one Academic year from 1998 to 1999 at San Francisco, USA, and Prof. OZA Oration Award conferred by the Indian Association of Speech and Hearing in 2019.

Shrimanti Ghosal is a research fellow at Bhakti Vedanta Research Centre, Kolkata. She completed her master's in Political Science from Calcutta University in the year 2015, with specialization in Research Methodology. From 2016 to 2018 she taught Political Science in St. Xavier's College (Autonomous). She has presented papers and participated in a number of international and national seminars and conferences. Her dissertation on the implementation of Right to Education in India, focused on the role of civil society organizations (CSOs). She interned with the Vikramshila Education Resource Society (NGO), whose fundamental work is on Right

to Education and its execution. She has also worked on the role of CSOs in eliminating domestic violence from India and presented a paper at the International Conference organized by Progressive Connexions in 2017 in Vienna. Her expanse of interest is gender politics and upliftment of women through education, with special reference to South and Southeast Asia.

Tinni Goswami has done her Masters and Ph.D. from Jadavpur University and published her thesis in 2011 from New Delhi. She was a Junior Research Fellow at the Indian Council of Historical Research from 2006 to 2008 and fellow of the Asiatic Society from 2010 to 2013. Goswami worked as a University Grants Commission Research Associate at Women's Studies Research Centre, University of Calcutta from 2013 to 2014.

She is an Assistant Professor and Head, Department of History, St. Xavier's College (Autonomous), Kolkata, Raghabpur Campus, 24 Parganas, West Bengal. She is the Coordinator at the Centre for Gender Studies at St. Xavier's College (Autonomous), Kolkata. She is the also a guest faculty at the Department of History, Rabindra Bharati University, Kolkata. Her areas of research interests are history of gender, cultural and regional history, history of science, technology and religions, history of public health and history of education in West Bengal.

Sameer Kadam holds MBBS, MS and MCh (CVTS) degrees and is Professor and HOD in the Department of General Surgery at MGM Medical College, Navi Mumbai. His interest lies in ischemic heart disease and vascular trauma and preventive measures for it. He has written multiple research articles in international journals and is regularly invited to speak on "Ischemic Heart Disease: Symptoms and Treatment."

Prasad Karande is Associate Professor, Mechanical Engineering Department, Veermata Jijabai Technological Institute (VJTI), Mumbai, and has done his graduation in Mechanical Engineering, and postgraduation in Production Engineering, with specialization in Industrial Engineering. He was awarded a Ph.D. in Engineering by Jadavpur University, Kolkata, India.

In addition to Mechanical Engineering, he has taught multiple programmes like Optimization, Decision-making, Multi-Criteria Decision Science, Total Quantity Management and Supply Chain Management at undergraduate and postgraduate levels in Engineering and Management. His research interests include multi-objective optimization, Multi-Criteria Decision-making, Fuzzy Set Theory, Value Stream Mapping, and Data Analysis. Dr Karande has more than 50 research articles published in reputed journals and conferences in India and abroad.

Tanvee Karande completed her MBBS from MGM Medical College and later registered as a research scholar in the MGM Institute of Health Sciences, Navi Mumbai. She has written a case report on aortoarteritis, a rare pulmonary renal disease. She has presented a research paper in the IABSCON-22 (Indian Academy of Biomedical Sciences Conference).

She has a deep-rooted interest and would like to further study in medicine branch. She is an active member of The Robin Hood Army (an organization that works to get surplus food from restaurants and communities to the less fortunate) and the MSAI (Medical Students Association of India).

Amruth G. Kumar serves at the Central University of Kerala as Professor in the Department of Education since 2015. He is Project Head of Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNM), Ministry of Human Resource Development Ministry, Government of India. Before joining his present institution, he served Pondicherry University for nearly a decade. He has seven books published and has several research papers to his credit in national and international journals. He is a columnist for national dailies, through which he expresses his views on contemporary educational issues and developments. Amruth's scholarly interests include critical theory in education, neoliberal policies in education and policy analysis in education. Amruth critically probes into the influences of neoliberal policies in shaping the psyche of stakeholders of education. Exploring the ramifications of neoliberal economy, he attempts to build up a broad framework for pedagogic interference to empower teachers and students.

Suman Kumar graduated from the All-India Institute of Speech and Hearing, University of Mysore in Speech and Hearing and completed postgraduation from Ali Yavar Jung National Institute of Speech & Hearing Disabilities (Divyangjan), Mumbai, in Audiology and Speech Rehabilitation. He obtained his Doctor of Philosophy from Maharashtra University of Health Sciences, Nasik. Has over two decades of clinical, teaching, and academic administration experience in the discipline of Audiology and Speech Language Pathology. He has 23 national and 22 international published scientific papers and four chapters in books to his credit. He has served as an expert member of the Drafting Committee for Development of Standards for Accessibility requirement for ICT products and services in India of CDAC (Centre for Development of Advanced Computing) and MIET (Ministry of Information and Electronics Technology, Govt. of

India. He has served as member of the Expert Committee on Inclusive Education of Rehabilitation Council of India. Chairman, Board of Studies, the West Bengal University of Health Sciences, Kolkata. He is a member of the Apex Advisory Committee and Academic Council of Netaji Subhas Open University, Kolkata, and a member of the Expert Committee for the Development of Training Programmes for Audiologists and Speech-Language Pathologists.

Heena Merchant is a consultant psychiatrist and Associate Professor at Department of Psychiatry, Lokmanya Tilak Municipal General Hospital & Medical College (LTMGH &MC), Mumbai. She is the Associate Editor of the *Annals of Indian Psychiatry Journal* and Executive Committee member of the Indian Psychiatric Society, Western Zonal Branch (IPS WZB).

She has done both her MBBS and P.G. in Psychiatry from Seth GS Medical College & KEM Hospital, Mumbai.

After completing her postgraduation in Psychiatry, she was in the United Kingdom for three years pursuing her specialty training in Psychiatry. Her affiliations include: Vice-President of the Bombay Psychiatric Society; Associate Editor of the *Annals of Indian Psychiatry Journal*, an official publication of the Indian Psychiatric Society; Executive Committee member of the Indian Psychiatric Society, Western Zonal Branch (IPS WZB); and Treasurer of the Staff and Research Society at Lokmanya Tilak Municipal Medical College (LTMMC), Mumbai. She has also been the Honorary Secretary of the Bombay Psychiatry Society (BPS) for four years (2013–2016).

Zaffar Ahmad Nadaf completed his BA, BEd, and MEd from the University of Kashmir, Srinagar. Dr Zaffar did his Master's in Education and Psychology from the Indira Gandhi National Open University and PhD (Education) from Aligarh Muslim University. He was an ICSSR (Indian Council of Social Science Research) postdoctoral fellow at the Central University of Kashmir. Dr Zaffar is working as an Assistant Professor in the School of Education at the Central University of Kashmir. His research interests are Measurement, Evaluation, Social and Emotional Learning, Quantitative Psychology, Educational Psychology, and Conflict and Education. He has authored text books related to the process and products of education. He has more than one dozen published research papers and chapters in various journals of international repute and edited volumes,

including Web of Science and Scopus Elsevier. Dr Zaffar also participated in international and national conferences and seminars across India and presented papers on diverse themes. He received the Best Young Researcher Award in 2019.

Aditya Nayak is an Associate Professor in the Department of General Medicine at MGM Medical College, Navi Mumbai. He has nine years of experience in the field of Nephrology, of which the latter five years have been in academia. He trains internal medicine and dialysis technology trainees in the care of patients afflicted with kidney diseases. He is committed to optimizing the overall care of patients undergoing long-term dialysis. His special area of interest is in improving the quality of life of patients undergoing long-term dialysis. He is a member of the Peritoneal Dialysis Society of India, where he regularly presents his research findings.

Nila N. is a Research Guide and Assistant Professor with the Research Centre for Comparative Studies, Post-graduate Department of English, Mercy College, Palakkad, Kerala. She has been awarded the Malayali Mudra Award for academic excellence. She has 21 national and international publications to her credit in reputed international journals. She has also authored two books on Transnational Feminism and Professional Communication Skills. She has been a resource person in the areas of Cultural Studies, Gender Studies, Literary Criticism, and Linguistics in various national and international conferences. She is a qualified Cambridge Assessment English Test Examiner. Her areas of interest are: Cultural Studies, Literary Theories, ELT, ESP, Research Methodology, and Gender Studies—Femininities.

Manas Kumar Pal is a faculty in Decision Science and Operations Management, Birla School of Management, Birla Global University, Bhubaneswar, Odisha. He was awarded his Ph.D. in the area of Probability and Operations Research from Sambalpur University. He has over 24 PLUS_SPI years of experience in teaching, research, and consulting. He has attended and presented papers at many national and international conferences. His papers have been published in edited books and reputed journals. He is a member of the Indian Science Congress Association.

His teaching interest includes Quantitative Methods, Operations Management, Operations Research, Research Methodology, TQM, and

Project Management. His research interest includes Random Polynomials, Optimization Modelling, Public Policy and Development, Behavioural Finance, Social Entrepreneurship, and Information and Communication Technology.

Dipti Pandey is an assistant professor at the Institute of Integrated Learning in Management (IILM), Greater Noida. National Capital Region, (NCR), New Delhi. In her career spanning over seven years she has worked in academic institutions as well as with NGOs as researcher, academician, counsellor, trainer, and content creator.

Her areas of interest are: metacognition, psychometrics, emotional-behavioural issues, counselling, psychotherapy, gender studies, cognitive psychology, and psychological assessment Tests. Her professional focus is on applicability of learning through tools like psychometrics, emotional-behavioural assessment, and addressing mental health and wellbeing via counselling, psychotherapy, and therapeutic interventions. She is interested in examining conflicts, thought processes, beliefs, and practice from a social psychological perspective. She has several published research papers and articles in her area of interest.

Professor Dr. Santishree Dhulipudi Pandit Vice-Chancellor of Jawaharlal Nehru University, began her academic journey with a Diploma in Social Work at California State University and earned herself a Bachelor of Arts in History and Social Psychology, Master's Degree in Political Science and Master of Philosophy degree in the Presidency College, Madras University. She obtained her Ph.D. degree in International Relations in 1990 from Jawaharlal Nehru University and a Post-Doctoral Diploma in Peace and Conflict Studies at Uppsala University, Sweden, in 1996. Her teaching career began in 1988 at Goa University, and then she taught at the Savitribai Phule Pune University between 1992 and 2022. In February 2022, she became the 13 th and the first female Vice-Chancellor of JNU. She is also the President of Indian Political Science Association.

Prof. Pandit is a member of several professional bodies and associations like the Indian Political Science Association, Indian Council of Social Sciences Research (ICSSR), Indian Council of World Affairs (ICWA), Middle East Institute (New Delhi), Maulana Abul Kalam Azad Institute of Asian Studies (Kolkata), Indian Institute of Advanced Study (IIAS, Shimla), Indian Association of International Studies and MP Institute of Social Sciences (MPISS, Ujjain). A prolific speaker, she addressed various conventions, conferences and convocations across the country. She has

published scores of sole and joint-author books, booklets, and chapters in edited volumes and journal articles. Prof. Pandit can be contacted at: santishree@mail.jnu.ac.in

Shiba Prasad Parhi is an Associate Professor with Adani Institute of Infrastructure Management, Ahmedabad, Gujarat. He holds a doctorate in Behavioural Finance from Aligarh Muslim University, Uttar Pradesh. He completed a fellowship programme in Management from the Indian Institute of Management (IIM), Ahmedabad. His teaching interests include advanced statistics, multivariate analysis, advanced operations research, finance and analytics, management computing, marketing model, and simulation and modelling. He is proficient in statistical software AMOS, R, and Minitab. His research interests include Mathematical Finance, Behavioural Finance, and Quantitative Modelling.

Dhruv Parmar works as Consultant Psychiatrist, Neuropsychiatric Care Centre, Valsad, Gujarat. He completed his MBBS from Vikhe Patil Medical College, Ahmednagar. He completed his DPM in Psychiatry from Lokmanya Tilak Municipal Medical College and General Hospital, Sion Mumbai. He was awarded his Fellowship in Psychosexual Medicine from JSS University, Mysore. He did an advanced certificate course in Addictive Disorders from the National Institute of Mental Health and Neuro-Sciences (NIMHANS), Bengaluru. He has previously worked as an Assistant Professor at Lokmanya Tilak Medical College, Sion Hospital, Mumbai, and at Government Hospital Marwad, Daman, Gujarat He has his own private practice in Valsad, Gujarat and is attached to Lotus Clinics, Valsad, Gujarat. He has numerous publications in national and international journals.

He has been a speaker at various symposiums in national and international conferences. He is the Convenor for the Young Psychiatrists Subcommittee of the Indian Psychiatric Society. He is a committee member of the Genetic Psychiatry Section of the World Psychiatric Association.

Prof. K. V. S. Sarma is Vice Chancellor at Maharashtra National Law University, Aurangabad, India. He has been a Registrar, NALSAR University of Law, Hyderabad before he becoming Vice-Chancellor of MNLUA. He was member of Academic Council, Executive Council, General Council and Planning Board of NALSAR University. He has held "Consumer Law Chair Professor, Ministry of Consumer Affairs, New Delhi" in NALSAR University of Law and has been associated with UPSC

in different capacities. He was nominated as a Presiding Arbitrator in a dispute between NTPC AND SINGARENI COLLIERIES LTD. SEBI nominated him as a Panel Arbitrator in National Commodity and Derivative Exchange Ltd and also Multi Commodity Exchange (MCX). He was nominated as a Permanent Arbitrator by Water Health India Pvt., Ltd., (a Multinational Company) in all disputes between the company and various Panchayats in India.

His notable publications include Modern Law of Insurance in India (Lexis Nexis Butterworth India Ltd), Criminal Law (Lexis Nexis Butterworth), Law of Contract Administration and Tender (Thomson Reuters Corporation). He was also Chief Editor for Business Law Text Book, Published by Telugu Academy, State Government of Andhra Pradesh. He is also a Member of the Standing Committee of the Legal Education Committee of the Bar Council of India.

Antra Singh holds MBA, Ph.D., and D.Litt. degrees and is an Assistant Professor (Visiting), Delhi Technological University and Delhi School of Journalism. She has completed her Postdoctoral degree as a Senior Postdoctoral Researcher, Interweave Ventures LLP. She is associated with the University Women's Association of Delhi (UWAD) for the project titled "Enhancing Employability Skills for Empowerment of Girls and Young Women" funded by Graduate Women International, Geneva. She has two published books and several papers in SCI (Science Citation Index) journals. She has been a resource person at the National Institute of Disaster Management (NIDM) and V.V. Giri National Labour Institute to address issues related to employability skills required for women empowerment and conducts ten workshops on research methodology and data analysis in educational institutions and research organizations.

Seema Singh is Professor in Economics and Head, Department of Humanities, Delhi Technological University, Delhi; Hon. Vice-President, Women in Science & Engineering (WISE) India; and Hon. Joint Secretary, the Indian Society of Labour Economics. She has 72 publications and 275 citations with a score of 10 in both h-index and i10-index to her credit. She has completed nine funded projects, including "Teaching in Circular Economy" and "Enhancing Employability Skills for Empowerment of Girls and Young Women" funded by Graduate Women International, Geneva. Her expertise lies in education and educational research, with special reference to higher engineering education, labour market, social innovation and gender.

Ruksheda Syeda is a Psychiatrist & Psychotherapist, Trellis Family Centre, Mumbai. She completed her MBBS (Bachelor of Medicine and Surgery) and DPM (Diploma in Psychological Medicine) from Lokmanya Tilak Municipal General Hospital & Medical College (LTMGH &MC), Mumbai. She is practicing as a psychiatrist and psychotherapist at the Trellis Family Centre, Mumbai. She is Hon. General Secretary of the Indian Association of Biological Psychiatry; Convenor, Specialty Section of Women and Mental Health in the Indian Psychiatric Society, Executive Council Member of the Indian Association of Private Psychiatry, Advisor At Ease, an inclusive platform, Advisor Family First Guidance Centre; and a Core Team member of the Confederation of Indian Industry (CII), Indian Women Network (IWN), Maharashtra chapter. She has been in private practice for more than 20 years.

Chetna Trivedi is a Ph.D. candidate at the Centre for Political Studies at Jawaharlal Nehru University. She also serves as a project consultant in the School Standards and Evaluation Unit, Department of Non-Formal Education, National Institute of Educational Planning and Administration, New Delhi. Her areas of interest include Global History of Governance and Autonomy in Higher Education, Politics of Higher Education in the Neoliberal Scenario, Philosophy of Higher Education and Contemporary Issues in Political Theory. She has presented various papers at national and international conferences and has contributed chapters in edited volumes and journals. She has received the Global University Programme Scholarship from PEACEBOAT, an international organization with special status at the United Nations. Her Ph.D. research is aimed at analysing the interface of Indian universities with neoliberalism, with special reference to issues of autonomy and accountability.

Saraswathi Unni is Senior Research Fellow at the Water Policy Centre, Aurangabad. She completed her master's in Political Science from Presidency College, University of Madras, India. She obtained her M.Phil degree in Politics and Public Administration from the University of Madras, India. She was awarded her doctorate by the University of Mumbai for her thesis on "Energy Policy of India."

She was an Associate Professor and Head of the Department of Political Science, NES Ratnam College, affiliated to Mumbai University for 32 years. As a recognized Postgraduate teacher, she is a Visiting Faculty at the Post Graduate Centre, University of Mumbai; at the Indian Institute of

Population Studies, Mumbai; and at the Institute of Administrative Careers, University of Mumbai.

At the University of Mumbai, she was the Vice-Chancellor's nominee in the Selection Panel for Career Advancement Scheme (CAS) for lecturers in colleges affiliated to the University of Mumbai. She was a member of the Syllabus Committee of Political Science, University of Mumbai. She has been involved in paper-setting, assessment and moderation process of the University of Mumbai in the capacity of Chairperson, Paper-Setter and Moderator.

She is a member of the European Society for Ecological Economics (ESEE), member of the International Political Science Association (IPSA), member of the All India Political Science Association (AIPSA), member of the Indian Institute of Public Administration (IIPA) and member of the Indian Political Economy Association (IPEA).

ORCID number is 0000000340543686.

Currently she is a Senior Research Fellow at the Water Policy Centre, Aurangabad, which is a non-profit think tank that encourages constructive policy proposals and scientific research on water and sustainable development. Apart from supervising "on ground" projects she assists the Centre in organizing webinars, conferences and symposiums, in addition to publishing scholarly articles and books on Water Stress, Transboundary Water Disputes and Nexus between Water and Energy

Richa Yadav is Assistant Professor of Law at Amity Law School Noida, National Capital Region, (NCR), New Delhi. She has over five years' teaching experience. She holds a dual master's degree in Bioinformatics and Law. She is working on her Ph.D. in Intellectual Property, with Geographical Indications as the focus of her research.

Ms Yadav employs an innovative teaching methodology and motivates students by engaging them in social causes. She is the Faculty Convenor of the Podcast Society, Enviro-legal Society, and Artificial Intelligence Society at the University level.

Richa Yadav is the author of dozens of law reviews and other scholarly articles, and is a frequent commentator online and in print on intellectual property topics and enviro-legal issues. She has presented several papers in many national and international seminars and conferences. Her principal areas of interest include Intellectual Property, Artificial Intelligence, Environmental Law, and Cyber Law.

List of Figures

List of Charts

List of Tables

CHAPTER 1

Introduction

Saraswathi Unni and Raosaheb Bawaskar

1 Background and Context

The outbreak of the virus left us with no choice but to arrest and isolate ourselves in our homes. Educators, governments, service providers, parents and students around the world were under extraordinary pressure of the COVID-19 pandemic as schools, colleges and universities shut down amid the public health emergency. According to UNESCO, in April 2020, schools, colleges and universities were closed in 185 countries, affecting a total of 89.4% of total enrolled students. Approximately 1.72 billion students were affected worldwide, and around 32 crores (320 million) in India alone, leading to several unforeseen challenges faced by the education sector.

S. Unni (✉)
Water Policy Centre, Aurangabad, India

R. Bawaskar
Maharashtra National Law University, Aurangabad, (MH), India

VGF's Water Policy Centre, Aurangabad, India
e-mail: raosaheb.bawaskar@mnlua.ac.in

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_1

While a section of the students was able to cope with the changes, the pandemic adversely affected many, especially students from low-income groups. The spread of the pandemic COVID-19 drastically disrupted the education sector. It can be described as the ultimate litmus test of the education sector. Governments around the world introduced many alternatives to diminish the impact of closure of educational institutions particularly for the more vulnerable and disadvantaged communities and have been facilitating the continuity of education for all using different digital modes of learning.

There are 993 universities, 39,931 colleges and 10,725 stand-alone institutions which contribute to higher education, per Ministry of Human Resource Development (MHRD), Government of India. Even though the country adapted to new-age learning methodologies, there were several obstacles: chiefly that of access to the internet. With just 45 crore (450 million) people of the total population having access to the internet, a significant percentage of learners especially those residing in rural areas were deprived of online education. The pandemic significantly disrupted the higher education sector in India as it did elsewhere. Many Indian students who are enrolled in universities abroad, especially in countries which are the worst affected, returned to India. Internationalisation of education has slowed down considerably. As unemployment has increased and the financial capacity of Indian homes has come under severe strain, there has been a drop in enrolments and inability of families to fund higher education of their children. Public institutions, too, are under the threat of reduced funding, especially student scholarships and research & development.

On the other hand, the COVID-19 pandemic did foster a virtual learning culture and managed to ensure the continuity of teaching-learning process in India. At this point in time there are serious attempts to reform the fee structures and create more cost-effective programmes. Indian academia has needed transformation, long before the onset of the pandemic. This volume with its 13 chapters is an analysis of how COVID-19 has changed the patterns of governance, pedagogy and future of higher education in India, the shifting trends that have been adopted, the opportunities it has brought in as well as the challenges thrown up by the paradigm shift in higher education.

Notwithstanding the pandemic, for both new and returning students, adjusting to university life can be exhilarating and stressful. More importantly, for most students, it may change their lives. A wide range of lifestyle

changes combined with the pressure to perform well academically in an environment that is getting more and more competitive can result in sub-optimal wellbeing of students. The uncertainty brought on by the epidemic precipitated uneasiness among students and adversely impacted their wellbeing. The unfamiliar environment that students had to acclimate to without their usual support networks impacted their wellbeing further. This book analyses the idea of student wellness in the light of the COVID-19 outbreak. The response of institutions of higher learning to the pandemic's profound effects on psychosocial, economic and pedagogical systems is recorded and the challenges that were thrown up are meticulously outlined in this volume. They provide rich content for practitioners, educational administrators and researchers while considering the approach to be adopted in the post-COVID scenario when implementing initiatives to move forward.

COVID-19 (or Sars-Cov-2) is a novel coronavirus initially discovered in Wuhan, China, in late December 2019. Community transmission led to an exponential growth in cases both nationally and internationally, bringing with it stringent new measures to curb the virus' impact. Each nation approached the COVID-19 problem with varying degrees of zeal and a range of targeted interventions normally centred around social distancing. The core element of "lockdown" has been the reduction in social interaction of all forms, including typical working practices, shopping habits and education. Universities in India and across the world closed their campuses to protect both their student and staff populations. COVID-19 posed both direct and indirect threats to student wellbeing; both as a direct contributor toward poor psychological outcomes and as the underpinning reason behind the stark reduction in social contact of students. The term "student wellbeing" can also be described as a population-level term encompassing positive emotion and the inner capacity for an individual to cope with the challenges of day-to-day life and their academic journey.

2 Theoretical Framework

Education, across the board, experienced drastic changes in teaching delivery. Transition into online learning occurred rapidly and presented a range of novel challenges for both faculty and students. The utilisation of virtual learning is observed even after the opening up of higher education institutions (HEIs). Navigating the vast array of technological platforms

that came up in the education sector such as Zoom, Skype, Moodle and Microsoft Teams as well as becoming fully competent using digital platforms was challenging both for students and for teachers. During this period, the pragmatic barriers that students faced when attempting to study, or to collaborate with peers and submit pieces of work, were overcome by students in urban areas and from high-income groups, while those from rural and low-income groups were not able to overcome these challenges and experienced poor quality of education even though computer literacy is understood to be fairly high with the student demographic. It was assumed that students will engage with technology seamlessly and with little difficulty. However, as pointed out by our contributing authors in chapter after chapter, a significant proportion of the student population encountered difficulties with the technology-heavy approach to learning and this must be urgently addressed. Per the PERMA (Positive Emotion, Engagement, Relationships, Meaning and Accomplishment) model, a learner's sense of personal competence can contribute to suboptimal wellbeing and a perceived sense of decreased wellbeing should a student feel a loss of capability when it comes to their studies. Authors have stressed that universities should ideally strive to provide comprehensive support to their students in terms of navigating their new learning experience and extensive resources to underpin the transition to online learning.

Seligman (2004) hypothesised that PERMA are the elements of wellbeing. Goodman et al. (2017) reported strong evidence that subjective wellbeing is the final common path of such elements and their data are entirely consistent with Seligman's hypothesis. Our studies among students in higher education in India impacted by COVID clearly indicate that the PERMA model of wellbeing is fully applicable to this group and that each of these elements was adversely impacted during the closure of HEIs in India. Considering the drastic shift in environment that students have experienced, perhaps the biggest potential contributor to poor student wellbeing is the change in physical location. Until, the end of 2021, all academic content was delivered through digital platforms, while campuses remain closed. The impact of this change was significant and far-reaching, deviating from the typical university experience that students were accustomed to. Lack of physical contact with academic staff, coupled with their reduced capacity associated with the technological shift, had put students under increased pressure to meet deadlines without the typical access to support that they would normally experience.

Prior to COVID-19, students may have sought advice by physically meeting with a faculty, supervisor or counsellor. Even though faculty have in most institutions, in the wake of the pandemic, offered virtual office hours to sustain and promote frequent engagement with students to mitigate the disruption they were experiencing in their studies, students experienced more frequent and intense feelings of loneliness, anxiety and isolation owing to the disconnectedness many felt as a result of closure of the university campuses. Students faced a prolonged period of time without their friends and course companions. Where group work and collaborative projects are now a mainstay of many university courses, the opportunity for students to work with fellow students was reduced and became more challenging. As previously stated, loneliness has been found to be significantly associated with stress, anxiety and depression in students. In addition to education and career, undergraduate students consider relationships as a main contributor to meaning, considered integral to wellbeing according to the PERMA model. Authors have stressed on the importance of combating feelings of loneliness owing to the highly detrimental effect this has on student wellbeing.

Wellbeing described more generally often stresses the importance of the individuals' lived environment and how this impacts individual wellbeing, such as the places that we work and live (Beaumont, 2011). In this instance, the place where students study, as opposed to work, has evolved considerably. The way in which the lived environment has interacted with how we experience relationships during the pandemic is important to note as access to friends and family had practically ceased due to nationwide restrictions to curb the spread of COVID-19. For some students, the ability to return to the familial home to self-isolate together has been near impossible. There are instances of students remaining in university accommodation throughout the pandemic, living independently but without the social support networks they previously possessed as their cohabiting peers have returned home. The impact that this isolation has on student wellbeing is monumental, as the lived environment and accessibility to social support across the globe has ultimately nullified the possibility of physical contact with loved ones. Thankfully, the digital era that we now live in offers online methods of sustaining regular contact with those within our social networks. Paradoxically, early research suggested that increased engagement with the internet was to the detriment of social relationships, exacerbating feelings of loneliness and depression (Kraut et al., 1998). The use of social media specifically has been found to have both positive

and negative effects on psychosocial wellbeing, identity and belonging in adolescents (Allen et al., 2014). However, in the current circumstances where physical loneliness was impossible to avoid, the positive elements of internet use and social media engagement have been brought out by our contributing authors in the various chapters. As long as social media usage is engaged with as a means to sustain existing relationships and forge new connections, it can be a powerful tool in reducing an individual's feelings of loneliness (Nowland et al., 2018). Whilst the lockdown measures persisted within the context of the pandemic, the use of social media was the key to maintaining appropriate support networks for students. In the absence of offline social activities, social media played a crucial role in alleviating feelings of loneliness within the student population. Given the importance that social connectedness and relationships play relative to a students' wellbeing, digital solutions provide a good substitution for face-to-face interaction.

Whilst the COVID-19 pandemic has had pragmatic implications relating to campus closures and a transition to virtual learning, the virus itself created a degree of uncertainty that was unprecedented. COVID-19, as a novel coronavirus, is being studied at a phenomenal pace with more scientific information becoming readily available with each passing day. Understanding the transmission, prevalence and symptoms of the virus is critical to keeping the virus under control but until that information becomes clearer, ambiguity surrounding the virus remains high even now. Misinformation has been spread exponentially throughout the duration of the pandemic through a variety of mediums. Social media platforms such as WhatsApp have experienced an overwhelming level of viral messages. Information was constantly taken out of context and forwarded which contributed to elevated public anxiety and fear. Further to this, over 25% of COVID-19-related videos on YouTube were found to contain nonfactual information totalling over 62,000,000 cumulative views (Li et al., 2020). The infodemic that ensued has been overwhelming for the general population and for students especially. Amongst the false information that was being circulated was legitimate scientific knowledge that was selectively put out and, in the process, became irrational and even dangerous. Many news outlets were providing round-the-clock coverage of the pandemic and how it was affecting countries and communities across the globe. Accessing and assimilating information relating to COVID-19, whether factual or not, was incredibly easy. For students, relating this to their personal circumstances and how it impacts upon their studies proved

detrimental to their wellbeing. Contextual domains are compromised when the economic and educational landscape are unrecognisable. The unpredictability of the pandemic undoubtedly contributed to suboptimal mental health outcomes for the general population (Zandifar & Badrfam, 2020). Students of higher education have faced unmitigated uncertainty in regard to their studies, ranging from fear of contracting the virus once campuses eventually open to the unknown quantity surrounding the completion of their studies.

A range of interventions have been posited so far to combat the onset of poor mental health outcomes including the provision of online mental health resources, online provision of self-help and counselling services, and the deployment of online surveys to understand the prevalence of poor mental health outcomes (Rajkumar, 2020). Our contributing authors have called for Indian universities to allocate resources and provision for student wellbeing throughout the pandemic and beyond. The negative effects associated with the pandemic has the potential to impact on student wellbeing for the foreseeable future; therefore, further research is required to understand what provision would be most suitable for the HE context. The use of newly produced psychometric measures with university students could facilitate greater understanding of the mental health impact of COVID-19, such as the Coronavirus Anxiety Scale (Lee, 2020) or the Fear of COVID-19 Scale (Ahorsu et al., 2020). The shift into an online environment did remove the fear of being judged from peers and staff members to an extent, as it allowed a greater sense of anonymity not previously associated with on-site campus services.

3 Thematic Analysis

Amruth Kumar's study exposes the social deficit caused by digital learning and he argues cogently for the restoration of education as a social process. Tanvee Karande and others have outlined the stress, anxiety, confusion, sleep deprivation of and loss of clinical practice medical students during the pandemic. Dhruv Parmar and others have comprehensively analysed the structural and systemic challenges applicable to resident doctors and their teaching/training programmes thrown up by COVID-19. Kamalika Chowdhury and others, in their study on audiology and speech pathology students, proved that practicum learning and service delivery to patients was negatively impacted during the COVID period. Antra Singh and Seema Singh's study focuses on the inadequate preparation of engineering

students for employment due to digital learning. Richa Yadav and Dipti Pandey examine the feasibility of training law students in the new art of remote legal services and to anticipate how this would change the practice of law. Nila N.'s study on "First Time Women English Language Learners" at the undergraduate level clearly indicates the need for the physical presence of supportive language trainers to stem the decline in their language proficiency due to prolonged remote learning. Tinni Goswami and Shrimanti Ghoshal highlight the difficulties experienced by both teachers and students during online teaching-learning in a rural college, when the required infrastructure is not in place. Zaffar Nadaf and Javid Ahanger study reveals that education was severely impacted by the COVID-induced shutdown of HEIs in Jammu and Kashmir which was already aggravated by the political prolonged conflict in the region. Saraswathi Unni's study on the "Digital Divide" traces the emergence of this divide to the shift to online pedagogy during the COVID-19. Her study demonstrates the manner in which the digital divide accelerated the rate of inequality in access to education. Anamika and others evaluate the experiences and expectations of service providers (faculty), and service receivers (students) in online teaching in the state of Odisha and identify and measure service quality gaps that occur as a result of quality shortfalls by the service providers.

On the other end of the thematic spectrum, Chetna Trivedi examines the possibilities of extending autonomy of Universities in the post-COVID-19 scenario with a view to empower them to deal with future COVID-like crises and the limitations in doing so. Her study predicts that in the post-COVID era not only will the shape, size and form of the classroom change, but also what will be taught and how it will be taught. Raosaheb Bawaskar's study traces the development of online educational technologies to the stimulation by a whole-scale switchover to online pedagogy, securing them the right to be considered as a full-fledged educational methodology. His study aims to underscore the manner in which online learning has led to the development of appropriate software tools for teaching, learning and assessment.

4 Reimagining the Futures of Higher Education

Interestingly, our volume will be the perfect companion volume to the UNESCO's Report "Reimagining Our Futures Together: A New Social Contract for Education" published by the International Commission on

the Futures of Education. It was the fruit of three years of reflection and consultation led by an international commission of experts and world leaders. In Antonio Guterres', Secretary General of the United Nations, words, "In the face of profound social, political, economic, environmental and technological change, there is a growing consensus that today's education systems are no longer fit for purpose". The Commission received over one million submissions from around the world. It launched a survey with 85,000 responses and organised over 400 focus groups and events and webinars involving over 750,000 participants. With this report the UNESCO has given us a vision of education that ensures justice, human rights and opportunities for all. The Report comes as a critical response to current global challenges facing today's societies, including marginalisation, exclusion and lack of access to education, as well as climate change and technological innovation. To quote the Chairperson of the Commission, Sahle-Work Zewde, President of the Federal Democratic Republic of Ethiopia, "Education is key to redefining ourselves in relation to each other and the world around us. Education can help set to set us on paths towards more just and sustainable futures for all".

The Report redefines education's goal as preserving and advancing human capability and dignity in relation to other people and the natural world. It asks for a new social contract for education, views education as a public endeavour and a shared benefit, and views the relationships between students, teachers, knowledge and the outside world as analogous with collaboration, solidarity and cooperation guiding pedagogy. The Report affirms that curricula should place a strong emphasis on ecological, intercultural and interdisciplinary learning to give students the tools they need to acquire, create and use information. The research calls for the extension of educational opportunities throughout life and in many cultural contexts, while highlighting the crucial roles of teachers and schools.

The current Report reframes the purpose of education as enhancing and sustaining the dignity and capacity of human beings in relation to others and to nature. It sees education as a public endeavour and a common good, and calls for a new social contract for education to allow us to think differently about learning and the relationships between students, teachers, knowledge and the world. Pedagogy should be organised around the principles of cooperation, collaboration and solidarity. Curricula should emphasise ecological, intercultural and interdisciplinary learning enabling students to access and produce knowledge while also developing their capacity to critique and apply it. The Report stresses the central role of

teachers and schools, while calling for the expansion of educational opportunities throughout life and in different cultural and social spaces.

The global report is intended as a starting point for widespread reflection, discussion and action at global, regional and national levels to reframe the development of policies and systems for decades to come. In order to do so, it is important to identify the challenges and our book determines those challenges in the context of India's higher education. The next stage after classifying the challenges is to assess them in terms of their magnitude and complexity. The underlying approach to meeting these challenges is to ensure "Inclusive" and "Equitable" quality education as stated in the fourth Sustainable Development Goal (SDG). Sustainable Development Goal 4 is about quality education and is among the 17 Sustainable Development Goals established by the United Nations in 2015. Achieving this goal becomes more urgent in the light of the COVID-19 pandemic. In this volume, authors from different states and different disciplines have called for rethinking and perhaps reinventing higher education paradigms in India to provide more access and equity to education for India's youthful population.

5 Discussion

As for the future of higher education in India, select authors have demonstrated that, even in simulation-based scenarios, it is possible to deliver functionally similar sessions that allow students to attain their educational objectives. Fully scoping the requirements for each individual session should be paramount to retaining similarity between an on-campus and online scenario, ensuring that functionality is truly aligned with the objective of each session. However, the authors do note that barriers do occur, with practical elements such as availability of computers, access to the internet and internet speed providing challenges to the learning experience. Conversely, some authors have suggested that virtual learning has contributed to greater attendance and participation in sessions, removing the anxiety associated with asking questions in front of course peers. This is corroborated by student surveys by some authors indicating that students value online learning for its flexibility and the ability to study at a time convenient to them. Interestingly, 10% of students surveyed described the lack of face-to-face contact as one of the main strengths of online learning. This is linked to the idea of reduced anxiety surrounding

learning in general. This is, however, counteracted by 26% of the sample disliking online learning as they are unable to meet with friends.

Clearly, the transition to virtual learning and assessment had both advantages and disadvantages. Each university has approached assessment differently as a result of the pandemic, deploying novel methods that many students have not experienced before such as open-book examinations. The uncertainty surrounding assessment provoked anxiety within the student population. Coupled with this uncertainty was the anxiety of completing assessments in a completely novel fashion, where students were anxious that the new forms of assessment used would not truly capture their ability, especially when compared to traditional methods. Graduation ceremonies were not exempt from cancellation, negating a significant life event that celebrates the student's achievements after years of hard work. Research has demonstrated that education and career are one of the main sources of meaning for undergraduate students. It was pointed out by several contributing authors that when students feel their work is not meaningful, especially given that their studies occurred in a predominantly isolated fashion, detrimental wellbeing could ensue. Most surveys substantiated this premise. Most HEIs ensured that students are fully informed of new assessment protocols and celebrated their successes in an engaged way. This helped mitigate the risk of suboptimal wellbeing among students. Institutions and, more importantly, researchers should consider the transition in a balanced fashion to truly understand the role virtual learning had on student wellbeing over the course of the COVID-19 pandemic and beyond. The transition back to campuses and physical classes will enable researchers to derive a comprehensive analysis of student and faculty wellbeing while also affording evidence-based studies on the strengths and weaknesses of online vis-à-vis offline pedagogy.

There are limitations in this volume and the evidence synthesised mainly; research produced during the COVID-19 pandemic is sparse, varied and conducted within a plethora of different scenarios. Studies have originated primarily from Maharashtra, Kerala and Delhi NCR where the epicentre of the COVID-19 pandemic can be traced. The vast cultural differences observed, alongside the diverse set of methods deployed to explore the impact of COVID-19, means that it is difficult to extrapolate findings directly into the HIE setting within the university set-up. Only as time passes and more research is conducted in relation to COVID-19 will more concrete conclusions be available.

However, many of the findings and conclusions in this volume from Student Wellbeing, Teacher Preparedness, New Digital Pedagogy, Problems of Infrastructure, The Digital Divide to The Need for More Autonomy for HEIs are evidence-based new knowledge derived to help HEIs progress and adapt to change. These research papers help to better understand the ongoing, emerging, re-merging and newly emerging problems and issues faced by HEIs during the pandemic and in the post-COVID era.

Synthesising the evidence to date on the multiple impacts of COVID on higher education in India, it is clear that the repercussions will be far-reaching. The collective trauma experienced by the university community during the pandemic must not be underestimated, but the potential to rebuild stronger is now more likely than ever. The lessons learnt during this period will undoubtedly contribute towards more online services, more funding for digital infrastructure, greater awareness of the impact on student wellbeing, increasing internet accessibility amongst students and teachers from marginalised communities, and an increased need to develop course content that is compatible with the physical mode of pedagogy.

The book poses fundamental questions like: Has India emerged from this crisis with a refreshed perspective to boost higher education? Have educators risen to the challenge? Has the crisis actually strengthened the resilience of HEIs? Will the evolving pedagogy of the future keep the student at the centre of the new landscapes and pathways of education? Eminent educationists answer these core questions through their insights in the various chapters of the book.

References

Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The Fear of COVID-19 Scale: Development and Initial Validation. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00270-8

Allen, K.-A., Ryan, T., & Gray, D. L. (2014). Social Media Use and Social Connectedness in Adolescents: The Positives and the Potential Pitfalls Feedback for Learning: Closing the Assessment Loop View Project Multidisciplinary Role-Play in a Virtual Learning Environment View Project. *The Australian Journal of Educational and Developmental Psychology (AJEDP), 31*, 18–31. https://doi.org/10.1017/edp.2014.2

Beaumont, J. (2011). *Measuring National Well-Being: Discussion Paper on Domains and Measures*. Office of National Statistics. https://www.iser.essex.ac.uk/research/publications/520292

Bernstein, R. (2011). *Racial Innocence: Performing American Childhood from Slavery to Civil Rights*. New York University Press, New York.

Goodman, F. R., Disabato, D. J., & Kashdan, T. B. (2017). Different Types of Well-Being? A Cross-Cultural Examination of Hedonic and Eudaimonic Well-Being *A Psychological Assessment, 28*(5), 471-482. https://doi.org/10.31234/osf.io/5rhqj (PDF) A Hierarchical Framework of Well-Being – ResearchGate https://www.researchgate.net›publication›338288226

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet Paradox: A Social Technology That Reduces Social Involvement and Psychological Well-Being. *American Psychologist, 53*, 1017–1031. https://psycnet.apa.org›buy›1998-10886-001

Lee, S. A. (2020). Coronavirus Anxiety Scale: A Brief Mental Health Screener for COVID-19 Related Anxiety. *Death Studies, 44*, 393–401. https://doi.org/10.1080/07481187.2020.1748481

Li, H. O. Y., Bailey, A., Huynh, D., & Chan, J. (2020). Youtube as a Source of Information on COVID-19: A Pandemic of Misinformation. *BMJ Global Health, 5*, e002604. https://doi.org/10.1136/bmjgh-2020-002604

Nowland, R., Necka, E. A., & Cacioppo, J. T. (2018). Loneliness and Social Internet Use: Pathways to Reconnection in a Digital World. *Perspectives on Psychological Science, 13*, 70–87. https://doi.org/10.1177/1745691617713052

Rajkumar, R. P. (2020). COVID-19 and Mental Health: A Review of the Existing Literature. *The Asian Journal of Psychiatry, 52*, 102066. https://doi.org/10.1016/j.ajp.2020.102066

Seligman, M. (2004). *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*. https://books.google.co.uk/books?hl=en&lr=&id=CM9tBAAAQBAJ&oi=fnd&pg=PA30&dq=positive+psychology+seligman&ots=0o3WZZDce6&sig=gCNbyIwq2-U0i45PHoannZHP0LY

Zandifar, A., & Badrfam, R. (2020). Iranian Mental Health During The COVID-19 Epidemic. The Asian Journal of Psychiatry 51:101990. Accessed March 25, 2022.

CHAPTER 2

Lived Experiences of College Students During Remote Learning in the Time of Covid: Implications for the Future of Education

Amruth G. Kumar

1 Introduction

Covid virus outbreak has kept us out of our natural life since March 2020. Starting of the vaccination process was a great solace. Still the warnings about the third wave of virus spread caused much dismay among people. Fear was the prominent emotion that eclipsed humankind during the spread of corona. A suspicion of virus infection, in oneself and on all others, was rife. When public spaces were emptied, digital spaces become congested. The cyber world developed as an alternative to the social interaction that became sparse. Digital devices proffered a confidence for being alone in a crowded digital society. Will Covid cause lasting changes in human social

A. G. Kumar (✉)
School of Education, Central University of Kerala, Kasargod, India
e-mail: amruth@cukerala.ac.in

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_2

habits? Educational institutions have a critical role in answering this question. Quintessential to all educational institutions are its social systems that mediate the process of learning. Although individual interests such as better jobs and living standards are considered to be the goals of education, a firm social system is a precondition. Higher education being a threshold to the labour market is the most affected due to the deprivation of social experiences. Social skills are strewn across the new-generation jobs waiting for them. That is why our students, at the tertiary level, need to be subjected to careful study about how they experienced online learning and what values and perspectives it leaves in them. Remote learning during Covid outbreak has questioned the inevitability of higher education institutions as centres of knowledge dissemination, but at the same time its role as a social institution is further reinforced. It would not be surprising if educational institutions were envisioned in the future as specialist centres of socialization, absolutely free from the burden of syllabus and credit requirements.

Nonetheless, educational institutions have a prominent place in our collective consciousness. In spite of the convincing idea of de-schooling society very cogently presented by Illich (2013), the non-institutionalized educational process is beyond our imagination. The discourses on quality higher education, ranking of institutions and campus placements are corroborating the role of institutionalized higher education. In this context, reviewing the educational experiences of the past two years is important in determining our future direction. What are the experiences of the two-year-long remote learning from the perspective of a student? What are the implications of these perspectives for the future higher education? This chapter is an attempt to delve into these issues collecting data from students pursuing higher education.

2 Procedure Adopted for the Study

For collecting data, ten students pursuing higher education were interviewed. The students belong to different socio-economic status. Six female students and four male students constituted the group. Two students were from SC (Scheduled Caste) category and one from ST(Scheduled Tribe) category. From OBC (Other Backward Classes) there were four students. The Scheduled Castes and Scheduled Tribes are officially designated groups of people who are the most disadvantaged socio-economic groups in India while the OBCs are officially designated groups that are educationally and socially backward. Three students represented general category. All the students were pursuing graduate-level programmes. Out of

the ten students four were studying science programmes, three humanities and three social science programmes. The representation of the students from different strata was done to understand how the digital learning experience influenced the students belonging to different groups.

The data was collected through telephonic interviews. The duration of interviews falls between forty-five minutes and one and a half hours. Few students were articulate and hence the interviewer could probe further based on their initial responses. All the interviews were recorded and were transcribed for analysis.

The collected data were analysed according to the phenomenological hermeneutic methodology. Collecting of large sample is not practiced in phenomenological study. Generally, three to ten subjects who have been exposed to the same phenomenon are studied to explore their lived experience (Creswell, 2021). Phenomenological methodology (Mooney & Moran, 2002; Sokolowski, 1999) is rooted in the phenomenological philosophy of Edmund Husserl. In research, phenomenological methodology attempts a comprehensive inquiry by delving deep into the roots of experiences of the subjects. Needless to say, it attempts to explore the consciousness of the subject and tries to understand the essence of the experience. In short, the research methodology based on Hussrel's (2017) philosophy puts forward an attempt to unravel the interrelationships between objectivity and subjectivity inherent in every bit of human experience and to identify the essence of experience. The phenomenological hermeneutics methodology is a natural development of the phenomenological methodology. The word "hermeneutics" is derived from the Greek word *hermeneuin*. It means "to interpret". Although Gadamer is known as the father of hermeneutics, it was Martin Heidegger's thoughts and writing that shaped hermeneutics as a methodology. At the heart of this methodology is the attempt to separate the essence of experience from the language of communication through interpretation. Heidegger (2013) reminds us that not only what is said but also what is not said must be subject to interpretation. In short, the methodology of phenomenological hermeneutics is to reveal the meanings of life experiences and to interpret them with the help of language. Such methods are used to find meaning in all forms of expression, including the person's written experiences, attitudes and actions. In this study, interviews with the students have been subjected to hermeneutic interpretations. While discussing the results, pseudo names were assigned to each student to maintain confidentiality. The findings of this study are based on the analysis of the data thus collected. They are discussed in more detail in later sections.

3 The Identity Crisis of a College Student

The conversation with the students began with the question of how they felt when they found out that the college would be closed for a long period of time due to Covid. Sajisha's (pseudo name) response was interesting. She said:

> Initially I was happy that college was closed. I was happy that I could do my long pending work at home, but at the same time I was a little sad that I would miss my friends. After a while, I felt that it was better to resume college going. Because we never get a chance to see or talk or have fun with friends. It is really an exciting experience to be with friends. In remote teaching, all academic work was resumed, but at the same time we miss our friends.

It is evident that the most attractive aspect of college life is its social atmosphere. The social environment proffers students the skills and abilities for their future. Therefore, the social atmosphere in an institution provides students with a more valuable curriculum than what they learn from the syllabus. We need to understand that the deprivation to a social system prevailing at their institution is the most detrimental to the students during the Covid period.

It is an evolutionary truth that social nature is part of the genetic makeup of mankind. Human children take longer to become self-sufficient than other mammals. Therefore, human beings need social support more than other animals. Social and emotional support is a basic human need. Sometimes equally, or more, important than physical needs. Harry Harlow's study (1974) on monkeys is significant in this regard. As soon as the monkey was born, the baby was separated from its mother and placed next to two other "mothers". Of these, only one mother gave food and after that the same monkey will not attend to the baby and will be busy with some other activity. The second mother dressed the baby monkeys with clothes to warm the children and was willing to spend more time with them for play and fun. It was observed that the baby monkeys were willing to spend more time with second mother, who used to warm up the baby monkeys with clothes and spend time for fun and game. The baby monkeys would go to the other mother only when they need food. This experiment questions the notion that food and material needs are the most basic needs of social animals. In Maslow's (2014) "hierarchy of needs" material needs were considered as basic needs. Freud's theory of psychoanalysis

also rejects the idea that man has an innate social sense of smell. Freud (2017) sees social system as a factor that hinders the pleasure seeking of individuals. In contrast, post-Freudian thinkers put forward theories that prove social needs, such as interaction and cooperation, are the fundamental human needs. Prominent psychologists such as Eric Erickson and Alfred Adler have distanced themselves from Sigmund Freud, who reaffirmed the theory that to be a social being is a human instinct.

Vygotsky's emphasis on the critical role of social environment in facilitating learning (Ivić, 1994; Vygotsky & Kozulin, 1986) gains vital importance in the context of social deprivation to college students during Covid lockdown. Vygotsky sees the potential of social interaction and their quality as the cornerstone of learning and human development. Studies by Palmonari et al. (1991) have shown that students who spend time to collaborate and interact with peers are more likely to be reluctant to ask for and provide help.

> I feel like I am isolated. I am a member of a family. But that is only a part of "me". The rest of me unfolds in my campus, amidst my friends. Can't be the same me at family. Many failures at this age are not something that can be discussed with family members. (Said Abida, an engineering student)

The social system available in the campus was not only a sphere of fun and joy but a counsellor and pacifier too. Many pains and personal issues are better addressed by this social system, than an efficient counsellor. Deprivation to this kind of counselling by peers would be detrimental for college students. Support of friends and peers in campuses have great potential in maintaining higher levels of emotional wellbeing (Rigby, 2003), social support and health (Adams & Blieszner, 1995; Antonucci & Akiyama, 1995, pp. 355–371) and in resolving issues like addictive behaviours due to drugs and alcohol (Samuels & Samuels, 1975).

The reports on suicides committed by the students during Covid are alarming. It is pertinent to note that the reasons for the suicides are trivial issues. The fact that such suicides were common even before Covid points to the finite peer cooperation and interactions in our campuses. Our education system deserves a trial for ritualizing the mutual cooperation and for limiting the social space in campuses in the pretext of job-oriented and better-quality education. Competitiveness promoted by the education system is one of the biggest challenges on the social atmosphere in educational institutions. There is no doubt that an even more progressive society

is possible if our children are allowed to congregate in a public place even at the cost of a formal syllabus and regular teaching.

If the ease and economies of scale in education realized through the online education are applied to the post-Covid period, it will herald a cusp in the history of mankind. History reveals the role of technology in overcoming all the challenges encountered by mankind. From sharpened stones to bombs, an immense array of tools have been developed through technological advancement. Using these tools mankind killed the animals, pushed many of them into extinction and turned the land, even the hardest rocks which were reluctant to surrender, into obedient farms. All of this is inextricably linked with the discoveries and development of technological devices. Thus, history shows human society attacked resources as well as all the threats they faced with the help of tools. The contemporary version of this hunting is being uncovered by hunting and destroying the social nature of humans with the help of digital devices.

The neoliberal market economy believes that the social cooperation and support among people is not an asset for the future but is rather a threat of the present. This revelation has a critical role in orchestrating the hunting of the social nature of education. Digital technology devices are designed with tacit restrictions on real social life.

The job of shrinking man's social nature to narrow corridors of institutions like family, and further from family to oneself, has been effectively executed by digital devices. Regulations for social interaction during Covid are the windfall gain received for this mission. Remote education during Covid has reduced the social nature of education in schools to digital connectivity. Educational institutions are being wielded to play an important role in such evolutionary junctures. During the period of industrial growth, schools were relied upon to bring the industrial lifestyle to the future labour force. Alvin Toffler (1984) refers to the implementation of the factory model educational institutions implemented by industrialists as part of the transformation of educational institutions into hatching centres of future factory labourers.

A conspiracy is being suspected to strategically scuttle the idea of egalitarianism to be executed through educational institutions. In response to this task, digital technology glorifies learning by isolating students.

> "My senior George told me that the most thrilling period of the B.Ed. programme is during internship. The teacher in us gets tested during this period. We all were excited to do the internships in schools. Unfortunately,

> due to the outbreak of Covid, schools were closed. We were asked to do the internship online. Who will compensate this big loss of experience that happened to us?" asked Femy, a B.Ed. student mirthlessly.

The Covid period damaged the premise that life is about living in social spaces. Therefore, the fight against the threat of extinction faced by coexistence, interaction and social consciousness may be extended even for the post-Covid period and must be resisted through the "tool of education". In the post-Covid period institutions of higher education are being asked to take a more careful and cautious approach to the concept of education, the methods and spaces in which it is implemented. Therefore, it cannot be ignored that governments through seeking online learning methods to reduce costs and secure more enrolment are threatening the value of the sense of community that mankind has acquired. The lesson we need to learn from the experience of students, pursuing higher education, during the Covid period is that their identity of a social being is in serious crisis. As this identity crisis is not explicitly visible to others and oneself, as all sorts of identity crises operate unconsciously (Erikson, 1963), it is crucial to address this serious issue urgently. What can educational institutions do to address this issue of the control mechanisms adopted on the free social nature of students in the pre-Covid period too?

4 Forced to Lone It

Since the students studying in self-financing professional colleges come from better financial backgrounds, the technical devices they use are mainly laptops and smart phones. But it was clear from the conversations with these students that they are under a lot of stress while attending classes at home. Parents show undue interest in their wards performance. It is natural that the performance of students is rated and compared by the parents when they come across online classes attended by their wards. Some comments from parents and grandparents disturb the students while attending the classes. Students hush the tones of classes so as to evade such comments of family members. Listen to what, Pooja, an engineering student says:

> My father knows a bit of physics and my mother is a mathematics teacher in a college. So, they make comments very often, while I attend class. They may comment that the question of the teacher was simple to and why I

> had not responded to it. They worry that I am not interacting in the class. This often takes the form of mental harassment. So, I use earphones to avoid such distraction. Earphone is the problem solver.

One of the key aspects of remote learning is the seclusion created through earphones. This helps the students to be in a state of isolation in the crowd. Family members often listened to online classes at home. The quandary in case they cannot answer a question, or participate in a discussion actively, or the reproach from the teachers can be avoided if they "lone" it from others by using a earphone. Therefore, a large section of students is seceding the classroom experiences from family members. Earphones bolster them to break away the connection between classroom experiences and family members; this trend has emerged as a result of remote learning during Covid. A student who engages in online classes through earphones feels a great sense of security.

Mutual support and cooperation is the cornerstone of the educational process. Mature and more educated people lend their hands to support the younger generation. But this kind of collaboration is rooted in the presence of mutually helping members. "Collaboration requires a mutual task in which the partners work together to produce something that neither could have produced alone" (Wertsch, 1986). The teachers and other students become more knowledgeable and supporting companions in each student's learning process. The main role of teachers in the classroom is to facilitate the support system. But in the online classrooms, collaboration is becoming completely digital. Therefore, the essence of cooperation in the social setting is not met. More important is the proximity of the parents, which create more conflict. The presence of nagging "others" actually disengages students from the process of learning. Psychologists may agree incontrovertibly that stress from the part of parents adversely affects students. Through her profoundly insightful research, Robinson (1991) argues that under stress, individuals flinch back from achievements, confidence, suppression of social abilities, and reduced learning as an ephemeral behaviour for grabbing praise from parents.

It must be acknowledged that a very healthy parental pedagogy enriches learning, but it is unfortunate that only a minority of parents are able to provide such an evironment. Parents want their children to reach a higher level than themselves. The desire of parents turns becomes stressfull to students. This is how regression of parenting happens in education. When parents create pressure in lieu of their support, students are

forced to limit the process of education as an institutionalized activity. Students naturally stow away learning, a lifelong organic process, from the home environment. The online education process, which we believed would extend learning beyond the four walls of the institution, is thus compelling students to keep their learning process in a hushed digital environment.

The impact of surveillance on students during the remote learning is a critical issue that emerged as a continuation to the discussion made above. Shaheer, a first-year (second semester) engineering student, said,

> I have noticed my parents stalking to listen what my response to the teacher's prompts are in the online classes. It's disturbing to note that someone is watching us continuously. My mother checks my WhatsApp chats. I know that my mobile phone goes through scrutiny at regular intervals.

Each person being observed is forced to make their natural behaviour into an artificial performance. Researchers call this process Hawthorne effect, in which the observed change their behaviour to suit the observer's interests.

The idea of Hawthorne effect is derived from some experiments on workers' productivity at the Western Electrical Factory in Chicago, USA, in the late 1920s and early 1930s. The experiment was to see if it was possible to increase the productivity of the workers at Western Electrical Company by adjusting the lighting in the workplace, working hours and work intervals. But the workers, realizing that their productivity is being observed and studied, became more productive in different situations set by the researchers. Productivity did not differ significantly due to the increase or decrease of lighting. The same happened when adjusting work breaks. Even when working hours were adjusted, there was no significant difference in average productivity. This may have puzzled researchers at first, but later observations showed that the feeling of being under surveillance forced the labourers to neutralize the factors that hamper their productivity. The Hawthorne effect marked a turning point in behavioural research.

The process of turning natural behaviour into "performances" usually occurs in research situations when the subjects are aware that they are being observed through surveillance. Performance has a significant role in ensuring existence of a person in a system that has a hierarchical power structure. To proclaim the conformity to the system it is natural that

individuals "perform" instead of "live" in a system. Rather than engaging in the work that is being done and discovering new areas of potential in it, the individuals, who are being subject to surveillance, are making the work a "performance" for those who observe. Through online education we can see that our students are being subjected to a condition that is quite similar to the Hawthorne effect.

The answer to the question of what you feel or do when you feel that you are under surveillance prompts us to think more deeply about remote learning through online education. Anand Varghese, MA literature student, said:

> It's horrible that we are being watched from all sides. Sometimes the faculty may insist that we switch on the video. We pretend as if we are paying keen attention in class. But there will be chats going on in the WhatsApp group of students. Mummy doesn't know what I am doing because I have earphones while attending classes.

Do you really understand what is being taught in class?

> No, I do not. For exams we depend on guidebooks. That is enough.

Students spend every moment in online classes knowing that they are being monitored. If surveillance from teachers is the major problem in regular face-to-face classrooms, online classes add family members to the list of surveillance "instruments" during class hours. This excessive surveillance was very stressful in the early days of online learning. But over time, students began to implement strategies to move forward without sacrificing their interests further, while giving the observers what they needed. This would promote pseudo intellectualism than genuine organic intellectuals.

Needless to say, performance as a learner in lieu of the organic learner can have a detrimental effect on academic integrity. The fact that everything a student needs to learn will be available in the form of guide books and readymade study materials gives an impression that someone guarantees a fixed deposit of knowledge to them. At the same time, students are assured that the numerous learning aids available in the digital space and market are creating environments for them to succeed without paying attention to the teaching in the class. Therefore, attending classes physically may be considered a waste of time. The assurance that everything

they need is readily available here pushes the learner to the whirlpool of academic dependency and slavery.

The most perverse face of this kind of dependence is on the part of those who work in the academic field. A large section of academics are vulnerable to the allegation of plagiarism. They are badly dependent on the accumulation of knowledge (both digital and non-digital) which is readily available for use and reproduction. Digital education conveys to our younger generation that they need not construct knowledge; instead, they are assured of accumulated knowledge for their use.

Moreover, it is clear from the interviews with the students that they are prompted to act stealthily during online class hours. When students sends messages to their classmates during a class or avoids a teacher's question, saying that they can't hear due to signal issues, the student is invoking the manifestations of a criminal. It occurred in pre-Covid classrooms as well. However they are largely ignorant of the insidious effects of such behaviour.

Such ignorance and errors were treated and handled by institutional mechanisms or ignored as an age-related behaviour which is quintessential to students of that age group. But in the home, when "detected" by parents and other family members, especially in conservative families, it can be considered a major crime. As a result, much of student behaviour that are typical to classrooms become the culprit's skilful actions in online classes. By transforming learning activities into performance-oriented behaviour in this way, online classrooms are creating situations that pose great challenges to academics themselves.

5 Concluding Remarks

The digital world does not conform to morality and ethics of the people who engage with digital tools. On the contrary, the actions of the individual in the social context are constantly subjected to moral and ethical reactions, directly or indirectly.

Reaction of the social world to an undesirable act is totally different from the way the digital world responds to such acts. The social correction of undesirable act happens through protests punishments, shaming and many such measures of the social system. Through such measures a shaping of the individual is done. But digital society transfers the responsibility of shaping the individual from society to the individual himself or herself. Therefore, in the digital world, every person has to take full responsibility for their actions. In addition to legal penalties, the individual has to face

the consequences of behavioural disorders in their personal life, acquired through such actions. The digital world conveys that mistakes are not meant to be corrected but only to be punished.

The digital generation is also subjected to a homogenization. The digital world narrows down the options available for entertainment to digital devices. These tools shrink the youth interests to the multi-sensory experiences offered by the digital world. Moreover, homogenization works strongly in reducing their intellectual abilities to "searching" through digital tools. It conveys that spending time for the construction of knowledge is a futile activity as a large knowledge corpus is available in the digital world. So, all we need is the ability to "search and locate" knowledge. Remote learning during Covid has reinforced all these trends among the students of higher education institutions.

Remote learning was thought of as an ephemeral arrangement during the initial phase of Covid lockdown period. But history will mark this period as a cusp that transmuted education solely as the responsibility of the individual. Governments will definitely favour online education even after the Covid period due to the economies of scale offered by it. A narrative is created that places digital education as the ideal system and need of the hour in modern higher education. Students' interest for using digital tools and its age-friendly nature further corroborate the scope of remote learning in higher education. The present study exposes how digital learning causes a social deficit. In this context it is imperative to restore education as a social process.

Declaration

Funding No specific grant was given to this research by funding organizations in the public, private or not-for-profit sectors.

Declaration of Competing Interest The author declares that he has no conflict of interest.

Ethical Consideration Each participant in the survey received information about the study's goals and gave informed consent. All study participants' privacy was protected by masking their identity.

References

Adams, R. G., & Blieszner, R. (1995). Aging Well with Friends and Family. *American Behavioral Scientist, 39*(2), 209–224. https://doi.org/10.1177/0002764295039002008

Antonucci, T. C., & Akiyama, H. (1995). Convoys of Social Relations: Family and Friendship Within a Life Span Context. In R. Bliescner & V. H. Bedford (Eds.), *Handbook of Aging and Family* (Handbook of Aging and Family ed., pp. 355–371). Greenwood.

Creswell, J. W. (2021). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). SAGE Publications, Inc.

Erikson, E. H. (1963). *Childhood & Society* (2nd ed.). W. W. Norton and Company.

Freud, S. (2017). *A General Introduction to Psychoanalysis by Sigmund Freud: A General Introduction to Psychoanalysis by Sigmund Freud*. CreateSpace Independent Publishing Platform.

Harlow, H. F. (1974). *Learning to Love*. J. Aronson.

Heidegger, M. (2013). *The Question Concerning Technology, and Other Essays (Harper Perennial Modern Thought)* (Reissue ed.). Harper Perennial Modern Classics.

Husserl, E. (2017). *Ideas: General Introduction to Pure Phenomenology*. Martino Fine Books.

Illich, I. (2013). *Deschooling Society (Education)*. KKIEN Publ. Int.

Ivić, I. (1994). Lev S. Vygotsky. *Prospects, 24*(3–4), 761–785. https://doi.org/10.1007/bf02195302

Maslow, A. H. (2014). *Toward a Psychology of Being*. Sublime Books.

Mooney, T., & Moran, D. (2002). *The Phenomenology Reader* (1st ed.). Routledge.

Palmonari, A., Kirchler, E., & Pombeni, M. L. (1991). Differential Effects of Identification with Family and Peers on Coping with Developmental Tasks in Adolescence. *European Journal of Social Psychology, 21*(5), 381–402. https://doi.org/10.1002/ejsp.2420210503

Robinson, A. (1991). *The Psychological Effects of Parental Pressure to Achieve on Children*. Amsterdam University Press.

Samuels, D., & Samuels, D. (1975). *The Complete Handbook of Peer Counseling*. Adfo Books.

Sokolowski, R. (1999). *Introduction to Phenomenology*. Cambridge University Press.

Toffler, A. (1984). *The Third Wave*. Bantam.

Vygotsky, L. S., & Kozulin, A. (1986). *Thought and Language - Revised Edition* (2nd ed., Revised ed.). The MIT Press.

Wertsch, J. V. (1986). *Culture, Communication, and Cognition: Vygotskian Perspectives*. Cambridge University Press.

CHAPTER 3

Certainty and Resilience of Online Education Through SERVQUAL: A Study in Odisha

Anamika, Manas Kumar Pal, and Shiba Prasad Parhi

1 Introduction

COVID-19 brought in a major disruption in the education systems, and higher educational institutes (HEIs) around the globe relocated to online classes. The immediate concern then was about online service quality (o-SQ).

In March 2020, due to the COVID-19 pandemic, there was total disruption in the education sector including the HEIs. All face-to-face learning courses transitioned to remote instruction overnight; teachers and the

Anamika (✉)
Xavier Institute of Management, XIM University, Bhubaneshwar, India
e-mail: anamika@xim.edu.in

M. K. Pal
Birla Global University, Bhubaneswar, India
e-mail: manas.pal@bgu.ac.in

S. P. Parhi
Adani Institute of Infrastructure Management, Shantigram, India
e-mail: shibaprasad.parhi@aii.ac.in

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_3

students were witnessing this disruption for the first time ever. Most of the educational institutes did not have any training or technical know-how to handle this sudden shift. As the schools and colleges were shut for an indefinite period, both HEIs and students began experimenting with ways to accomplish the academic objective in the stipulated time frame in line with the academic calendar. Most of the educational institutes used online platforms such as Zoom, Blackboard or Microsoft Teams. Few educational institutes with learning management system (LMS) in place embedded the existing course in LMS while holding synchronous meetings and tried to maintain the same kind of teaching pedagogy.

Most of the HEIs came up with stop-gap solutions to continue teaching, but, as HEIs shifted to virtual platforms, the quality was expected to be consistent, without compromising on the learning outcomes. Education so far relied on different traditional and student-centred teaching methodologies involving didactic lectures and seminars, hands-on and practical training, team learning and small group discussions. It is to be noted here that in the online is mode, the learning quality also depends substantially on the level of digital access and efficiency of both teachers and learners.

Despite the importance and value attached to the service quality, there is very little research to measure and analyse the impact of online education on service quality in higher education institutions. In view of the criticality of online service quality(o-SQ), this study is an attempt to evaluate the experience, satisfaction and attitude of the students and teachers while they accepted it to be the new normal and migrated to the online platform.

This study aims to:

- Critically evaluate experiences and expectation of students and faculty involved in the online teaching process
- Measure online education service quality using SERVQUAL instrument and Service Triangle in the higher education context, to determine the gap between students' and faculty's attitudes and expectations.

2 Literature Review

Online education programmes have limited the interaction of learners (Swan, 2001), and in turn has restricted physical interactions between students and/or academic staff; many a times leaving students and faculties question the efficacy and proficiency of online education.

The Community of Inquiry (COI) framework (Garrison et al., 2001) concludes that the success of online or web-based teaching is determined by creating a learners' group. In an online learner's group, learning is dependent on three interdependent components: *Social Presence*, *Cognitive Presence* and *Teaching Presence*.

There have been different opinions proposed by different researchers. Warner et al. (1998), through a study for the Australian vocational education and training sector, suggested that online learning readiness can be ascertained based on three aspects: *the preference of students for online education*, *students' ability* and *confidence in utilizing Internet and computer-based communication*; and *competence in autonomous learning*. McVay (2000, 2001) created a 13-item instrument to measure student behaviour and attitude as predictors. The concept was further refined by several researchers like Smith et al. (2003) who went ahead with an exploratory study to validate McVay's (2000) questionnaire and suggested a two-factor structure, "Comfort with e-learning" and "Self-management of learning".

Different researchers have suggested different parameters such as "Self-directed Learning" [Guglielmino (1977), Garrison (1997), Lin and Hsieh (2001), McVay (2000, 2001)], "Learner Control" [Hannafin (1984), Petrides (2002), Schrum (2002), Klingner (2003), Kim et al. (2005)].

Researchers have also emphasized on factors such as "Chances of Engaging With Teachers and Peers in Online Learning Settings" [Kim et al. (2005)], "Social Presence", Kim et al. (2005), Jonassen (2002)], "Academic Self-Concept" [Trautwein et al. (2006), "Competencies Required to Use the Technology" and "Feedback and Clear Instructions" "Well-Structured Course Content, Well-Prepared Instructors, Advanced Technologies" [Sun and Chen (2016) to be of utmost importance while evaluating efficacy of online learning].

On the other hand, there are researchers who have pointed out the weaknesses of online education on different parameters such as "Delay in Responses" [Hara and Kling (1999), Petrides (2002), "Scepticism Of Their Peers' Supposed Expertise" [Petrides (2002), Lin and Zane (2005)].

3 Measurement of Service Quality

The online learning ecosystem varies to a large extent from the traditional classroom situation in terms of learner's motivation, satisfaction and interact. Today, the unpredictable environment has forced educationists of HEIs to improve the quality of e-learning and this in turn demands strict assessment of quality of e-learning. Researchers (Gress et al., 2010) emphasize on the assessment of quality of online education to facilitate e-learning providers to cater to the needs of the students. The various studies in this domain suggest that communication in these settings has a direct effect on attitudes of the students and faculty.

Measurement of service quality has always been of importance (Parasuraman et al., 1988), especially when the service industry became interested in measuring consumer and perceived quality satisfaction. (Most of the definitions of quality stress on equation between quality offered in response to the customer's needs and satisfaction. Instruments for measuring service quality have been developed and validated, even though service quality is more difficult to be measured than goods quality (Parasuraman et al., 1988). The service quality model was conceptualized by Parasuraman et al. (1988) and is also known as the PZB model or the SERVQUAL instrument. It provides the framework to conduct extensive research in service industries.

While research on quality in higher education states that it is difficult to provide a single workable definition of quality, Tam (2001) in her study mentions that quality is a "relative concept" in higher education and is dependent on the stakeholders and the conditions and events that follow. Oldfield and Baron (2000) claimed that apart from the traditional methods used, institutions should ask students to discuss the criteria of service quality. Oldfield and Baron used SERVQUAL research instrument to study perceptions of service quality in higher education, and as per their study, students' perceived service quality should to have three dimensions: "requisite elements" (which are essential to enable students to fulfil their study obligations); "acceptable elements" (desirable but not essential to students) and "functional elements" (which are of a practical or utilitarian nature). O'Neill (2003) conducted a longitudinal study using SERVQUAL to understand the effect of time on students' perceptions of service quality. In the educational context SERVQUAL can be used to expose the

perception and difference of opinions of the key stakeholders (Zafiropoulos & Vrana, 2008). Tan and Kek (2004) insist that the evaluation of educational service quality is essential to motivate and offer feedback on the effectiveness of educational process and implementation to remain competitive. HEIs should measure quality of education, especially when they differentiate themeselves primarily on the basis of quality (Faganel & Macur, 2005). Baig et al. (2006) highlighted the need for a proper framework of quality in higher education due to the growing demand for quality. There are many more researchers who have stressed on the importance of service measurement.

Riadh Ladhari (2010), in his study, evaluates the initial experience of students in using these new platforms, and effects of online education on students' satisfaction and attitudes towards their education. Li et al. (2021), in their attempt to study online education in China, found that service quality, course quality, and student-instructor interaction have indirect and positive effects and the variable of perceived value was an important mediator for online learners' retention.

Demir et al. (2020) elaborately studied the effect of e-service quality on users' perception and satisfaction in the education sector. Ivanaj et al. (2019) used five dimensions of the SERVQUAL scale, and found that the most important determining factors for e-learning are ergonomics, assurance and empathy. It was found that the retention of students in online courses can be obtained mainly from investments in the quality of content made available to students (Scarpin et al., 2018).

The understanding of students' satisfaction with e-learning in developing countries still needs a strong affirmation. Researchers (Hussein Abdel-Jaber, 2017), in their paper, studied students' levels of internet self-efficacy, self-regulated learning, assessment of course and instructors' interactivity and their evaluation of the Learning Management System as strong predictors to determine the students' satisfaction level. Tag et al. (2017) proposed a framework on the theory of consumer behaviour and service quality literature. This framework links students' perception of value and behavioural intentions to dimensions of quality and cost of online education.

E-learning and evaluation and assessment concepts of students' cognitive, affective and behavioural domains need a detailed analysis. Coskun and Mardikyan (2016), in their study, designed a new theoretical

framework. It was found that utility of online education is directly and significantly affected by technical support, perceived usefulness and service quality. Kim and Lee (2011) through their research stressed that the reputation of online degree programmes plays the most important role while other important factors included the price, the teaching quality (online) and the student service quality (online institutions). HEIs are focused on online education; however, its efficacy is still questioned. (Sohn et al., 2009).

4 Research Methodology

Theoretical Framework and Instrument Design The research model in this study is based on existing theories and the model used exhibits the relationship among the constructs. A deductive method is adapted, and scales related to SERVQUAL method in this study. An exploratory study was conducted in the initial phase of research to identify the variables influencing the study. Qualitative research in Phase I helped to explore the variables through literature review, in-depth interview and observations which were validated through experts. The results of Phase I (Scale Reliability and Validity) guided to adjust to the existing scales or research instruments to support and ensure content validity.

Sampling The sample was determined based on a number of variables used to test the existing theories on e-service or online service.

Survey method was used to gather response from the target population comprising employer, staff and students. Staff here means both academic and non-academic staff engaged in the process. Initially in-depth interviews were carried out among the experts to validate the variables. After the questionnaire design, the responses were collected from 30 respondents for an exploratory analysis.

Statistical Method The convergent and discriminant validity were used to test the reliability and validity of the designed questionnaire. A group of questions were posed relating to the various variables describing various constructs. Constructs-wise Cronbach alpha and item-item correlations

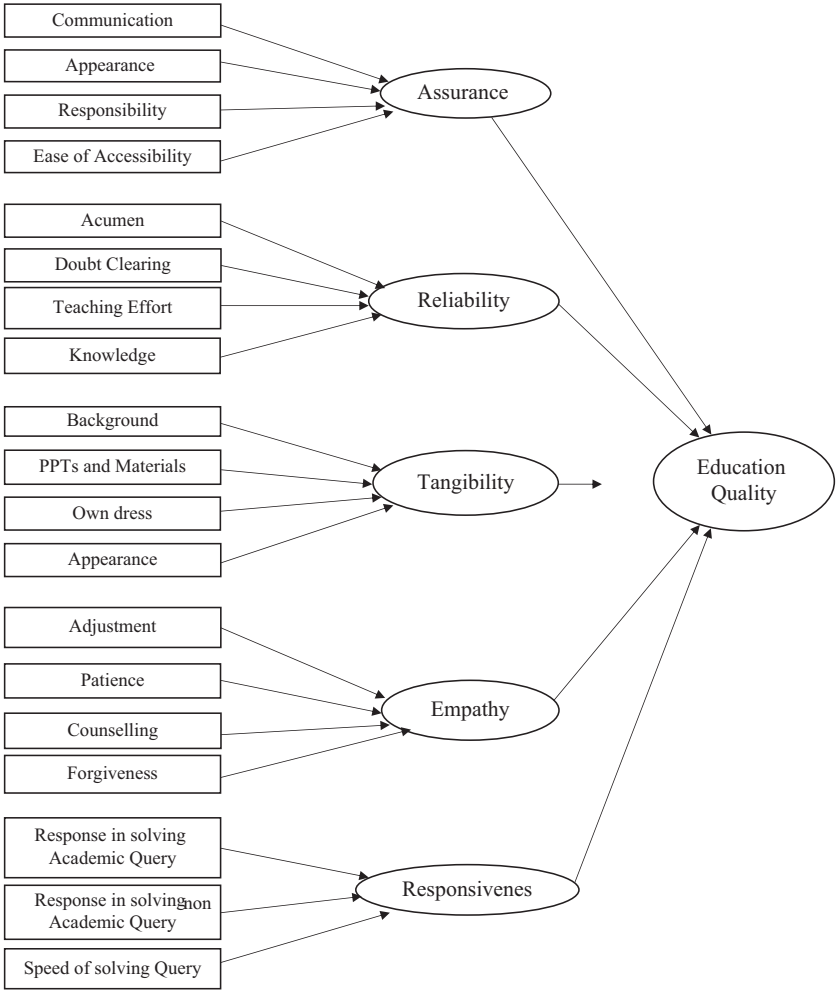
were analysed to validate the scale. The uncertain academic years 2020–2021 and 2021–2022 called for a robust preparation for an online education to provide inputs to the instructors as well as to the students for a better learning environment. Looking into the review of literature, this paper is an attempt to establish the relationship between service quality and customer satisfaction to evaluate the efficacy of online education for an increased customer acceptance and loyalty. The study focuses on evaluating both tangible and nontangible quality e-learning dimensions to help e-practitioners construct and improvise on the existing tool processes and stakeholder satisfaction.

Research Framework and Model As per the SERVQUAL model: The variables and constructs were explored through the qualitative research to measure the effectiveness of the education and teaching through the online and offline modes. The major component of any professional courses is academic, examination, assignments, practical projects, summer internship, events, placements and recreation and relaxation. The study compared the delivery quality on those parameters through online and offline modes in addition to the SERVQUAL model.

The SERVQUAL model for the online and offline education is depicted below with all the constructs and components in Model 1 (Table 3.1).

Table 3.1 Question-wise abbreviations used

Construct	*Variable*	*Abbreviations*
Expectations of students from the institute	Academics	Academics
	Examinations	Exams
	Assignments	Assignments
	Practicals/projects	Practical
	Events	Events
	Summer internship	SIP
	Placement	Placement
Assurance	Behaviour of the faculty	Behaviour
	Communication from the side of the faculty	Communication
	Appearance of the faculty	Fac_Appearance
	How responsible and cooperative faculty seems to be	Responsible
	Ease of communication and accessibility with faculty	Accessibility
Reliability	Faculty acumen in managing technology	Acumen
	Knowledge impart by the faculty	Knowledge
	Faculty effort in managing on time	Effort
	Doubt clearing (academics)	Doubt clearing
Tangibility/Aesthetic	Rate your appearance	Appearance
	Rate your dress code	Dress code
	Rate your background image or background layout	Background
	PPT and learning materials	Materials
Empathy	Faculty understanding of the students' situations and state of mind	Fac_ Understanding
	Faculty's willingness to adjust	Fac_willingness
	Faculty patience to solve the students' query and problems	Fac_Patience
	Faculty tolerance and forgiveness to students' nonresponsive and irresponsible behaviour	Fac_tolerance
	Faculty counselling	Fac_Counselling
Responsiveness	How quickly faculty responds to the query related to academics	Fac_responds_ Acad
	How quickly is the faculty able to solve problems and queries related to non-academic stuff	Fac_responds_ non-Acad
	How accurately the faculty solves the problem	Fac_Problem solving
Technology	Quality of internet connectivity	Internet quality
	Updated tools and software's availability (good processing speed, software's, technologies, etc.,) by institute	Institutions infrastructure



Model 1: SERVQUAL model for the online and offline education

Findings and Interpretation

The following statistical analysis were carried out to test the reliability and validity of the questionnaire testing the model.

OFFLINE MODE:

In Table 3.2 the item "exam" has a score of less than 0.3, signifying that it has a low co-relation when compared to other items in the study (Table 3.3).

The variables explaining the 'Assurance' factor have the Cronbach's Alpha 0.857, much above the critical score of 0.6 signifying reliability and also qualifying convergent validity as the critical score is above 0.3 (Table 3.4).

The variables explaining "Reliability" factor have Cronbach's Alpha 0.812, which is much above the critical score of 0.6 and also each variable has correlation above the critical score of 0.3, thus clearly explaining that the Reliability factor holds reliable and qualifies convergent validity (Table 3.5).

The "Tangibility" factor has Cronbach's Alpha 0.703, which is much above the critical score of 0.6 and each variable has correlation above the critical score of 0.3 and thus the variable Tangibility is reliable and qualifies convergent validity (Table 3.6).

The "Empathy" factor has a Cronbach's Alpha 0.821, which is much above the critical score of 0.6 and also all variables have correlation above the critical score of 0.3, proving that the Empathy factor is reliable and qualifies convergent validity (Table 3.7).

Table 3.2 General Aspect

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Academics	59.13	84.583	0.647	0.580
Exams	59.55	97.256	0.279	0.492
Assignments	59.23	94.314	0.431	0.465
Practical	58.45	90.256	0.555	0.540
Events	58.42	87.452	0.650	0.680
SIP	58.26	87.131	0.699	0.680
Placement	58.55	87.456	0.673	0.666

Table 3.3 Assurance Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Behaviour	34.4839	36.725	0.424	0.491
Communication	34.2903	31.280	0.807	0.791
Fac_Appearance	33.9355	33.196	0.800	0.742
Responsible	34.4839	29.325	0.831	0.747
Accessibility	34.4194	28.852	0.614	0.689

Table 3.4 Reliability Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Faculty acumen	26.0968	12.890	0.547	0.309
Faculty knowledge	25.6774	12.759	0.579	0.337
Faculty effort	25.6452	13.237	0.732	0.610
Doubt	25.5484	11.389	0.697	0.599

Table 3.5 Tangibility Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Appearance	22.8387	29.473	0.738	0.589
Dress code	23.0000	29.333	0.609	0.475
Background	24.7742	27.714	0.356	0.215
Materials	23.1613	30.673	0.389	0.299

The "Responsiveness" factor also has a Cronbach's Alpha 0.732, above the critical score of 0.6 and all variables have correlation above the critical score of 0.3, signifying the reliability and convergent validity.

ONLINE MODE: (Tables 3.8 and 3.9)

The "Assurance" factor has a Cronbach's Alpha 0.836, above the critical score of 0.6 and all variables haves correlation above the critical score of 0.3, signifying the reliability and convergent validity (Table 3.10).

Table 3.6 Empathy Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Fac_ Understanding	32.5806	32.252	0.793	0.716
Fac_willingness	32.5806	35.785	0.683	0.622
Fac_Patience	32.1613	38.873	0.637	0.707
Fac_tolerance	33.4516	33.256	0.481	0.365
Fac_Counselling	32.0645	38.862	0.584	0.613

Table 3.7 Responsiveness Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Fac_responds_ Acad	16.5484	9.389	0.440	0.228
Fac_responds_ non-Acad	17.1290	4.383	0.634	0.512
Fac_Problem solving	16.6452	7.503	0.746	0.563

Table 3.8 General Aspects

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Academics	35.7097	210.413	0.770	0.749
Exams	33.7419	257.598	0.214	0.479
Assignments	34.6774	219.492	0.574	0.505
Practical	35.6774	220.559	0.600	0.526
Events	36.6774	218.692	0.646	0.726
SIP	35.9677	198.566	0.798	0.803
Placement	34.4839	229.458	0.552	0.704

The Cronbach's Alpha of the factor 'Reliability' is 0.832, which is much above the critical score of 0.6 and all the variables have a correlation above the critical score of 0.3; thus, it is reliable and qualifies convergent validity (Table 3.11).

Table 3.9 Assurance Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Behaviour	25.3548	57.770	0.676	0.650
Communication	25.2581	59.665	0.669	0.537
Appearance	24.8065	59.961	0.628	0.457
Responsible	24.9677	57.766	0.830	0.768
Accessibility	25.6774	68.626	0.416	0.533

Table 3.10 Reliability Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Faculty acumen	20.0968	35.757	0.555	0.350
Faculty knowledge	19.8710	33.316	0.783	0.615
Faculty effort	18.9355	32.796	0.694	0.504
Doubt	20.2581	32.265	0.631	0.452

Table 3.11 Tangibility Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Appearance	18.7742	31.247	0.531	0.323
Dress code	19.7419	34.331	0.332	0.213
Background	18.4194	31.452	0.401	0.290
Materials	17.7742	37.114	0.497	0.342

The Cronbach's Alpha of "Tangibility" factor is 0.648, and all the variables have a correlation above the critical score of 0.3, signifying reliability and convergent validity (Table 3.12).

The "Empathy" factor has a Cronbach's Alpha value of 0.862, which is above the critical score of 0.6 and all the variables have a correlation above the critical score of 0.3, thus qualifying convergent validity and reliability (Table 3.13).

Table 3.12 Empathy Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Fac_ Understanding	26.1613	59.606	0.633	0.718
Fac_willingness	25.2258	61.247	0.793	0.862
Fac_Patience	25.5484	68.923	0.586	0.743
Fac_tolerance	25.6774	66.559	0.672	0.792
Fac_Counselling	25.9032	61.624	0.753	0.814

Table 3.13 Responsiveness Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Faculty response_Acad	12.1935	17.028	0.711	0.655
Faculty response_non-Acad	12.8065	13.961	0.689	0.579
Faculty response_ Problem solving	12.4194	14.585	0.881	0.787

The "Responsiveness" factor has a Cronbach's Alpha value of 0.869, which is much above the critical score of 0.6 and all the variables have a correlation above the critical score of 0.3, thus signifying reliability and convergent validity (Table 3.14).

The "Technology" factor has a Cronbach's Alpha value of 0.440, which is above the critical score of 0.6 and all the variables do not have correlation above the critical score of 0.3; thus, the variables defining factor "Technology" are not reliable and neither does it qualify for convergent validity (Table 3.15).

Analysis of the above table clearly indicates that students find major differences in the effectiveness of various components of professional education through online and offline modes. Offline mode is effective in fulfilling students' expectations in various parameters. Overall, students are indifferent about the conduct of exams through online or offline mode (Tables 3.16, 3.17, 3.18, 3.19 and 3.20).

Table 3.14 Technology Factor

Item	*Scale Mean if Item Deleted*	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Squared Multiple Correlation*
Internet	20.4839	13.591	0.372	0.367
Online meet platform	20.3548	19.570	0.073	0.126
Software	20.3548	17.503	0.209	0.193
Ease communication	20.5806	14.118	0.348	0.288

Table 3.15 Paired Sample t-Test

Item		*Paired Differences*					*t*	*df*	*Sig. (2-tailed)*
		Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
					Lower	*Upper*			
Pair 1	Offline academics Online academics	3.48	3.88	0.70	2.06	4.91	5.00	30	0.000
Pair 2	Offline exam Online exam	1.10	4.18	0.75	-0.44	2.63	1.46	30	0.155
Pair 3	Offline assignment Online assignment_	2.35	4.33	0.78	0.77	3.94	3.03	30	0.005
Pair 4	Offline practical Online practical	4.13	4.37	0.79	2.53	5.73	5.26	30	0.000
Pair 5	Offline event Online event	5.16	4.19	0.75	3.63	6.70	6.86	30	0.000
Pair 6	Offline SIP Online SIP	4.61	4.32	0.78	3.03	6.20	5.95	30	0.000
Pair 7	Offline placement Online placement	2.84	3.71	0.67	1.48	4.20	4.26	30	0.000

Table 3.16 Paired sample t-Test of Assurance

	Paired Differences					*t*	*df*	*Sig. (2-tailed)*
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Assurance-offline-Assurance-online-	2.24	2.37	0.42	1.37	3.11	5.28	30	0.000

Table 3.17 Paired sample t-Test of Reliability

	Paired Differences					*t*	*df*	*Sig. (2-tailed)*
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Reliability-offline-Reliability-online-	1.98	2.29	0.41	1.14	2.82	4.83	30	0.000

Table 3.18 Paired sample t-Test of Tangibility

	Paired Differences					*t*	*df*	*Sig. (2-tailed)*
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Tangibility-offline-Tangibility-online-	1.59	2.04	0.37	0.84	2.34	4.35	30	0.000

Table 3.19 Paired sample t-Test of Empathy

	Paired Differences					*t*	*df*	*Sig. (2-tailed)*
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Empathy-offline-Empathy-online-	1.72	2.47	0.44	0.81	2.62	3.87	30	0.001

Table 3.20 Paired sample t-Test of Responsiveness

	Paired Differences					*t*	*df*	*Sig. (2-tailed)*
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Responsiveness-offline-Responsiveness-online-	2.15	2.12	0.38	1.37	2.93	5.66	30	0.001

Looking into the findings of the t-test it is observed there are significant differences in the performance in terms of service quality dimensions such as reliability, assurance, empathy, tangibility, aesthetic and responsiveness. The quality of education through offline mode is clearly more effective than the online mode in all respects.

Interpretation and Theoretical Implications This study revealed how crucial offline instruction is to all professional courses. The students and faculty interaction are much better in the offline mode than online. The human touch cannot be replaced by any online media. Guidance, motivation and enthusiasm in the offline mode are much higher than in the online mode. In professional education, events and activities are an integral part of the programme; the effectiveness of such programmes in offline mode is much higher. The effectiveness in terms of students' involvement, exposure and learning was much higher in the pre-COVID period. Inseparability aspects of service cannot be ignored to ensure

service quality. Provider may offer or deliver service, but service quality has to be ensured by the participation and involvement of students during classroom delivery. The teaching quality was determined by the post-session assignment. The timely submission and quality of assignment determines the teaching effectiveness. The post-teaching assignment in the online mode was found to have a high degree of malpractice and plagiarism. It was very difficult to ensure students' progress in the online mode and the originality of their work could not be tested. Self-discipline aspect in learning could also not be directly measured in the study.

Limitations of the Study Peer learning plays an important role in understanding the effectiveness of professional education that could not be captured through the study. Peer learning is known to be better when students are sitting together physically than online, but this assumption could not be corroborated through quantification in this study.

5 Conclusion

This research comes with a strong demand for HEIs to be prepared for the future. The sudden shift to online mode in the unpredictable and unprecedented lockdown period to manage education caught everyone off guard. In this context experience of the educators and the students is of utmost importance to make online learning more efficient and beneficial. As HEIs look forward to adapting hybrid education, it is imperative here to say that HEIs should focus on course structure, pedagogy and the overall learning ecosystem.

In this chapter, the analysis of the constructs used—Assurance Factor, Reliability, Tangibility, Aesthetic, Empathy and Responsiveness—explicitly indicates that these constructs play an important part in higher education. Students expect HEIs to meet these standards in terms of quality education. Analysis of the items Academics, Exams, Assignments, Practical, Events, SIP and Placement clearly indicates that students find major differences in the performance level and effectiveness of these items when education is imparted online and offline. Taking the analysis into consideration it is important that the HEIs should design their pedagogy in a way that these items have the same efficacy even in online mode.

All these years, education was restricted to offline mode, face to face, class interaction. However, COVID-19 brought in major changes when

the demand for online education surfaced. However, the entire gamut of items and constructs, analysis and interpretations reveals that the new way for HEIs is to adapt to "Hybrid mode" of education. Hybrid education combines in-person or offline learning and virtual or online learning methods.

Hybrid working is becoming the norm across the world and education sector is no exception. "Hybrid learning" is gaining popularity and is here to stay. Looking into the advantages of online education, it is evident that students/learners/education providers will not be happy to restrict themselves to just offline education and limit the opportunities to learn from online resources and faculty members of repute. Therefore, it is imperative that higher educational institutes develop and synchronize a pedagogy which is more synchronous and opens opportunities to learn and explore beyond the classroom boundaries.

The advantages of hybrid education such as flexibility are also in line with the New Education Policy's (NEP, 2022; Ministry of Human Resource Development, Government of India, 2020). National Education Policy (2020). move of providing flexibility and bringing creativity among the students as well as the education providers. Educators as well as the students must adapt and acclimatize to this dual mode of learning, where challenges are galore but opportunities to learn have no restrictions. The education system must devote time and change its pedagogy to include this "hybrid mode of learning" which is complex and comes with certain challenges.

The voices and opinions of the students, educators and policy makers must be heard to progress towards the development and migration of old classroom teaching to hybrid mode of learning. Hybrid learning must focus on engagement, collaboration and responsiveness. In-depth research, recommendations and implementation of the suggested inputs in this area are the key to adapt to hybrid mode of learning and bring a major revolution in the higher education system.

Declaration

Conflict of Interest The authors state that there is no conflict of interest in this study.

Disclosure Consent was taken from the participating students as well as an information sheet was made available for the students with all the necessary information about the study in English.

Ethical Consideration The study was performed according to the international code and standards of research ethics.

Financial Disclosure We have not obtained or received any grants from any funding agencies in public or commercial sectors.

References

Abdel-Jaber, H. (2017). Experimental Analysis of Students' Satisfaction Factors in E-Learning Environment: A Case Study on Saudi Arabian University. *Journal of Information & Knowledge Management, 16*(02), 1750018.

Baig, M., Basharat, S., & Maqsood, M. (2006). A Maturity Model for Quality Improvement in Higher Education. In First International Conference on Assessing Quality in Higher Education (ICAQHE), Prosperity Through Quality Education, Lahore, 11–13 December.

Coskun, M., & Mardikyan, S. (2016). Predictor Factors for Actual Usage of Online Evaluation and Assessment Systems: A Structural Equation Model (SEM) Study. *Egitim ve Bilim, 41*(188).

Demir, A., Maroof, L., Khan, N. U. S., & Ali, B. J. (2020). The ROLE of E-Service Quality in Shaping Online Meeting Platforms: A Case Study from Higher Education Sector. *Journal of Applied Research in Higher Education*.

Faganel, A., & Macur, M. (2005). Competing Through Quality in Higher Education: The Case of Faculty of Management Koper, Intellectual Capital and Knowledge Management. In Proceedings of the 5th International Conference of the Faculty of Management, Koper.

Garrison, D. R. (1997, November). Self-Directed Learning: Toward a Comprehensive Model. *Adult Education Quarterly, 48*(1), 18–33.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical Thinking, Cognitive Presence, and Computer Conferencing in Distance Education. *American Journal of Distance Education, 15*(1), 7–23.

Gress, C. L., Fior, M., Hadwin, A. F., & Winne, P. H. (2010). Measurement and Assessment in Computer Supported Collaborative Learning. *Computers in Human Behavior, 26*, 806–814.

Guglielmino, L. M. (1977). "*Development of the Self-Directed Learning Readiness Scale*," *Doctoral Dissertation*. Athens, Georgia: University of Georgia.

Hannafin, M. J. (1984). Guidelines for using locus of instructional control in the design of computer-assisted instruction. *Journal of Instructional Development, 7*(3), 6–10.

Hara, N., & Kling, R. (1999). Students' Frustrations with a Web-Based Distance Education Course. *First Monday, 4*(12).

Ivanaj, S., Nganmini, G. B., & Antoine, A. (2019). Measuring E-Learners' Perceptions of Service Quality. *Journal of Organizational and End User Computing (JOEUC), 31*(2), 83–104.

Jonassen, D. H. (2002). Engaging and Supporting Problem Solving in Online Learning. *Quarterly Review of Distance Education, 3*(1), 1–13.

Kim, Y. E., & Lee, J. W. (2011). Critical Factors in Promoting Customer Acceptance of and Loyalty to Online Business Management Degree Programs. *African Journal of Business Management, 5*(1), 203–211.

Kim, K. J., Liu, S., & Bonk, C. J. (2005). Online MBA Students' Perceptions of Online Learning: Benefits, Challenges, and Suggestions. *The Internet and Higher Education, 8*(4), 335–344.

Klingner, B. G. (2003). *The Relationship Between Learning Styles of Adult Learners Enrolled in Online Courses at Pace University and Success and Satisfaction with Online Learning*. Doctoral dissertation, Walden University.

Ladhari, R. (2010). Developing E-Service Quality Scales: A Literature Review. *Journal of Retailing and Consumer Services, 17*(6), 464–477.

Li, Y., Nishimura, N., Yagami, H., & Park, H. S. (2021). An Empirical Study on Online Learners' Continuance Intentions in China. *Sustainability, 13*, 889.

Lin, B., & Hsieh, C. T. (2001). Web-based teaching and learner control: A research review. *Computers & Education, 37*(3), 377–386.

McVay, M. (2000). Developing a Web-Based Distance Student Orientation to Enhance Student Success in an Online Bachelor's Degree Completion Program. In D. Program (Ed.), *Unpublished Practicum Report Presented to the*. Nova Southeastern University.

McVay, M. (2001). *How to be a Successful Distance Learning Student: LEARNING on the Internet*. Prentice Hall.

Ministry of Human Resource Development, Government of India. (2020). *National Education Policy 2020*. https://www.education.gov.in›sites›mhrd›files.

O'Neill, M. (2003). The Influence of Time on Students' Perceptions of Service Quality: The Need for Longitudinal Measures. *Journal of Educational Administration, 41*(3), 310–325.

Oldfield, B., & Baron, S. (2000). Student Perceptions of Service Quality. *Quality Assurance in Education, 8*(2), 85–95.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Communication and Control Processes in the Delivery of Service Quality. *Journal of Marketing, 52*(2), 35–48.

Petrides, L. A. (2002). Web-Based Technologies for Distributed (or Distance) Learning: Creating Learning-Centered Educational Experiences in the Higher Education Classroom. *International Journal of Instructional Media, 29*(1), 69–77.

Scarpin, J. E., Mondini, V. E. D., & Scarpin, M. R. S. (2018). Technology Acceptance Factors and Student Retention in Online Courses. *E-Journal of Business Education and Scholarship of Teaching, 12*(3), 44–68.

Schrum, L. (2002). Oh, What Wonders you Will See–Distance Education Past, Present, and Future. *Learning & Leading with Technology.* http://www.iste.org/L&L/30/3/.

Sohn, S. Y., Park, H. Y., & Chang, I. S. (2009). Assessment of a Complementary Cyber Learning System to Offline Teaching. *Expert Systems with Applications, 36*(3), 6485–6491.

Sun, A., & Chen, X. (2016). Online Education and Its Effective Practice: A Research Review. *Journal of Information Technology Education, 15*, 157.

Swan, K. (2001). Virtual Interaction: Design Factors Affecting Student Satisfaction and Perceived Learning in Asynchronous Online Courses. *Distance Education, 22*, 306–331.

Tag, M. N., Degirmen, S., & Gurgen, E. (2017, June). Antecedents of Students' Perception of Value and Behavioral Intentions in Online Education. In *International Conference on E-Learning* (pp. 282-285). Academic Conferences International Limited.

Tam, M. (2001). Measuring Quality and Performance in Higher Education. *Quality in Higher Education, 7*(1), 47–54.

Tan, K., & Kek, S. (2004). Service Quality in Higher Education Using an Enhanced SERVQUAL Approach. *Quality in Higher Education, 10*(1), 17–24.

Trautwein, U., Lüdtke, O., Kastens, C., & K€oller, O. (2006). Effort on Homework in Grades 5–9: Development, Motivational Antecedents, and the Association with Effort on Classwork. *Child Development, 77*(4), 1094–1111.

Warner, D., Christie, G., & Choy, S. (1998). *Readiness of VET Clients for Flexible Delivery Including On-Line Learning.* Australian National Training Authority.

Zafiropoulos, C., & Vrana, V. (2008). Service Quality Assessment in a Greek Higher Education Institute. *Journal of Business Economics and Management, 9*(1), 33–45.

CHAPTER 4

COVID-19 and the Development of Online Pedagogical Tools in Higher Education in India: An Assessment

Raosaheb Bawaskar

1 Introduction

COVID-19 had multiple and ripple effects on the higher education sector in India; one of them was the accelerated development of online pedagogical tools. These tools instantaneously became recognised as full-fledged educational technologies. Numerous educational institutes and universities in India closed down on 16 March 2020, when a country-wide lockdown was announced by the Indian Government as one of the measures against the outbreak of novel COVID-19 virus ("UGC Guidelines on Examinations and Academic Calendar", 2020). As early as June 2020 online technologies began to be considered as a nearly

R. Bawaskar (✉)
Maharashtra National Law University, Aurangabad, (MH), India
e-mail: raosaheb.bawaskar@mnlua.ac.in

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_4

complete substitute for direct classroom teaching across India. The Ministry of Education and UGC (University Grants Commission), a nodal organisation set up for providing higher education in the country, issued rules and guidelines to the colleges and universities including one for imparting the higher education online by making proper and optimal use of e-resources (UGC Notice on Online Education, 2020).

The chapter aims at analysing the growth, evolution and eventually the explosion of pedagogical tools in higher education. For validating the emerging popularity of some digital tools over others, in particular Zoom and Google Meet for teaching-learning, WhatsApp for communication and YouTube and Facebook live streaming for videos, in higher education in India, surveys were conducted among both select faculty and students in Aurangabad district of Maharashtra state, India. Perception of both the students and faculty about the digital tools for e-education was elicited through these surveys. Students and faculty were convinced that e-learning system was beneficial for the teaching-learning process during the lock-down. However, both the students and faculty members considered it less effective than face-to-face learning and teaching. The study identified the challenges faced by faculty and students which were: inadequate digital infrastructure, low learning engagement, a lack of standardisation, trust-worthiness and quality, low completion rates, coarse language of uploaded educational content and data privacy and security issues (Awasthi, 2020). There were advantages as well: self-learning, flexibility, convenience and savings on cost of transport and accommodation.

Although e-learning served as a short-term substitute during COVID-19, it cannot replace the standard practice of face-to-face teaching and learning, a belief shared by both faculty members and students. The chapter recommends that online tools be used to reinforce physical teaching which will help to provide a rigorous environment for learning in the post-COVID scenario.

2 Objectives of the Study

1. This study identified the most widely used platforms for online pedagogy in higher education in India during COVID-19.
2. The second objective of this study was to investigate the efficacy of the different digital tools from the perspective of faculty and students.

3 Methodology

The research methodology used for the study is literature review for identifying pedagogical digital tools that were widely used during COVID-19 supplemented by an evidence-based, quantitative analysis applied to a sample group for validating the same.

4 Online Pedagogy: Its Evolution and Adaptation in India

Academic activities at all educational institutions came to a stop due to the pandemic, and an opposite effect was also observed among the students. Fortunately, recent technical breakthroughs, particularly in the area of information technology, made it possible to create virtual classrooms by establishing a link between teachers and students who are based at home.

However, in India, e-learning has attained a long history with a broadcasting space offered by All India Radio (the Government of India's radio broadcasting channel over which it had a monopoly until 1993) and *Doordarshan* (the Government of India's television broadcasting channel over which it had a monopoly until 1991) for broadcasting educational programs which were pre-recorded for both school-going and higher education children (Sarkar, 2020a, b). Numerous educational organisations including National Council of Education, Research and Training, hereafter NCERT, UGC and Indira Gandhi National Open University, hereafter IGNOU, make use of the services, that *Doordarshan* and All India Radio provide. For instance, the direct link to the learners in the form of a broadcasting channel with recorded lessons. A paradigm change occurred in 1994 when the Indian Space Research Organisation, hereafter ISRO first started offering teleconferencing services at the IGNOU headquartered at New Delhi. The students had the opportunity to communicate live thanks to the one- and two-way audio connection across the phone line.

A lot of online courses, including those in computer science, management studies and teacher preparation in India, benefitted from the teleconferencing capability. Several academic institutions, as well as numerous public and commercial institutes, have used the tele-conferencing facility offered by ISRO at IGNOU headquarters for numerous years. Teleconferencing was approved as an official instructional channel on the "Gyan Darshan", hereafter, GD, platform in the year 2000. It was later

made accessible on "Direct to Home", hereafter DTH, as a GD-interactive channel along with other GD channels (EDUSAT, June 2010).

Two-way video communication was still something that needed to be done. With the launch of the EDUSAT satellite, which was created by the late APJ Abdul Kalam while serving as President of India, ISRO made an attempt in this direction in 2005, working with IGNOU and MHRD. Despite its best efforts, EDUSAT was unable to meet the demand as anticipated since the necessary communication technology is still being developed. The first satellite created in India specifically to support the educational sector is called EDUSAT. Rural or remote areas around the nation may host virtual classes thanks to the satellite-based distant education system. Two decades ago, it was very difficult to create a one-to-many, two-way video communication. A network in one-to-many channels allowed the subject matter experts or professors who lead courses from the teaching end to observe and communicate with the individuals or students that were present on every SIT (Satellite Interactive Terminal). So, it was a country-wide transmission. Transmission through this network was called multicast. EDUSAT was decommissioned in September 2010 (IIRS/EDUTRG/VER 5.0 Implementation Document, EDUSAT, Distance Learning Programme, June 2010. https://www.iirs.gov.in/iirs/sites/default/files/pdf/implementationdocument.pdf).

The Indian Institute of Remote Sensing, hereafter IIRS, then stepped up to the plate. By leveraging cutting-edge information and communication technology, its outreach programme is a creative distance learning project for teaching professionals from user departments and academics in the area of Earth observation and geospatial technology. The IIRS outreach programme has expanded significantly since its start in 2007, and as of December 2020, IIRS will have successfully run 72 outreach programmes using live and interactive classrooms (also called the EDUSAT programme), which will have benefitted more than 2.65 lakh participants from 2650 network institutes spread across the nation.

Under this initiative, IIRS has effectively built a network of professional and academic institutions across the nation during the last 13 years. Online courses based on e-learning system and interactive and live classroom methods are the two main delivery methods for IIRS's current distant learning program. The student population enjoys the biggest popularity for the IIRS's Interactive and Live programme (IIRS E-Learning - Indian Institute of Remote Sensing https://elearning.iirs.gov.in).

5 The Growth of Online Pedagogical Tools in the Covid Era

By 2019, the internet revolution replaced all other modes of online learning. The pandemic and subsequent lockdown brought digital pedagogical tools to the forefront. During COVID-19, there was virtually an explosion of multiple online pedagogical tools that have emerged in higher education in India: Zoom (best for video conferencing, meetings and large classes), Google Meet (business-oriented video conferencing), Google classrooms (considered the best for student-teacher communication), Microsoft Teams (business communication), Nearpod (interactive lessons and videos), Padlet (best for sharing notes, images, videos and documents), Seesaw (best for teachers to build digital portfolios for each student), Floop (best for fast teacher feedback on student work), Buncee (multimedia presentation tool for educators), Gradeup (India's largest online competitive exam preparation platform), Vedantu (a tutoring platform which offers live coaching classes for NEET and JEE, for entry into India's most prestigious medical and engineering programmes), Unacademy (offers preparation material for various professional and educational entrance exams), Coursera (makes college-level education available online to anyone), Udemy (considered the best for niche topics), Skillshare (creative fields), Masterclass (Celebrity Lessons), EdX (for STEM subjects), Udacity (career building), Pluralsight (data learning), to name a few (CHASE-INDIA, 2021).

Many online learning platforms now provide free access to their services in response to overwhelming demand, including BYJU'S, the world's most valuable ed-tech business and a Bangalore-based educational technology and online tutoring company formed in 2011 (March 2021 issue of Chase-India). Students in college and high school were also very interested in other well-known and similar platforms like Vedantu, Simplilearn, Toppr, as well as start-ups like Eupheus Learning (Verma, 2020). In 2020, BYJU'S had 7.5 million new members join its platform, and in April of the same year, the company made 350 crores (Medhi, 2020a). During the shutdown, enrolment in live lessons on Vedantu and Toppr also increased. These start-ups have raised money by taking advantage of the pandemic's restrictions (The News Minute, 2020).

In April 2020 an online start-up for ed-tech, Vedantu, situated in Bengaluru, for instance, secured $12.56 million from a Chinese venture capital company—Legend Capital. It received $6.8 million in finance in

the same month from the South Korean company KB Global Platform Firm (Medhi, 2020a). Both high school and college students were flooded with a platter of ed-tech platforms like Simplilearn, Toppr, Vedantu, as well as start-ups like Eupheus Learning (Verma, 2020). The year 2020 saw 7.5 million new customers join BYJU'S, and in April of that year, the company generated 350 crores (Medhi, 2020b).

6 Case-Study of BYJU'S

Students in grades 4 through 12 may take a variety of online courses offered by BYJU's, based in Bangalore, India. Nine million students have downloaded the company's applications, and 450,000 of them have paid for the service. Its annual revenue is estimated to be $40 million. BYJU's "Think and Learn" app has experienced a 200% spike in the number of new users since it started offering free live lesson (Kim & Tahilyani 2017).

Tencent, Asia's highest-valued tech company, has invested $800 million in BYJU's. Numerous prestigious investors have shown interest in it, including Sequoia, who led an investment of $75 million in 2016. The "Chan Zuckerberg Initiative", the charitable organisation founded by Facebook CEO Mark Zuckerberg and Priscilla Chan, soon after that raised $50 million. An additional $15 million was contributed to the World Bank's IFC fund in December. BYJU's has received almost $200 million in funding to far. BYJU'S so far has been the standout among Indian educational technology companies (Kim & Tahilyani, 2018).

7 Global Ed-Tech Companies

The study also reviewed developments in ed-tech globally and recommends the adoption of those compatible with the educational environment in India. For instance, since the Chinese government ordered a quarter of a billion full-time students to continue their studies using online platforms in mid-February, "Tencent Classroom" has seen extensive adoption. The Tencent K-12 Online School in Wuhan hosted the greatest "online movement" in educational history, with almost 730,000 students—or 81% of K–12 students—attending lessons there. However, it is banned in India as of now. Some of the most prominent online communication tools that, in the post-COVID-19 era, will alter the course and direction of the whole educational system worldwide include Start me, LanSchool, Neo, Kialo Edu, Classtime, Lectora Inspire, Classwize, Shift,

Ted-Ed, Hapara, Bakpax, Future Learn, Pronto, Articulate 360, Class Dojo, Otus, Edmodo, G Suite, Blackboard Learn, Kami, Parlay, Docebo, Elucidat, Feedback Fruits, GoGuardian, WeVideo, Adobe Captivate, WizIQ, Gynzy, Flipgrid, Code-academy, Simplilearn, upGrad and Emeritus. Approximately 2806 other Ed-Tech companies have sprung up since the outbreak of COVID-19. With Lark, a Singapore-based collaboration suite originally developed by ByteDance as an internal tool in order to meet its own exponential expansion of the service, teachers and students can now enjoy unlimited video conferencing time as well as automatic translation capabilities including the ability to collaborate in real time on projects. According to the author, Lark's worldwide server infrastructure and technical skills have been strengthened to enable stable connection in India (Top-education-StartUps, 2022).

8 Government Initiatives

The government is the first to use technology in teaching during the epidemic. The "Ministry of Education": MoE has been pushing its several ICT programmes, including the "National Repository of Open Educational Resources" (NROER), for school supplies and textbooks; Diksha, e-Pathshala and e-PG Pathshala offer access to electronic content for 80 undergraduate courses.

The MHRD (Ministry of Human Resource Development) and UGC are emphasising the need to continue with the standard method of teaching and learning using digital media. Some of the platforms developed by the Government of India are SWAYAM Platform and SWAYAMPRABHA (available on Doordarshan). SWAYAM's online courses and UGC's MOOC (Massive Open Online Courses) are also promoted by official government websites like the Ministry of Education (MoE), National Institute of Open Schooling, Central Board of Secondary Education and the University Grants Commission, which can also be accessed by students and also teachers without any charges.

In order to reach all social classes, the MoE also introduced the PM e-VIDYA platform, which has 12 new DTH channels, one for each. The "Bharat Padhe Online" campaign solicited suggestions from the public to enhance India's online education environment, which led to the creation of YUKTI: "Young India Combating COVID with Knowledge, Technology and Innovation" and YUKTI 2.1 to continue the teaching-learning process (Department of Higher Education, 2022).

9 Survey of Faculty and Students

Surveys were conducted among a select group of faculty members and students in the Aurangabad district of Maharashtra state, India, in order to confirm the growing preference for some digital tools over others in higher education there. These tools included Zoom and Google Meet for teaching-learning, WhatsApp for communication, YouTube and Facebook live streaming for videos, and Zoom for communication. The sample group for the study was the faculty members and students at both undergraduate and postgraduate levels. The sample size comprised 42 faculty and 376 students.

The study used two online surveys. The questionnaires in Google Docs Forms was mailed to the respondents between December 2021 and February 2022, during the final stages of the closure of universities in India.

9.1 Faculty Profile and Student Profile

Thirty-nine of the 42 faculty were doctorates, while 3 were pursuing their PhD 11 were university faculty while 31 were teaching faculty in colleges. Of the total of 376 students, 96 were studying professional courses such as engineering, medicine, para-medical and polytechnic courses, while 280 were undergraduate and postgraduate students pursuing either the three-year course or two-year PG course in Social Sciences, Humanities, Commerce or Science. Of them, 274 live in rural or suburban areas, and 102 in urban areas. Out of these, 188 made use of mobile phones for accessing classes, 140 students used laptops, while 48 of the students were using tablets. One hundred and fifty-two students had undergone training with digital tools where 224 had not received any training.

9.2 Data Gathering Instruments

Google Docs Forms was used to generate two online surveys. The faculty survey had four sections: Level of Skill in Using Digital Formats, Preference of Platforms, Most Frequently used Digital Tools and Effectiveness of Online teaching. The student survey had four sections: IT Skills & Digital Tools, Most Frequently Used Digital Tools, Advantages and Challenges of Online Learning. The survey was created with statements to be rated on a

Likert scale. For the purposes of employing SPSS Version 25 for analysis, data were imported into Excel. Before the conduct of the survey, an item analysis (relative criteria test) was done to ensure the consistency of scale.

9.3 Validity and Reliability

Cronbach's alpha was employed as a reliability indicator to show how closely connected the items are by measuring internal consistency. The test's findings demonstrated the consistency of the items in the two polls. The 20 questions' alpha coefficients—0.852 for the survey of faculty members and 0.874 for the survey of students—indicate that the items have a comparatively high level of internal consistency.

9.4 Faculty Survey

The analysis of the data collected for the Level of Skill in Using to teach online revealed the following. The analysis showed 42.46% of the faculty did perceive difficulty in using digital tools of pedagogy, while 57.14% did not. While 35.71% of the instructors had no prior experience with online instruction prior to COVID-19, 64.29% of those with prior experience demonstrated that they had received training in online teaching method, while 42.86% did not have training; 78.57% received institutional help for solving technical problems and 54.76% had to help students go online and install tools in their devices (Table 4.1).

In the second section on Preference of Platforms, it was necessary for the faculty to score the e-learning platforms based on criteria such as audio and video quality as well as the level of security/privacy, multi-device compatibility and user-friendliness of the interface. A five-point Likert scale was used to rate the responses to the questionnaire. It was determined that each platform had a certain level of popularity or reach, regardless of whether the respondents liked or despised it. The above ranges assisted in reducing the entire sentiment of the user in a single quantifiable value and classify this platform on the same. An overall preference percentage was then calculated for each platform to get a sense of how people now perceive it and to identify which platform was most often used for online learning and teaching. Zoom was the most preferred, followed by Microsoft Teams, Go to Meeting and then Google Meet. Webex, Go to Webinar and Adobe Connect were in the 5th, 6th and 7th positions (Table 4.2)

Table 4.1 IT skills

Sl. No	*Questions*	*Classification*	*Frequency*	*Percent (%)*
1	Did you perceive any difficulty in using digital tools of pedagogy	Yes	18	42.46
		No	24	57.14
2	Have you had the experience to teach online before COVID-19?	Yes	27	64.29
		No	15	35.71
3	Have you received training to teach online?	Yes	24	57.14
		No	18	42.86
4	Did you get institutional help in solving technical issues?	Yes	33	78.57
		No	9	21.43
5	Did you have to help students go solving technical issues? Online and install tools in their devices?	Yes	23	54.76
		No	19	45.24

Source: Primary Data

Table 4.2 Preference of platforms

S. No	*Parameters*	*Zoom*	*Google Meet*	*Microsoft Teams*	*Go To Webinar*	*Webex*	*Adobe Connect*	*Go To Meeting*
1.	Features	6	2	7	3	1	5	4
2.	Integration	7	2	6	4	3	1	5
3.	Overview	7	6	1	4	2	3	5
4.	Reviews	7	4	2	3	6	1	5
5.	Pricing	4	6	7	1	5	2	3
Total		31	20	23	15	17	12	22

Source: Primary Data

The results of the survey revealed which platform has consistently matched the needs of its target audience by averaging the ratings of each platform based on the nine characteristics: Video quality, Audio quality, Privacy/Security, Multi-device support, User friendliness of Interface, Screen sharing, Chat Features, Host's Control & Quality of Meeting Recordings (Table 4.3).

A Net Promoter Score for each online education platform was also determined. Generally, an NPS is generated for commercial purposes. Customer satisfaction may be measured using the Net Promoter Score (NPS), a loyalty indicator. Promoters are those who are strongly

convinced of the parameter rated 4 and 5. Detractors are those that were not satisfied with the any parameter rated 1 and 2. Respondents in favour of either two categories gave a rating of 3. On a 5-point Likert scale, the NPS is evaluated as:

$$\text{NPS} = \text{Number of promoters} \div \text{Number of detractors} \times 100$$

The number of people using this platform, the NPS, is estimated for the following ranges:

(a) Needs improvement: -100 to 0
(b) Good: 0–30
(c) Very good: 31–70
(d) Excellent: 71–100

The NPS scores generated in Table 4.4 validated the findings in the Overall Rating Survey in Table 4.3, with Zoom scoring the highest, followed by Microsoft Teams which was followed by Go To Meeting (Table 4.4).

For the fifth section on Most Frequently used Digital Tools the teachers responded that they make use of Google Meet and Zoom in their online teaching method, with 52.38% using Google Meet and 47.62% using Zoom. It may be noted that while Zoom was the most preferred platform, Google Meet was, however, the most frequently used platform; 73.81% of the faculty used WhatsApp for communicating with students outside of their online teaching time; 26.19% used chat and text options provided by the platform that they used; 18.53% used Facebook streaming for video presentations and 81.47% used YouTube videos. It was discovered that the professors' use of YouTube and Facebook streaming for virtual classrooms was notably extremely low. On the other hand, a notable percentage (85.71%) showed interest in using SWAYAM PRABHA educational DTH channels while e PG PATHSHALA was used by 14.29%. The government's educational DTH platform, Swayam Prabha, consists of 32 channels that broadcast material for at least four hours per day, five times a day. E PG Pathshala is a project that offers curriculum-based interactive, e-content in 70 areas from the social sciences to the fine arts to the humanities to the scientific and mathematics sciences. For sharing course content with students 61.9% preferred providing web links to mailing students the

Table 4.3 Overall survey ratings

Platform	*Video Quality*	*Audio Quality*	*Privacy/ Security*	*Multi-Device Support*	*User friendliness of interface*	*Screen Sharing*	*Chat Features*	*Host's Control*	*Quality of Meeting Recording*	*Overall Survey Ratings*
Zoom	3.44	3.46	3.46	3.51	3.4	3.52	3.37	3.42	3.55	3.46
Microsoft Teams	3.45	3.46	3.38	3.51	3.54	3.53	3.43	3.38	3.35	3.45
Go To Meeting	3.24	3.26	3.3	3.2	3.12	3.28	3.11	3.36	3.29	3.24
Google Meet	3.24	3.22	2.45	3.33	3.38	3.41	3.43	3.35	3.22	3.23
Webex	3.32	3.22	3.1	3.29	3.06	3.33	3.27	3.24	3.15	3.22
Go To Webinar	2.98	2.9	2.76	2.9	2.85	2.91	2.88	2.9	2.95	2.89
Adobe Connect	2.73	2.79	2.68	2.77	2.88	3.15	2.71	2.8	2.76	2.81

Note(s): *The overall average for each platform is calculated based on the number of respondents who have used that platform.

Table 4.4 Net Promoter Score (NPS) of platforms

Platform	*Classification*	*Promoters*	*Detractors*	*Passives*	*NPS*
1	Zoom	28	2	12	14
2	Microsoft Teams	26	3	13	8.6
3	Go To Meeting	25	4	13	6.05
4	Google Meet	24	4	14	6
5	Webex	21	7	14	3
6	Go To Webinar	21	8	13	2.6
7	Abode Connect	19	11	12	1.7

Note(s): *The NPS value for each platform is calculated based on the number of promoters and detractors who have used that platform.

Table 4.5 Most frequently used digital tools

S. No.	*Questions*	*Classification*	*Frequency*	*Percentage*
1	What online platforms have you been using the most?	Google Meet	22	52.38
		Zoom	20	47.62
2	How did you communicate with your students outside online class?	WhatsApp	31	73.81
		Chat and call options provided by online platforms	11	26.19
3	Which platforms were used for video presentations?	Facebook streaming	4	18.53
		YouTube videos	7	81.47
4	Which government platforms did you use?	Swayam Prabha DTH	36	85.71
		E PG Pathshala	6	14.29
5	Did you prefer email to mail course content /provide links to websites or webpages	Links	26	61.9
		e mail	16	38.1

Source: Primary Data

course content which was the preferred mode for 38.1% of the faculty (Table 4.5).

The sixth section is focused on the attitude of faculty towards how effective the method of online education is. A majority of the faculty (57.14%) are found to be competent enough in IT to conduct online classes. For the second question on whether conducting the courses online requires more efforts as compared to the face-to-face instruction, 79.15% responded in the affirmative, while 20.85%, responded negatively. As far as faculty's comfort level of being on camera to maximise their live interactions with students is concerned, 78.57% were comfortable, while 21.43%

Table 4.6 Faculty members' attitude towards the effectiveness of online education

S. No.	*Questions*	*Classification*	*Frequency*	*Percent*
1	IT competency to conduct online classes.	Competent	24	58.50
		Not competent	18	41.50
2	Comparative to in-person teaching, running online courses takes more work.	Yes	37	79.15
		No	13	20.85
3	Faculty members comfort level of being on camera to maximize their live interactions with students.	Comfortable	33	78.57
		Not comfortable	9	21.43
4	Tools available on online platforms facilitate effectiveness of online classes.	Yes	28	66.67
		No	14	33.33
5	Online courses are less effective than traditional ones.	Yes	41	97.62
		No	1	2.38

Source: Primary Data

were not comfortable; 66.67% of the faculty found that the tools available on online platforms facilitated the effectiveness of online classes, while 33.33% did not find the tools effective. An overwhelming majority of the faculty, 97.62%, responded that standard methods of classes are highly effective as compared to the online courses. A mere 2.38% felt otherwise (Table 4.6).

9.5 Students' Survey

The student survey had four sections: Socio-demographics of students, IT Skills and Device Availability, Advantages of Online Teaching and Challenges of Online Learning.

Socio-demographics indicate that maximum respondents among students were undergraduates (42.29%). More female students provided valid responses and hence 56.03% were female students; 45.60% of student-respondents stay in rural areas, which is unsurprising as Aurangabad district comprises 37.55% urban area and the rest is rural. This data has a direct bearing on online classes due to both erratic power supply and internet connectivity in rural areas (Table 4.7).

Table 4.8 indicates that 65.42% of students had access to some device for online learning. It is significant to note that 34.57% of students did not

Table 4.7 Socio-demographics of students

Empty Cell		*N = 307*
Demographic variables		*Percentage*
Degree	UG	44.29
	PG	27.36
	Ph.D.	28.33
Sex	Female	56.03
	Male	43.97
Place of residence	Suburban	14.98
	Rural	45.60
	Urban	39.41

Source: Primary Data

Table 4.8 IT skills and device availability

S. No.	*Questions*	*Classification*	*Frequency*	*Percent*
1	Did you have devices to access online classes during COVID?	Yes	246	65.42
		No	130	34.57
2	Did you use mobile phones	Yes	132	53.65
	Desktop/laptop/tablets	Yes	114	46.34
3	Was uninterrupted Wi-Fi/sufficient data pack available?	Yes	102	41.46
		No	144	58.53
4	Were you competent to use the digital tools prescribed by the institution?	Yes	232	94.30
		No	14	5.69
5	Did you seek help from the faculty when you encountered issues in using digital tools?	Yes	24	9.75
		No	222	90.24

Source: Primary Data

have access to any device. From among the 246 that had devices, 53.65% relied on their mobile phones. It is significant to note that 58.53% experienced interruptions in internet connectivity or insufficiency of cellular data; 94.30% of students were competent to use digital tools prescribed by their institutions, indicating a natural flair for basic IT skills by young adults. However, most institutions provided usage guidelines. Merely 9.75% of the students sought help from their faculty when they encountered difficulties in using digital tools. As given above it is safe to infer that these skills were self-taught or that the students relied on peers to overcome such issues (Table 4.8).

Table 4.9 indicates that the students agree the most important of these advantages is "Selective Learning" (learn everything you want to) with a standard deviation of 1.0647 and a mean of 3.7786 and "comfort" (in an environment of the home) benefit with a standard deviation of 1.13905 and a mean of 3.7071. A mean of 3.7893 and a standard deviation of 0.9701 were obtained for the following benefit of self-paced learning. While taking courses online, they acquired new experiences as well. New skills scored an SD of 1.07829 and a mean of 3.7036. The study confirms that online learning allowed flexibility in timing to participate in courses with an SD of 1.32956 and a mean of 3.6357. They had the option of attending the courses both synchronously (at the scheduled lecture time) and asynchronously (for recorded lectures). Additionally, it decreased the price of travel to institutions and associated costs. "Low Cost", however, scored an SD of 1.1341 and a mean of 3.4. Online learning, with a standard deviation of 1.01791 and a mean of 3.6571, evidently led to familiarity with several new digital learning tools. The issue of online learning resulting in reduced costs was addressed by the participants of the study as NAND (Table 4.9)

It is obvious from Table 4.10 that the most important of these challenges were technical and internet issues, with an SD of 0.996 and a mean of 3.7857. Since they were unable to connect with classmates or instructors in person, students saw the transition from in-person to online training as the second issue. This challenge scored an SD of 0.99841 and a mean of 3.6679. Respondents in the research gave a NAND response to the question of whether they were highly motivated to participate in

Table 4.9 Advantages of online teaching and learning

S. No.	*Classification*	*Mean*	*Std*	*Response*
1	Selective learning possible	3.7786	1.0647	Agree
2	Self-paced learning	3.7893	0.9701	Agree
3	Comfort	3.7071	1.13905	Agree
4	New skills	3.7036	1.07829	Agree
4	New digital learning tools	3.6571	1.01791	Agree
7	Low cost	3.4	1.1341	NAND
6	Flexibility	3.6357	1.32956	Agree

Source: Primary Data

NAND: Neither agree nor disagree

Table 4.10 Challenges of online teaching and learning

Question	*Mean*	*Standard*	*Response*
1. Data privacy and security	3.7071	0.98735	Agree
2. Lack of interaction	3.6679	0.99841	Agree
3. Motivation	3.6893	0.91575	NAND
4. Time management	3.7036	1.02022	Agree
5. Technical and internet issues	3.7857	0.99667	Agree

Source: Primary data

NAND: Neither Agree nor Disagree

online courses, with an SD of 0.91575 and a mean score of 3.6893. Time management was the fourth challenge for students attending from the home environment as they may have multiple diversions as well as issues with attending classes of different faculty with intervals between lectures. This issue scored an SD of 1.02022 and an average of 3.7036. Concerns regarding data privacy were expressed by students as they were using devices from home which could potentially expose their data to breach by external parties. This challenge scored an SD of 0.98735 and a mean of 3.7071 (Table 4.10).

This study is based on the perspectives of students and faculty members from Aurangabad district, in the state of Maharashtra, India. The instructor's knowledge of ICT and the platforms' accessibility and compatibility with the institution's present infrastructure all have an impact on how students perceive, comprehend and use these platforms.

10 Discussion

The use of digital data by online channels has improved the educational process' efficiency and openness. For all parties involved—students, teachers, parents and institutions—the granular data flow makes the educational process much more visible. It assists students in diagnosing and monitoring their learning processes. Most of the students using devices could understand the objectives of online lessons. While taking courses online, they acquired new experiences as well. Online learning gave students freedom in scheduling, allowing them to engage in courses both synchronously (at the precise time of the lecture) and asynchronously (recorded lecture). The majority of students said that the student-teacher interaction during online teaching and learning was satisfactory. There was

considerable reduction in the expenses of travelling to universities and associated charges. However, many were non-committal on the real savings from this reduction in travel costs.

In a similar vein, the analysis of the survey showed that they were unable to determine if their house is appropriate for attending online lectures. This indicates that when taking online courses, some students may have experienced distractions from their family members. The replies from the students revealed the varied difficulties they encountered. While some students had trouble adjusting to online classes, the majority of people did not. For a variety of reasons, a section of the students did not have access to the Internet. This included the expense of maintaining a Wi-Fi network as well as purchase of expensive data packs. According to the research, it was difficult for the students to manage their time and organise their homework so they could submit their assignments on time. Students raised the issue that teachers cannot instantaneously ascertain the specific distinctions between students in online programmes, which often resulted in the neglect of underperforming students. On the other hand, interaction with faculty revealed that it was a daunting task for the faculty to observe learners in huge batches; for instance, they could be sleeping or chatting online, or even watching a movie (Sharma, 2020). As a result of using their computers or smartphones at home, which exposes their data to intrusion, the survey found that students were worried about the privacy of their data.

As for the faculty, the pressure of preparing for online classes increased the time spent online manifold; some confessed to a nervous breakdown as well (Punit, 2020). Many of the faculty spoke of online bullying and general disrespect by students. These were additional reasons for faculty members to concur that online pedagogy would not work in the long-term, though they agreed it would reinforce classroom teaching (Mudi, 2020).

11 The Future of Online Pedagogy in Higher Education

The discussion above shows that to teach online, both faculty members and students must have access to the internet, be familiar with using digital technologies and have a working understanding of specialised pedagogy. The majority of COVID-19 education has consisted of one-way

teacher-centric methods rather than being learner-centric. This has provided a golden chance for the ed-tech industry, which is using this pedagogical vacuum. This study has analysed how online learning has resulted in the creation of relevant software tools for teaching, learning and evaluation. Such technology advantages will continue to improve online education in the future.

The ed-tech companies saw a huge increase in an online learning activity on their platforms during the pandemic epidemic. Since the lockdown began, there has been a 30% surge in time spent on educational applications, as per a report by BARC India and Nielsen (Pandey, 2020). As Ben Williamson (2019) points out in his article on how major technology companies are developing new power networks, this might have significant ramifications in the future. Due to the growth of ed-tech power networks, which have become active participants in the pedagogical process, it seems that faculty members are rather disempowered as a result (Ghosh, 2020). Such companies are probably going to have a significant long-term impact on how lessons are taught in classrooms.

Williamson claims that datafication and analytics will take the role of instructors' ability to make decisions on student needs and, subsequently, develop educational models for students of higher education (Williamson, 2020). But such a scenario is not likely in the near future in a highly diverse society such as India which has a huge digital divide. It is commonly known that not everyone has access to reliable energy, high-speed internet or private study space, creating disparities in who can access education and follow the curriculum. Of the 250 million students impacted by the lockdown, a survey by the educational technology company Buddy4Study found that 80% belong to the economically marginalised population group (Mahesh, 2020). Only 27% of Indians have smartphones, according to further statistics from Statista, 2018. Only 23.8% of households have access to the internet, according to the National Sample Survey Office's 75th round of important household statistics for 2018 (Rajeshwari, 2020). Given that smartphones are more common than laptops or desktops in India, teachers utilised WhatsApp to assign homework to their students. However, students who are taught online using Zoom will have a unique dynamic from those who must depend on their phones. What about students without access to a smartphone or whose parents are unable to assist them when they do not comprehend the instructions? Given the disparities in technology adoption throughout socioeconomic groups, bridging these divides should be a priority.

The COVID-19 epidemic signals the end of a largely antiquated educational system. In India, the future of pedagogy in higher education in the post-COVID era will be best served by establishing global solutions while keeping local difficulties in mind. Focusing on fairness, excellence and student health will assist in creating a better educational system. By increasing the speed of the internet plans offered to students, this difficulty may be solved. Governments should provide affordable internet services to students in this situation, and telecommunication providers should support students. Since their information was vulnerable to intrusion by other parties, students were worried about the privacy of their data while using laptops and PCs they had access to at home. Universities must thus teach students regarding data privacy. Additionally, they must provide students with free firewall software so that their data is protected (Annie, 2021).

It is possible to conclude from these facts that, during COVID-19, online education offered India's education industry the finest means of ensuring continuity. However, e-learning cannot be truly successful in the future until the infrastructure development for such platforms is upgraded and available to all learners. Nearly all of the platforms, according to this study, are suitable for learning, but they all have shortcomings that need to be fixed to accommodate the quickly evolving educational environment. All platforms' audio and video quality is a reason for worry, and both academic staff and students agree that they are out of date in terms of meeting modern standards. The study's findings indicate that Google Meet, followed by Zoom and Microsoft Teams, is the most widely used platform among faculty and students. If Microsoft Teams can improve their social presence, they may be able to compete with Google Meet and Zoom. Google Meet has demonstrated that it is an enterprise-ready and simple-to-use software which is also cost-effective. Two million new users connect each day on Google Meet. It is the safest online teaching platforms as it employs the same global, built-in, secure-by-structure approach that Google utilises to guarantee that data and privacy are standard across all of its other programmes and operate automatically when this platform is used.

While the ideal approach to studying a comprehensive curriculum that integrates theory and practice is not through online learning tools, these tools should be more user-friendly and adaptive if they are to be successful. These strategies should be designed concurrently with online learning to increase student motivation. The interface of existing e-learning tools with other platforms must be upgraded to provide a more comprehensive and

fulfilling experience. Without a doubt, online learning technologies are not a temporary fix or a benefit exclusive to a few educational institutions; they will become an intrinsic part of the educational pedagogy in the future that will be universally accessed across all institutions whether privately managed or government funded. In the future, they will play a crucial role in the educational system.

Declaration

Funding This is a non-funded Research Project specifically designed for the purpose of creating new knowledge for the specific purpose of this book.

Declaration of Competing Interest The author declares that he has no conflict of interest.

Ethical Consideration Each participant in the survey received information about the study's goals and gave informed consent. The privacy of all participants of the study was protected by keeping their answers to the questionnaire anonymous and masking their identity.

References

Annie Galvin Teich. (2021). *Strategies to Protect University, Student Data from the Network to Endpoint.* https://www.fierceeducation.com/administration/strategies-to-protect-university-student-data-from-network-to-endpoint

Awasthi, P. (2020). *Online Classes Turning Out to be Nightmare for Teachers Amid COVID-19 Lockdown*. The Week. https://www.theweek.in/news/india/2020/05/23/online-classes-turning-out-to-be-nightmare-for-teachers-amid-COVID-19-lockdown.html.

Department of Higher Education. (2022). https://www.education.gov.in/en/ict-initiatives

Department of Space, Indian Space Research Organisation, Government of India (2005). https://www.iirs.gov.in/EDUSAT-News

Ghosh, D. (2020). *For Ed-Tech Start-Ups, It's Raining Money.* Fortune India. https://www.fortuneindia.com/bengaluru-buzz/for-edtech-startups-its-rainingmoney/104233.

IIRS E-Learning. (2022). Indian Institute of Remote Sensing. https://elearning.iirs.gov.in

IIRS/EDUTRG/VER 5.0 Implementation Document, EDUSAT, Distance Learning Programme, June 2010. https://www.iirs.gov.in/iirs/sites/default/files/pdf/implementationdocument.pdf

Kim, J.-H., & Rachna, T. (2017, March). BYJU'S the Learning App. Harvard Business School Case 317-048. Revised November 2018.

Kim, J.-H., & Rachna, T. (2018). BYJU'S: EdTech Giant Investing in Brick and Mortar. Harvard Business School Case 322-032, August 2021.

Mahesh, S. (2020). *A Need Now But no Replacement.* The New Indian Express. https://www.newindianexpress.com/education/2020/may/06/a-need-now-but-no-replacement-teachers-share-concerns-about-online-classes-during-COVID-19-2139605.html.

Medhi, T. (2020a). *Meet the 6 Ed-Tech Start-Ups that have Seen Record Growth Amid COVID-19 Lockdown.* https://yourstory.com/2020/06/edtech-startups-growth-coronavirus-byjus-unacademy-toppr-startups.

Medhi, T. (2020b). *Learning in Quarantine: These Ed-tech Start-Ups Raised Funds Amid the COVID-19 Pandemic.* https://yourstory.com/2020/05/edtech-startups-raised-coronavirus-funding.

Mudi, A. (2020). *Teaching in the Time of Coronavirus.* https://livewire.thewire.in/personal/teaching-in-the-times-of-coronavirus/.

Pandey, S. (2020). *COVID-19 Set the Ground for Ed-techs to Shine.* Business World. http://bweducation.businessworld.in/article/COVID-19-Set-The-Ground-For-EdTechs-To-Shine-/01-07-2020-292834/.

Punit, I. S. (2020). *For Many of India's Teachers, Online Classes Amid Lockdown Have been an Awful Experience.* https://scroll.in/article/961738/for-many-of-indias-teachers-online-classes-amid-lockdown-have-been-an-awful-experience.

Rajeshwari. (2020). *The Resurgence of Ed-Tech Amid the Coronavirus Pandemic: Implications for an Altered Educational Landscape.* https://www.thenewleam.com/2020/06/the-resurgence-of-ed-tech-amid-the-coronavirus-pandemic-implications-for-an-altered-educational-landscape/

Report on COVID 19 and EDTECH Companies, CHASE-INDIA. March 2021. https://www.we-worldwide.com/media/450457/chase-india_-covid-19-and-edtech-report.pdf

Sarkar, S. (2020a, May 16). https://adamasuniversity.ac.in/a-brief-history-of-online-education/ Last visited 14 June 2021.

Sarkar, T. (2020b). *Disappearing Classrooms: Teaching in Post COVID World.* Down To Earth. https://www.downtoearth.org.in/news/young/disappearing-classrooms-teaching-in-a-post-covid-world-71463.

Sharma, K. (2020). *Peeping Parents, Sleeping Students, Bullying- Online Classes are a Nightmare for Teachers.* https://theprint.in/india/education/peeping-parents-sleeping-students-bullying-online-classes-are-a-nightmare-for-teachers/458522/.

The News Minute. (2020). *BYJU'S sees 6 Million New Students' Access Free Lessons on Its Platform in March*. https://www.thenewsminute.com/article/byju-s-sees-6-million-new-students-access-free-lessons-its-platform-march-122008.

Top Educational Start Ups 'Overview of Educational Startups in 2022 Worth to Learn From'. https://spdload.com/blog/top-education-startups/.

Verma, P. (2020). COVID-19 Impact: Ed-tech Companies Reap Dividend as School, Universities go Online. *The Economic Times*.

Williamson, B. (2019). *New Power Networks in Educational Technology*. https://www.researchgate.net/profile/Ben_Williamson3/publication/336121189_New_power_networks_in_educational_technology/links/5d970700458515c1d391ee5f/New-power-networks-in-educational-technology.pdf.

Williamson, B. (2020). *Datafication and Automation in Higher Education during and after COVID-19 Crisis*. Financial Express. https://codeactsineducation.wordpress.com/2020/05/06/datafication-automation-the-covid19-crisis/.

CHAPTER 5

Curriculum Transaction and Clinical Teaching of Audiology and Speech Language Pathology Course During the Pandemic in India: Zooming in from an Academic Perspective

Kamalika Chowdhury, Suman Kumar, and Usha A. Dalvi

1 Introduction

Globally, COVID-19 has altered how people live their lives. Although not the first of its kind, this environmental virus unquestionably is the first to spread so quickly over the world. There was no distinction between

K. Chowdhury
Department of Speech & Hearing, Sri Aurobindo University, Indore, India

S. Kumar (✉)
Department of Speech-Language Pathology, Ali Yavar Jung National Institute of Speech & Hearing Disabilities (Divyangjan), Kolkata, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_5

developed and developing nations since this virus drastically altered healthcare, the economy, education and even beliefs from one region of the earth across the entire planet. Simply said, it made us all lock down for our own security and made all the systems shaky (Owusu-Fordjour et al., 2020).

The first COVID-19 instance to impact an individual in India was discovered on January 30, 2020, in the state of Kerala, and the individual had been to Wuhan, China (Wikipedia, 2020). On March 12, 2020, India reported its first death, and on March 22, 2020, the country observed a day of Janta Curfew. To combat the coronavirus epidemic and evaluate the nation's ability to tackle the virus, India observed the 14-hour Janta Curfew once more on March 24. The Republic of India's Prime Minister then declared the first phase of the lockdown, which lasted for 21 days, on March 25, 2020. The Indian government had extended the lockdown in stages as it tracked the virus's impacts, and on April 30 it declared lockdown 5.0, which lasted from June 1 to June 30, 2020. There was never any relaxation for educational institutions across the country to begin their educational activities during any of the lockdown periods, from lockdown 1.0 to lockdown 5.0. So, the COVID-19 pandemic substantially impacted the education sector. The different limitations and the nationwide lockdown for COVID-19 had an impact on more than 320 million students in India (Wikipedia, 2020; Jena, 2020).

In a survey on higher education that the Ministry of Education, formerly known as the Ministry of Human Resource Development (MHRD), Government of India, undertook, it was found that there are 10,725 independent institutions, 993 universities and 39,931 colleges listed on its portal (Kumar, 2020). Even if the nation was adjusting to newer forms of education, there were still obstacles in the way of overall success because only 450 million of the nation's total population had access to the internet or e-learning. Rural residents were still severely lacking in access to technology, which hindered the cause of online education (Jena, 2020; Kumar, 2020). The COVID-19 pandemic, which allowed educational institutions to adopt online learning and establish a culture of virtual learning, taught the entire population that necessity is the mother of ingenuity.

U. A. Dalvi
Vinayaka Mission's Research Foundation, School of Rehabilitation and Behavioural Sciences, Aarupadai Veedu Medical College, Puducherry, India

Higher education in India was severely impacted by the pandemic. This chapter reflects on the manner in which COVID-19 impacted the higher educational sector in India, specifically the institutions running audiology and speech language pathology programmes. Audiology and Speech Language Pathology is an independent professional programme regulated by the Central Rehabilitation Council of India (hereafter, RCI), a statutory body under the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Government of India. The RCI developed the Bachelor in Audiology and Speech Language Pathology (four years inclusive of one-year compulsory internship), Master of Science: Speech Language Pathology (two years) and Master of Science: Audiology (two years). Students graduating in audiology and speech language pathology are required to register with the RCI to be eligible to practice independently. Audiologist and Speech Language Pathologists provide a broad range of services to individuals with hearing, speech language and communication problems. Speech and language disabilities have been included in the Rights of Persons with Disabilities Act, 2016 and Audiologists and Speech Language Pathologists have been considered as a member of certification medical authority (The Rights of Persons with Disabilities Act, 2016). This chapter reflects on how COVID-19 impacted the higher educational sector in India, specifically institutions running audiology and speech language pathology programme. This chapter has been written from the perspective of the team of authors, who hold teaching positions in audiology and speech language pathology across different institutions in India.

2 Methodology

This study is based on a survey in which information was gathered from undergraduate audiology and speech language pathology students from March to May 2022 using a questionnaire. This survey had cross-sectional study design and purposive sampling.

2.1 Development and Validation of Questionnaire

A group of experienced teaching faculty from the field of audiology and speech language pathology, who switched their teaching methods from offline to online mode during the COVID-19 crisis, developed a draft survey questionnaire with 20 questions (in English language).

Academics and Practicum Transaction were covered in separate sections of the survey. Five teaching faculty members (with more than ten years of teaching experience) used the face and content validation approach to validate the created draft questionnaire in order to evaluate its comprehensiveness and inter-judge reliability. The questionnaire's clarity, importance and acceptance were then pretested among ten randomly chosen intern students. The prototype questionnaire was finalised with a better order of questions after incorporating necessary modification in response to comments.

2.2 Content of the Survey Questionnaire

The survey questionnaire which took about 10–15 minutes to complete included demographic details of the participants followed by 18 closed-ended questions and 4 open-ended questions (two questions from Practicum Transaction has both open-ended and closed-ended options), divided in equal numbers across two sections, namely Academics and Practicum Transaction (Appendix).

2.3 Data Collection

For the purpose of gathering information from students, the final survey questionnaire was distributed to teaching faculties at various universities and institutions in India that provide B. ASLP programmes by email and WhatsApp. The survey questionnaire was distributed to 340 participants.

2.4 Data Analysis

The mean and standard deviation of descriptive statistics were used to analyse the data. Version 20.0 of SPSS Statistics for Windows was used for data analysis (IBM Corp., Armonk, N. Y., USA).

3 Results

A total of 340 students pursuing a degree in speech language pathology and audiology took part in the survey study, but only 327 of them consented and returned the questionnaire, giving the study a response rate of 96.17%. The average age of the participants was 21.19 3.20 years, with 186 (56.2%) females and 141 (43.2%) males.

The majority of the samples for the study came from the eastern (37%) and central (25%) and western (17.1%) regions of India. They were collected from three different states of India by mail and WhatsApp. The majority of participants came from the third year (39.14%), followed by the first year (34.2%) and the second year (26.6%). Table 5.1 lists the participants' demographic information.

Moving on towards the results of the survey questions, it has been divided across two sections.

3.1 Survey Findings Regarding Academic Performance

This section highlights the different aspects of academic transactions that participants underwent through the online learning phase during the COVID-19. Forty-nine percent participants agreed and 14% strongly agreed that the online lectures were sufficient for gaining theoretical knowledge; however, 34% participants were in a neutral position to comment over the sufficiency of online lectures. When asked to introspect about the experience of their online class over regular class, 57% participants reported an average experience, while 28% and 10% participants had

Table 5.1 Demographic Details of the Participants (n = 327, 96.17%)

Characteristics	*Participants (n)*	*Percentage (%)*
Gender		
Male	141	43.2%
Female	186	56.8%
Age (mean age ± SD: 21.19 ± 3.20)		
17–20	74	22.62%
21–24	186	56.9%
25–28	67	20.4%
States		
Eastern	121	37%
Western	56	17.1%
Northern	39	11.9%
Southern	24	7.3%
Central	82	25%
Union Territories others	5	1.5%
Undergraduation year		
1st year	112	34.2%
2nd year	87	26.6%
3rd year	128	39.14%

good and excellent experience respectively. When the academic progress was assessed, the result was disappointing (52% participants reflected unsatisfactory and 23% reflected poor academic progress), though majority of the participants agreed that they had sufficient access to various learning resources, throughout their online learning period.

Figure 5.1 depicts the results of the four closed-ended questions corresponding to **Academic Performance**.

Considering the technical aspects of online classes for academic transaction (Figs. 5.2 and 5.3), participants reported maximal use of Google platform (36%), followed by Zoom (33%). Internet connectivity problem was a major issue reported by 88% of participants, leading towards intermittent absence from class, poor audibility and video interruptions, and other challenges.

Though COVID-19 taught all students the new normal norm of social distancing along with online learning, still our survey through open-ended

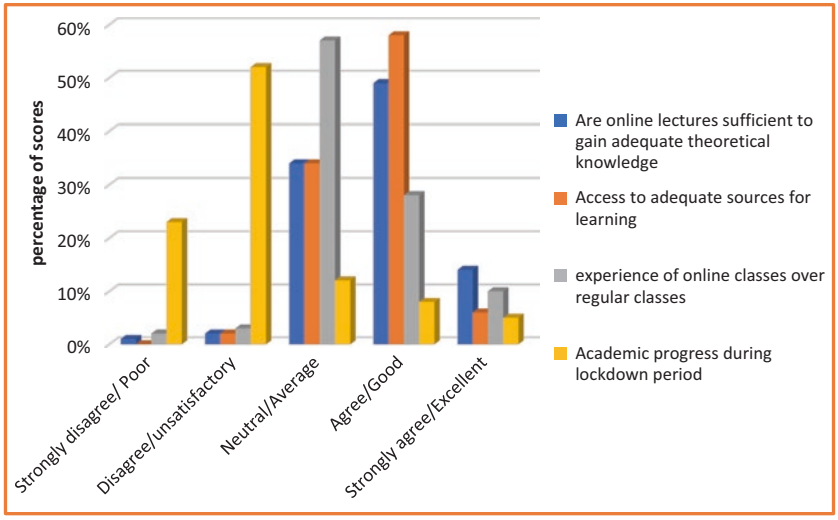


Fig. 5.1 The survey findings of four closed-ended questions related to Academic Transactions (Question no 2: Are Online Lectures sufficient to gain adequate theoretical knowledge? Question No 3: Rate your experience of online class over regular class. Question No 6: Did you get/have access for adequate resources for learning like videos, books etc. and Question no 7: What do you feel about academic progress during lockdown period?)

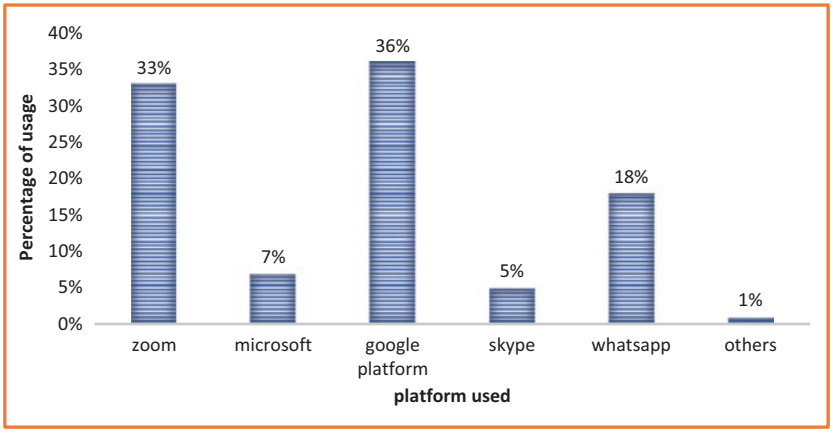


Fig. 5.2 Mode of platform used for conducting online classes

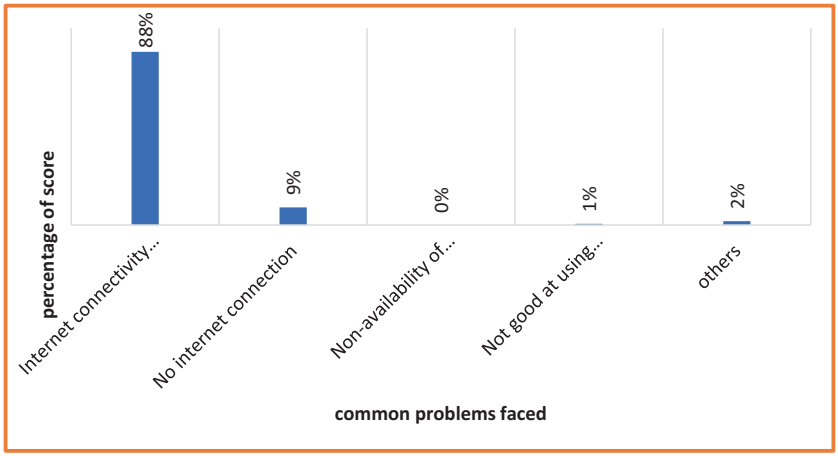


Fig. 5.3 The access challenges faced during online classes

questions (Figs. 5.4 and 5.5) revealed that almost all the participants missed the interaction with friends (98%), interaction with teachers (88%), regular physical classes (86%) and clinical practicum (82%). These are also the contributing factors which can help them to improve their academic loss, along with extra classes and access to library facilities, as reported by majority of the participants.

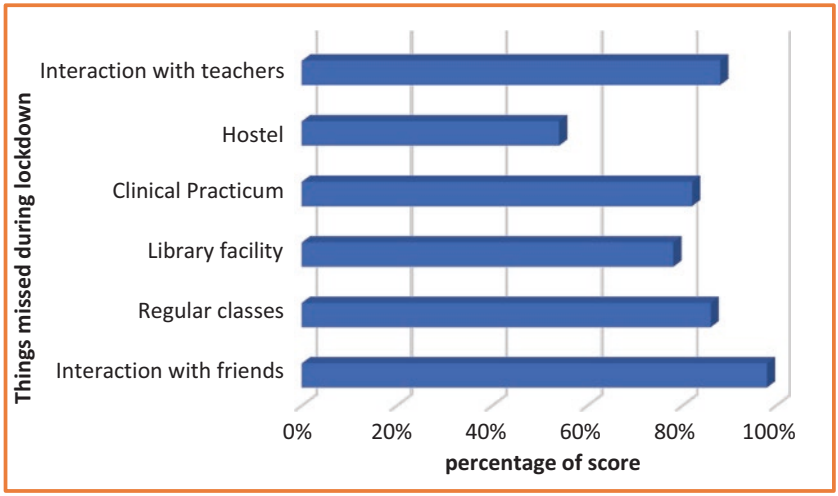


Fig. 5.4 Non-academic facets participants missed during online classes

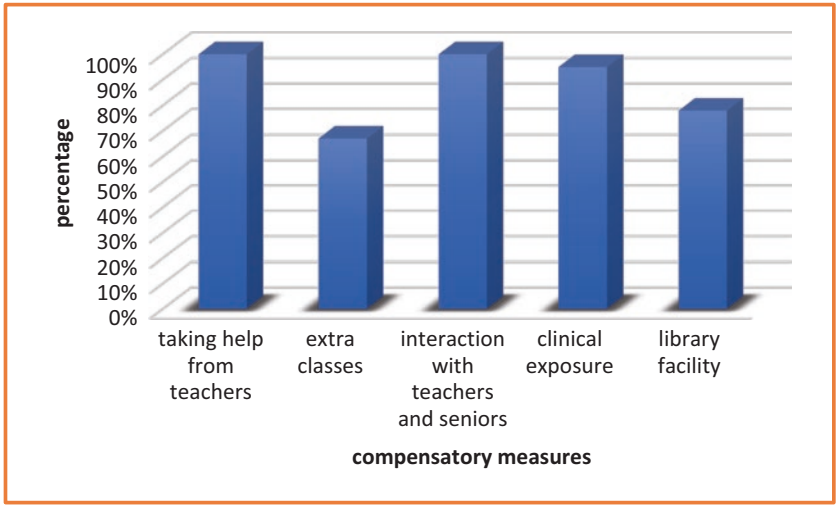


Fig. 5.5 Methods of compensation by students for the loss of theoretical knowledge during online learning

Finally with respect to academic learning, 54% of the participants reported that learning through online mode was most difficult for the allied subjects like linguistics, psychology, electronics, anatomy, physiology and neurology as compared to the core subjects, that is, speech language pathology (36%) and audiology (10%).

3.2 Survey Findings Regarding Practicum Transactions

This section highlights the different aspects of Practicum Transactions that participants underwent during the online learning phase. Ninety-one percent participants reported that separate practicum teaching was done by their respective institutes through online mode. Among those, 82% reported that separate case demonstrations were done by their supervisors during online practicum teaching. Apart from online teaching, when the issue of service delivery to patients through tele practice was surveyed, it was reflected that though 96% of participants were involved with their supervisors during tele service (62% observed speech language pathology service and 38% participants observed audiology services), only 41% reported of positive client satisfaction. The main reasons attributed for this was lack of physical demonstration (86%), poor sitting compliance in front of screen specially for paediatric clients (76%), internet connectivity issue (67%), transfer of skills and carry over by clients (58%), and difficulty in understanding the instructions (34%). During the un-lock phase, when participants started delivering services physically, 67% participants reported that use of masks affected their communication with clients, by reducing the speech intelligibility and missing out facial expressions. Figure 5.6 depicts the results of the five closed-ended questions with "yes/no" options corresponding to practicum transactions.

Figure 5.7 revealed that majority of the participants expressed their dissatisfaction (67% reported average, 23% reported unsatisfied and 7% reported poor) towards their experience of online practicum classes over regular clinics. Further, they reported that online lectures were not sufficient enough to understand practicum knowledge, thereby reflecting their poor acquisition of practicum skills during the lockdown period. When enquired about their plan to compensate for their loss of clinical knowledge, majority (83% participants) want to learn through attending clinical postings physically, followed by 79% participants who wants to learn by attending webinars (Fig. 5.8).

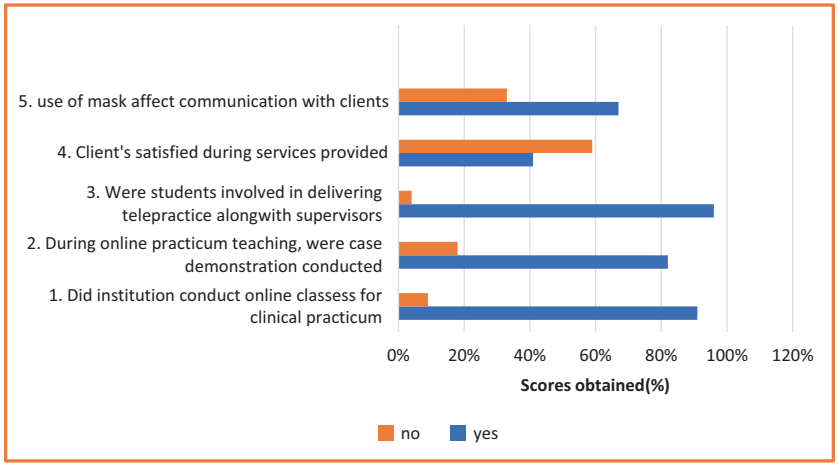


Fig. 5.6 Results of five closed-ended yes/no questions

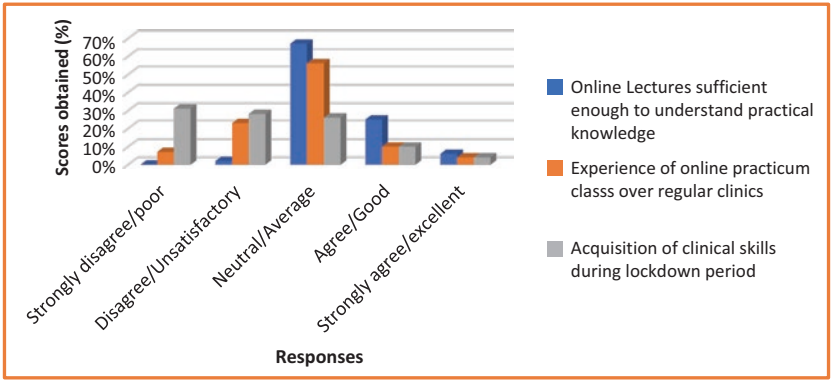


Fig. 5.7 Results of three closed-ended survey questions related to experience of online practicum transactions

4 Discussion

The current study was created to evaluate the effectiveness of online teaching on the curriculum and practical transaction of the Audiology and Speech Language Pathology Course in India, taking into account the worldwide burden and media attention on the virus.

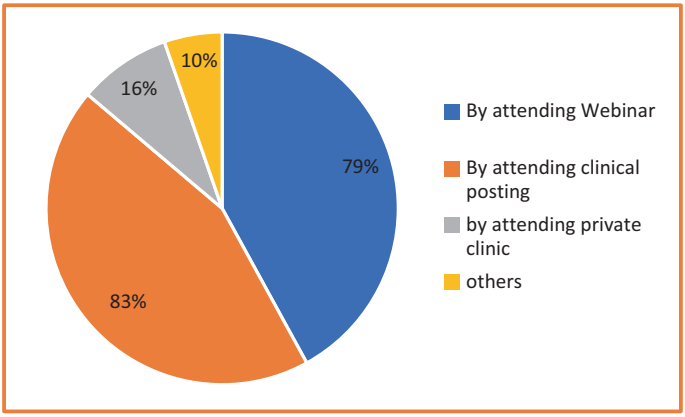


Fig. 5.8 Mode of learning preferred by participants to compensate the loss of clinical loss of clinical knowledge

Our study highlighted that though participants of all the three academic years undergoing B.ASLP programme were satisfied with learning their theory through online mode, their academic performance was not satisfactory. Since this programme is largely patient centred and is based more on behaviour science with specially abled population, practicum learning and service delivery to patients was negatively impacted and participants reported dissatisfaction. No studies have been done in India so far to assess the impact of online transaction on B.ASLP Programme. However, a South African study found that academicians must rethink and re-envision this "new normal" in order to examine how they should train and give speech language pathology services (Seedat et al., 2021). Academicians had no choice but to translate verbatim what they had learnt throughout their careers into the technological platform due to lockdown. As a result, many audiology and speech language pathology departments found themselves ill-equipped to meet the needs of the students. A large part of the problem was/can be attributed to the use of outdated methods of instruction, learning, and service delivery by students and faculty, which resulted in rigidity or a lack of adaptability. Eventually, like other institutions which taught practical-based programmes, a blended pedagogy for teaching and clinical training for students of audiology and speech language pathology programmes was followed.

Many of us academicians felt that COVID-19 had disturbed our work. However, the research evaluation shows that pupils were considerably more impacted by COVID-19. The effect of COVID-19 on the academic performance of medical undergraduate students was evaluated by Syal et al. (2020). During the shift, the majority of the students reported feeling less motivated and productive. The primary area that has been affected is the teaching of clinical skills, which is an essential complement to theoretical instruction in medical education, hence, clinical education is not compatible with online pedagogy. The majority of students think that their clinical abilities will eventually lag behind those who graduated before the pandemic. The aspiring professionals' worry has been increased by a sense of inferiority and anxiety brought on by these changes. The purpose of this study was to investigate the various aspects of online education as stated by B.ASLP programme participants.

In the present study many participants reported that there is a huge gap in practicum learning during the COVID phase. Physical training and in-hand patient handling alone could equip them with the required clinical skills and boost their confidence in professional handling of patients.

5 Future of Pedagogy in Audiology and Speech Language Pathology Courses

India adopted lockdown with a number of restrictions on access and movement throughout 2020–2021 as a result of an increase in virus transmissions and virus mutation, resulting in new types of infection. There was no physical interaction between faculty, clinical tutors and students since March 2020, nor between students and patients during the two-year period. During the lockdown, academic content became virtual and ongoing delivery of clinical services was transmitted through telerehabilitation platforms. Universities offering audiology and speech language pathology programmes considered technology as a replacement for faculty members and clinical instructors.

In India, during the COVID phase, Debnath et al. (2021) looked into how medical and allied health students felt about online education. The majority of the students were found to be enthusiastic about online education (via Google platform, Zoom, etc.); despite the fact that their practical knowledge was lacking, they came to the conclusion that while online education can be a useful learning tool, it could not be as effective as

traditional education for students studying medical and allied health. As a result, online learning may be used in conjunction with more conventional teaching techniques in the future, in the event of a prolonged lockdown.

We observed that while learning theoretical material on the internet was a valid method, conventional education was still preferable for transferring clinical skills. In many professional programmes, simulation trainings were introduced for practicum, but in courses pertaining to behaviour science like audiology and speech language pathology, teaching practicum through online mode was not effective. Even service delivery through technology has its challenges, specifically when dealing with paediatric populations.

It is therefore desirable to use with blended learning when faced with scenarios similar to COVID-19, where theoretical learning may be carried out via online platform and the practical may be hands-on training in a secure setting on a rotating basis.

6 Limitations of the Study

Besides highlighting the curriculum and practicum transactions of undergraduate programme of audiology and speech language pathology during the last two years of pandemic, this study has few limitations that could not be overlooked.

Firstly, we conducted our investigation in a single nation with certain conditions. As a result, the findings might not be generalisable to other countries, and in order to have a comprehensive picture, they need to be confirmed by more research in various countries.

A second limitation is the cross-sectional nature of the study design, which restricted us to arrive at any causal associations. Thus, future survey may look towards conducting longitudinal studies across different countries.

Last but not least, this survey was conducted online. As a result, it may be difficult to get replies from places without internet access, which could result in biased demographic selection.

Declaration

Funding No specific grant was given to this research by funding organisations in the public, private or not-for-profit sectors.

Declaration of Competing Interest The authors declare that they have no conflict of interest.

Ethical Consideration Each participant in the survey received information about the study's goals, gave informed consent and was asked to reaffirm their willingness to participate by responding to a Yes/No question. All study participants' privacy was protected by keeping their answers to the self-administered questionnaire anonymous and asking them to give truthful responses.

7 Appendix

7.1 Survey Questionnaire to Assess the Efficacy of Online Teaching on Curriculum & Practicum Transaction of Audiology and Speech Language Pathology Course

Demographics

Name:	Programme:	Year:
Name of the College:	State:	

Section 1: Academics

1. Did your institution conduct online classes? **Yes/No**
2. Are online lectures sufficient enough to gain adequate theoretical knowledge?
   Strongly Disagree, Disagree, Neutral, Agree, Strongly, Agree
3. Rate your experience of online classes over regular classes.
   Poor, Unsatisfactory, Average, Good, Excellent
4. Mode of platform used for conducting online classes**.**
   Zoom, Microsoft, Google platform, Skype, WhatsApp, Others
5. What are the accesses challenges/technical challenges faced during the online classes?
   Internet connectivity issues, no internet connection, non availability of smartphone/computer, not good at using applications, others
6. Did you get/have access for adequate resources for learning like videos, books etc.?
   Strongly Disagree, Disagree, Neutral, Agree, Strongly, Agree

7. What do you feel about academic development through lockdown period?
   Poor, Unsatisfactory, Average, Good, Excellent
8. What did you miss the most during the lockdown apart from study?
9. How do you plan to compensate for the loss of theoretical knowledge?
10. Which course do you feel is difficult to learn online?
    (a) Audiology (b) Speech Language Pathology (c). Allied Subject.

Section 2: Practicum Transaction

1. Did your institution conduct online classes for your practicum? **Yes/No**
2. During online practicum teaching, were case demonstrations conducted? Yes**/No**
3. According to you, are online lectures sufficient enough to understand your practical knowledge?
   Strongly Disagree, Disagree, Neutral, Agree, Strongly, Agree
4. Were you involved in delivering tele practice along with your supervisors? **Yes/No**
5. In which area did you render your services through tele practice:
   (a) Audiology (b) Speech Language Pathology
6. Were your clients satisfied with services provided through Tele practice? **Yes/No**
   If "No", what are the common problems faced? .....
7. Did use of mask affect your communication with client? **Yes/No**
   If "Yes", what are the common problems faced? .....
8. Rate your experience of online practicum classes over regular clinics.
   Poor, Unsatisfactory, Average, Good, Excellent
9. What do you feel about clinical progress during lockdown period?
   Poor, Unsatisfactory, Average, Good, Excellent
10. How do you plan to compensate for the loss of practical knowledge?
    (a) by attending webinar (b) by attending clinical posting (c) by attending private clinic (d) others.

References

Debnath, M., Ojha, S., Niraula, A., & Sharma, D. (2021). Perceptions of Medical and Allied Health Students Towards Online Education during the COVID-19 Pandemic Phases and Its Future Impact in India. *Journal of European CME, 10*(1), 1993428. https://doi.org/10.1080/21614083.2021.1993428

Jena, P. K. (2020). Impact of COVID-19 on Higher Education in India. *International Journal of Advanced Education and Research, 5*(3), 77–81.

Kumar, D. N. S. (2020). *Impact of COVID-19 on Higher Education*. Retrieved May 25, 2020 from https://www.highereducationdigest.com/impact-ofcovid-19-on-higher-education/.

Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2020). The Impact of COVID-19 on Learning-the Perspective of the Ghanaian Student. *European Journal of Education Studies, 7*(13), 88–101. https://doi.org/10.5281/zenodo.3753586

Seedat, J., Adams, S. N., Coutts, K., Kater, K., Sher, J., & Sawasawaa, C. (2021). The Impact of COVID-19 on Transformation in a Speech-Language Pathology University Program in South Africa. *Perspectives of the ASHA Special Interest Groups, 6*, 1299–1304. https://doi.org/10.1044/2021_PERSP-21-00086

Syal, A., Arya, Y., & Gupta, M. (2020). Impact of COVID-19 on Medical Undergraduate Students' Academics and Its Ramifications. *Indian Journal of Medical Sciences, 73*(1), 26–29. https://doi.org/10.25259/IJMS_404_2020

The Rights of Persons with Disabilities Act. (2016). Gazette of India (Extra-Ordinary). Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Govt. of India. retrived from http://www.disabilityaffairs.gov.in/uploaad/uploadfiles/files/RPWD/ACT/2016.pdf

Wikipedia. (2020). *Education in India*. Retrieved May 24, 2020, from https://en.wikepedia.org/wiki/Education_in_India

CHAPTER 6

Psychological Effects of the COVID-19 Pandemic on the Medical Students in Maharashtra

Tanvee Karande, Zunjarrao Badade, Sameer Kadam, Dattatray Bhusare, Aditya Nayak, Kshitij Badade, and Prasad Karande

1 Introduction

In December 2019, there was an outbreak of SARS in the Hubei province of Wuhan, China, which was later identified as a new virus in circulation, COVID-19. The virus led to pneumonia, fever, cough, fatigue or an

T. Karande (✉)
MGM Medical College, Navi Mumbai, India

Z. Badade
MGM Medical College, Navi Mumbai, India

MGM School of Biomedical Sciences, Navi Mumbai, India

MGM Institute of Health Sciences, Deemed University, Navi Mumbai, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_6

asymptomatic presentation. It has an incubation period of 3–14 days before the onset of symptoms.[22] The World Health Organization (WHO) declared Coronavirus disease-2019 (COVID-19) a pandemic on March 11, putting a significant strain on the global healthcare system.[25]

To control the pandemic, various public health responses such as travel restrictions, physical separation, quarantining, social isolation, and contact tracing were used.[20] Even with all the necessary interventions at a national and a global level, the pandemic was still on the rise. The first case in India was reported on 30 January 2020;[16] since then the Covid-19 pandemic just escalated to a level where every sector of the country was exceedingly affected like never before.

The COVID-19 pandemic has had a global negative health impact on all populations and segments of society. Front-line workers, particularly health care workers (HCWs), bore the major brunt of the pandemic. Increased workload; sparse data availability on disease; disease severity; management of the disease; fear of infection for self, family and friends; stigma and so on are the major challenges that HCWs face during this pandemic.[18]

Because of the high number of COVID-19 patients, many hospitals required additional health workers, infrastructure and facilities. The growing number of health workers infected with COVID-19 intensified the situation. Furthermore, HCWs had a higher morbidity and mortality rate. Pandemic has also flipped health education.[18,17] Patient exposure, history taking and examination, and hands-on training are critical to the

S. Kadam
Department of General Surgery, MGM Medical College, Navi Mumbai, India

D. Bhusare
Emergency Medicine, MGM Medical College, Navi Mumbai, India

A. Nayak • K. Badade
Orthopedic Department, MGM Medical College, Navi Mumbai, India

P. Karande
Mechanical Engineering Department, Veermata Jijabai Technological Institute (VJTI), Mumbai, India
e-mail: pmkarande@me.vjti.ac.in

development of basic medical skills, which medical students are gradually taught throughout medical school. Medical undergraduate education has suffered significantly as a result of everything from online classes to the suspension of clinical skills teaching and the postponement of exams.[17]

The lockdowns, as well as the fear of infection, reduced the number of patients visiting hospitals. As a result of these events, there has been a significant decrease in clinical material, affecting PG students' training and clinical exposure. The PG training in India includes training in the specialized branch chosen for admission. The students learn in-depth depending on their specialty. The medical and allied branches train in the management of various patients medically starting from attending emergencies, to procedures such as intubation, and central line insertion, whereas the surgical branches train in surgically treating, intensive care, emergency duties and so on. Due to disruptions in the training period, many PGs risk losing extensive tenure of their academic course, resulting in insufficient practical experience, limited training and inability to complete dissertation research work.[14]

Students in the developing countries had largely struggled with the perilous challenges of their condensed clinical training and they were plagued with crippling bouts of stress.[7] As recent graduates, the internship doctors had to face this pandemic in cooperation with the much more experienced health care workers. Health care workers are at the frontline in providing care for patients in this COVID-19 pandemic and caring for patients with other diseases.[12] There was an increased prevalence of anxiety, fear, depression, sleep disturbance, somatization and OCD disorders among health care workers, which were especially prevalent among individuals working in high-risk units such as emergency units and ICUs.[10] Despite these disruptions, there have been only a few studies to understand the unique experiences of these new doctors and students.[24]

We conducted this cross-sectional study to discover the psychological effects of various factors on medical students of different colleges across Maharashtra state. The medical students all across the country performed a vital role in the COVID pandemic. Regular students, new graduates and new postgraduate residents had a very little training in intensive care. In spite of that, they took all efforts to stand in support of all the medical fraternity during the pandemic leading to the psychological effects on their mental being. With India being one of the most aggressively hit countries in the COVID pandemic, there is very little study on the same.

Hence, we decided to study the effects of COVID pandemic on psychological status of the students of medical field.

2 Materials and Methods

2.1 Study Design

A prospective cross-sectional survey was conducted in medical colleges through an online method during 1 December 2021 to 31 March 2022. A questionnaire was made available through Google Forms consisting of multiple questions concerned with class studies as well as clinical training and was circulated among the students of medical colleges using the WhatsApp application and social networking sites such as Instagram and Facebook. Within four-months of duration the form was closed and the responses were noted. The sample size was calculated to be 385 from a population of infinity based on a confidence level (CL) of 95% and a confidence interval (CI) of 5; however, our sample size was of 493 students.

2.2 Questionnaire

Google Forms were used to create an online self-administered survey. All medical students were contacted via direct message on WhatsApp, Facebook and Instagram and invited to participate voluntarily. There were no monetary incentives offered or any charges taken from the students in filling the responses. The survey included 46 items spread across four sections labelled socio-demographic data, education, training and psychological state during the pandemic. An introductory message was given to fill the responses on the basis of the COVID pandemic. The sections were labelled so that the undergraduate students don't fill the training section whereas the postgraduate students don't fill the education section. The study's purpose and the identity of the primary investigator were declared on the first page. The second sheet included the information sheet where the participants were informed that they would be providing informed consent by proceeding to the next page.

Before starting the circulation of the questionnaire amongst the students, we sent it to 50 students as a part of pilot study for the assessment of the clarity of questions, ease of marking the responses, proper working of the Google Forms link and were acted upon the doubts and the questions were reframed accordingly. The questionnaire collected information

of socio-demographic data, which has questions related to the student, such as current program he/she has been enrolled to and the state he/she has been studying; these questions helped us to segregate the students of Maharashtra from other states. The current programme he/she is studying in differentiated the undergraduate students from the postgraduate students. As the questionnaire progressed there were different sets of questions to be answered by the undergraduate and the postgraduate students. The questionnaire was self-compiled using international research papers as resources.

The undergraduate students' questionnaire was more biased towards the changes that particularly took place in the way of teaching lectures, clinical postings and examination. Whereas the postgraduate students' questionnaire weighted towards the clinical training that got affected due to the pandemic. Finally, they all answered the questions related to the psychological effects of the pandemic on them. Whether the students were UG or PG, they all suffered a significant amount of stress, anxiety, confusion, sleep deprivation and so on and hence questions were asked revolving around the same to get a perspective about the psychological effects of the COVID pandemic on these students.

The mandatory elements were highlighted without which the form would not proceed to the next section. Questions varied from having a non-response option, one answer choice; some had a five-point scale and some were direct yes/no. Participants could review and alter their answers before hitting the submit button. Once submitted the response could not be changed whatsoever and prior information about the same was already provided in the information sheet at the beginning of the questionnaire. Duplicate records if found were manually deleted to avoid duplication. We did not use any means that would disregard the identity of the respondent to find out the duplicate entries. The participants were from various medical courses. It included medical (MBBS, MD, MS) students of either gender, aged between 19 and 30 years all across Maharashtra, who actively worked or were students during the COVID pandemic. The participants who did not do COVID duties or those who weren't students during the pandemic along with students studying outside Maharashtra state were excluded from the study. The form could only be submitted after the mandatory responses have been given to ensure the non-submission of incomplete forms. The data was further collected on the Google spreadsheet for converting it into statistical data.

3 Results (Tables 6.1, 6.2, 6.3 and 6.4)

Table 6.1 Socio-demographic data of students

1. Age in years	21–30 years
2. Gender	Females (62%)
	Males (38%)
3. Program currently studying	MBBS (41%)
	PG (59%)
4. Location of university	Maharashtra (100%)
5. Type of university	Deemed (39%)
	Private (36%)
	Government (25%)
6. Marital status	Single (98%)
	Married (2%)
7. Accommodation type	Hostel (44%)
	Staying with family (36%)
	Rented apartment (17%)
	Staying as paying guest (3%)
8. Distance of residence from institute	Less than 5 km (56%)
	5–10 km (13%)
	10–20 km (6%)
	20–30 km (6%)
	More than 30 km (19%)
9. Mode of transport during the pandemic from residence to institution	Own vehicle (38%)
	Public transport (28%)
	Hired vehicle (4%)
	By walk (30%)

Table 6.2 Education of students

10. How were the lectures conducted during the pandemic?	Online mode (61%)
	Offline (13%)
	Hybrid mode (26%)
11. Were you comfortable with online method of teaching?	Not comfortable (51%)
	Comfortable (49%)
12. Difficulties faced with online method of teaching.	Poor internet connectivity (51%)
	Difficulty in usage (14%)
	Poor privacy (7%)
	Problem with device (4%)
	Not applicable (24%)

(*continued*)

13. What was the percentage of postponement or cancellation of online lectures?	Less than 10% (27%) 10–25% (29%) 25–50% (15%) More than 50 (12%) No cancellation (17%)
14. What was the percentage of postponement or cancellation of offline lectures?	Less than 10% - (9%) 10–25% (5%) 25–50% (10%) More than 50% (71%) Not applicable (5%)
15. What was the impact of lectures during COVID pandemic compared to non-COVID period?	Worst (18%) Very poor (50%) Similar (18%) Better (10%) Very good (4%)
16. What was the mode of majority of examination conducted?	Offline (70%) Online (30%)
17. Confidence for appearing in the exam during the pandemic.	Less prepared (74%) Usual preparation (26%)
18. How was the fear of exam with respect of non-COVID time?	Increased fear (70%) Usual (30%)
19. What was the impact of COVID on the results of examination?	Declined performance (43%) No change (44%) Better performed (13%)
20. What was the percentage of postponement or cancellation of clinical posting?	More than 50% cancelled (49%) 25–50% (16%) 10–25(11%) Less than 10% (10%) No change (14%)
21. What was the impact of clinical posting during COVID compared to non-COVID period?	No clinical postings taken (40%) Poor experience (35%) Similar (11%) Better (14%)
22. What was the effect of the COVID pandemic on the clinical exposure?	Worsened experience (73%) Similar (17%) Better (10%)
23. Whether COVID pandemic made you to study harder?	No (70%) Yes (30%)
24. Has COVID led to a loss of interest in the medical field?	No (69%) Yes (31%)
25. What was the feeling upon restrictive access to the institute?	Felt very sad (29%) Sad (24%) Moderate (32%) Happy (9%) Very happy (6%)

Table 6.3 Training of postgraduate medical students

26. How has COVID affected patients' flow in your specialized branch?	Decreased patient flow (70%) No change (10%) Increased (20%)
27. How was the clinical exposure during the pandemic?	Decreased (70%) No change (30%)
28. Were you asked to treat COVID patients instead of the departmental patients?	Yes (73%) No (27%)
29. What is the percentage of replacement of postings with COVID postings?	More than 50% (25%) 25–50% (18%) 10–25% (18%) Less than 10% (17%) Not affected (22%)
30. Was any training given before starting COVID duties?	No (34%) Not applicable (32%) Yes (33%)
31. Were you scared to do COVID duties?	No (30%) Yes (40%) Not applicable (30%)
32. Has pandemic led to a loss of interest in your specialized field?	No (71%) Yes (29%)
33. Has pandemic decreased your confidence in your specialized field?	No (60%) Yes (40%)
34. Has COVID made you less efficient due to excess workload?	Yes (70%) No (30%)
35. Were you infected with COVID after the COVID posting?	Yes, more than once (14%) Yes once (29%) No (57%)

Table 6.4 Psychological effects of the pandemic on the medical students

36. How was your mood during the pandemic?	Towards negative side (78%) Towards positive side (22%)
37. Did you feel tired doing everything?	Yes (76%) No (24%)
38. Did you feel every task was effortful?	Yes (76%) No (24%)
39. Did you get proper sleep during the pandemic?	Yes (71%) No (29%)
40. Were you sleepy even after getting adequate rest?	Yes (78%) No (22%)
41. Were you worried of your family being infected by you?	Yes (90%) No (10%)
42. Has your family ever got infected because of you, if yes then how severe was it?	No (52%) Yes home quarantined (22%) Yes admitted in hospital (4%) Yes caused demise of a loved one (2%) Not applicable (20%)
43. Did you feel disinterested all the time?	Yes (60%) No (40%)
44. What measures did you take to keep yourself positive during the lockdown?	Spent time with family (33%) Used social networking apps (8%) Watched movies and series (27%) Studied (8%) Pursued hobbies (14%) Took rest (10%)
45. Will you volunteer to do COVID duty again if needed?	Yes (65%) No (35%)
46. Are you scared of COVID pandemic effecting your career?	Yes (70%) No (30%)

4 Discussion

Future doctors require sound medical knowledge as well as sound training in order to confidently treat patients. Being a field where health of people is at risk, the foundation of these students should definitely be strong.

A total of 493 students participated in the present study, out of which 62% were female respondents from the state of Maharashtra while the rest 38% constituted male respondents. Students from their various undergraduate and postgraduate from various institutions of Maharashtra participated in the study. They constituted Deemed (39%), Private (36%) and Government (25%). Since the teaching may vary in different setting and hence to cover a broader perspective of the state, the variety of colleges were considered, most students being single (98%), with 2% being married.

Thirty-six percent of students stayed with families, 44% stayed in hostel, 17% in rented apartment and 3% as paying guest. The students that stayed with families, their families had a risk of being infected with COVID since the students were working in COVID duties. Most of the students stayed near the college with 56% staying in the range of less than 5 km, 13% within 5–10 km, 6% staying in 20–30 km of range and 19% staying at more than 30 km distance. The more the students travelled, the more were their chances of getting infected or transmitting infection to the other people. The students used various modes of transport for commuting from home to the medical college; 38% students had their own vehicle while 28% students used public transport, 4% used hired vehicle, while those staying nearby (30%) came by walk. The students using hired vehicles or those who used public transport were at a certainly greater risk. The fear of getting infected was found in all the students, majorly in the students who travelled distances or shared vehicles while travelling.

4.1 Undergraduate Students

Out of the 493 participants, 202 (41%) belonged to the undergraduate students comprising of students from the third, fourth and fifth (internship) years of undergraduate medical education. These students have clinical postings along with the regular classroom lectures. The clinical postings are important for the students for learning about the cases by understanding the presentation of case, taking clinical history and coming to a differential diagnosis and then further to a proper diagnosis. The students also learn various clinical tests to be performed on patients which help in

diagnosing the case. Moreover, due to the pandemic many exams were cancelled or they could not travel long distances for taking exams, especially those students which were aiming for foreign licensing exams.

During the pandemic 61% students had only online lectures taken. While 13% had offline and 26% lectures were in hybrid mode. Almost half the students (51%) were not comfortable using online mode of education due to various reasons. The difficulty faced by the students were poor internet connectivity (51%) and difficulty in usage (14%); some students had poor privacy at home leading to disturbance in between ongoing lectures, 4% having issues with the device such as unavailability of device, while the rest 24% had no issues.

During the pandemic majority of lectures were conducted online as a precautionary measure. Nine percent students had less than 10% offline lectures cancelled, 5% students having 10–25% cancelled or postponed, 10% having 25–50% lectures postponed or cancelled, 71% students having more than 50% lectures postponed or cancelled and 5% had no cancellation. The online lectures were also affected as 27% students had less than 10% of online lectures postponed or cancelled, 29% students had 10–25% postponement or cancellation while 15% had 25–50%, 12% had more than 50% of the lectures cancelled or postponed and 17% had no cancellation. The lectures were cancelled or postponed due to various factors such as technical difficulties, unavailability of the teachers due to increased patient load and miscommunication in the lecture timings.

Upon comparing the lectures delivered during pre-COVID period, the impact of the lectures on the students was majorly on the negative side. Eighteen percent students had the worst experience, 50% very poor experience with 18% having similar experience to pre-COVID, 10% having better experience and 4% having very good experience with online lectures. The reasons for poor experience being various like lack of learning atmosphere at home, not able to communicate with the teachers and PowerPoint presentations as major study source.

The medical education is one of the most highly respected and important streams of education and therefore the examinations of the medical students could not be taken for granted. To ensure a proper setup for examinations, to reduce malpractices and so on the majority of offline exams were conducted in various institutions. The students, however, were comparatively less prepared than they were during non-COVID times. Seventy-four percent students were less prepared while 70% were more afraid of appearing for the examinations. The pandemic has not

changed just the mode of delivering lectures to the students but also the clinical postings of the students. The earlier heavy clinical experience was decreased. This was a major downside, as the students were not able to clinically test all variety of patients and hence even if theoretical knowledge was at par they surely hampered clinical knowledge and this further brought down their confidence. Forty-nine percent students had more than 50% postings cancelled, 16% had 25–50% postings cancelled, 11% had 10–25% postings cancelled while 10% had less than 10% postings cancelled and 14% had no change in the clinical postings. Majority of the students had bad experience with the online mode of clinical postings. No postings were taken for 40% students, while 35% had poor experience with the postings. Eleven percent students had a similar experience as before and 14% had a better experience with online clinical postings. Seventy-three percent students had worse clinical exposure than before the pandemic, 17% had similar experience and 10% had better experience.

The students were staying at their homes and had way more time than before the pandemic as they didn't have to travel distances for attending lectures and so on. But this has not made them study any harder according to 70% of students while the rest 30% of students did study more than before pandemic. Sixty-nine percent students have not lost interest in the medical field while 31% felt that they have outgrown their interest. Fifty-three percent students were saddened upon limiting access of students to institutes while others, about 32%, had no effect and the rest 15% were happy with the decision. Yet they agree that the precautions which state, central government as well as their respective medical colleges have taken were needed to combat pandemic.

4.2 Postgraduate Students

The postgraduate education comprises of clinical training as well as theoretical study, but the clinical training constitutes the major part of the education. These student doctors treat patients as well as learn from the treatment plan with each and every case from the senior doctors as well as from their senior residents. The exposure they get as a postgraduate student proves to be vital as these students later independently work as medical practitioners from the experience itself gained in these postgraduate training years.

The pandemic had a serious effect on the education of these students. Seventy percent students had decreased patient flow during the pandemic, 10% had no change as compared to the non-COVID period while 20% residents had an increased patient load during the pandemic. Most of the hospitals were turned into COVID centres and hence the patient flow decreased drastically due to the fear of getting infected with COVID upon turning up for treatment of other diseases, elective procedures and surgeries. Hence the overall clinical exposure also has decreased for these students. Forty percent students were less confident with their specialized branches due to the decreased patient exposure of their specialized branches.

Seventy-three students were asked to perform COVID duties at the cost of routine departmental duties. This has definitely affected their exposure, especially the surgical branches. Twenty-five percent students had more than 50% duties replaced with COVID duty, 18% had 25–50% duties replaced, 18% had 10–25% duties replaced while 17% students had less than 10% duties replaced and 22% had no duties affected. COVID duties were more towards traumatizing and exhausting side along with not being a part of the specialty duties. Thirty-three percent students got training before working in the COVID wards while 32% were not in the need of the training and 34% students didn't get any training. Forty percent residents were scared of performing COVID duty due to the high transmission rate. With a disease which had such a great morbidity and mortality index students were scared for their own health.

Working in a pandemic for the new medical graduates was quite disheartening. It wasn't easy for the students to see deaths at such a large scale even after giving their all efforts to work for the patients and because of this and many other factors about 29% students had lost their interest in the medical field. Seventy percent residents had decreased efficiency due to excess workload. Fourteen percent residents were infected more than once while 29% got infected once while working or after working in COVID posting. Still all residents did their duties and worked sincerely with great devotion, when the nation needed them the most.

4.3 Psychological Impact

The mental health of students of both undergraduate and postgraduate sections suffered during the pandemic to a large extent. There was stress,

anxiety, depression noted amongst many medical students[21]. Sixty-six percent students had a negative mood most of the time. There were multiple stressors, thus leading to an increased percentage of the students being with a negative mood. The education was disrupted, clinical experience was decreased and also their training with variety of patients was decreased. Seventy-eight percent students felt tired doing everything. Seventy-six percent students felt every task was effortful to them during the pandemic. The students gradually started showing depressive symptoms, of which feeling tired and lack of motivation to do tasks are some of the major ones. Seventy-six percent students got a proper sleep in during the pandemic, with 71% students feeling sleepy even after adequate rest.

The undergraduate students had to stay at home and continue with online classes, resulting in lack of proper clinical postings and social isolation of the students. While the postgraduate residents were compelled to work in the COVID wards for longer periods and sacrifice their own specialty duties, lack of PPE[1] during that time led to agitation, tiredness and frustration amongst the students. Ninety percent students were worried about their family being infected by them, with 28% students' families being affected by them to some or other extent. The families of these students were at a constant risk. Some students stayed with their grandparents as well as parents, both of which age groups had the highest risk. Sixty percent students felt disinterested all the time. The students tried to keep themselves in a positive mood by doing various activities, with 33% spending time with families, 8% using social networking sites, 27% watching movies and series, 8% studying, 14% pursuing their hobbies and 10% taking rest. The students were not in the most positive state of mind during the pandemic. They tried various ways to get away with the thoughts about their career, family, education and so on. Sixty-five percent students are willing to do COVID duty if needed again. Seventy percent students are scared about COVID pandemic affecting their career. To a large extent, the pandemic had created a sense of insecurity among the students. Nonetheless, the country required future doctors to assist during the pandemic crisis, and the students performed their duties admirably. Although students had difficulties with online classes during the pandemic, and residents had exhausting shifts, excess workload and fewer patients from their own branches, they understand and are grateful that the colleges and authorities took the necessary precautions.

5 Pedagogical Shift in and After the COVID Pandemic

Because of the pandemic, there has been an unexpected pedagogical shift in medical schools. Online method of education is not beneficial to any student when the education system as a whole is taken into consideration, and in this regard, medical education is the most susceptible to being negatively affected by it.

The adoption of a hybrid model in medical education might be appropriate for the time being, but in the long run, this will undoubtedly lead to the production of incompetent medical professionals. Since natural disasters and pandemics would both be unavoidable, the learning process of the medical system's backbone should not be slowed down under any circumstances; instead, responsible members ought to invent and work on developing sustainable sources. Even if the students have completed the most advanced level of medical education, they will still have a healthy amount of scepticism regarding the efficacy of a given treatment because the number of patients they had seen in those fields is significantly lower. The cases need to be seen to a significant degree because each individual instance of a particular disease might not present with the same collection of signs and symptoms, and the subsequent method for diagnosing diseases would only be possible if these students saw cases and worked on such cases. As for anatomical knowledge, simply reading textbooks isn't enough; students need to perform dissections nearly every day in order to get a solid understanding of the body's structures and organs. Similarly, each and every subject covered in medical education is very heavily dependent on practical knowledge, and this cannot be taken for granted. The teaching staff along with every person involved with education sector have become well versed with the technology due to the pandemic and that has made us to think out of the box which can be considered a boon. The universities can build a platform with the help of technology which can enable us to blend the medical education in a hybrid method and present it in such a way that the education system would be at its extreme potential, hence leading us to conduct the 19 distinct subjects in such a way that the students will graduate with solid knowledge, experience and confidence in their ability to practice medicine in the future even if any disaster comes in the future.

6 Conclusion

From findings from our study, the majority of UG and PG students who took part in the survey believe that the COVID pandemic has harmed their education in various ways. To continue during the pandemic, the traditional method of medical education was abruptly discontinued, necessitating curriculum changes which wasn't as effective as before. The students believe that the pandemic has resulted in decreased clinical knowledge and understanding of case diagnosis, which would not have been the case in normal educational settings. Students were dissatisfied with the online lectures and postings, while postgraduate residents believe they have less clinical experience in their specialty with saturated patients of same diagnosis and decreased cases of other diseases. Furthermore, this has undoubtedly impacted them in a way that has had a significant impact on their mental health. Many students experienced depressive symptoms during the pandemic and they are still concerned about the pandemic affecting their careers.

Additionally, we believe that students should be encouraged to open up about their experiences, as well as receive regular counselling and advice on how to maintain a healthy mental state. In an effort to reduce the stress that comes with working in the medical field, activities like interactive sessions between students and counsellors should be implemented. In the event of a pandemic or other crisis, a substantial platform with recorded clinical cases and explanations, as well as demonstrations of various tests on patients of various diagnoses, as well as proper scheduling and delivery of lectures, should be built to provide a strong foundation for students.

The authorities including lawmakers, politicians, policy makers, educationists, researchers, academicians, health workers and police need to take a call from this pandemic. They need to create infrastructure, laws, syllabus, policies and training and be ready for any future pandemic, so that none of the stakeholders are affected in the future and will be prepared for such a critical situation.

6.1 Limitations

The participants are undergraduate and postgraduate students from various medical colleges and hospitals and are from different specializations. So the wide range of differences in opinion is due to exposure of the students to varying levels of academic and clinical experiences as well as the specializations opted for.

Declaration

Conflict of Interest The authors state that there is no conflict of interest in this study.

Disclosure Consent was taken from the participating students as well as an information sheet was made available for the students consisting of all the necessary information about the study in the languages of Hindi, English and Marathi including the contact details of the researches.

Ethical Consideration This study was conducted after obtaining approval from the Institutional Ethics Committee (IEC) of M.G.M. Medical College, Navi Mumbai. The study was performed according to the international code and standards of research ethics.

Questionnaire Validation The survey was designed based on an extensive literature review and was validated by multiple revisions and editing. Moreover, a pilot study consisting of 50 medical interns who reviewed the questionnaire before circulation and ensured a clear understanding of questions or any discrepancies noted.

Financial Disclosure We have not obtained or received any grants from any funding agencies in public or commercial sectors.

CHAPTER 7

Wellbeing of Resident Doctors During the COVID-19 Pandemic; Its Impact on Medical Education and Its Future

Dhruv Parmar, Ruksheda Syeda, and Heena Merchant

1 Background

The coronavirus disease 2019 (COVID-19) pandemic has had a negative impact on the mental health and subjective psychological wellbeing of a majority of studentsand teachers across all educational institutions Doctors who are medical residents are one of the groups most impacted. Normally, resident doctors are affected by work-related stressors including lack of control, unpredictable case load, stressful work conditions, financial remuneration, work-life conflicts and burnout. But with the added impact of

D. Parmar
Neuropsychiatric Care Centre, Valsad, Gujarat, India

R. Syeda
Trellis Family Centre, Mumbai, India

H. Merchant (✉)
Consultant Psychiatrist and Department of Psychiatry, Lokmanya Tilak Municipal General Hospital & Medical College (LTMGH &MC), Mumbai, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_7

COVID-19 they experienced even greater degrees of stress. Further adding to the already stressful situation was the dire shortage of trained manpower. Hence a study was conducted to understand the prevalence of psychological symptoms of COVID-19 on resident doctors as well as taking a look into the other studies and relevant literature pertaining to the same. Depression, anxiety and stress were found to be prevalent in the resident doctors. The mental health needs of the resident doctors are serious and will not disappear even when the COVID-19 does; hence, it is important to prioritize their wellbeing immediately and after the pandemic. The pandemic has forced all educational institutions to be in the online/virtual mode but created a major challenge for training and teaching of medical professional graduates and those dealing with specialties. This chapter also addresses the future manpower requirements in the health sector and how medical education has to be re-designed for the future. This chapter also presents a comprehensive analysis of the existing structural and systemic challenges applicable to medical students and teaching/training programmes and the impact of COVID-19 on medical students and education.

2 Introduction

The World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) as pandemic on 11 March 2020 (WHO, 2020). As with rest of the world, India is one of the countries to have suffered the worst of the COVID-19 pandemic. In India, from 3 January 2020 to 6:09 pm CEST, 10 June 2022, there have been 43,205,106 confirmed cases of COVID-19 with 524,747 deaths, reported to WHO (WHO, 2020).

This surge in cases put a huge burden on the healthcare system. The surge of COVID-19 cases almost put the healthcare system on the brink of a breakdown (Menon et al., 2020). With healthcare workers being the first responders in this crisis, the resident doctors faced the brunt of the pandemic Literature suggests that there is a high prevalence of mental health problems such as burnout, insomnia, anxiety and depression among HCWs (The Lancet, 2021; Maunder, 2004). In the context of the current pandemic, the ever-increasing patients, the rising deaths, the endless hours of work, the helplessness at the lack of resources, the fears of contracting COVID-19 or infecting their families, all these have added fuel to the already emerging mental health crisis in the healthcare sector(6). Mental health issues among resident doctors impact their competency and

motivation and further increase risk of burnout and emotional drainage, hampering their healthcare response to COVID-19 (Kang et al., 2020). As mentioned by Angres et al. (2003) and Kalmoe et al. (2019), healthcare workers have comparably higher rates of psychiatric comorbidity, substance use and suicidality as compared to other professions (Angres, 2003 and Lamoe, 2019).

Government regulations of social distancing and lockdowns have impacted medical training and education significantly. Lower inputs of non-COVID-19 patients in the outpatient and inpatient care, reduced elective surgical and medical procedures, and has led to reduced learning experiences hampering the academic progression (Reena Jatin et al., 2021). This disruption in medical education and training has adversely impacted traditional medical education and medical students and is likely to have long-term implications beyond the pandemic (Sharma & Bhaskar, 2022). Medical education is traditionally based on hands-on learning via clinical postings, lectures and demonstrations; the pandemic has thus posed a huge challenge for continuing this method. This has given rise to other methods like online and remote learning via virtual lectures and teaching medium. This chapter aims to discuss the impact of the pandemic on wellbeing of resident doctors as well as its impact on their medical education and training; to make recommendations to accept the new normal which is inclusive of the mental health needs of medical students and their continued education.

3 Literature Review

Relevant literature was identified via PubMed, Google Scholar and Medline review, including original, opinion and perspective articles, topic reviews, official national medical associations/bodies and societal guidelines and media sources. The search was performed using the keywords "Medical Students", "COVID-19" and "Medical Education". The PICO template, with population (medical students), intervention (COVID-19), comparator (standard medical education pre-COVID-19) and outcome (impact on medical students/education and changes adopted due to COVID-19), was used. Mentioned below are a few studies relevant to the same:

A study from Vietnam to find the fear of COVID-19 among medical students from eight medical colleges having a sample size of 5423 found that factors such as better health literacy, older age, later academic years,

male gender and better financial status were protective from fear. Those with greater scores in fear were more likely to smoke and drink at the same or higher level than before the pandemic (Nguyen et al., 2020). Collado-Boira et al. did a study in Spain regarding willingness to participate in the health workforce; fears about infection, familial transmission and lack of PPE; confidence in terms of knowledge and skills and coping. The study included 62 final-year medical students and nursing students. They found that there were profound fears in all domains, particularly with respect to familial transmission, their practical knowledge and skills, and coping with the death of patients (Collado-Boira et al., 2020). A study by Khanna et al. from India on 2355 ophthalmologists and ophthalmologist trainees was conducted with the objective to study the impact of training on professional work, financial implications, and to find symptoms of depression. Their study reported that 52.8% felt their training or professional work would be seriously affected by COVID-19, 37% reported difficulties meeting financial commitments and 32.6% had some degree of depression (Khanna et al., 2020). In a study on 115 plastic surgery residents in Italy which aimed to find the impact of COVID-19 on didactics and preparedness for surgery, Zingaretti et al. found that although residents reported increased didactic activities compared to pre-COVID-19, the majority reported them as insufficient. Additionally, most reported their preparedness for operations as either "Not at all" or "Not Much" (Zingaretti et al., 2020).

Garcia et al. did a study in the United States among 315 medical students and foreign medical graduates to determine the impact of the COVID-19 pandemic on medical students who were either considering or were already transitioning to neurosurgical careers. Their study reported that approximately two-thirds of respondents reported postponement of clinical placements and suspended in-person teaching. Greater than 50% of respondents reported reduced academic productivity. One in five first-year medical students reported that they are less likely to pursue neurosurgery as a career option (Garcia et al., 2020). A study on 1442 health professional students to find factors associated with psychological distress during the COVID-19 pandemic in China by Li et al. found that 26.63% of students had psychological distress that was clinically significant, whilst 11.10% had a probable acute stress reaction. They found that those who had experienced childhood adversity, stressful life event experiences in the past year and internet addiction were at greater risk of developing distress whereas good family functioning was found to be a protective factor (Li

et al., 2020). In another study on 217 medical students in China by Liu et al. on mental health status in medical students, it was found that 35.5% of students were in a state of depression and 22.1% had experienced anxiety. The majority of affected students had symptoms in the mild to moderate range (Liu et al., 2020). Meo et al. did a study in Saudi Arabia, which included 625 participants. The study aimed to find psychological wellbeing, stress and learning behaviours in first-to fifth-year medical students. They reported that feelings of emotional detachment and disheartenment were prominent. Additionally, they also found that students felt their work performance and time spent studying were reduced (Meo et al., 2020). Similarly, there are many studies on the impact of COVID-19 on postgraduate teaching and learning. Notably an Indian study by Wani et al. on the impact of COVID-19 on PG teaching and learning found that there was a decrease in PG teaching, as felt by 250 postgraduate students in terms of frequency and modality of classes. The study also looked into the difficulties and problems faced by the residents during the pandemics in terms of the progress in dissertation, lectures, seminars, clinical case discussions, surgical training, re-deployment challenges and the effect on their mental health. They found that a majority had a problem with their thesis and encountered problem in some form, 80.99% felt that their teaching was affected due to the pandemic and 42.6% of the participants felt stress all the time (Wani, 2021). In Pakistan, Abbasi et al. did a study to find attitudes and perceptions surrounding e-learning in medical and dentistry students. The study had 382 participants. They concluded in their study that most students had negative perceptions surrounding e-learning and preferred face-to-face learning (Abbasi et al., 2020).

The literature was examined to critically analyse existing structural and systemic challenges of medical education, with an emphasis on the use of technologies such as telemedicine or remote education, and formulate a synthesis on the impact of COVID-19 on medical education, students and training.

4 Research Methodology

A prospective cross-sectional survey was conducted at a Tertiary Municipal Medical college of Mumbai via an online method with the objective to assess the prevalence of depression, anxiety and stress among resident doctors. A questionnaire was made through Google Forms consisting of multiple questions regarding clinical training and workplace details, and the

DASS-21 scale was used to study the prevalence of depression, anxiety and stress. This was circulated using the WhatsApp application to the resident doctors. Data was collected and was analysed using the SPSS software.

Convenient sampling was done and the study participants were recruited as per the inclusion and exclusion criteria below.

Inclusion Criteria:

- Age of 18–35 years.
- Resident doctors actively engaged in management of COVID-19 patients.

Exclusion Criteria:

- Participants who did not give consent to be a part of the study.

After identifying the eligible participants as per the recruitment criteria, participants were approached for volunteering in the study. A self-administered questionnaire in the format of Google Forms link was used. The link was shared via social media platform for self-reporting the survey. There were three sections in the questionnaire. Section-I was the informed consent. Section II contained brief personal sociodemographic details and questions based on previous COVID-19 infection and COVID-19 vaccination. The DASS-21 questionnaire (by the University of New South Wales) made up Section-III (21). The questionnaire was created in English. All data was entered into a computer by giving a coding system, proofed for entry errors. Data obtained was compiled on a MS Office Excel Sheet (v 2019, Microsoft Redmond Campus, Redmond, Washington, United States). Data was subjected to statistical analysis using a statistical package for social sciences (SPSS v 26.0, IBM). All procedures performed in the study involving human participants were in accordance with the ethical standards of the Institutional Ethics Committee Human Research, the Staff and Research Society, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

5 Results

The present study included 120 resident doctors who were involved in management of COVID-19 patients. A majority (80.1%) of them were between 25 and 33 years of age and females (68.9%). More than half of

them were unmarried (55.8%) and about 65 (54.2%) had 1–3 family members dependent on them. All of them had taken their both doses of COVID-19 vaccine. About 30.7% healthcare workers had been infected with SARS CoV-2 in the past.

As per the morbidity parameters, up to 54% of healthcare workers had depression and anxiety. Of the 65 healthcare workers affected by depression, 41.6% were mild, 35.2% moderate and 23.2% were severe to extremely severe; and of the 50 healthcare workers affected by anxiety, 50.3% were mild, 24.8% moderate and 24.9% were severe to extremely severe. More than a third (36%) of healthcare workers had stress, of which 41.6% had mild form, 37.7% moderate and 20.7% had severe to extremely severe stress.

The results of this study clearly demonstrate that the prevalence of stress, anxiety and depression within resident doctors caring for COVID-19 patients is high.

6 Discussion

Looking at the alarming figures from the above study and the rampant prevalence of stress, anxiety and depression within resident doctors, strong measures are recommended for their wellbeing and mental health. Considering the severity of the pandemic scenario and the overburden of healthcare services, resident doctors' mental health deserves special care. Stakeholders and authorities concerned need to provide effective strategies to improve the mental health of these individuals.

Apart from affecting the mental health of resident doctors, COVID-19 has also deeply and affected the medical education system. There has been reduction in the amount of clinical teaching and number of classes taken for residents since the start of COVID-19 pandemic (Wani, 2021). Most medical schools in the country had cancelled face-to-face lectures, clinical postings, practical classes and demonstrations, and had moved to online lectures. This made it challenging for the hands-on approach for learning. Clinical placements offer students a valuable first-hand experience of medicine, with opportunities to develop history-taking and examination skills under the supervision of senior clinicians. It also offers students the ability to consolidate and apply their scientific knowledge beyond the classroom. Students may also have been disproportionately affected due to the increasing reliance on clinical exposure as they approached completion of their degree. This sudden interruption has had severe implications on both their academic performance and their mental health. With most

resident doctors being posted in the care of COVID-19 affected patients, there was a lack of patient input in non-COVID-19 clinics, thus leading to lack of clinical postings and rounds, which form an essential part of learning. Loss in hospital clinical postings has caused added fears surrounding deficiency in practical skills and training. This extends beyond just medical students, with surgical trainees being undertrained or underprepared or due to cancellation of elective surgeries, thus impacting even training of specialists. Resident doctors reported that their basic learning was affected due to cancellation of elective OTs, speciality OPDs, lab and research work for surgical branches, medical branches and para clinical branches respectively (Wani, 2021). There has also been a delay in thesis work, which is an essential criterion for postgraduation qualification, due to lack of available cases for recruitment. There was a delay in the conduction of examinations. Traditionally, medical training was well rounded but due to the pandemic the focus of the resident doctors training has shifted to COVID-19. The fact is that if had continued for a longer period, resident doctors in medical specialties could have lost or never developed skills in managing a broad range of medical pathologies. Resident doctors in specialized non–primary care specialties were on standby for COVID-19 wards due to markedly reduced patient volume in these specialties, further reducing the learning opportunities for them to become competent in their respective fields. There has been an overall uncertainty regarding their future and professional life.

It is not just the impact of the pandemic on the mind-sets of budding doctors that was worrisome; it was also the uncertainty that hung over the future prospects of these medical postgraduate students. With international licensing exams being called off, admission processes halted within and outside the country, examinations for many postgraduate medical courses postponed, there have been huge doubts, making the mental impacts of the pandemic on some medical postgraduate students worse than the others. Postponement of national-level competitive entrance exams proposes another threat to continuity of the supply of trained doctors and health workforce, which might result in a crunch in trained workforce in a few years. Hence, the impact is being experienced not just by existing medical students, but by future medical aspirants as well.

7 Future of Medical Education

COVID-19 has already triggered the introduction of new methods of learning in medical education. COVID-19 has led to a rapid uptake and development of online teaching to minimize disruption to student learning. Telecommunication technologies are an important component in this, with several institutions having implemented online teaching webinars, simulations and educational clinical skill videos. One popular method which has emerged is the use of streaming technology to deliver online lectures or tutorials. Education has changed dramatically in the internet age, with an increasing range of online resources and accessible content beyond the traditional textbooks. In an effort not to distract the educational process, the academic institutions worldwide have accelerated the development of online learning environment. Online distance education (ODE) can be generally delivered to medical students in two main formats: asynchronous distance education, such as recorded videos and podcasts, and synchronous (live) distance education (SDE), such as video conferences and virtual classrooms (He et al., 2021). One of the new models is the "flipped classroom", which is a blended type of learning mode with an asynchronous component that could allow medical students for more schedule flexibility, and a synchronous component that offers interaction between medical students and faculty members (Dedeilia et al., 2020). The adoption of online learning in medical education can have several benefits: one of the most positive aspects of ODE is the flexibility of time and location and the subsequent increased convenience, which means medical students are able to adapt their schedule in an easier way. Besides schedule flexibility, ODE can also be much more cost-effective than classroom-based learning, as it does not require educators to move, while more individuals across different institutions (or even countries) can participate in virtual courses. In addition, e-learning assists medical students to better adapt to a web-based medical world that increasingly uses digital health services. Multimodal teaching approaches catering to various aspects of learning have been implemented (Ruthberg et al., 2020), along with flipped learning methodologies, which involve students engaging with content prior to class and using later face-to-face time to clarify concepts. This is useful for teaching anatomy using online 3D modelling applications considering suspension of traditional cadaver-based anatomy demonstration at several institutions (Moszkowicz et al., 2020). Online teaching can be made more engaging and effective for students through

interactive tools such as voting polls, chat functions and videos (Singh et al., 2020). Additionally, intensive anatomy and clinical skills workshops, building on online learning resources, can be run when students return to in-person teaching to address deskilling and imposter syndrome concerns. Virtual tools such as virtual reality simulations, homemade simulations and smartphone modalities could benefit surgical trainees (Hoopes et al., 2020). These approaches, reliant on effective use of telecommunications technology, facilitate enhanced student pedagogy, and thus address the stressors of deskilling, progression and hindered knowledge. Involvement of students in telehealth to provide clinical exposure and help triage patients during the pandemic has been well received and facilitates controlled patient exposure with feedback (Chandra et al., 2020). Telehealth-based services to partially replace overseas elective placements, although not equivalent, may allow students to gain an enhanced understanding of another healthcare system. Webinars by experts from various medical disciplines have set a benchmark towards upskilling students and trainees and maintaining their interest and motivation. Using staggered timings to overcome issues related to time zones has been highly effective and can contribute to a global sense of community. Numerous institutions have also successfully implemented volunteering initiatives including research, assisting hospital triage, contact tracing and support hotlines to support medical services during the pandemic but also boost student morale as they develop skills and feel "useful" (Cerqueira-Silva et al., 2020). Telehealth service forms the backbone of such initiatives, allowing students to develop skills safely (Santos et al., 2020). Several tele psychiatry and support services have been started worldwide.

Considering increasing reports of mental health consequences of the pandemic on medical students and trainees, telemedicine can be harnessed to provide constant support to these individuals and resultantly safeguard our future generations of medical professionals from longer-term sequelae (Sharma & Bhaskar, 2022).

8 Conclusion

There has been a disruptive effect of COVID-19 pandemic on the education and training of medical students and the impact on their mental health. The pandemic has firmly challenged the healthcare system.

Attention to these issues for our future doctors is of utmost importance and this will help in developing a stable healthcare infrastructure to combat COVID-19. The only way forward is having regular meetings, audits and discussions to facilitate our resident doctors' training and work patterns, and measure to keep their mental wellbeing stable. The future of healthcare in India, and the world at large, depends on how our institutions collectively mitigate the damage to healthcare education caused as a result of this pandemic. There ought to be administrative interventions into the functioning of medical institutes across the nation to ensure that concrete efforts are made to help students cope with stress, anxiety and the academic losses they incurred due to the pandemic. There is a warranted need to accept and integrate the use of technology for medical education as the "new normal". The urgency of the pandemic has rapidly brought on the development of many innovative educational strategies across the world, the majority of which encompass the use of a variety of digital tools. Such initiatives must act as a stepping stone for evidence-based medical education to thrive even more in the future. Medical students, the future of our healthcare system, are vulnerable during the current pandemic, so targeted support for these students is warranted. COVID-19 has exposed systemic issues within our healthcare and education systems. Recognizing these issues and developing strategies to combat them are pivotal to our response to an infectious outbreak in the future.

Declaration

Ethical Consideration All procedures performed in the study involving human participants were in accordance with the ethical standards of the Institutional Ethics Committee Human Research, the Staff and Research Society, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Conflicts of Interest There are no conflicts of interest.

Disclosure Consent was taken from the participating students as well as an information sheet was made available for the students about the study.

Financial Disclosure Nil.

References

Abbasi, S., Ayoob, T., Malik, A., & Memon, S. I. (2020). Perceptions of Students Regarding E-Learning during COVID-19 at a Private Medical College. *Pakistan Journal of Medical Sciences*, *36*(COVID-1919-S4), S57. https://doi.org/10.12669/pjms.36.COVID-1919-s4.2766. http://www2.psy.unsw.edu.au/Groups/Dass/down.htm.

Angres, D. H., McGovern, M. P., Shaw, M. F., & Rawal, P. (2003). Psychiatric Comorbidity and Physicians with Substance use Disorders: A Comparison between the 1980s and 1990s. *Journal of Addictive Diseases, 22*(3), 79–87.

Cerqueira-Silva, T., Carreiro, R., Nunes, V., Passos, L., Canedo, B., Andrade, S., & et al. (2020). *Bridging Learning in Medicine and Citizenship During the COVID-19 Pandemic: A Telehealth-Based Strategy.*

Chandra, S., Laoteppitaks, C., Mingioni, N., & Papanagnou, D. (2020). Zooming-out COVID-19: Virtual Clinical Experiences in an Emergency Medicine Clerkship. *Medical Education, 54*, 1182. https://doi.org/10.1111/medu.14266

Collado-Boira, E. J., Ruiz-Palomino, E., Salas-Media, P., Folch-Ayora, A., Muriach, M., & Baliño, P. (2020). "The COVID-19 Outbreak"—An Empirical Phenomenological Study on Perceptions and Psychosocial Considerations Surrounding the Immediate Incorporation of Final-Year Spanish Nursing and Medical Students into the Health System. *Nurse Education Today, 92*, 104504. https://doi.org/10.1016/j.nedt.2020.104504

Dedeilia, A., Sotiropoulos, M. G., Hanrahan, J. G., et al. (2020). Medical and Surgical Education Challenges and Innovations in the COVID-19 Era: A Systematic Review. *In Vivo, 34*, 1603–1611. https://doi.org/10.21873/invivo.11950

Garcia, R. M., Reynolds, R. A., Weiss, H. K., Chambless, L. B., Lam, S., Dahdaleh, N. S., & Rosseau, G. (2020). Letter: Preliminary National Survey Results Evaluating the Impact of COVID-19 Pandemic on Medical Students Pursuing Careers in Neurosurgery. *Neurosurgery, 87*(2), E258–E259. https://doi.org/10.1093/neuros/nyaa214

He, L., Yang, N., Xu, L., et al. (2021). Synchronous Distance Education vs Traditional Education for Health Science Students: A Systematic Review and Meta-Analysis. *Medical Education, 55*, 293–308.

Hoopes, S., Pham, T., Lindo, F. M., & Antosh, D. D. (2020). Home Surgical Skill Training Resources for Obstetrics and Gynecology Trainees During a Pandemic. *Obstetrics and Gynecology, 136*, 56–64. https://doi.org/10.1097/AOG.0000000000003931

https://www.thehindu.com/society/medical-minds-the-pandemic-is-taking-a-toll-on-themental-health-of-indias-healthcare-workers/article34612828.ece

Kalmoe, M. C., Chapman, M. B., Gold, J. A., & Giedinghagen, A. M. (2019). Physician Suicide: A Call to Action. *Missouri Medicine., 116*(3), 211.

Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B. X., Wang, Y., Hu, J., Lai, J., Ma, X., & Chen, J. (2020). The Mental Health of Medical Workers in Wuhan, China Dealing with the 2019 Novel Coronavirus. *The Lancet Psychiatry, 7*, e14. https://doi.org/10.1016/s2215-0366(20)30047-x

Khanna, R., Honavar, S., Metla, A., Bhattacharya, A., & Maulik, P. (2020). Psychological Impact of COVID-19 on Ophthalmologists-in-Training and Practising Ophthalmologists in India. *Indian Journal of Ophthalmology, 68*(6), 994. https://doi.org/10.4103/ijo.ijo_1458_20

Li, Y., Wang, Y., Jiang, J., Valdimarsdóttir, U. A., Fall, K., Fang, F., Song, H., Lu, D., & Zhang, W. (2020). Psychological Distress Among Health Professional Students During the COVID-19 Outbreak. *Psychological Medicine, 51*(11), 1952–1954. https://doi.org/10.1017/s0033291720001555

Liu, J., Zhu, Q., Fan, W., Makamure, J., Zheng, C., & Wang, J. (2020). Corrigendum: Online Mental Health Survey in a Medical College in China During the COVID-19 Outbreak. *Frontiers in Psychiatry, 11*, 1–6. https://doi.org/10.3389/fpsyt.2020.00845

Maunder, R. (2004). The Experience of the 2003 SARS Outbreak as a Traumatic Stress Among Frontline Healthcare Workers in Toronto: Lessons Learned. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 359*(1447), 1117–1125.

Menon, V., Kar, S. K., Ransing, R., & Arafat, S. Y. (2020). Impending Second Wave of COVID- 19 Infections: What India Needs to do? *Asia-Pacific Journal of Public Health, 33*(4), 456–457.

Meo, S. A., Abukhalaf, D. A. A., Alomar, A. A., Sattar, K., & Klonoff, D. C. (2020). COVID-19 Pandemic: Impact of Quarantine on Medical Students' Mental Wellbeing and Learning Behaviors. *Pakistan Journal of Medical Sciences, 36*(COVID-1919-S4), S43. https://doi.org/10.12669/pjms.36.COVID-1919-s4.2809

Moszkowicz, D., Duboc, H., Dubertret, C., Roux, D., & Bretagnol, F. (2020). Daily Medical Education for Confined Students During Coronavirus Disease 2019 Pandemic: A Simple Videoconference Solution. *Clinical Anatomy, 33*, 927–928. https://doi.org/10.1002/ca.23601

Nguyen, H. T., Do, B. N., Pham, K. M., Kim, G. B., Dam, H. T., Nguyen, T. T., Nguyen, T. T., Nguyen, Y. H., Sørensen, K., Pleasant, A., & Duong, T. V. (2020). Fear of COVID-19 Scale—Associations of Its Scores with Health Literacy and Health-Related Behaviors among Medical Students. *International Journal of Environmental Research and Public Health, 17*(11), 4164. https://doi.org/10.3390/ijerph17114164

Reena Jatin, W., Hema Prakash, R., Sayali, W., & Yashashree, S. (2021). Impact of COVID-19 Pandemic on Post Graduate Medical Residency in a Medical

College of Mumbai. *International Archives of Public Health and Community Medicine, 5*(2). https://doi.org/10.23937/2643-4512/1710058

Ruthberg, J. S., Quereshy, H. A., Ahmadmehrabi, S., Trudeau, S., Chaudry, E., Hair, B., et al. (2020). A Multimodal Multi-Institutional Solution to Remote Medical Student Education for Otolaryngology During COVID-19. *Otolaryngology and Head and Neck Surgery, 163*, 707–709. https://doi.org/10.1177/0194599820933599

Santos, J. J., Chang, D. D., Robbins, K. K., Cam, E. L., Garbuzov, A., Miyakawa-Liu, M., et al. (2020). Answering the Call: Medical Students Reinforce Health System Frontlines Through Ochsner COVID-19 Hotline. *The Ochsner Journal, 20*, 144. https://doi.org/10.31486/toj.20.0065

Sharma, D., & Bhaskar, S. (2022). Addressing the COVID-19 Burden on Medical Education and Training: The Role of Telemedicine and Tele-Education During and Beyond the Pandemic. *Frontiers in Public Health, 8*, 589669. https://doi.org/10.3389/fpubh.2020.589669

Singh, K., Srivastav, S., Bhardwaj, A., Dixit, A., & Misra, S. (2020). Medical Education During the COVID-19 Pandemic: A Single Institution Experience. *Indian Pediatrics, 57*, 678–679. https://doi.org/10.1007/s13312-020-1899-2

The Lancet. (2021). Health and Care Workers are Owed a Better Future. *The Lancet, 397*(10272), 347.

WHO. (2020). Coronavirus Disease (COVID-19) Pandemic. WHO Dashboard, 5th July 2022, https://COVID-1919.who.int/region/searo/country/in

Zingaretti, N., Contessi Negrini, F., Tel, A., Tresoldi, M. M., Bresadola, V., & Parodi, P. C. (2020). The Impact of COVID-19 on Plastic Surgery Residency Training. *Aesthetic Plastic Surgery, 44*(4), 1381–1385. https://doi.org/10.1007/s00266-020-01789-w

CHAPTER 8

COVID-19 and Future of Technical Education in India: A Focus on Employability Skills of Engineering Graduates

Antra Singh and Seema Singh

1 Introduction

The World Health Organisation (WHO) officially announced the discovery of the novel coronavirus, COVID-19, that rapidly spread across the world impacting almost every household in the world. Individuals across the world faced adversities caused by this virus in terms of loss of jobs, lives, income and health. Its impact was drastically felt in all the sectors of

A. Singh (✉)
Delhi Technological University, Delhi, India

Delhi University, Delhi, India
e-mail: antra@interweave-ventures.com

S. Singh
Department of Humanities, Delhi Technological University, Delhi, India
e-mail: seemasingh@dce.ac.in

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_8

the economy, be it manufacturing, construction, education, health, hospitality or service sector. During 2019–20, the growth rates of the primary sector (comprising agriculture, forestry, fishing and mining & quarrying), secondary sector (comprising manufacturing, electricity, gas, water supply and other utility services, and construction) and tertiary sector (services) have been estimated as 3.3%, (-)1.1% and 7.2% as against a growth of 2.2%, 5.8% and 7.2%, respectively, in the previous year (MOSPI, 2020). COVID-19 outbreak caused disruption in the economy and also impacted the education system adversely. With the virus transmitting at rapid speed the government decided to close the schools and colleges as a precautionary step and after a fortnight of first lockdown the physical mode of classroom teaching was replaced by the online mode. Higher education institutions tried to provide seamless education throughout this lockdown but students as well as teachers faced difficulties in terms of adopting new mode of teaching, inadequate infrastructure, challenging pedagogy and others. Yet, the closure of educational institutions has deeply impacted millions of students worldwide (Karakose & Malkoc, 2021; UNESCO, 2020; Zhang et al., 2020).

2 Literature Review

According to the UNESCO Report, 2020, 1.57 billion students were impacted by COVID-19 across the world due to closure of education institutions (UNESCO, 2020). This section provides an exhaustive literature review of the problems and challenges faced by teachers and students during online sessions based on previous empirical studies.

3 Impact of COVID-19 Pandemic on Higher Education

COVID-19 outbreak brought an unexpected halt to education sector with lockdown leading to closure of educational institutions disrupting admissions, examinations, classes and other activities. It led the government and school authorities to explore alternatives for continuing educational activities. As a result, the physical mode of education was replaced with the online mode of education, bringing a revolutionary change in the education system and contrarily, posing challenges for the stakeholders to adapt to the new technological changes. Various platforms were introduced to both teachers and students like Google Meet, Webex and

Microsoft teams; some were providing free services and others charged subscription fees beyond a certain time limit. Both the groups tried to adjust to the online mode and gradually assignments and class activities were conducted. Despite classroom sessions gaining momentum, teachers raised concern over many students not attending lectures regularly, not responding in the online session, not submitting assignment on time and copying the answers/assignments from materials available online. Students were impacted by mental health disorder due to the COVID-19 pandemic (Odriozola-González et al., 2020; Sahu, 2020; Kapasia et al., 2020), unsatisfactory learning (Yekefallah et al., 2021), tiredness, stress, depression and anxiousness (Camacho-Zuñiga et al., 2021).

A short-term impact of COVID-19 on teaching and learning faced by institutions was inadequate capacity for delivering online classes in terms of technology and tools; switching to online mode was a problem faced by facilitators especially in streams with practical component (Farnell et al., 2021).

Streams like chemistry, physics, engineering, biology and medicine are a few subjects requiring practical exposure. Theoretical classes provide conceptual clarity to students, practical classes provide them experiential learning and practice leads to perfection. These practical classes also enhance skills like team work, self-reliance, self-learning, problem solving skills, adaptability and others. For the application of concepts, it is important to apply them in practical life. It was difficult to conduct research work and practical on online mode. Not only teaching practical classes were a challenge but assessing student performance too was very difficult during online classes. Laboratories, usage of design tools and other learning material are imperative for engineering students; they were missing during online sessions which posed as major challenge and adversely affected students learnings.

4 Impact of COVID-19 Pandemic on Indian Economy

COVID-19 had a devastating impact on the economies worldwide and its impact was visible in all segments of the society. Most of the developed nations were also not prepared to deal with the pandemic and then its induced lockdown. There was panic, chaos and uncertainty in the absence of any cure for this deadly virus and every country prioritized on providing aid and healthcare to every individual of the nations. Economic

disturbances were visible and extreme and extended in developing and emerging countries with bigger domestic outbreaks and the more fragile and weak healthcare system, with larger exposure to international spill-overs through various channels like trade, tourism, and commodity and financial markets, weaker macroeconomic frameworks and more pervasive informality and poverty (Global Economic Prospects, World Bank, 2020). Table 8.1 demonstrates ranking and gross domestic product (GDP) growth rate and unemployment figures of BRICS nations and providing India's position.

India ranks fifth in terms of GDP growth rate with -8% which is least as compared to its other counterparts and ranks third in unemployment rate and is currently in its reviving stage. The government has infused reforms and accelerators to support the sectors that have suffered during this pandemic. Sectors like trade, travel and tourism were severely impacted followed by automobile, manufacturing, entertainment, education and service sector, and so on. Pandemic-imposed partial and full lockdown had both demand-side and supply-side effects on the Indian economy. On the supply side, restrictions on movement of goods, services and personnel affected the production ecosystem and reduced the economy's disposable income and savings, thus impacting the demand side (Sahoo & Ashwani., 2020). Indian economy shrank to 3.1% in the January–March quarter massively due to disruption in the supply chain of different sectors (Nayak et al., 2020). This led to a spike in unemployment rate from 7.5% in January 2020 to 23.4% in April 2020 (CMIE, 2021). India's development in the fourth quarter of fiscal year 2020 declined to 3.1% (MOSPI, 2020).

Table 8.1 Economic data—BRICS nations

Country	*GDP Growth rate in 2020 (in % age)*	*Rank in terms of GDP growth rate*	*Unemployment 2020 (% age of total labour force)*	*Rank in terms of unemployment rate*
Brazil	-4.1	3	13.2	2
China	2.3	1	3.8	5
India	-8	5	7.1	3
Russia	-3.1	2	5.8	4
South Africa	7	4	29.2	1

Source: International Monetary Fund, 2021; World Economic Outlook database, 2021. World Bank Unemployment estimates, 2020

The sectors impacted by COVID-19 pandemic are travel, transportation, real estate, construction, manufacturing and real estate, which were the worst hit, accounting for an increase in unemployment rate and these sectors are labour-intensive sectors and provide livelihood to a majority. On the other hand, there are sectors like media, finance, food and healthcare which showed a growing trend during the pandemic.

4.1 Employability Skills During COVID-19

The concept of employability skills has been discussed for a number of years but over the last couple of decades graduate employability has attracted researchers' interest. Numerous studies have introduced the attributes related to employability skills such as core skills, transferable skills, generic skills, functional skills and enterprise skills. Studies on employability skills differed with regard to direct or indirect measurement depend on occupational title, qualification and level of education, years of work experience and numbers of training (Ashton & Green, 1996). The concept of employability is centred on the development of communication, numerical accuracy, information technology and willingness to learn (Mason et al., 2003). Employability was based on interrelated components related to students' academic performance, ambitions, confidence and awareness of opportunities (Rothwell & Arnold, 2007).

There are various definitions of employability skills as defined by the scholars, such as the basic skills necessary for getting, keeping and doing well in a job, and which cut horizontally across all industries and vertically across all jobs (Singh & Singh, 2008; Robinson, 2000). It is also defined as skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions.

Employability is a set of achievements, skills, understandings and personal attributes that make graduates more likely to gain employment and be successful in their chosen occupations, which benefit themselves, the workforce, the community and the economy (Yorke, 2004).

Employability comprises certain levels of cognitive skills, generic competencies, personal capabilities, technical ability, business/organization awareness, and critical evaluation, reflection and review abilities (Kubler & Forbes, 2005).

Employability is derived from complex learning, and is a concept of wider range than those of 'core' and 'key' skills. It also states that

employability is a collection of capacities or achievements which constitute a necessary, but not sufficient, condition for gaining employment (which is dependent, inter alia, on the contemporary state of the economy) and considerably more complex than some proponents of 'core', 'key' and 'transferable' skills have suggested, and is strongly aligned with the academic valuing of good learning (Yorke & Knight, 2006).

Employability skills focus on graduates' abilities to adapt and use their personal and academic skills to create more tangible educational outcomes that associate graduate employability with employment. It also refers the readiness of new graduates to contribute to their organizations in terms of skills, knowledge and attitude, as well as pragmatic industry understanding (Mason et al., 2006). Subsequently, it also relates to the ability of the graduates to be competent in soft skills (Ahmad et al., 2010), which could contribute to the graduates more likely to gain employment and be successful in their chosen occupations, which benefit themselves, the workforce, the community and the economy (Knight & Yorke, 2002). Not only that, the graduates are also required to be adaptable and flexible where they can easily learn, relearn and unlearn current and new knowledge to be able to make changes as required by the economic and technological environment at the time (Saad et al., 2013). Thus, the concept of employability can be observed in situations where new graduates are able to make themselves valuable to the organizations by possessing skills, knowledge and attitude relevant to the requirement of the organizations. Engineering graduates need to realize that having a good degree no longer sets them apart from other candidates in today's job hunting. Graduates must be able to market themselves by performing good employability skills, especially technical skills (Yusoff et al., 2012).

According to the Ministry of Education, India has 6214 engineering and technology institutions which enrol 2.9 million students, out of which 1.5 million engineers are presented to the job market every year. Around 97% of graduating engineers seek jobs either in software or in core engineering fields. Merely 3% possess the required skill sets to be employed in software or product market and only 7% can handle core engineering tasks. The dismal state of engineering education in India ensures that they unostentatiously do not possess requisite employability skills. It is leading to a situation where the graduates are collecting their degrees despite not being skilled enough to be a productive part of the Indian economy. The cause for this malady is the traditional education sector in our country that has not evolved at the same pace as the industry.

According to McKinsey Global Institute Report, 2018 the demand for technological, social and emotional, and higher cognitive skills will rise by 2030. And if India wants to reap the optimum utilization of its demographic dividend, it needs to seriously work on improving the current higher education system.

There has been a steep increase in the number of engineering institutions in the last couple of decades leading to an increase in the supply of labour force. With a massive number of job seekers entering the labour force, the major concern is the quality of the graduates. There is demand in the Indian labour market for engineering graduates but the employers are not satisfied with the quality of new recruits and it can be a reflection of the fact that placement percentage of engineering graduates is around 41% and one prominent reason for the occurrence of this gap may be the lack of employability skills. Despite introduction of new branches of engineering, still most of the engineering institutions follow the traditional structure. With expeditious development in the field of science and technology, there is stagnation in the course curriculum. The structure of the course curriculum is predominantly theoretical, and students are not aware of its applications (Singh & Singh, 2021). This was the scenario when the physical mode of classes was conducted with practical, laboratory usage, designing tools, field visits and experiential study. COVID-19 disrupted the normal course of study and students as well as teachers had to adapt to the virtual mode. The obvious questions that now arise are: Would the quality of students in terms of their employability skills deteriorate further? Are the graduating students prepared to work in the new normal? Do they have current employability skills to earn and retain their jobs? What steps are being made by engineering institutions to prepare these graduating students to meet market demands?

The chapter thus tries to provide answers to these research questions and fill the void related to employability status of engineering students graduating at the threshold when the economy is reviving under pressure amidst fierce competition.

5 Research Methodology

This chapter is the outcome of an observational study conducted at seven engineering colleges in the National Capital Region, India. A total of 90 faculty members and 800 students from six engineering departments participated in the survey and answered quantitative questions to highlight

the challenges they experienced during online instruction from October to December 2021. Our results identified various issues that negatively influenced the online engineering education including logistical/technical problems, learning/teaching challenges, privacy and security concerns, and lack of sufficient hands-on training. For example, more than half the students indicated lack of engagement in class, difficulty in maintaining their focus and Zoom fatigue after attending multiple online sessions to address various identified challenges; we recommend strategies for educational stakeholders (students, faculty and administration) to fill the tools and technology gap and improve online engineering education. As the pandemic comes to a close, sharing the results of this study with other educators can help with more effective planning and choice of best practices to enhance the efficacy of online engineering education in the post-pandemic period.

A total of 90 instructors took the survey where 43% of them were full-time faculty and the rest were part-time lecturers. Eight hundred students were approached and 627 students' data were considered (participation rate being 78.3%) and responded to the survey: First-year students (4%), second year (14%), third year (30%), fourth and final year (52%). Our survey sample population was intended to represent all the departments in proportion to their student strength. Our goal was to identify and study the magnitude of various issues that our faculty and students encountered during the six weeks of online instruction between October 23 and December 8, 2021. The faculty and student surveys were designed by holistically considering the overall verbal feedback received from stakeholders during online instruction at the beginning of the academic year 2021–2022.

6 Findings and Analysis

The study was conducted in two phases. The first phase was conducted to understand the problems faced by graduates and understand their readiness to face the new normal challenging markets, and the second phase was conducted based on the response of faculty and understanding challenges before them in preparing students for the labour market.

Out of 627 student respondents, 514 were male respondents and 113 were female respondents. Twenty-five students were studying in the first year, 88 student respondents were in the second year, followed by 188 and 326 from third and final years as stated in Table 8.2.

Table 8.2 Demographic profile of student respondents

Profile	*Classification*	*Respondents*
Gender	Male	514
	Female	113
Year of study	1st year	25
	2nd year	88
	3rd year	188
	4th year	326

Source: Self Compiled

They were asked about the challenges they faced when the physical mode was shifted to online mode; the majority constituting 598 student respondents shared that they faced problems in switching to online mode and the remaining 29 students replied they were comfortable with the virtual mode and found it beneficial as it helped them cope with the stress during the second wave which took a toll on their mental and physical well-being. Majority of the students (comprising 320) stated that lack of infrastructure (including laptop, network connection, web camera, mobile phone, difficulty in submitting assignments and projects) was a major problem followed by difficulty in understanding and having less time to clear doubts, as stated by 240 student respondents; 38 respondents stated other problems like stressful environment, fatigue in taking up online classes, increase in screen exposure leading to weak eyesight and dryness in eyes, disruption in network, chaos in the class group and frequent changes in time table.

When student respondents were asked about their performance during online classes, initially they were reluctant to respond but then a majority comprising 428 students said that there was little interaction in the classes since many frequently asked unrelated questions and caused disruptions. Teachers asked students to raise questions before the classes ended but at that time many students signed off and others did not respond. Fifty-two students stated they did not understand instructions related to assignments and projects during online sessions and were not able to follow them either on the WhatsApp class group or on Google classroom which delayed their submissions. Thirteen student respondents did not feel comfortable to respond to this question and 105 students stated their performance improved during online sessions.

Eighty-three students responded that they learnt new skills like adaptation, communication, listening, self-reliance and creativity during online sessions and 12% stated they enhanced their existing skills specially communication and listening skills as they focused on teachers lectures, and the remaining 5% stated they did not learn any new skill sets.

These students were also asked about their readiness to face the new normal market conditions on the reviving economy and 59% showed they were geared to take up the challenges on employment front, 33% students preferred upskilling themselves by continuing with higher studies like Master's in Business Administration (MBA) or Master's in Technology (M. Tech); the remaining 8% showed reluctance and felt they were not ready with the adequate employability skills to face the challenging market.

The survey conducted on these students was aimed at understanding the problems faced by students during online sessions, preparedness in terms of employability skills and assess their readiness for the challenging reviving economy. Ninety faculty members of these seven engineering institutions were surveyed to understand challenges faced by them in preparing students during online sessions. Of these 46 were female and 44 were male faculty; 67% faculty respondents were working as regular and permanent academic staff followed by 33% who were working as adjunct/visiting/contractual faculty. Understanding various platforms for taking online sessions was a major problem stated by 39 faculty followed by lack of infrastructure (laptop, network, mobile and connectivity were the most common issues with their family members too taking up their work or studies at the same time and students' response and performance during classes) as stated by 32 respondents. Twelve respondents stated they lacked technological knowhow as they were not technology savvy and seven respondents replied they did not face any challenge. Out of 32 respondents, it was interesting to note that all of the 32 respondents were female faculty who struggled between work and household duties during that period.

All the faculty members shared that they found taking online classes very challenging during the initial one month but with time they adopted to the new mode. They also shared that they tried to learn new features to keep classes interactive. Ninety-eight percent faculty respondents stated that taking practical sessions was impossible during online sessions but they tried to design the material in such a manner that students understand the concepts well.

Seventy-six percent faculty stated they felt overburdened as they had to take classes from their home environment. During the second wave many faculty members came under immense stress as either their family members or their neighbours were infected by the virus. The remaining 14% found it comfortable as they had more time to design the content to be discussed in class and their travel time and money were saved, so they felt more productive by shifting to online classes.

When faculty members were asked about assessment and evaluation of students, 95% stated that online classes had impacted their performance as the assignments submitted by the students were copy pasted from various online sources. Merely 5% stated there was no change in the performance and students had submitted their assignments and projects on time. Eighty-nine percent of the faculty members stated that the online mode would definitely have an impact on the employability skills of students and 11% faculty members were of the view that online mode is just an alternate setup to the regular teaching-learning mode. Further, they stated that they considered online teaching a boon as there was far less disruption in study.

Seventy-six faculty members stated that students responded in classes only when they were asked and after their names were repeated several times. A number of students attended classes but avoided any interaction, stating network issues. The remaining 14 faculty members were of the view that the attention span of students had improved during online sessions.

They were also asked about the initiatives taken up by the institutions to improvise and prepare the students for the labour market. Sixty-nine percent faculty members stated that job oriented webinars were conducted frequently to enhance the skills of students, 12% stated that assignments were also designed keeping in view the enhancement of employability skills, 9% stated they took extra sessions if they felt the need to help students in coping up with the stressful environment and preparing them for the labour market and 10% said that they tried to engage the students in the class with the help of case studies, discussions and motivated the students regularly. Faculty members, however, raised concerns about students who studied online joining internships, pointing out that they hardly had any hands-on training and would be pulled up for incompetence.

Eighty-two percent of faculty members stated that were of the opinion that engineering interns would be handicapped by the lack of practical training and could face problems in adjusting to the new normal. Eighteen

percent of the faculty were confident that their students would be absorbed by the labour market by bagging jobs with good remuneration even in these challenging times.

7 Challenges Before Engineering Graduates in the New Normal

Countries world over are at their revival stage economically. Some countries like India have picked up pace while many are still navigating their way to revival. But the markets, both domestic and international, are struggling to survive, due to paucity of funds and losses during COVID-19. Many organizations (big, medium and small) had to shut their business. Several organizations are back and are looking for opportunities. As far as the Indian economy is concerned, in terms of both resources and labour, the supply outnumbers the demand for products and services. This vicious circle is due to the loss of jobs and decrease in earnings. At this point in time, organizations prefer individuals who possess adequate employability skills and are ready to take up challenging tasks. They do not to want to invest in training.

However there are new emerging areas like Artificial Intelligence, Data Science, Digital Process Automation (DPA,) IT industry Multilanguage High End Programming and Robotic Process Automation which are opening up various windows of opportunities for graduates joining the labour force. If the stakeholders mutually put in sincere efforts and use digital platforms by encouraging students to build their skill sets with latest-in-demand technical skills through which their employability and job security can be ensured during the economic recession.

8 Conclusion

Organizations, institutions and students need to have a growth mindset and not a fixed mindset; they should be able to adapt to the changes. Technical knowledge and domain knowledge along with the soft skills are needed today. Students' employment skills need to be improved, but if all the stakeholders banded together and made major contributions, this obstacle could quickly be overcome. An analysis of the employment opportunities for engineering graduates in the post-COVID era points to the following:

1. **Reimagine organizations:** Organizations, most importantly training partners, should reimagine the services and solutions they offer and that too in an agile manner to cope with the constraints of COVID-19. In skill development, it is not possible to do away with physical presence or practical learning. Therefore, the adoption of digital technologies and blended learning is important in engineering education.
2. **Focus on what skills are important:** Youth and institutions should be aware of what skills are going to be important for the future. Contemporary domain skills, soft skills, financial literacy and digital savviness in most job roles are the most crucial ones.
3. **Transforming the informal sector:** COVID-19 has given an opportunity for the industry and academic institutions to collaborate. This will help build start-ups and provide engineering graduates in India to enter the growing informal sectors like healthcare, finance, hospitality sector and even the leisure industry. Technically trained graduates can craft solutions, provide services, even develop technological start-ups and create entrepreneurs.

Declaration

Funding No specific grant was given to this research by funding organizations in the public, private or not-for-profit sectors.

Declaration of Competing Interest The authors declare that they have no conflict of interest.

Ethical Consideration Each participant in the survey received information about the study's goals, gave informed consent and was asked to reaffirm their willingness to participate by responding to a Yes/No question. All study participants' privacy was protected by keeping their answers to the self-administered questionnaire anonymous and asking masking their identities.

References

Ahmad, S., Mohd Ishak, N., Ismail, K., & Selamat, J. (2010). Generic Competency Profile Among Students in Institute of Higher Learning: A Case of Universiti Kebangsaan Malaysia (UKM), Malaysia. *College Student J., 44*(3), pg 811-820.

Ashton, D. N., & Green, F. (1996). *Education, Training and the Global Economy.* Edward Elgar.

Camacho-Zuñiga, C., Pego, L., Escamilla, J., & Hosseini, S. (2021). The Impact of the COVID-19 Pandemic on Students' Feelings at High School, Undergraduate, and Postgraduate Levels. *Heliyon, 7*(3), e06465.

CMIE. (2021). https://www.bloombergquint.com/business/in-charts-the-emerging-economic-impact-of-a-nationwide-lockdown

Farnell, T., Matijevic, A. S., & Schmidt, N. S. (2021). *The Impact of COVID-19 on Higher Education: A Review of Emerging Evidence, European Commission Analytical Report.* Publications Office of European Union. https://doi.org/10.2766/069216

Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., & Mallick, R. (2020). Impact of Lockdown on Learning Status of Undergraduate and Postgraduate Students During COVID-19 Pandemic in West Bengal. *India Children and Youth Services Review, 23*, 105194.

Karakose, T., & Malkoc, N. (2021). Behavioral and Interpersonal Effects of the COVID-19 Epidemic on Frontline Physicians Working in Emergency Departments (EDs) and Intensive Care Units (ICUs). *Acta Medica Mediterranea, 37*, 437–444. https://doi.org/10.19193/0393-6384_2021_1_68

Knight, P. T., & Yorke, M. (2002). Employability Through the Curriculum. *Tertiary Education and Management, 8*(4), 261–276.

Kubler, B., & Forbes, P. (2005). *Student Employability Profiles.* London: CIHE.

Mason et al. (2003). Employability Skills Initiatives in Higher Education: What effects do they have on graduate labour market outcomes? *Education Economics, 17*(1), 1–30.

Mason, G., Williams, G., & Cranmer, S. (2006). *Employability Skills Initiatives in Higher Education: What Effects do They Have on Graduate Labour Outcomes?* National Institute of Economic and Social Research.

MOSPI. (2020). https://www.livemint.com/news/india/gdp-growth-rate-for-2019-20-revised-downwards-to-4-11611925568343.html

Nayak, J., Mishra, M., Naik, B., Swapnarekha, H., Cengiz, K., & Shanmuganathan, V. (2020). An Impact Study of COVID-19 on Six Different Industries: Automobile, Energy and Power, Agriculture, Education, Travel and Tourism and Consumer Electronics. *Expert Systems, 39*, e12677. https://doi.org/10.1111/exsy.12677

Odriozola-González, P., Planchuelo-Gómez, A., Irurtia, M. J., & Luis-García, R. (2020). Psychological Effects of the COVID-19 Outbreak and Lockdown Among Students and Workers of a Spanish University. *Psychiatry Research, 19*, 113108.

Robinson, J. P. (2000). What Are Employability Skills? Alabama Cooperative Extension. *System, 1*(3), 1–3.

Rothwell, A., & Arnold, J. (2007). Self-perceived employability: development and validation of a scale. *Personnel Review, 36*(1), 23–41. https://doi.org/10.1108/00483480710716704

Saad, M. S. M., Robani, A., Jano, Z., & Majid, I. A. (2013). Employers' perception on engineering, information and communication technology (ICT) students' employability skills. *Global Journal of Engineering Education, 15*(1), 42–46.

Sahoo, P., & Ashwani. (2020). COVID-19 and Indian Economy: Impact on Growth, Manufacturing, Trade and MSME Sector. *Global Business Review, 21*(5), 1159–1193.

Sahu, P. (2020). Closure of Universities Due to Covid-19: Impact on Education and Mental Health of Students and Academic Staff. *Cureus, 12*(4), 1–6.

Singh, G. K., & Singh, S. K. (2008). Malaysian Graduates' Employability Skills. *Unitar E-J., 4*(1), 15–31.

Singh, A., & Singh, S. (2021). Do Employability Skills matter in Placement: An Exploratory Study of Private Engineering Institutions and IT Firms in Delhi NCR. *The Indian Journal of Labour Economics, 64*, 1094–1193.

UNESCO. (2020). *Supporting Teachers and Education Personnel during Times of Crisis*. https://unesdoc.unesco.org/ark:/48223/pf0000373338

Yekefallah, L., Namdar, P., Panahi, R., & Dehghankar, L. (2021). Factors Related to Students Satisfaction with Holding E-Learning During the Covid 19 Pandemic Based on the Dimensions of E-Learning. *Heliyon, 7*(7), e07628.

Yorke, M., & Knight, P. (2006). *Embedding Employability into the Curriculum. Learning and Employability Series One*. Higher Education Academy.

Yusoff, Y. M., Omarb, M. Z., Zaharimb, A., Mohamedb, A., & Muhamad, N. (2012). Formulation in Evaluating the Technical Skills of Engineering Graduates. *Procedia - Social and Behavioral Sciences, 60*, 493–499.

Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending Classes Without Stopping Learning: China's Education Emergency Management Policy in the COVID-19 Outbreak. *Journal of Risk and Financial Management, 13*(55), 1–6. https://doi.org/10.3390/jrfm13030055

Yorke, M. (2004). Employability in the undergraduate curriculum: Some student perspectives. *European Journal of Education, Research, Development and Policy, 39*(4), 409–427.

CHAPTER 9

Proximate to Remote Learning: The Impact of COVID-19 on Law Students of Indian Higher Education Institutions in India—An Empirical Study

Richa Yadav and Dipti Pandey

1 Introduction

Laws are social institutions created to control economic, social, political, and cultural interactions between people. When the foundations of society are changing so quickly, the legal profession cannot stay static. Changes must be made.

R. Yadav (✉)
Amity Law School Noida, Amity University, National Capital Region (NCR), Noida, India
e-mail: ryadav6@amity.edu

D. Pandey
IILM University, Greater Noida, National Capital Region (NCR), Noida, India
e-mail: dipti.pandey@iilm.edu

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_9

Today technology is everywhere, and the youth in particular form the biggest chunk of technology users. The ever-expanding world of technology has brought a change in the way we communicate, disseminate information, and structure work and most importantly the way teaching and learning are conducted. Until human civilisation was hit by the pandemic, educational institutes were focused on "chalk and talk" classroom instruction. While COVID-19 disrupted each and every sector of our lives, the education sector adjusted to it in a more effective manner than other sectors. Technology came to the rescue when education came to a standstill and educational institutes stopped providing in-person education. The focus of this chapter is to analyse the technological impact on imparting education to law students of higher education institutes. The chapter discusses the challenges faced by law students in using technology in their teaching and learning endeavours, and it also deals with the advantages, possible solutions, and recommendations.

Various types of digital technology have been and are being used in tertiary institutions around the world to manage academic and non-academic activities, as well as to improve student performance. Higher education institutes are increasingly investing in the upgradation of technological methodologies to improve the teaching-learning experience of law students. Teaching and learning in educational organisations are influenced by economic, social, and technological forces. The need for cost-effective methods and rapidly changing and evolving knowledge and the search for an effective flexible education delivery from one part to any part of the world have created the need for different learning models which in turn have restructured the teaching and learning process (Urdan & Weggen, 2000). The famous quote from Oracle Corporation, "The Net changes everything," applies directly to the formal provision of education. Institutions that formerly relied on students gathering in campus-based classrooms are suddenly able (and many seem eager) to offer their programming on the Internet. Similarly, institutions accustomed to large-scale distance delivery via print or television are now being asked to provide more flexible, interactive, and responsive Net-based alternatives (Anderson & Elloumi, 2004).

When the COVID-19 epidemic suddenly erupted in the middle of the 2020 semester, legal education was forced to act rapidly in response to these structural pressures. As an emergency response to the coronavirus, law schools rapidly switched to remote-learning approaches, with variable degrees of effectiveness. In preparation for the 2020–2021 academic year,

law schools are now developing a number of transitory pedagogical and safety remedies to the COVID-19 pandemic. The pandemic forced the BCI (Bar Council of India) to issue guidelines to all Continuing Legal Educations (CLEs) for conducting online and offline examinations in an effective and synchronised manner to safeguard the future of law students.

In light of the COVID-19 epidemic, technology advancements, and the financial constraints that the majority of law schools are currently experiencing, this study forecasts that online learning approaches will continue to transform legal pedagogy. However, this gives law schools a chance to maximise the potential advantages of online pedagogy such as preparing students for online practice and virtual courts, lowering costs, and meeting the needs of non-traditional students, while minimising the drawbacks such as impaired discussion and analysis of legal issues, the use of flawed online teaching methodologies, the difficulty of creating community-building, and experiential learning opportunities.

2 Research Question

Considering the standstill situation created due to the pandemic in the past two years, there was a gradual shift from traditional teaching methods to technological methods, where physical interactions were replaced with online classes. In such a situation the question which comes to the fore is whether the universities needed to continue with the complete digitisation of the teaching-learning process. What was the impact of the changed mode of education delivery system on the law students? How comfortable are law students with technology use in receiving an education? There are many other questions related to the experience of and effect on end-user who is a student of higher education. The authors have answered these questions based on the survey undertaken.

3 Research Methodology

This chapter examines the impact of technology due to COVID-19 on teaching and learning methods in higher education institutions through articles published on the subject matter, and the questionnaire framed by the academicians comprising of a wide array of questions was circulated amongst undergraduate and graduate law students circulated through WhatsApp and analysed using SPSS.

4 E-Learning

Online training could be in the form of CBT (computer-based training) through CD-ROM, self-motivated learning or any form of learning which uses computer. Net-based training is the other term used for online training/learning Online learning is any technology-based learning, that is, information currently available for direct access. Later on, e-learning was defined as the process of learning through computers over the internet and intranets. E-learning could also be referred to as web-based training, online training, distributed learning, or technology for learning. Based on the definitions given, it is safe to state that e-learning is inclusive and synonymous to all computer-related applications, tools, and processes that have been strategically aligned to value-added learning and teaching processes.

5 Role of Technology to Access Learning

Students looking at laptops, smartphones, and tablets instead of books are a common sight in the classroom of today. Technology has now entered the classroom in a big way and has profoundly changed the face of education. It is not wrong to say that technology has increased access to education as massive information is available at a click. One need not travel to different places to find books and other relevant study materials nor travel to far-flung places to get an education. Online learning has made available the opportunities for formal education at the comfort of one's own place, thus making access to knowledge unprecedented. Someone sitting in a remote corner of India with an internet connection can get a degree from a university in USA or UK. Today's students are not bound by location; interaction, communication, and collaboration have been expanded by technology.

6 Strategic Importance of Online Education

Many universities around the globe underwent a smooth and successful transition from being proximate teaching-learning centres to online education. For example, anyone who is interested in gaining knowledge can

access 2000 free online courses from 140 leading institutions worldwide on edX platform. It helps in gaining new skills and earning a certificate of completion anytime and anywhere. Many scholars tout the benefits of online learning, arguing it enables efficient and effective reach to students through chat groups, video meetings, voting, and also document sharing. They are of the opinion that traditional offline learning and e-learning can go hand in hand and provide flexibility to stakeholders.

7 The Challenges of Online Learning For Law Students

Online learning comes with its own set of challenges which needs to be overcome for effective implementation. A significant gap is seen across and within countries when it comes to access to the internet or technology, making it difficult for learners to participate in online learning. According to OECD data, developed countries like Australia, Canada, and Switzerland have a much higher percentage of students having access to computers when compared with developing and underdeveloped countries like Indonesia and India. Not just in different countries but also within the same country, a significant gap is observed amongst the students coming from privileged and unprivileged backgrounds. This gives rise to the fear of widening of digital divide during the times of the pandemic. Though the institutes made a sudden transition from offline to online mode of education, it failed to take into consideration a very relevant part of legal education, that is, clinical legal education. Its importance is reflected in the words of Prof. N.R. Madhava Menon, the exponent of the clinical method of teaching in India, who opined that, "clinical education is as much a new methodology as it is a vehicle for teaching new subject matter in law." Many teachers welcome clinical education because of the opportunity it offers to the students to learn more substantive subject matter contents than what the lecture or case method of teaching can provide. Thus, the clinical method help law schools to venture on subjects like law reform, social policy, and professional responsibility. Perhaps, the clinical method also offers better scope to teach substantive areas which non-clinical methods attempts less effectively. Therefore, the areas such as relationships between substantive and procedural rules, the early development of a case and facts of social relationships can be learnt better through practice in a clinical setting than by lectures or discussion."

Perhaps the biggest challenge faced by the students, educators, and institutions was the neglect of clinical education during the pandemic which is of utmost importance to any student of law as it makes him/her future ready.

8 Effectiveness of Online Learning in Imparting Legal Education

When a new strategy is to be applied, it is to be ascertained that it is effective. The same question is raised with the use of online learning; there is evidence that online learning can be more effective than traditional learning, but it is dependent on access to technology. Engaging in video lectures, dynamic graphics, data visualisations, and interactive elements help students retain more knowledge compared to traditional ways of teaching. Online learning gives flexibility to learners to learn at their own pace, where they can go back and re-read and can skip or accelerate through concepts available on the platform. But the effectiveness of online learning is not the same amongst all age groups. Younger students are easily distracted; thus, there is a need to use a range of collaboration tools and engagement techniques to truly engage them. They need a structured environment. On the other hand, students pursuing higher education need to be motivated towards learning through an interactive environment. Online education helped in avoiding a gap in knowledge delivery and saved millions of students from losing a year of their learning age to COVID. Virtual court hearings, virtual moot court competitions, trial advocacy on online platforms, and online internships filled the gap between theoretical and practical knowledge. It is extremely crucial for a law student to be able to apply the lessons of law school in a real-world legal environment and it was made possible with the assistance of technology. Hybrid experiential learning such as participation in online oral arguments, virtual client engagement, online court adjudication, online internships, virtual legal practice, and interactive law sessions were offered by law schools. As quoted by Supreme Court Justice D.Y. Chandrachud, technology has been "extraordinarily enabling and empowering for young lawyers. It makes no difference who argues, while in open courts, successful advocates are noticed much faster. Everybody enjoys the same platform during virtual hearings."

9 Teaching in Times of COVID: Indian Law School Scenario

Educational institutes around the world were forced to cancel proximate learning, to close the doors of schools and colleges, and compelled students to learn from home due to the sudden onset of the pandemic. Fighting against the persistent pandemic and subsequent waves of infection, most of educational institutes explored the option of online course delivery and blended learning but the road was not easy. The institutes had a tough time conducting terminal exams due to the sudden lockdown and closure of colleges.

Approximately 1000 universities and around 40,000 colleges started imparting education through online mode to continue the teaching-learning process in India. In the end of March 2020, all higher education organisations and universities were instructed to extend the date of final and intermediate examinations by the University Grants Commission (UGC) of India. Amity University conducted the semester examination in online mode at the end of September 2020 by inducting the services of Mettl, a technology company that provides skill assessment tools, proctoring, and online assessment software. Proctoring technology employed by Mettl enables cheating prevention using facial and keystroke recognition to verify the test taker and monitor the candidate using the webcam during the examination process. It enables educational institutions to conduct examinations by transcending geographical limitations with live video monitoring to oversee candidates giving these tests. Amity University had allowed students to select either online or offline mode for the semester examinations giving them flexibility. Offline examinations were conducted in campus with all necessary precautions. So, across the country, the career of almost all young graduates took a hit as there was a delay in the conduct of terminal examinations at universities as well as of post college competitive exams. Students faced a dilemma: those who wanted to pursue higher education faced difficulty in selecting the right college due to the sudden disruption in the traditional approach to studies. Teachers were also equally affected by COVID as many lost their jobs due to the closing down of institutions and issues like pay reduction and changed roles also built up stress. Teachers were forced to change their ways of teaching from conventional mode to virtual mode. After witnessing and experiencing the aftermath of COVID-19, the Department of Higher Education (DHE) of India, decided to reopen universities and other higher educational

institutes from 15th October 2021, initially for researchers and students pursuing practical courses. Slowly and gradually the HEIs opened its door to all the courses and all the semesters with the essential protocols in place by offering blended learning.

10 Importance of Face-to-Face Education in Legal Studies

It is an indisputable fact that the all-around development of an individual's personality is the primary aim of education. This method of instruction has evolved through many stages and it has adjusted with the ideals of evolving times. The method involved with acquiring and bestowing instruction is unconstrained and happens all through our lives.

The mode of education has an important role to play when it comes to the holistic development of students in higher education institutes. A lot of emphasis is put on the interaction between educators and learners as it is believed that interaction is the most important factor to improve the learning experience (Cohen and Ball, 1988). Education is not only about gaining knowledge which is there in textbooks but also includes life lessons which can be taught only through human interaction. It is important to develop, discipline, and direct all the human personality capacities in the right direction which cannot be effectively done through online education. Offline learning has an upper hand when it comes to feedback and guidance provided to students. Face-to-face interaction affords easier communication, resolution of problems, and better motivation as many students are of the view that online learning using computers and similar equipment is too cold and also difficult. As there is no direct interaction with fellow students and instructors, it is difficult to concentrate and relatively easy to lose interest.

Law students face difficulties in joining groups, attending meetings, and taking part in student events, which may be a downside. This is especially important in light of the crucial role that law society activities play, as they give students the opportunity to compete in debate, mooting, and negotiation competitions. Teamwork and networking will be more difficult for students and the law school community to do online. Personality building and communication skills enhancement are essential elements of law education which took a backseat during online classes. The administration and educators of law schools have to ensure uninterrupted delivery of clinical education which is of paramount importance to any law graduate.

11 Instrument Development

A comprehensive questionnaire, consisting of 27 items, was constructed based on the conceptual framework, which includes a variety of multiple-choice questions, and undergraduate law students were invited to participate in the survey. The survey was administered using the Google Forms platform, which required participants to log in to an e-mail account in order to participate. It confined multiple entries from a single account. The questionnaire was applied by using social media sites, e-mail, and regular messaging services. The Google Forms has clear instructions to ensure that the respondent had to be a student. A total of 391 law students responded to the survey. The online survey questionnaire contained three subgroups:

(a) Participants were asked to describe their general demographics, such as name, mail id, course, year, and institute.
(b) Assessment of the experience of online learning to assess the levels of satisfaction regarding academic performance, teacher-student interaction, discipline, and classroom environment among law students.
(c) Assessment of physical and mental health due to the change in lifestyle.

This survey study aims to investigate the pandemic impact on education, performance satisfaction, and mental and physical health of college-going law students.

Sample: For the present study, undergraduate law students were chosen.

Ethical Consideration: The current study was conducted in a well-informed environment, and participants' consent for participation was obtained. No one was compelled to take part in the survey against their will.

Result: A survey was conducted to show students' opinions about online learning. To find out how students felt about the influence of the transfer to virtual classes on their academic growth due to the epidemic, students were asked to rate on a three-point scale if they thought online education has harmed their academic development. The results are presented in Table 9.1. It contains the statements of the questionnaire and responses of all 391 participants on each item.

Table 9.1 Impact of COVID-19 on participant's academic performance and health

S. no.	*Statements of the questionnaire*	*Response*	*N=39*
1.	Classroom learning (pre-COVID) The respondents are expected to rate the quality of their offline classroom learning experience in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	82.14% 11.47% 4.5%
2.	Classroom learning (post-COVID) The respondents are expected to rate the quality of their offline classroom learning experience in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	24.23% 30.35% 44.89%
3.	Ease of learning (pre-COVID) The respondents are expected to rate the quality of their offline ease learning experience in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	75.51% 18.11% 4.5%
4.	Ease of learning (post-COVID) The respondents are expected to rate the quality of their offline ease learning experience in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	26.78% 28.31% 43.36%
5.	Classroom environment and learning (pre-COVID) The respondents are expected to rate the quality of their offline classroom environment and discipline in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	76.53% 17.09% 5.10%
6.	Classroom environment and learning (post-COVID) The respondents are expected to rate the quality of their offline classroom environment and discipline in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	26.53% 23.21% 48.72%
7.	Class participation (pre-COVID) The respondents are expected to rate the quality of their offline classroom participation and discipline in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	76.53% 18.36% 3.82%
8.	Class participation (post-COVID) The respondents are expected to rate the quality of their offline classroom participation and discipline in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	26.53% 25.51% 46.93%

(*continued*)

Table 9.1 (continued)

S. no.	*Statements of the questionnaire*	*Response*	*N=39*
9.	Teacher-student interaction (pre-COVID) The respondents are expected to rate the quality of their offline student-teacher interaction in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	80.86% 14.28% 3.31%
10.	Teacher-student interaction (post-COVID) The respondents are expected to rate the quality of their offline student-teacher interaction in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	23.46% 26.78% 48.21%
11.	Acquisition of course-related practical skills (pre-COVID) The respondents are expected to rate their ability to acquire course-related practical skills in pre-COVID times	Excellent: 3 Moderate: 2 Poor: 1	77.04% 17.85% 3.16%
12.	Acquisition of course-related practical skills (post-COVID) The respondents are expected to rate their ability to acquire course-related practical skills in post-COVID times	Excellent: 3 Moderate: 2 Poor: 1	23.46% 31.12% 43.87%
13.	Has the shift from physical classes to online classes affected your overall morale?	No Yes, positively Yes, negatively	17.34% 24.23% 57.80%
14.	Do you think the pandemic has affected your placement opportunities?	No Yes, the pandemic has affected my placement opportunities positively Yes, the pandemic has affected my placement opportunities negatively	16.32% 16.07% 66.83%
15.	Has your institution taken any special measure with respect to ensuring proper placements in the time of pandemic?	Yes No Maybe	11.22% 27.55% 60.20%
16.	If yes, do you think these measures are enough?	Yes No Maybe	7.16% 41.17% 51.15%
17.	Were you being able to follow a proper time schedule during physical classes? (pre-COVID)	Yes No Maybe	83.88% 7.14% 8.4%
18.	Have you been able to follow a proper time schedule during online classes? (post-COVID)	Yes No Maybe	35.96% 49.87% 13.52%

(*continued*)

Table 9.1 (continued)

S. no.	*Statements of the questionnaire*	*Response*	*N=39*
19.	Have your efforts in studies decreased since the start of the pandemic?	Yes	65.81%
		No	18.67%
		Maybe	14.83%
20.	Have you been provided proper access to academic resources like e-libraries by your academic institutions?	Yes	65.72%
		No	13.5%
		Maybe	20.20%
21.	How would you rate the efficiency of student representatives in voicing concerns of the students to the administration?	Excellent: 3	36.5%
		Moderate: 2	37.08%
		Poor: 1	25.83%
22.	Do you have proper access to Wi-Fi and other technology to efficiently attend online classes?	Yes	63.4%
		No	6.39%
		Partially	29.6%
23.	Have you faced any difficulty with online examinations?	Yes	51.66%
		No	48.08%
24.	How efficient has been the college/ university administration in redressing grievances with respect to online examinations?	Very effective	13.55%
		Somewhat effective	51.15%
		Somewhat ineffective	23.27%
		Completely ineffective	13.81%
25.	Have your university/ college set up any dedicated channel for redressing student grievances since the beginning of the pandemic?	Yes	32.48%
		No	23.2%
		Not aware	43.7%
26.	Has the pandemic affected your mental health?	No	19.6%
		Yes, the pandemic has affected my mental health positively	17.13%
		Yes, the pandemic has affected my mental health negatively	62.65%
27.	Has the pandemic affected your physical health?	No	29.41%
		Yes, the pandemic has affected my physical health positively	25.06%
		Yes, the pandemic has affected my physical health negatively	31.71%

Source: Primary Data

Survey Findings

The survey was conducted amongst 391 law students studying LL.B. and integrated law degrees (B.A. LL.B., B.B.A.LL.B., B.COM.LL.B.) and those pursuing postgraduate studies in the field of law (Figs. 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, 9.18, 9.19, 9.20).

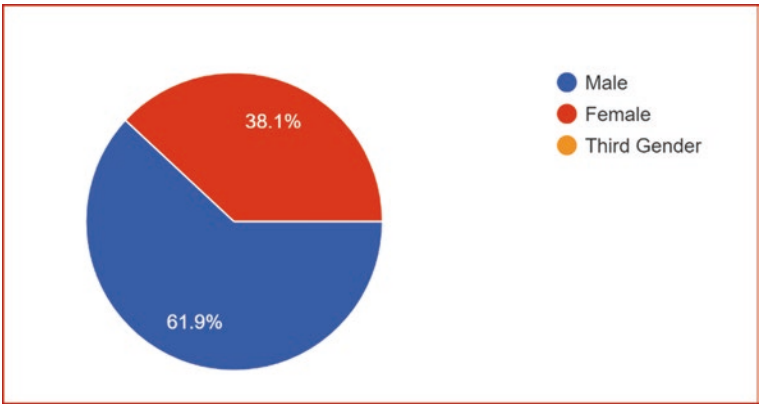


Fig. 9.1 Respondent's gender

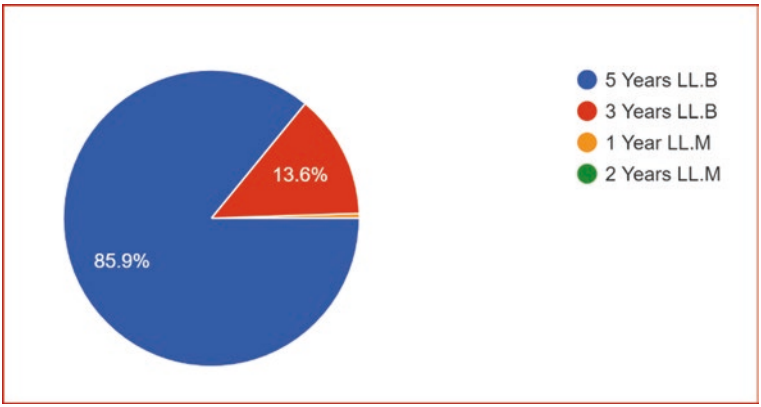


Fig. 9.2 The course pursued by the respondents

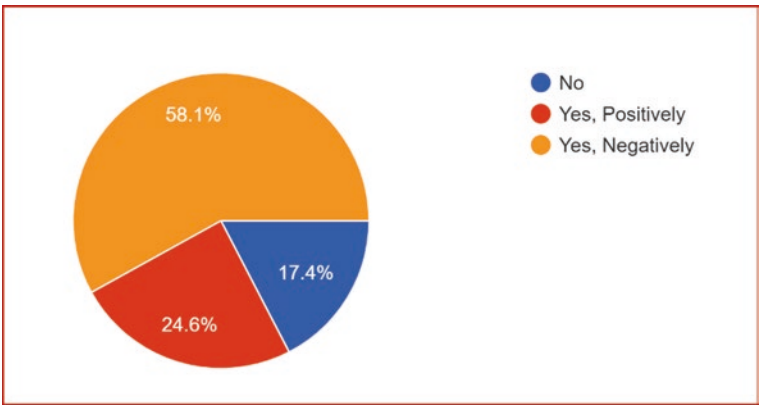


Fig. 9.3 The shift from physical classes to online classes affected student morale

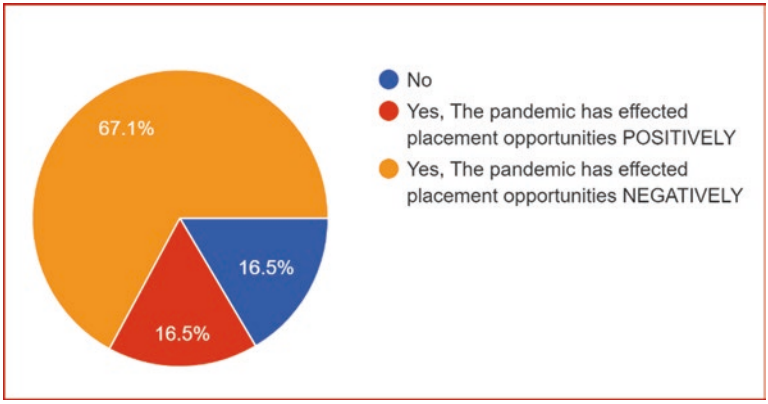


Fig. 9.4 The pandemic effect on placement opportunities

Among the respondents, 82.14% of students reported positive responses towards the quality of learning experience in offline classes because of the active indulgence of their teachers. 44.89% of subjects reported poor learning experience after COVID-19 in offline classes as their habit to participate in daily affairs had declined.

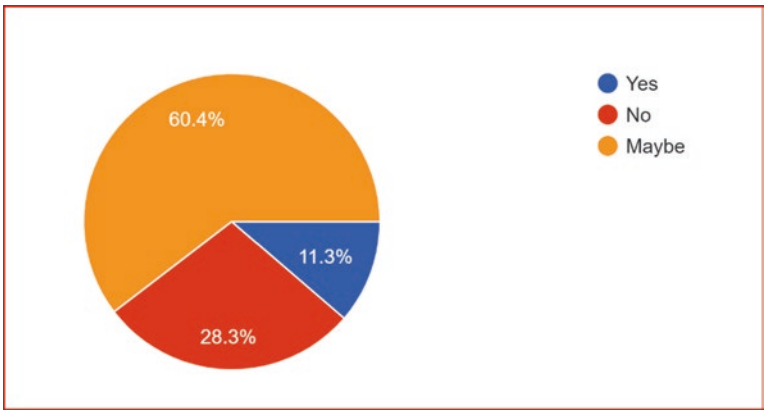


Fig. 9.5 Special measures taken by institutes to ensure placements during COVID-19

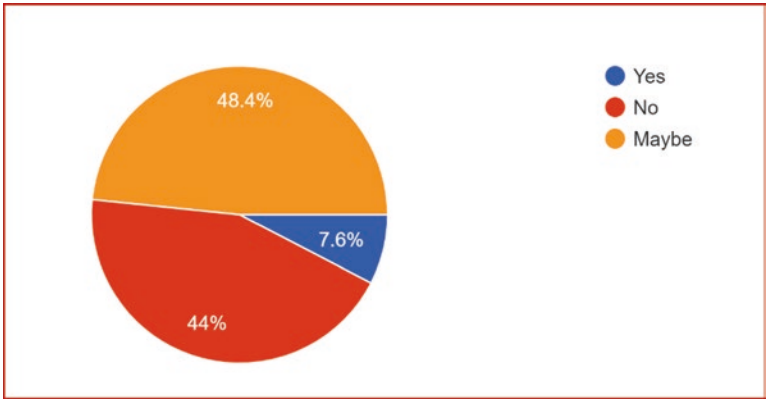


Fig. 9.6 Effectiveness of measures taken by institutes

The result indicates that 75.51% of subjects had a positive response toward ease of learning in offline classes before COVID-19 due to both mental and physical labour and active participation academically amongst them. 43.36% of participants disclosed poor ease of learning experience

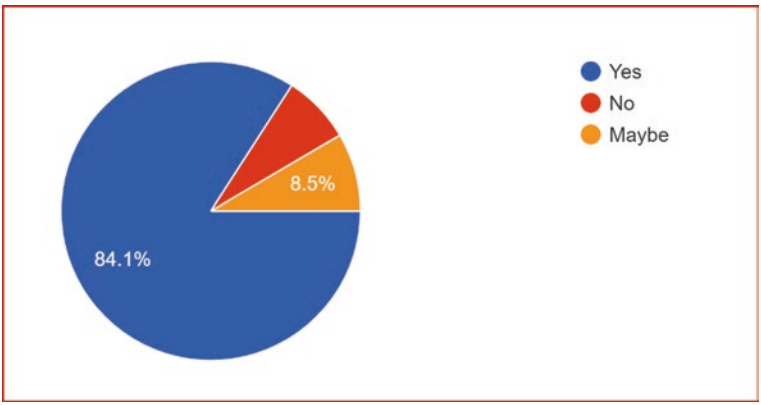


Fig. 9.7 Proper time schedule during physical classes (pre-COVID)

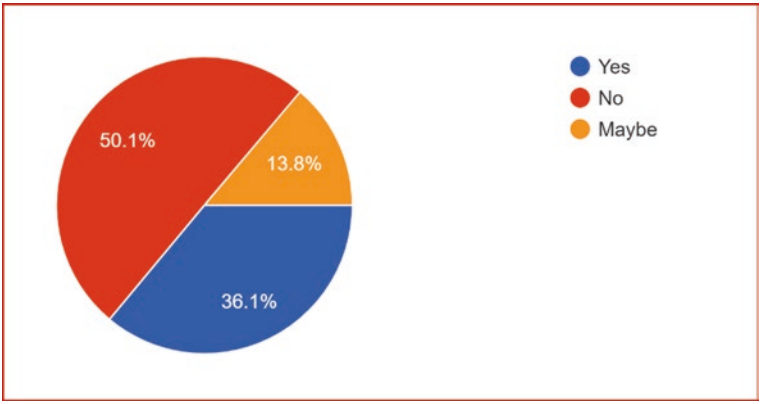


Fig. 9.8 Proper time schedule during physical classes (post-COVID)

post-COVID-19 in offline classes due to a break in the pattern of regular sitting hours of dedicated learning. Table 9.1 demonstrates that 76.53% of students had proclaimed excellent classroom discipline and environment pre-COVID-19 and 48.72% of subjects reported poor discipline and environment post-COVID-19. Before the pandemic, group participation of all the students together in an activity exuberates their interest; hence, it exhibits that 76.53% of students disclosed excellent quality of student

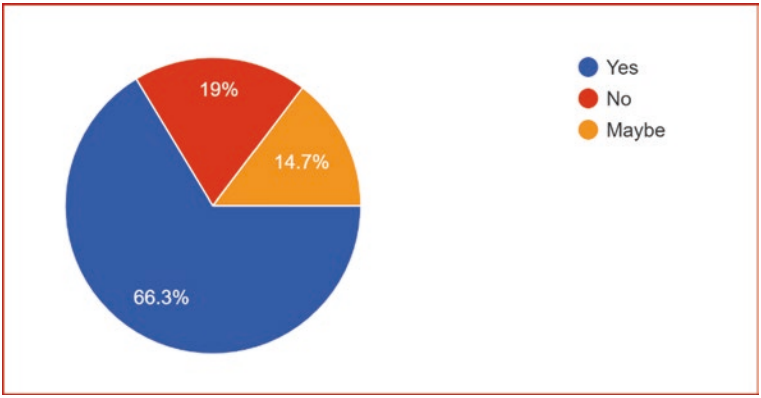


Fig. 9.9 Decrease in efforts in studies since the start of the pandemic

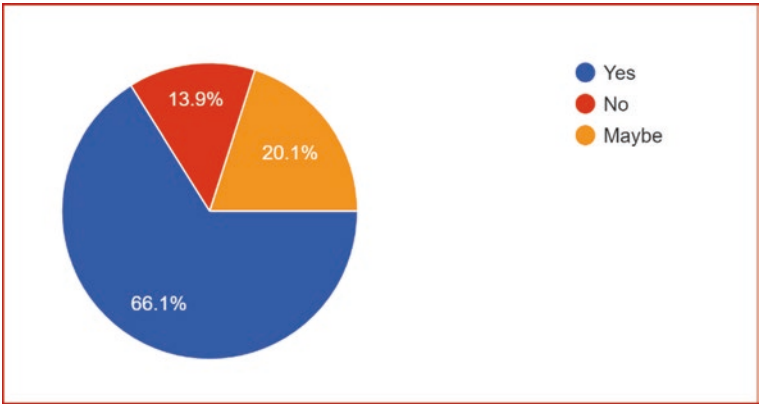


Fig. 9.10 Proper access to academic resources like e-libraries by academic institutions

participation in classroom pre-COVID-19. The centre of any educational process is the human relationship between a student and a teacher. Due to online classes and physical distancing, the relationship between the teacher and the students was also impacted negatively. Table 9.1 illustrated the same—that 46.93% of participants stated they hardly participate in classroom activities post-pandemic. Students' sense of belonging to the school community was lost as they were not feeling connected with each other for

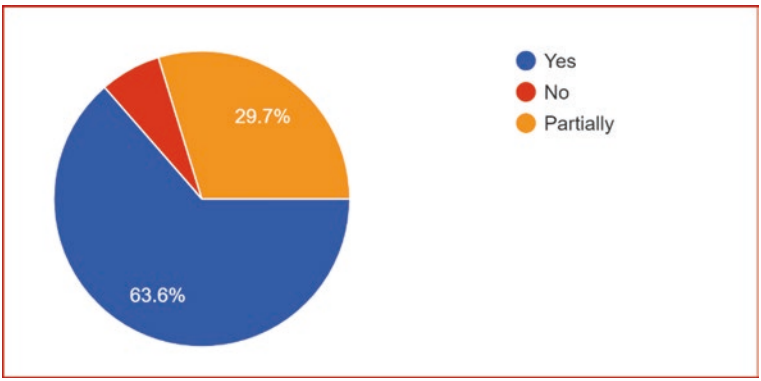


Fig. 9.11 Proper access to Wi-Fi and other technology to efficiently attend online classes

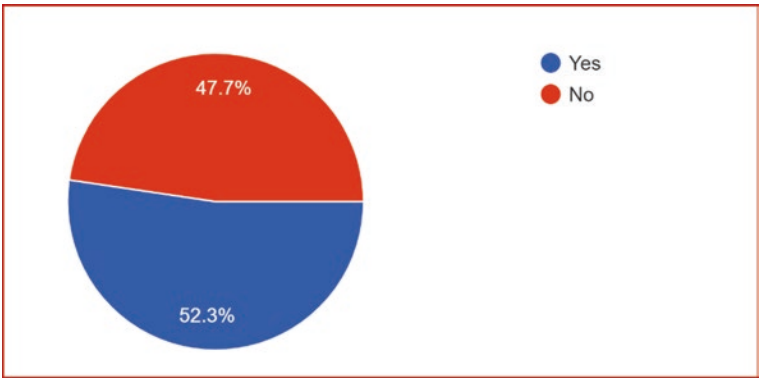


Fig. 9.12 Difficulty faced in online examination

a long time. The lack of social contact is one of the major reasons why students have lost interest in participating in classroom activity. 80.86% of participants stated excellent quality of teacher-student interaction pre-COVID-19 as they all were presented in the same premise and communication is impactful when it is face to face. Communication is a two-way process and nonverbal cues are playing a very important role. Nonverbal communication is playing a very important role in our lives as it can inflate a person's capacity to relate, participate, and form meaningful interactions

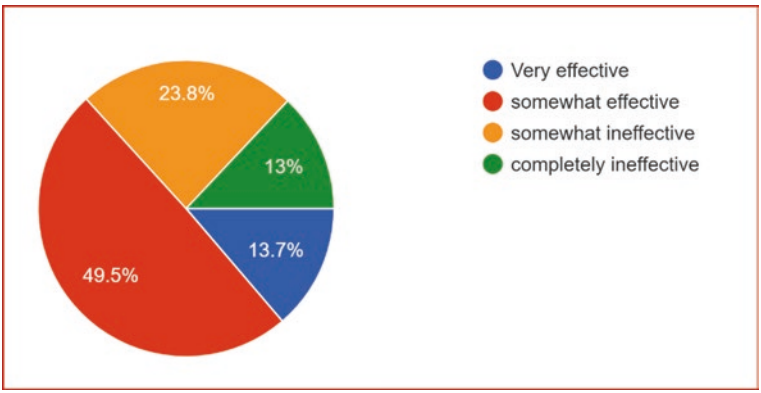


Fig. 9.13 Effectiveness of college/university administration in redressing grievances with respect to online examinations

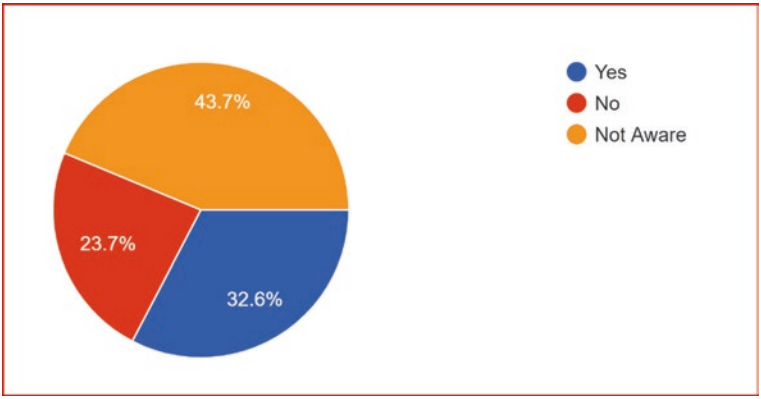


Fig. 9.14 Any dedicated channel for redressing student grievances since the beginning of the pandemic

in everyday situations. The result also revealed that 48.21% of participants reported poor teacher-student interaction post-COVID-19 due to the physical absence of the teacher; ultimately, it's just the lifeless screen on which they remain dependent upon. Furthermore, 77.04% of participants rated excellent ability in acquiring course-related practical skills pre-COVID-19 as practical topics can only be understood during physical classes. The result shows that the majority of participants (43.87%) rated

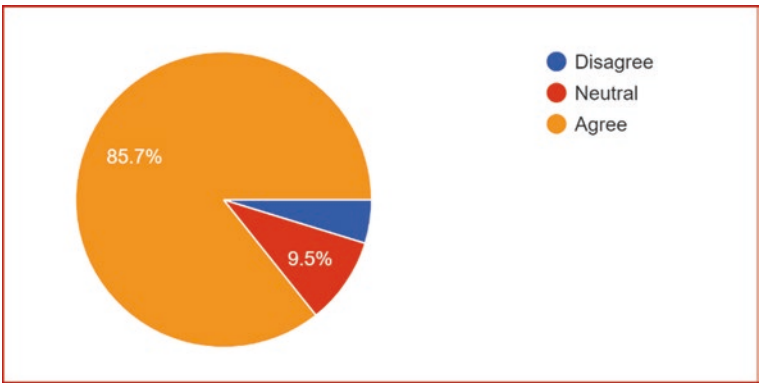


FIG. 9.15 Negative impact of COVID-19 on clinical legal education

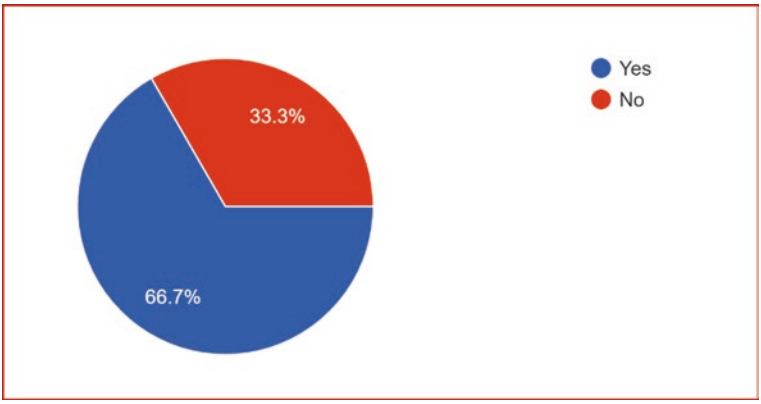


Fig. 9.16 Difficulty in securing law internship

poor ability in acquiring course-related practical skills post-COVID-19, since the crisis has disturbed the continuity of learning and the delivery of course materials. As Table 9.1 specifies more than half of the participants (57.80%) indicated that online classes negatively impacted their overall morale; also the majority of participants (66.83%) shared that they feel the pandemic has impacted their placement opportunity negatively. 83.88% of participants disclosed that they followed a proper schedule pre-COVID-19 and 65.81% of participants responded that their efforts in studies had decreased during the period of COVID-19 as it has created a fall in the

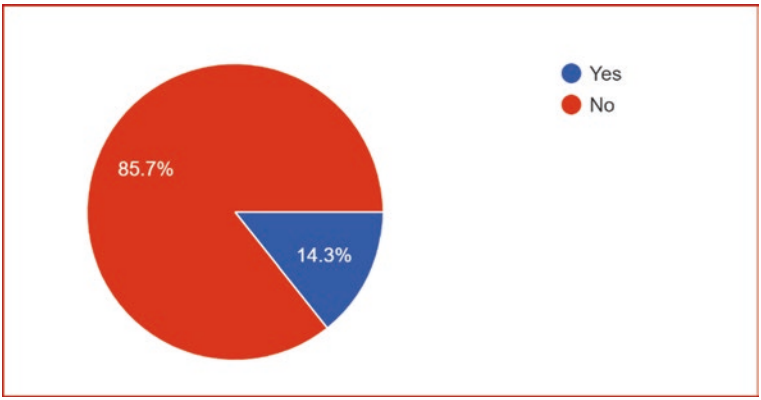


Fig. 9.17 Effectiveness of online internship

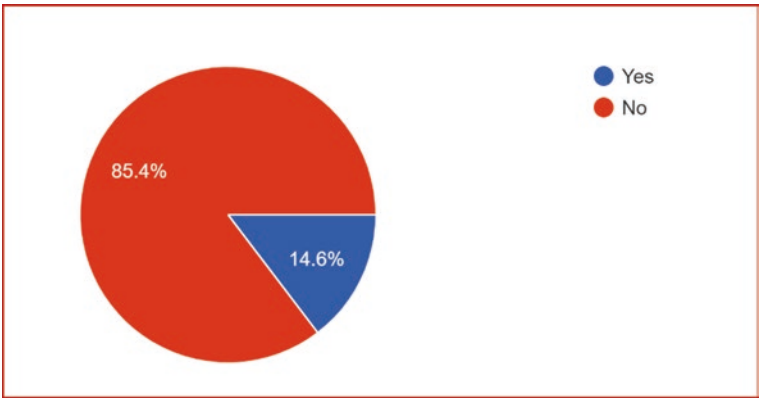


Fig. 9.18 Preference of offline over online internship

practice of discipline amongst the students. 51.66% of students also stated that they faced difficulty in online examinations, and according to the analysis only 13.55% of participants reported that the administration efficiently handles the grievances regarding the same. Also 43.7% of participants are not aware that the university/college assigns channels for handling student grievances.

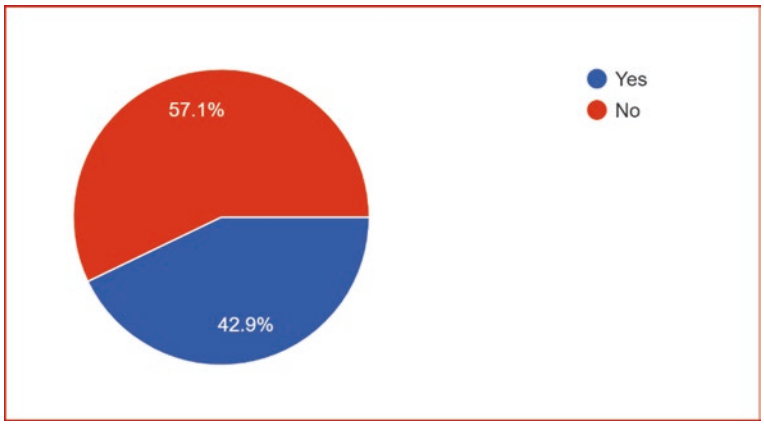


Fig. 9.19 Moot court experiences (training, competition, trials) were made available by the institute during COVID-19 lockdown

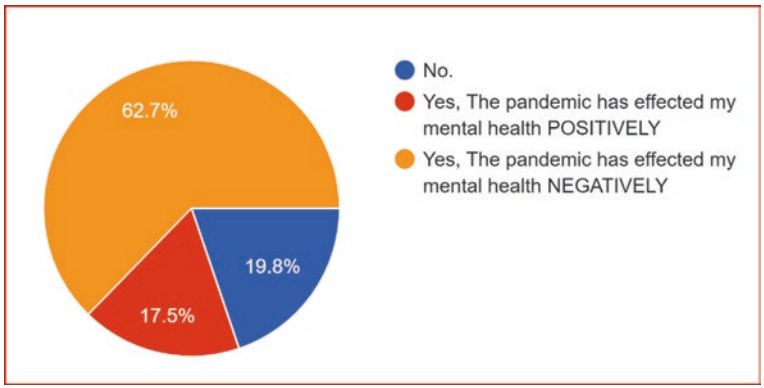


Fig. 9.20 Pandemic effect on the mental wellbeing of students

Lastly, 62.65% of participants stated that the pandemic affected their mental health negatively as it had put everyone under great seclusion.

Also, the pandemic had an adverse effect on their physical health; 31.71% of participants stated that the pandemic impacted their physical health negatively due to a decrease in physical activity and their confinement within the four walls on account of the preventive measures in place such as lockdown. 26.56% of participants consider no impact and 25.44% stated that it has a positive impact on their physical wellbeing.

12 Discussion

Educational systems have undergone universal changes during the time of the COVID-19 pandemic, coercing the institutes from proximate or face-to-face to virtual learning due to the unwarranted constraints and forced lockdowns worldwide. The present study has assessed undergraduate law students' educational experience and the impact of virtual or on-screen education on their academic performance and on their emotional and physical health during the COVID-19 pandemic. The results obtained by analysis of the impact of on-screen or virtual education during pandemic lockdown on higher education students have presented novel information and confer with the previous studies.

Most of the undergraduate students in our sample size revealed that their scholastic execution and fulfilment weakened during web-based learning. Subsequently, undergraduate students have seen an impeding effect with respect to the change to web-based education during COVID-19 as far as they can tell, particularly in their scholarly turn of events and the discipline and climate of classes and the study material they have gotten. The present findings are similar with some studies done on university scholars during the COVID-19 pandemic concerning its effect on students' learning outcomes (Aristovnik et al., 2020; Nassr et al., 2020; Son et al., 2020; Tang et al., 2020). The reason behind this input of students can be attributed to the sudden change in the mode of learning from offline to online; also the content offered was not in line with online delivery method with limited preparation on the part of educators as per UNESCO (2020).

With the passage of time, students reported the feeling of isolation worsened considerably as lockdown time extended and virtual classes turn out to be regular. Correspondingly, prior researchers have emphasised that throughout the COVID-19 lockdown lack of social contact and the feelings of loneliness and discontinuation were experienced by students (Al-Balas et al., 2020; Elmer et al., 2020; Puljak et al., 2020; Radu et al., 2020; Son et al., 2020). All these researches exhibit that students have experienced exclusion to the academic community during online classes compared to offline teaching (Al-Balas et al., 2020; Puljak et al., 2020; Son et al., 2020). It was observed that factors associated with the social aspects of the educational experience, such as lack of interaction with

classmates and the feeling of burnout, adversely impact conversation with mentors (Ausín et al., 2021; Cecchini et al., 2021; Gopal et al., 2020). As other studies have reported, the lockdown condition has elicited the feeling of loneliness and detachment of students (Al-Balas et al., 2020; Puljak et al., 2020; Son et al., 2020). The feeling of exclusion and isolation strengthened while students continue to be locked at their own house, without in-person contact with their classmates, friends, and mentors. As a result, academic institutions and educators will need to develop mechanisms that let students engage with one another and with their mentors and educators such as online forums for discussion, role plays, or instant messaging options (Moorhouse, 2020).

Furthermore, educational and psychological studies have expressed concerns regarding students' mental health as a result of the unplanned transfer to virtual learning systems and the pressure to attend courses under lockdown limitations. Students reported increased stress, anxiety, and depression (Saravanan et al., 2020; Son et al., 2020), as well as increased fear, worry, and boredom (Saravanan et al., 2020; Aristovnik et al., 2020; Son et al., 2020). Several studies have shown that having a connection with the rest of the academic community can have a protective effect in terms of reducing anxiety, sadness, and stress (Elmer et al., 2020; Magson et al., 2021; Procentese et al., 2020). A broader perspective on students' emotional states, including a broader range of emotions as well as positive emotions like calm or trust, is still lacking. Although mental health has received significant academic attention during the COVID-19 pandemic, studies have focused on analysing negative mental states like depression, stress, or anxiety.

There are substantial differences in the findings amongst research conducted in connection to specific aspects, such as lectures, examinations, co-curricular activities, practical exams, or educator support, in adaptation to virtual learning during the COVID-19 pandemic. Still, outcomes vary across the studies undertaken. On one hand, some scholars stated students' low satisfaction with the institutional support received and with the conduct of classes and assessment methods in virtual learning in comparison to offline learning (Linh & Trang, 2020). The perceived workload of the teachers has a role to play in the poor level of satisfaction with how instruction was changed to be delivered online (Gelles et al., 2020; Son et al., 2020). Furthermore, Khalil et al. (2020) stated that the concerns

associated to the implementation and quality of virtual courses can be impediments to the engagement and attainment of knowledge. Simultaneously, numerous findings are available in university settings that show students were satisfied with the support provided by the teachers and the content of their virtual classes during the pandemic (Jacques et al., 2020).

Additionally, the feeling of isolation and disengagement associated with online learning is due to the lack of face-to-face (physical) contact with other students, friends, and teachers (Mcinnerney & Roberts, 2004). Prior to the COVID-19 pandemic, several studies found that contact between their classmates and teachers was critical for student enjoyment, as well as for academic development and student accomplishment (Arbaugh, 2000; Hong, 2002; Mcinnerney & Roberts, 2004; Piccoli et al., 2001; Sun et al., 2008). Thus, it is imperative that when online courses are designed, thought is to be given to the interaction mechanisms so as to offer enriching and flourishing learning environments. Prior studies indicate that students experienced less connection with other fellow students, even with friends, and teachers during the lockdown compared to traditional education (Al-Balas et al., 2020; Puljak et al., 2020; Son et al., 2020). Overall, college students admitted they missed face-to-face interactions with friends, fellow students, and educators during the lockdown (Puljak et al., 2020) and that interaction has been more complicated and duller in virtual education (Amir et al., 2020; Radu et al., 2020). As per the study by Tang et al. (2020) on undergraduate students, almost 70% responded that they did not connect with their online course instructors very regularly. This lack of engagement is concerning because social contact and socialisation routines are an important aspect of higher education students' everyday lives and can influence their academic progress (UNESCO, 2020). Relationship with fellow students and teachers is one of the factors that has gotten the most consideration in the academic community concerning the involvement with web-based learning.

Finally, in spite of the fact that it had not gotten a lot of consideration prior to the pandemic, learning conditions, its ergonomics, and quality web association are undoubtedly significant factors to consider in distance learning. A work area that doesn't offer the proper circumstances implies a liability factor for solace, prosperity, and understudies' scholastic performance (Braat-Eggen et al., 2017; Hviid et al., 2020).

13 Limitations and Future Directions

The study's findings should be interpreted in the light of some limitations that can be addressed in future research.

The first restriction is that the current study was undertaken during a unique public health crisis; therefore, we cannot generalise the findings because they are unlikely to be replicated. The rapid efforts made by the Government of India and the academic institutions where the study was conducted to combat the COVID-19 epidemic also influenced the findings of this study. Various universities have used varied measures even in the same country (India), adapting the measures to the possibilities and characteristics of each case. The distinctive measures might make the aftereffects of this study challenging to sum up with different academic institutions having unique responses to COVID-19 emergency. It is expected that a portion of the research outcomes might be of worth post the pandemic; simultaneously it will be important to apply this study's findings in different settings. The participants in this study were recruited from a single domain (law) from the first to the fifth year, which appears to be a constraint in generalising the findings to all domains or academic courses. Because the representation of a student population is limited to the law students, there is no random sample. Given the expanse of the field of academics and the variety of specialties, the study could be expanded in other academic courses and the same could be done to validate the result of the study undertaken. In particular, the academic experience of students in first year who began their studies in the midst of a pandemic may differ from that of second-, third-, fourth-, and fifth-year students. The research could be expanded to include other colleges and states, as the COVID-19 pandemic impact is the same in all corners of the country. Furthermore, the participants in the study are solely students, not professors. Future research into the viewpoints of teachers on the transition to online learning would be beneficial. The samples in this investigation were handled as separate. However, validating the observations with paired samples (student-teacher) and comparing the changes between time points on an individual basis could throw up new findings.

One restriction of the research tools is that we had to construct a new questionnaire for this investigation. The questions are based on the past research, but we were unable to find a similar questionnaire that included all of the metrics in the literature. Future research should confirm these findings and the instrument utilised and increase the number of items on

the proposed scales to improve its reliability. Furthermore, we did not collect personal data from participants, such as age, gender, socioeconomic background, or demographic information, in order to protect participants' privacy and encourage them to respond to the survey.

As the survey was done via a questionnaire, the findings are based on students' perceptions. However, it is impossible to say with certainty that perceptions always corresponded to reality. While students in our study claimed that online teaching harmed their academic progress, performance, experience, and satisfaction, Jacques et al. (2020) observed no discrepancies between students' grades in online education and grades expected in face-to-face instruction.

Despite the study's limitations, the findings provide useful insight into the academic, mental, and physical effects of online learning on law students during the COVID-19 pandemic and present novel possibilities that might be investigated further in future research. Furthermore, a more detailed study can be conducted to determine how much of the variance in academic progress can be explained by class quality, teaching adaption to the online format, student workspace conditions, and connections with other students and professors.

14 Future of Legal Education in India

It is improbable that education would resume as it was before the epidemic due to the disruption caused by the overnight switch from traditional physical classes to online ones. According to the findings of this study, the COVID-19 outbreak has had a major impact on students' academic performance, daily routine, and physiological and psychological health. Due to the long-lasting pandemic situation and onerous measures such as lockdown and stay-at-home orders, the pandemic had brought negative impacts on students' education and personality. This was effectively proved by the various parameters in the questionnaire used for the purpose. The COVID-19-related disruptions highlight key challenges and provide an opportunity to further assess alternative educational strategies. There is a need to ameliorate student's access to mental health support services geared toward providing measures for developing healthy coping mechanisms during the current crisis. Taking steps to support students is essential, whether they are learning remotely or in classrooms. There is a pressing need for planning new policies and recommendations in this direction to assist and mitigate some of the

negative consequences and also prepare academicians and students for any upcoming health catastrophe.

The change of education mode from traditional to hybrid has given the educational institutes a plethora of opportunities to provide the best of the world to the students in the comfort of their known territory. Colleges and universities from around the globe have been holding seminars, conferences, and workshops that allow students to interact directly with representatives and be exposed to knowledge around the world. When there was no other way to continue education during the COVID-19 epidemic for the majority of the planet, hybrid and virtual learning offered a solution. Now, this solution is to be implemented in an effective way so as to give more flexibility to students and teachers by including in-person classes and online instruction.

Legal education is not untouched by the technological advancements in the field of education delivery through online classes, webinars, and so on. It is largely yet to be seen how effective these advancements would be in shaping the future of legal education. To maintain and preserve the "sanctity" and "nobility" of the legal profession, a robust system of legal education is a prerequisite, as has been emphasised by the Law Commission of India in its 266th Report. For law students moot competition advocacy trials are of huge importance as it gives them real-world experience. With the integration of technology in the educational process, the students have been participating in national and international competitions from their home grounds without travelling, saving time and expenses. Similarly, institutions by developing online resource centres and online libraries have provided students access to study materials from any part of the globe.

Agility in the quick adaptation of technology by legal institutes and law professionals in the making is the call of the hour. Courts were conducting virtual hearings, alternative means of dispute resolution were adopted online, and online platforms became new meeting points for counsel and clients. To enjoy the use of technology in traditional professions, it is mandatory for law students to be tech savvy and welcome the integration of technology into education and profession. Technology is an enabler; for instance, it allows a law student in a remote area of Jharsuguda, a remote town and district headquarter in the state of Odisha, to hear the arguments made by the legal luminary Harish Salve in the International Court of Justice at The Hague without spending a nickel. It is due to online learning that courses offered by Yale University or Oxford University could be pursued by a law student sitting in the remotest village of India.

As has been said by Albert Einstein, "In the middle of difficulty lies opportunity"; it is this time that has to be turned into an opportunity to introduce major reforms in imparting legal education which is future-oriented and global friendly. The disruption caused in the traditional approach toward education delivery could serve as an entry to structured legal education which dares to innovate, experiment, and compete globally.

Declaration

Conflict of Interest The authors state that there is no conflict of interest in this study.

Disclosure Consent was taken from the participating students as well as information was made available for the students with all the necessary information about the study.

Questionnaire Validation The survey was designed based on an extensive literature review and was validated by multiple revisions and editing.

Financial Disclosure The authors have not obtained or received any grants from any funding agencies.

References

Al-Balas, M., Al-Balas, H. I., Jaber, H. M., Obeidat, K., Al-Balas, H., Aborajooh, E. A., Al-Taher, R., & Al-Balas, B. (2020). Distance Learning in Clinical Medical Education Amid COVID-19 Pandemic in Jordan: Current Situation, Challenges, and Perspectives. *BMC Medical Education, 20*, 341. https://doi.org/10.1186/s12909-020-02257-4

Amir, L. R., Tanti, I., Maharani, D. A., Wimardhani, Y. S., Julia, V., Sulijaya, B., & Puspitawati, R. (2020). Student Perspective of Classroom and Distance Learning During COVID-19 Pandemic in the Undergraduate Dental Study Program Universitas Indonesia. *BMC Medical Education, 20*, 392. https://doi.org/10.1186/s12909-020-02312-0

Anderson, T., & Elloumi, F. (2004). *Theory and Practice of Online Learning*. http://lst-iiep.iiep-unesco.org/cgibin/wwwi32.exe/[in=epidoc1.in]/?t2000=020568/(100)

Arbaugh, J. B. (2000). Virtual Classroom Characteristics and Student Satisfaction with Internet-Based MBA Courses. *Journal of Management Education, 24*(1), 32–54. https://doi.org/10.1177/105256290002400104

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 Pandemic on Life of Higher Education Students: A Global Perspective. *Sustainability, 12*(20), 8438. https://doi.org/10.3390/su12208438

Ausín, B., González-Sanguino, C., Castellanos, M. Á., & Muñoz, M. (2021). Gender-Related Differences in the Psychological Impact of Confinement as a Consequence of COVID-19 in Spain. *Journal of Gender Studies, 30*(1), 29–38. https://doi.org/10.1080/09589236.2020.1799768

Braat-Eggen, P. E., van Heijst, A., Hornikx, M., & Kohlrausch, A. (2017). Noise Disturbance in Open-Plan Study Environments: A Field Study on Noise Sources, Student Tasks and Room Acoustic Parameters. *Ergonomics, 60*(9), 1297–1314. https://doi.org/10.1080/00140139.2017.1306631

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The Psychological Impact of Quarantine and How to Reduce It: Rapid Review of the Evidence. *The Lancet, 395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Cecchini, J. A., Carriedo, A., Fernández-Río, J., Méndez-Giménez, A., González, C., Sánchez-Martínez, B., & Rodríguez-González, P. (2021). A Longitudinal Study on Depressive Symptoms and Physical Activity During the Spanish Lockdown. *International Journal of Clinical and Health Psychology, 21*(1), 100200. https://doi.org/10.1016/j.ijchp.2020.09.001

du Toit, J. https://orcid.org/0000-0002-5297-8241

Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students Under Lockdown: Comparisons of Students' Social Networks and Mental Health Before and During the COVID-19 Crisis in Switzerland. *PLoS One, 15*(7), e0236337. https://doi.org/10.1371/journal.pone.0236337

Gelles, L. A., Lord, S. M., Hoople, G. D., Chen, D. A., & Mejia, J. A. (2020). Compassionate Flexibility and Self-Discipline: Student Adaptation to Emergency Remote Teaching in an Integrated Engineering Energy Course during COVID-19. *Education Sciences, 10*, 304. https://doi.org/10.3390/educsci10110304

Gopal, A., Sharma, A. J., & Subramanyam, M. A. (2020). Dynamics of Psychological Responses to COVID-19 in India: A Longitudinal Study. *PLoS One, 15*(10), e0240650. https://doi.org/10.1371/journal.pone.0240650

Hong, K. S. (2002). Relationships Between Students' and Instructional Variables with Satisfaction and Learning from a Web-Based Course. *Internet and Higher Education, 5*(3), 267–281. https://doi.org/10.1016/S1096-7516(02)00105-7

Hviid, C. A., Pedersen, C., & Dabelsteen, K. H. (2020). A Field Study of the Individual and Combined Effect of Ventilation Rate and Lighting Conditions on Pupils' Performance. *Building and Environment, 171*, 106608. https://doi.org/10.1016/j.buildenv.2019.106608

Jacques, S., Ouahabi, A., & Lequeu, T. (2020). Remote Knowledge Acquisition and Assessment During the COVID-19 Pandemic. *International Journal of Engineering Pedagogy, 10*(6), 120. https://doi.org/10.3991/ijep.v10i6.16205

J. Chem. Educ. 2020, 97, 9, 3381–3385 Publication Date:August 14, 2020 https://doi.org/10.1021/acs.jchemed.0c00769

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., Alkhalifah, A., & Al-Wutayd, O. (2020). The Sudden Transition to Synchronized Online Learning During the COVID-19 Pandemic in Saudi Arabia: A Qualitative Study Exploring Medical Students' Perspectives. *BMC Medical Education, 20*, 285. https://doi.org/10.1186/s12909-020-02208-z

Linh, P. D., & Trang, T. N. (2020). Pandemic, Social Distancing, and Social Work Education: Students' Satisfaction with Online Education in Vietnam. *Social Work Education, 39*(8), 1074–1083. https://doi.org/10.1080/02615479.2020.1823365

Magson, N. R., Freeman, J. Y. A., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *Journal of Youth and Adolescence, 50*, 44–57. https://doi.org/10.1007/s10964-020-01332-9

Mcinnerney, J. M., & Roberts, T. S. (2004). Online Learning: Social Interaction and the Creation of a Sense of Community. *Journal of Educational Technology & Society, 7*(3), 73–81.

Moorhouse, B. L. (2020). Adaptations to a Face-to-Face Initial Teacher Education Course 'Forced' Online Due to the COVID-19 Pandemic. *Journal of Education for Teaching, 46*(4), 1–3. https://doi.org/10.1080/02607476.2020.1755205

Nassr, R. M., Aborujilah, A., Aldossary, D. A., & Aldossary, A. A. A. (2020). Understanding Education Difficulty During COVID-19 Lockdown: Reports on Malaysian University Students' Experience. *IEEE Access, 8*, 186939–186950. https://doi.org/10.1109/access.2020.3029967

Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-Based Virtual Learning Environments: A Research Framework and a Preliminary Assessment of Effectiveness in Basic It Skills Training. *MIS Quarterly: Management Information Systems, 25*(4), 401–426. https://doi.org/10.2307/3250989

Procentese, F., Capone, V., Caso, D., Donizzetti, A. R., & Gatti, F. (2020). Academic Community in the Face of Emergency Situations: Sense of Responsible Togetherness and Sense of Belonging as Protective Factors Against Academic Stress During Covid-19 Outbreak. *Sustainability, 12*(22), 9718. https://doi.org/10.3390/su12229718

Puljak, L., Čivljak, M., Haramina, A., Mališa, S., Čavić, D., Klinec, D., Aranza, D., Mesarić, J., Skitarelić, N., Zoranić, S., Majstorović, D., Neuberg, M., Mikšić, Š., & Ivanišević, K. (2020). Attitudes and Concerns of Undergraduate University Health Sciences Students in Croatia Regarding Complete Switch to E-Learning During COVID-19 Pandemic: A Survey. *BMC Medical Education, 20*, 416. https://doi.org/10.1186/s12909-020-02343-7

Radu, M. C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V. A., & Cristea, I. (2020). The Impact of the COVID-19 Pandemic on the Quality of Educational Process: A Student Survey. *International Journal of Environmental Research and Public Health, 17*(21), 7770. https://doi.org/10.3390/ijerph17217770

Saravanan, C., Mahmoud, I., Elshami, W., & Taha, M. H. (2020). Knowledge, Anxiety, Fear, and Psychological Distress About COVID-19 Among University Students in the United Arab Emirates. *Frontiers in Psychiatry, 11*, 582189. https://doi.org/10.3389/fpsyt.2020.582189

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *Journal of Medical Internet Research, 22*(9), e21279. https://doi.org/10.2196/21279

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What Drives a Successful E-Learning? An Empirical Investigation of the Critical Factors Influencing Learner Satisfaction. *Computers and Education, 50*(4), 1183–1202. https://doi.org/10.1016/j.compedu.2006.11.007

Tang, T., Abuhmaid, A. M., Olaimat, M., Oudat, D. M., Aldhaeebi, M., & Bamanger, E. (2020). Efficiency of Flipped Classroom with Online-Based Teaching under COVID-19. *Interactive Learning Environments*, 1–12. https://doi.org/10.1080/10494820.2020.1817761

UNESCO. (2020). COVID-19 and Higher Education: Today and Tomorrow. Impact Analysis, Policy Responses and Recommendations. http://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf

Urdan, T. A., & Weggen, C. C. (2000). *Corporate elearning: Exploring a new frontier*.

CHAPTER 10

The Disparate Impact of Covid-19 on Women English Learners with Regard to Students in a College in Kerala State

Nila N.

1 Introduction

Covid-19 had thrown the student population unprecedentedly into a remote learning situation. Most women students in government and government-aided colleges in the state of Kerala in India come from non-English-speaking circles. The students come from various backgrounds, regarding type of family, number of members in the family, locality, and family income that indirectly decides their exposure and their ability or lack of ability to have access to gadgets and internet access, which as a whole lead to influencing the acquiring of English as a foreign language. The students live in a culture that has embedded norms that work negatively on exposure towards English and other foreign languages. The study attempts to highlight the difficulties faced by students in overcoming these hurdles.

N. N. (✉)
Department of English & Research Guide, Research Centre for Comparative Studies, Mercy College, University of Calicut, Palakkad, Kerala, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_10

2 Significance of the Study

Technology blurs reality sometimes. The Covid-19 period was a clarion call to all who were involved in teaching and learning activity to forcibly change from classroom learning to remote learning. Women learners were the most affected in this transmission. Many came from rural background, from backward areas which did not give them internet access. Most did not even own an android mobile phone. The locality did not have internet cafes. The need for the physical presence of a supportive language teacher was important for their development. Remote learning brought a huge gap in their speed of improvement in acquiring English. Moreover, the situation worsened the already struggling learners. Their standard of English deteriorated. The study is significant at a time when all departments of higher education are aiming at making entire papers online. It is important to keep those economically backward and technologically weaker learners in mind when dealing with subjects like English language. The study is significant to understand that students pick up a language faster and more efficiently when there is the physical presence of the language trainer.

3 Objectives

- To analyse the struggles faced by learners from the lived-in experiences of remote learning.
- To determine the struggles women English learners face, due to a lack of interaction with the physically absent, virtually present teacher or peers in remote learning.
- To analyse the mean difference between ethnographic variables and the locality as well as family income of respondents at Mercy College in Kerala state.
- To analyse the mean difference between the disparate impact of Covid-19 on English learners and the locality as well as family income of respondents at Mercy College in Kerala state.

4 Hypothesis

H0: Prolonged remote learning by first-time English language learners who need the physical presence of supportive language trainers will have a negative impact on the English language skills of learners from non-English medium schools.

H1: Prolonged remote learning by first-time English language learners who need the physical presence of supportive language trainers will have a positive impact on the English language skills of learners from non-English medium schools.

5 Research Methodology

The data for the study has been collected from the learners in Mercy College of Kerala state. A well-structured questionnaire was sent to the respondents through Google Forms. The primary data was collected by using simple random sampling method from 118 women respondents. The secondary data was gathered from journals, articles, books and websites. The questionnaire consisted of demographic variables such as discipline, number of family members, type of family, locality and family income. The questionnaire included a four-point Likert scale with *very often*, *often*, *sometimes* and *never* as options to analyse the ethnographic and disparate impact of Covid-19 on English learners in a women's college. The statistical tools used for this study are mean, standard deviation and ANOVA test.

6 Data Analysis and Discussion

The percentage of respondents from the arts discipline was 62 which is the highest and the percentage of respondents from science was 38 which is the lowest. The number of family members between three and four was the highest with 49.5% followed by above four members with 35.2 and between one and two with 15.3%. The type of family included nuclear with majority of the respondents standing at 70.2%, followed by joint family type with 29.8%. The next factor is the type of locality, in which most students come from rural locality with 55.7%, the semi-urban members stand second with 26.6%, and the urban members come last with 17.7%. The last demographic factor analysed was the family income which proved that students coming from a monthly family income below Rs 20000 stood at 40.6% and students who came from an income between Rs 20001 and Rs 40000 were at 37.9% and students in the income group of above Rs 40000 stood at the lowest with 21.5% (Table 10.1).

The question 'Do your college professors teach in English?' has scored the highest mean value of 3.09, which shows that higher education communication is happening fairly in English language which helps language

Table 10.1 Descriptive statistics

Ethnographic variables	*Mean*	*Std. deviation*
Do you face criticism while trying to speak in English?	2.54	1.038
Does society discourage you from speaking in English?	1.74	0.855
Do you watch programmes in English?	2.42	0.71
Do you read English newspapers?	2.01	0.856
Do you have the habit of reading books in English?	2.52	1.164
Do your friends speak in English?	2.12	0.767
Do your college professors teach in English?	3.09	0.714
Do you feel you have enough exposure towards English?	1.94	0.94
Do your teachers who teach English speak in English?	2.85	0.677

Source: Primary Data

learners acquire English faster when the teacher is physically present. It is followed by the question 'Do your teachers who teach English speak in English?' which has a mean score of 2.85. This shows a direct method in English teaching wherein the teacher uses a considerable amount of English in the classroom to help the second-language learners acquire English language. Next comes the question, 'Do you face criticism while trying to speak in English?', with a mean value of 2.54 and this shows that women learners do face a lot of criticism while trying to speak in English as most of them come from rural areas and English-speaking culture does not exist in such areas. The question, 'Do you have the habit of reading books in English?' received a mean score of 2.52, indicating that the habit of reading books in English falls short of average. If this increases then the learners have better chances of improving. The next question 'Do you watch programmes in English?' received a mean value of 2.42, which also falls short of the average score. Some families do have access to programmes in English, but many are yet to have access. It can easily be conferred that if the students get more opportunities to read English books, they could develop more skills to speak the language. 'Do your friends speak in English?' received a mean score of 2.12, which shows that the amount of peer group interaction in English is less under remote learning. If it were a physical classroom, the teacher could intervene and bring in-group discussions in English. 'Do you read English newspapers?' got a

mean value of 2.01 and clearly depicts that not many have the habit of reading English newspapers which is a significant source of English. The next question is, 'Do you feel you have enough exposure towards English?', which scored a mean of 1.94. This is indicative of another hurdle created during remote learning. There was considerable deterioration in exposure to English during the lockdown period. The question 'Does society discourage you from speaking in English?' received the least mean score of 1.74, indicating that there exists a climate of discouraging the use of English while conversing (Table 10.2).

The question 'Did Covid-19 impact your learning skills negatively?' received the highest mean value of 2.56, depicting that Covid-19 indeed had a negative impact on women English learners due to many reasons. The question which came second is 'Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?' which

Table 10.2 Descriptive statistics

	Mean	*Std. deviation*
Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?	2.53	1.00
Do you think English language learning in class helps you get more exposure than the remote learning system followed during Covid times?	1.76	0.89
Do you feel online classes do not give you a chance to interact in English?	2.50	1.03
Do you think your spoken English is not improving due to remote learning?	1.71	0.83
Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?	2.54	1.02
Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?	1.76	0.86
Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?	2.54	1.04
Did Covid-19 impact you in a way that you were feeling less connected to the college?	1.79	0.88
Did Covid-19 impact your learning skills negatively?	2.56	1.01
Did you find it difficult to get study materials during Covid-19 lockdown?	1.74	0.85
Did you miss access to reading books from the library during Covid-19?	2.50	1.03

Source: Primary Data

scored a mean value of 2.54, suggesting the need of women learners for the physical presence of the trainer or teacher in the real classroom to correct their pronunciation, as sound matters a lot in any language. The question 'Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?' scored 2.54, again proving that Covid-19 affected learners because of the lack of access or inadequate access to technology, internet connectivity, android phones and so on. The question which came third is 'Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?' earned a mean score of 2.53, indicating that virtual classes held during Covid-19 were indeed viewed as a hindrance to quick acquisition of the English language. The question 'Do you feel online classes do not give you a chance to interact in English?' scored a mean value of 2.50, reflecting the reality where interaction was less in virtual classes, and the question 'Did you miss access to reading books from the library during Covid-19?' also scored 2.50, implying that students had no access to libraries as the lockdown deprived them of this service. The learners from rural areas did not have the latest soft copies or drives or internet connectivity to read books online. The next question consequently is 'Did Covid-19 impact you in a way that you were feeling less connected to the college?' which acquired a mean score of 1.79, thus proving that many felt less connected with their peers and seniors in the college and were losing out on productive interaction with them. Two questions got 1.76, namely: 'Do you think English language learning in class helps you get more exposure than the remote learning system followed during Covid times?', which indicates that learners got less or no exposure during remote learning, and 'Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?', clearly underscoring the need for immediate availability of the teacher in person to help them solve their problems and correct their grammar and doubts instantly. The next question 'Did you find it difficult to get study materials during Covid-19 lockdown?' earned a mean value of 1.74 and clearly drove home the fact that learners had no access to valuable materials from various sources during Covid-19 times. The last question 'Do you think your spoken English is not improving due to remote learning?' scored 1.71 as a mean value, testifying the main premise of this chapter that the learners felt that they did not find any improvement in their spoken English during remote learning (Chart. 10.1).

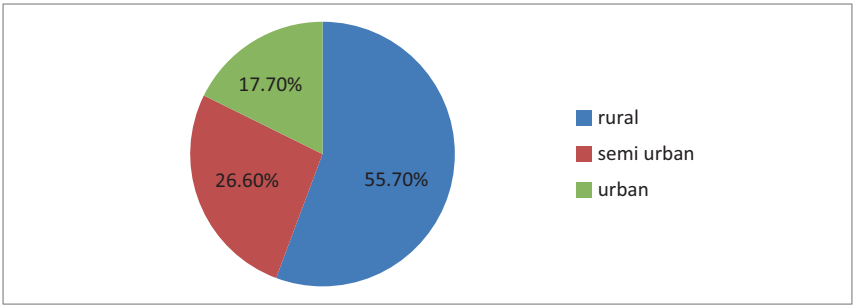


Chart 10.1 Locality of respondents. Source: Primary Data

The data analysis shows that the number of women learners from rural areas stands high with 55.70%. The number of learners from semi-urban stands second with 26.60% and the number from urban areas is the least with 17.70%. This is the result of the demographic survey, which shows how women learners from rural background had a heavy setback in English-speaking skills because of the locality they came from and because of the negative environmental influence of the culture they came from which points to a 'digital divide' in society (Chart. 10.2).

The demographic survey showed that most of the respondents came from below Rs 20000 per month category with 40.60% and women learners under the category between Rs 20001 and Rs 40000 came second with 37.90% and women learners from above Rs 40000 per month category stood at the lowest with 21.50%. From the above data it can be safely concluded that most learners coming from economically backward categories found it difficult to learn English through remote learning or online learning (Table 10.3).

This table gives an insight into the ground realities of how learners belonging to different localities were impacted differently. While analysing the question, 'Do you face criticism while trying to speak in English?', the mean score of rural area shows the highest score of 2.92 which is above the average level and proves that women learners from rural areas face a lot of criticism while trying to speak in English. The ANOVA value is significant at 5% level. The question 'Does society discourage you from speaking in English?' got a mean score of 2.13 which is above the score of learners from semi-urban areas who scored more than learners from urban areas. From the data collected there is strong ethnographic evidence that society

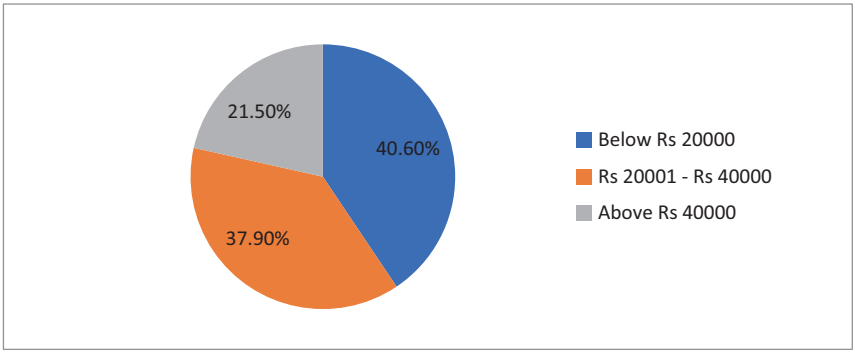


Chart 10.2 Family income of respondents. Source: Primary Data

discourages them from speaking in English, thus making improvement in fluency in English very difficult. This is significant at 5% ANOVA value level. 'Do you watch programmes in English?' is the next question which scored a mean value of 2.35 in rural area, 2.39 in semi-urban and 2.64 in urban area. This shows that though the learners in rural area lag behind in watching programmes in English, thereby reducing their exposure to the language, there is not much of a difference between the learners' habits in rural, semi-urban and urban. Therefore, the ANOVA value is insignificant. The question 'Do you read English newspapers?' received a mean value of 1.79 in the rural area, 1.97 in semi-urban and 2.68 in urban. This ANOVA value is significant at 5% level. The statistics help understand that the learners in the rural area do not have much access to English newspapers and this factor can be added to the list of deterrent factors in acquiring fluency in the language. The question 'Do you have the habit of reading books in English?' got a mean score of 2.24 from rural learners, 2.55 from semi-urban learners and 3.27 from urban learners. This makes it clear that learners in the rural localities do not have any access to English books, making it evident that the time they spend reading and conversing in English is almost nil. This ANOVA value is significant at 5%. The question 'Do your friends speak in English?' got a mean score 1.87 for rural areas, 2.18 for semi-urban and 2.73 for urban. The rural learners are at considerable disadvantage as their peers do not use the language, thus making it tough as they have no one to listen to or speak to in the language. The question 'Do your college professors speak in English?' got a mean value

Table 10.3 Mean difference between ethnographic variables and the locality of respondents

ANOVA table						
Questions	*Category*	*Mean*	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you face criticism while trying to speak in English?	Rural	2.92	1.135	0.144	10.312	***0.000***[a]
	Semi-urban	2.09	0.765	0.133		
	Urban	2.14	0.640	0.136		
	Total	2.54	1.038	0.096		
Does society discourage you from speaking in English?	Rural	2.13	0.839	0.107	18.658	***0.000***[a]
	Semi-urban	1.36	0.699	0.122		
	Urban	1.18	0.501	0.107		
	Total	1.74	0.855	0.079		
Do you watch programmes in English?	Rural	2.35	0.655	0.083	1.312	0.273
	Semi-urban	2.39	0.864	0.150		
	Urban	2.64	0.581	0.124		
	Total	2.42	0.710	0.066		
Do you read English newspapers?	Rural	1.79	0.727	0.092	10.269	***0.000***[a]
	Semi-urban	1.97	0.883	0.154		
	Urban	2.68	0.839	0.179		
	Total	2.01	0.856	0.079		
Do you have the habit of reading books in English?	Rural	2.24	1.197	0.152	7.040	***0.001***[a]
	Semi-urban	2.55	1.003	0.175		
	Urban	3.27	0.985	0.210		
	Total	2.52	1.164	0.108		
Do your friends speak in English?	Rural	1.87	0.614	0.078	12.248	***0.000***[a]
	Semi-urban	2.18	0.917	0.160		
	Urban	2.73	0.550	0.117		
	Total	2.12	0.767	0.071		
Do your college professors teach in English?	Rural	3.08	0.836	0.106	0.003	0.997
	Semi-urban	3.09	0.631	0.110		
	Urban	3.09	0.426	0.091		
	Total	3.09	0.714	0.066		

(*continued*)

Table 10.3 (continued)

ANOVA table

Questions	*Category*	*Mean*	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you feel you have enough exposure towards English?	Rural	1.89	0.851	0.108	3.861	***0.024***[a]
	Semi-urban	2.27	0.977	0.170		
	Urban	1.59	1.008	0.215		
	Total	1.94	0.940	0.087		
Do your teachers who teach English speak in English?	Rural	2.69	0.737	0.094	3.523	***0.033***[a]
	Semi-urban	3.00	0.612	0.107		
	Urban	3.05	0.486	0.104		
	Total	2.85	0.677	0.063		

Source: Primary Data

[a]Significant at 5% level

of 3.09 totally as all learners irrespective of whether they came from rural, semi-urban or urban were uniformly taught in English in Mercy College, Palakkad. This is the only situation where all of them have uniform exposure to English. This ANOVA value is significant at 5% level. The question 'Do you think you have enough exposure towards English?' showed a mean value of 1.89 in rural areas, 2.27 in semi-urban and 1.59 in urban, a clear indication that most of the learners feel they do not get enough exposure to English. This ANOVA value also is significant at 5% level. The last question 'Do your teachers who teach English speak in English?' got a total mean score of 2.85, the ANOVA value of which is significant at 5% level (Table 10.4).

The disparate impact of Covid-19 times and remote learning system on women learners can be further substantiated by analysing the difference between ethnographic variables and the locality of respondents. The first question 'Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?' received a mean value of 2.88 in the rural areas, 2.12 in semi-urban areas and 2.13 in urban areas, proving that online learning in a developing country like India did not impact women learners learning English. This ANOVA value is significant at 5% level. The second question 'Do you think English language learning in class helps you get more exposure than the remote

Table 10.4 Mean difference between the disparate impact of Covid-19 on women English learners and their locality

ANOVA table Location

		Mean	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?	Rural	2.8871	1.11774	0.14195	9.757	***0.000***
	Semi-urban	2.1212	0.64988	0.11313		
	Urban	2.1364	0.63960	0.13636		
	Total	2.5299	0.99631	0.09211		
Do you think English language learning in class helps you get more exposure than the remote learning system followed during Covid times?	Rural	2.1613	0.89064	0.11311	17.464	***0.000***
	Semi-urban	1.3636	0.69903	0.12168		
	Urban	1.2273	0.52841	0.11266		
	Total	1.7607	0.88716	0.08202		
Do you feel online classes do not give you a chance to interact in English?	Rural	2.8387	1.14796	0.14579	8.225	***0.000***
	Semi-urban	2.0909	0.76500	0.13317		
	Urban	2.1364	0.63960	0.13636		
	Total	2.4957	1.03077	0.09529		
Do you think your spoken English is not improving due to remote learning?	Rural	2.0806	0.81579	0.10361	17.250	***0.000***
	Semi-urban	1.3636	0.69903	0.12168		
	Urban	1.1818	0.50108	0.10683		
	Total	1.7094	0.83108	0.07683		
Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?	Rural	2.9032	1.12657	0.14308	9.664	***0.000***
	Semi-urban	2.1212	0.73983	0.12879		
	Urban	2.1364	0.63960	0.13636		
	Total	2.5385	1.02165	0.09445		
Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?	Rural	2.1613	0.83359	0.10587	19.104	***0.000***
	Semi-urban	1.3636	0.69903	0.12168		
	Urban	1.2273	0.52841	0.11266		
	Total	1.7607	0.85752	0.07928		
Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?	Rural	2.9194	1.13511	0.14416	10.312	***0.000***
	Semi-urban	2.0909	0.76500	0.13317		
	Urban	2.1364	0.63960	0.13636		
	Total	2.5385	1.03839	0.09600		

(*continued*)

Table 10.4 (continued)

ANOVA table Location

		Mean	*Std. deviation*	*Std. error*	*F*	*Sig value*
Did Covid-19 impact you in a way that you were feeling less connected to the college?	Rural	2.1452	0.82674	0.10500	13.464	***0.000***
	Semi-urban	1.4242	0.75126	0.13078		
	Urban	1.3182	0.77989	0.16627		
	Total	1.7863	0.87916	0.08128		
Did Covid-19 impact your learning skills negatively?	Rural	2.9355	1.09949	0.13964	10.870	***0.000***
	Semi-urban	2.1212	0.73983	0.12879		
	Urban	2.1364	0.63960	0.13636		
	Total	2.5556	1.01238	0.09359		
Did you find it difficult to get study materials during Covid-19 lockdown?	Rural	2.1290	0.83928	0.10659	18.658	***0.000***
	Semi-urban	1.3636	0.69903	0.12168		
	Urban	1.1818	0.50108	0.10683		
	Total	1.7350	0.85494	0.07904		
Did you miss access to reading books from the library during Covid-19?	Rural	2.8871	1.11774	0.14195	10.610	***0.000***
	Semi-urban	2.0606	0.74747	0.13012		
	Urban	2.0909	0.68376	0.14578		
	Total	2.5043	1.03077	0.09529		

Source: Primary Data

[a]Significant at 5% level

learning system followed during Covid times?' secured a mean value of 2.16 in the rural area, 1.3 in semi-urban and 1.2 in the urban area. This shows that not all are satisfied and many found that they did not get enough exposure to English language during remote learning system in Covid-19 times. This ANOVA value is significant at 5% level. The next question 'Do you feel online classes do not give you a chance to interact in English?' got a mean score of 2.8 in the rural locality, 2.09 in semi-urban and 2.1 in urban locality, depicting that they did not get enough opportunity to interact in English during online classes. This ANOVA value is significant at 5% level. The question 'Do you think your spoken English is not improving due to remote learning?' got a mean value of 2.0 in the rural, 1.3 in the semi-urban and 1.1 in the urban areas, thus

proving that many did not find their English skills improving during remote learning system. This ANOVA value is significant at 5% level. The following question: 'Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?' got a mean score of 2.9 in the rural, 2.1 in the semi-urban and 2.1 in the urban areas, indicating that the learners felt the immediate availability of the teacher in person helped them improve their pronunciation. This ANOVA value is significant at 5% level. The question 'Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?' got a mean value of 2.1 in the rural area, 1.3 in the semi-urban and 1.2 in the urban area which helps arrive at the fact that the immediate presence of the teacher helps learners correct grammar mistakes instantly. This ANOVA value is significant at 5% level. The question 'Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?' secured a mean value of 2.9 in the rural, 2.0 in the semi-urban and 2.1 in the urban locality, proving that a large number of students did not have access to devices like android or smart phones or even their own phones, which they may have had to share with their siblings. They also did not have access to the internet. This hindered their learning even though the academic calendar was saved through online classes. This ANOVA value is significant at 5% level. The question 'Did Covid-19 impact you in a way that you were feeling less connected to the college?' scored a mean value of 2.1 in the rural, 1.4 in the semi-urban and 1.3 in the urban areas. This once again demonstrates that the learners felt less connected to their seniors in the college that took off valuable interactive and learning time from them. This ANOVA value is significant at 5% level. The next question 'Did Covid-19 impact your learning skills negatively?' got a mean value of 2.9 in the rural, 2.1 in the semi-urban and 2.1 in the urban areas. This reveals that remote learning and Covid-19 had a negative impact on women English learners. This ANOVA value is significant at 5% level. The question 'Did you find it difficult to get study materials during Covid-19 lockdown?' secured a mean value of 2.1 in the rural, 1.3 in semi-urban and 1.1 in the urban localities. The learners did find it difficult to get learning materials during Covid-19 lockdown. They might have not got the focused materials. Some random matter got through no proper guidance from the internet by a few who have access will not help in total development of an entire class. This ANOVA value is significant at 5% level. The last question 'Did you miss access to reading books from the library during Covid-19?' got a mean score of 2.8 in the rural, 2.0 in the

semi-urban and 2.0 in the urban areas. This shows that they had no access to the physical library and not all colleges have a digital library system wherein students can have access even from home. This ANOVA value is significant at 5% level (Table 10.5).

This data analysis will help understand the mean difference between the ethnographic variables and the family income of the respondents. It will help understand how the financially weaker sections have difficulty in learning English due to remote learning. For the question 'Do you face criticism while trying to speak in English?', the mean value received is 2.64 for respondents from the income group of below Rs 20000, 2.70 for the income category between Rs 20001 and Rs 40000 and 2.00 for the above Rs 40000 category. This shows that the learners face criticism trying to speak in English, therefore making learning very difficult. This ANOVA value is significant at 5% level. The question 'Does society discourage you from speaking in English?' got a mean value of 1.68 for below Rs 20000 level, 1.96 for between Rs 20001 and Rs 40000 level and 1.39 for above Rs 40000 level, thus showing that society has a negative environmental influence and discourages them from speaking in English which makes the task even more difficult. This ANOVA value is significant at 5% level. The next question 'Do you watch programmes in English?' received a mean value of 2.47 for the category 'below Rs 20000', 2.23 for 'between Rs 20001 and Rs 40000' and 2.70 for above Rs 40000, showing that the amount of exposure to English language through watching TV programmes in English is very less. The learners live in communities that do not watch programmes in English often, and since they come from lower-income groups the entire family may be depending on one gadget and the culture discourages anything other than its vernacular language. This ANOVA value is significant at 5% level. The question 'Do you read English newspapers?' got a mean score of 1.74 for those under Rs 20000 category, 2.15 for those 'between Rs 20001 and Rs 40000' and 2.26 for those above Rs 40000, confirming that the habit of reading English newspapers was very low. This could be because the lower-income groups do not routinely buy English newspapers or borrow one to read it. It may be mentioned here that it is not uncommon for people from the middle and upper classes in India, a former British colony, to read newspapers in English with substantial number of families exclusively subscribing to English language newspapers. An English newspaper is the cheapest medium of English non-literature publication, and the data collected shows that learners do not gain access to this medium which is a huge

Table 10.5 Mean difference between ethnographic variables and the family income of respondents

ANOVA table

Questions	*Category*	*Mean*	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you face criticism while trying to speak in English?	Below Rs 20,000	2.64	1.092	0.159	4.102	**0.019**[a]
	Between Rs 20001 and 40000	2.70	1.020	0.149		
	Above Rs 40000	2.00	0.798	0.166		
	Total	2.54	1.038	0.096		
Does society discourage you from speaking in English?	Below Rs 20,000	1.68	0.810	0.118	3.709	**0.027**[a]
	Between Rs 20001 and 40000	1.96	0.908	0.132		
	Above Rs 40000	1.39	0.722	0.151		
	Total	1.74	0.855	0.079		
Do you watch programmes in English?	Below Rs 20,000	2.47	0.776	0.113	3.608	**0.030**[a]
	Between Rs 20001 and 40000	2.23	0.560	0.082		
	Above Rs 40000	2.70	0.765	0.159		
	Total	2.42	0.710	0.066		
Do you read English newspapers?	Below Rs 20,000	1.74	0.920	0.134	4.069	**0.020**[a]
	Between Rs 20001 and 40000	2.15	0.625	0.091		
	Above Rs 40000	2.26	1.010	0.211		
	Total	2.01	0.856	0.079		
Do you have the habit of reading books in English?	Below Rs 20,000	2.81	1.173	0.171	6.686	**0.002**[a]
	Between Rs 20001 and 40000	2.06	1.092	0.159		
	Above Rs 40000	2.87	1.014	0.211		
	Total	2.52	1.164	0.108		

(*continued*)

Table 10.5 (continued)

ANOVA table

Questions	*Category*	*Mean*	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do your friends speak in English?	Below Rs 20,000	2.00	0.933	0.136	0.963	0.385
	Between Rs 20001 and 40000	2.19	0.537	0.078		
	Above Rs 40000	2.22	0.795	0.166		
	Total	2.12	0.767	0.071		
Do your college professors teach in English?	Below Rs 20,000	3.34	0.700	0.102	8.171	**0.000**[a]
	Between Rs 20001 and 40000	2.79	0.720	0.105		
	Above Rs 40000	3.17	0.491	0.102		
	Total	3.09	0.714	0.066		
Do you feel you have enough exposure towards English?	Below Rs 20,000	1.91	0.855	0.125	3.092	**0.049**[a]
	Between Rs 20001 and 40000	1.77	0.914	0.133		
	Above Rs 40000	2.35	1.071	0.223		
	Total	1.94	0.940	0.087		
Do your teachers who teach English speak in English?	Below Rs 20,000	2.91	0.686	0.100	7.705	**0.001**[a]
	Between Rs 20001 and 40000	2.60	0.648	0.095		
	Above Rs 40000	3.22	0.518	0.108		
	Total	2.85	0.677	0.063		

Source: Primary Data

[a]Significant at 5% level

setback to their goal of acquiring the English language. This ANOVA value is significant at 5% level. The next question is 'Do you have the habit of reading books in English?' and it received a mean score of 2.81 for

those under Rs 20000 level, 2.06 for those 'between Rs 20001 and Rs 40000' and 2.87 for those above Rs 40000 which proves the fact that most of the learners did not have the habit of reading English books. The lower-income group is not financially sound to invest on books and they also do not grow in a culture where people read books in English. Consequently, they do not borrow books in English from the local library. This ANOVA value is significant at 5% level. The next question 'Do your friends speak in English?' got a mean value of 2.00 for the income category below Rs 20000, 2.19 for between Rs 20001 and Rs 40000 and 2.22 for above Rs 40000 which is again an indication that the peer group interaction in English is insignificant. This is another deterrent to their aim of learning English, thus slowing the process of improvement further. Here there is not much of a difference in the response of respondents of all the three income categories. Therefore, this ANOVA value is insignificant. It must be noted here that unlike the first-time learners of English language in Mercy College, Palakkad, there are a significant number of young students in the metropolitan cities of India who grow up in a culture dominated by the English language: studying in schools and colleges with English as the medium of instruction and English being the dominant language in social intercourse as well as within the families. In the case of such cohorts, the lockdown and closure of educational institutions would have made no impact on their English language skills.

The question 'Do your college professors teach in English?' got a mean value of 3.34 for the income group 'below Rs 20000', 2.79 for those 'between Rs 20001 and Rs 40000' and 3.17 for those above Rs 40000, showing that while there is communication in English, it does not help them improve their English skills because the communication is one way: teacher to student. The respondents do not have difference in their opinion and so this ANOVA value is insignificant. The next question 'Do you feel you have enough exposure towards English?' got a mean value of 1.91 for those 'below Rs 20000 level', 1.77 for those 'between Rs 20001 and Rs 40000' and 2.35 for those 'above Rs 40000' category, proving the fact that the learners get very little exposure towards English. This ANOVA value is significant at 5% level. The question 'Do your teachers who teach English speak in English?' got a mean score of 2.91 for those 'below Rs 20000 level', 2.60 for those 'between Rs 20001 and Rs 40000' and 3.22 for the category 'above Rs 40000', which highlighted the need for the teachers of English to use English and teach through the direct method to help the learners improve their English speaking skills. This ANOVA value is significant at 5% level. It may be noted here that a significant number of

Table 10.6 Mean difference between ethnographic variables and Covid impact on respondents

ANOVA table Family income

		Mean	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?	Below Rs 20,000	2.6170	1.03321	0.15071	3.616	***0.030***
	Between Rs 20001 and 40000	2.6809	1.00231	0.14620		
	Above Rs 40000	2.0435	0.76742	0.16002		
	Total	2.5299	0.99631	0.09211		
Do you think English language learning in class helps you get more exposure than the remote learning system followed during Covid times?	Below Rs 20,000	1.6809	0.81043	0.11821	4.463	***0.014***
	Between Rs 20001 and 40000	2.0213	0.96660	0.14099		
	Above Rs 40000	1.3913	0.72232	0.15061		
	Total	1.7607	0.88716	0.08202		
Do you feel online classes do not give you a chance to interact in English?	Below Rs 20,000	2.5745	1.09831	0.16021	3.539	***0.032***
	Between Rs 20001 and 40000	2.6596	1.00599	0.14674		
	Above Rs 40000	2.0000	0.79772	0.16634		
	Total	2.4957	1.03077	0.09529		
Do you think your spoken English is not improving due to remote learning?	Below Rs 20,000	1.6809	0.81043	0.11821	2.964	0.056
	Between Rs 20001 and 40000	1.8936	0.86562	0.12626		
	Above Rs 40000	1.3913	0.72232	0.15061		
	Total	1.7094	0.83108	0.07683		
Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?	Below Rs 20,000	2.6383	1.05141	0.15336	4.247	***0.017***
	Between Rs 20001 and 40000	2.7021	1.01970	0.14874		
	Above Rs 40000	2.0000	0.79772	0.16634		
	Total	2.5385	1.02165	0.09445		

(*continued*)

Table 10.6 (continued)

ANOVA table Family income						
		Mean	*Std. deviation*	*Std. error*	*F*	*Sig value*
Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?	Below Rs 20,000	1.7021	0.80528	0.11746	2.669	***0.074***
	Between Rs 20001 and 40000	1.9574	0.90787	0.13243		
	Above Rs 40000	1.4783	0.79026	0.16478		
	Total	1.7607	0.85752	0.07928		
Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?	Below Rs 20,000	2.6383	1.09198	0.15928	4.102	***0.019***
	Between Rs 20001 and 40000	2.7021	1.01970	0.14874		
	Above Rs 40000	2.0000	0.79772	0.16634		
	Total	2.5385	1.03839	0.09600		
Did Covid-19 impact you in a way that you were feeling less connected to the college?	Below Rs 20,000	1.7447	0.87148	0.12712	2.020	0.137
	Between Rs 20001 and 40000	1.9574	0.90787	0.13243		
	Above Rs 40000	1.5217	0.79026	0.16478		
	Total	1.7863	0.87916	0.08128		
Did Covid-19 impact your learning skills negatively?	Below Rs 20,000	2.6596	1.06886	0.15591	3.188	***0.045***
	Between Rs 20001 and 40000	2.6809	1.00231	0.14620		
	Above Rs 40000	2.0870	0.79275	0.16530		
	Total	2.5556	1.01238	0.09359		
Did you find it difficult to get study materials during Covid-19 lockdown?	Below Rs 20,000	1.6809	0.81043	0.11821	3.709	***0.027***
	Between Rs 20001 and 40000	1.9574	0.90787	0.13243		
	Above Rs 40000	1.3913	0.72232	0.15061		
	Total	1.7350	0.85494	0.07904		

(*continued*)

Table 10.6 (continued)

ANOVA table Family income						
		Mean	*Std. deviation*	*Std. error*	*F*	*Sig value*
Did you miss access to reading books from the library during Covid-19?	Below Rs 20,000	2.5957	1.07662	0.15704	3.628	***0.030***
	Between Rs 20001 and 40000	2.6596	1.02738	0.14986		
	Above Rs 40000	2.0000	0.79772	0.16634		
	Total	2.5043	1.03077	0.09529		

Source: Primary Data

[a]Significant at 5% level

teachers of English language across India resort to the indirect method of teaching by using both English and the vernacular language that the learners are comfortable with (Table 10.6).

This data analysis will help understand the mean difference between the ethnographic variables and the family income of the respondents. It will help understand how the financially weaker sections have difficulty in learning English due to remote learning. The question 'Do you feel online English classes that you were attending during Covid-19 are a hindrance to improving the English language?' got a mean score of 2.6 for income category below Rs 20000, 2.6 for income category between Rs 20001 and Rs 40000 and 2.0 for income category above Rs 40000. This shows that the lower-income categories face more difficulties in improving their English due to online classes during Covid-19 times. This ANOVA value is significant at 5% level.

The next question 'Do you think English language learning in class helps you get more exposure than the remote learning system followed during Covid times'? secured a mean value of 1.6 for the income level below Rs 20000, 2.0 for the income level between Rs 20001 and Rs 40000 and 1.3 for the income level above Rs 40000, depicting that most of them felt the learners get more exposure in a live classroom than in a virtual classroom and Covid-19's impact has led them to have less exposure. This ANOVA value is significant at 5% level.

The question 'Do you feel online classes do not give you a chance to interact in English?' received a mean value of 2.5 in the 'below Rs 20000 level', 2.6 in the 'between Rs 20001 and Rs 40000 level' and 2 in the 'above Rs 40000 level', demonstrating the very real need for live classes which could help learners interact with peers and teachers. They felt that their opportunities for interaction became restricted in virtual classes and their chance of picking up paralanguage signs and speaking spontaneously was better in a live classroom. This ANOVA value is significant at 5% level.

The following question: 'Do you think your spoken English is not improving due to remote learning?' got a mean score of 1.6 in the 'below Rs 20000' category, 1.8 in the 'between Rs 20001 and Rs 40000' category and 1.3 in the 'above Rs 20000' category, illustrating that Covid-19 virtual classes impacted in a way that the respondents did not feel any serious improvement in their English communication skills. This ANOVA value is significant at 5% level.

The following question 'Do you feel you need the presence of the English teacher in the classroom to correct your pronunciation?' received a mean value of 2.6 in the 'below Rs 20000' category, 2.7 in the 'between Rs 20001 and Rs 40000' category and 2 in the 'above Rs 40000' category, giving the picture that the pronunciation skills of the learners improved only with the immediate and instant intervention of the teacher and Covid-19 has an adverse impact on their English skill. This ANOVA value is significant at 5% level.

The question 'Do you feel the physical presence of the English teacher helps you correct your grammar mistakes?' scored a mean value of 1.7 in the 'below Rs 20000 level', 1.9 in the 'between Rs 20001 and Rs 40000 level' and 1.4 in the 'above Rs 40000', level delineating the milieu that when the teacher is physically present in front of the learners in a real classroom, the learners find it easy to correct their grammar mistakes instantly. Covid-19 did not help clear doubts that arise instinctively because immediate doubt clearance was not possible. Technical snags and poor internet facility led to delayed responses. Eventually learners stopped asking teachers to clear their doubts. This ANOVA value is significant at 5% level.

The next question 'Do you think Covid-19 impacted you because of less access to technology during the Covid-19 spread?' received a mean value of 2.6 in the below Rs 20000 category, 2.7 in the between Rs 20001 and Rs 40000 category and 2 in the above Rs 40000 category, proving that Covid-19 did take away constructive learning time of women learners as they had to suffer from a lack of technical gadgets. They could not

afford to buy devices immediately as the economy crashed and many parents lost their jobs. The lack of internet access and loss of connectivity aggravated their suffering. Beyond all these factors was the gendered role of the women students in the household—that of doing chores in the house, making them lose valuable learning time. This ANOVA value is significant at 5% level.

The following question 'Did Covid-19 impact you in a way that you were feeling less connected to the college?' earned a mean score of 1.7 in the below Rs 20000 class, 1.9 in the between Rs 20001 and Rs 40000 class and 1.5 in the above Rs 40000 class. The results pointed to the learner's lack of connection with their seniors, professors and their peer during the Covid-19 times, thus proving that the Covid adversely impacted their improvement in learning English. This ANOVA value is significant at 5% level.

The question 'Did Covid-19 impact your learning skills negatively?' received a mean score of 2.6 in the below Rs 20000 classification, 2.6 in the between Rs 20001 and Rs 40000 classification and 2 in the above Rs 40000 classification, indicating that the learners did feel that the Covid-19 impact was negative on their English learning skills. This ANOVA value is significant at 5% level.

The next question 'Did you find it difficult to get study materials during Covid-19 lockdown?' got a mean value of 1.6 in the below Rs 20000 level, 1.9 in the 'between Rs 20001 and Rs 40000 level' and 1.3 in the above Rs 40000 level, outlining the ground reality that the learners found it very difficult to get proper and authentic material to learn from during lockdown times. This ANOVA value is significant at 5% level.

The last question 'Did you miss access to reading books from the library during Covid-19?' earned a mean score of 2.5 in the below Rs 20000 income category, 2.6 in the between Rs 20001 and Rs 40000 category and 2 in above Rs 40000 category, a clear indication that access to real libraries was nil during Covid-19 times, which indeed had an impact and slowed down the learning of the respondents. The ANOVA value is significant at 5% level.

7 Conclusion

The study was conducted on women English learners. The methodology used was a questionnaire method which had questions to analyse the demographic and ethnographic background of the respondents and questions to ascertain the disparate impact of Covid-19 remote learning system on their English learning skills. Further analysis proved that the study could be better if the difference between the mean value of the demographic variables and their locality was arrived at, because that will help ascertain the deterrent factors faced by women English learners based on the geographic settlements and the culture they came from. The analysis moved forward to arrive at the difference of mean value between demographic variables and family income category. The data proved that most learners from lower- and middle-income category felt that they faced a lot of criticism, lived in a negative and discouraging society, do not watch programmes or news bulletins in English, do not read English newspapers or books in the English language, have friends who do not converse in English and want more teachers of higher education and especially teachers handling classes in English to help them overcome the shortcomings of the remote learning system and get back to the offline physical classroom learning method.

The difference between the mean value of ethnographic variables and locality and the different categories of family income the respondents came from was ascertained to understand how the women English learners had cultural or community issues and financial issues which were a setback to learning English. They were similar to the factors that were revealed from the analysis of demographic variables, such as environmental criticism, negative influence, discouraging society, lack of exposure, lack of peer group interaction in English and desiring offline classes with the physical presence of the English teacher. The study proceeded further to prove that the learners from lower-income categories mostly come from a rural background, feel the need of English teachers being in the classroom in person to help them improve their English, want the language trainer's presence to correct their mistakes in language immediately and want English learning happening in a classroom with interaction with peers. The data showed that there was a deterioration of their English learning due to remote learning. Most results were significant at 5% level. This proves that Hypothesis H0 (prolonged remote learning by first-time English language learners who need the physical presence of supportive

language trainers will have a negative impact on the English language skills of learners from non-English medium schools) is right and Hypothesis H1 (prolonged remote learning by first-time English language learners who need the physical presence of supportive language trainers will have a positive impact on the English language skills of learners from non-English medium schools) has been nullified.

8 Post-COVID Pedagogy for English Language Learning

The teacher is a walking repository for learners to get all their queries and concerns answered. There may be a plethora of online teaching videos, apps and websites, yet learning English is a multi-faceted journey and everything cannot be acquired in one click or one video. Perhaps online learning could continue in the post-COVID era for restricted subjects where software is very much essential. If needed virtual classes could be integrated with real classroom learning to be up with the times and technology. But absolute teacher and learner physical classroom contact hours should not be completely done away with. There are innumerable benefits in face-to-face learning and interacting with a real teacher physically present before the learner. The immediate care provided by the English teachers and their guidance, the English-only environment and having like-minded peer group help the women English learners improve their English communication skills.

9 Suggestions and Recommendations

The study indicates the deterrent factors that negatively impacted women English learners during the remote learning situation they were pushed into during Covid-19 lockdown. This study helped in arriving at the following recommendations for a post-COVID scenario where there could be epidemics or other crises leading to lockdown of educational institutions or a period of interrupted education in physical classes:

1. Provide for supportive language trainers who can guide students in person as well as upskill the trainers to provide effective online training.

2. Introduction of student-centric activities in class, in the form of discussions, role plays and debates to help learners practice speaking in groups both offline and online.
3. Community and government intervention to provide sufficient number of devices to keep learners engaged virtually. Community internet kiosks had been set up in Kerala by the government right from 2004. It is suggested that such kiosks be opened exclusively for students.
4. The parents and teachers' association should arrange counselling and orientation sessions to change the attitude of unsupportive and hostile family members.
5. Evidence-based and self-paced online courses along with interactive activities focused on how to effectively teach online should be created and faculty (both new and experienced) must be encouraged to complete these courses before they start teaching online.

Moving forward, we need to ensure higher education delivery is well-equipped to transition to changing circumstances and future restrictions to students accessing higher education. It is crucial to weigh every barrier that students have faced during this period so that institutions of higher education are more inclusive and can meet student needs in the future. Implementing the traditional teaching model along with newer models (all on campus, hybrid or all distance learning) at regular intervals is essential not only to inform future teaching practices but also to ensure that colleges and universities retain student numbers and remain financially sustainable.

References

Bonner, E., Gravey, K., Miner, M., Godin, S., & Reinders, H. (2022). Measuring Real-time Learner Engagement in the Japanese EFL Classroom. *Innovation in Language Learning and Teaching*. Accessed April 10, 2022, from https://www.tandfonline.com/doi/abs/10.1080/17501229.2021.2025379.

Creating a Welcome Classroom Environment Supporting ELLs in the Mainstream Classroom. (2022). *Portland Public Schools*, Colorin Colorado. https://www.readingrockets.org/article/creating-welcoming-classroom-environment, Accessed April 5, 2022.

Farley, I. (2021). Teachers of Culturally and Linguistically Diverse Students and Effective Professional Development: A Critical Review of Research. *Journal of*

English Learner Education, 13, 1. https://stars.library.ucf.edu/cgi/viewcontent.cgi?article=1045&context=jele

Keles, U. (2022). *Autoethnography as a Recent Methodology in Applied Linguistics: A Methodological Review*. TQR. Accessed April 11, 2022, from https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=5131&context=tqr.

Konttinen, M. (2022). Towards More Learning-Centered English-Medium Education: Promoting the Combination of *Backward Design* and *Community of Practice* in Teacher Training. *Innovation in Language Learning and Teaching*. https://doi.org/10.1080/17501229.2022.2064469. Accessed April 27, 2022.

Lin, Y.-J., & Wang, H.-C. (2022). Applying Augmented Reality in a University English Class: Learners' Perceptions of Creativity and Learning Motivation. *Innovation in Language Learning and Teaching*. https://doi.org/10.1080/17501229.2022.2040513. Accessed April 30, 2022.

Louly, N. M., & Kanniammal, K. (2021a). Association Between Job Performance and Selected Demographic Variables Among Women Faculty Members. *Recent Trends in Management and Commerce, 2*(2). REST Publisher, 10.46632/rmc/2/2/2, Accessed April 15, 2022.

Louly, N. M., & Kanniammal, K. (2021b, January). A Study on Factors Influencing Job Performance Among Women Faculties of Select Arts and Science Colleges. *International Journal of Research and Analytical Reviews (IJRAR) www.ijrar.org 459, 8*:1.

Martin, C. (2022). "Modern Foreign Language Learning: Exploring the Possible Impact of Parental Experiences on Student Motivation." *Innovation in Language Learning and Teaching*. https://doi.org/10.1080/17501229.2022.2043871. Accessed April, 30, 2022.

Perez, M. A., & Khan, S. (2022). Metadiscourse Use When Shifting from L1 to EMI Lecturing: Implications for Teacher Training. *Innovation in Language Learning and Teaching*, https://doi.org/10.1080/17501229.2022.2057503. Accessed May 3, 2022.

The Benefits of Classroom Learning. (2022). *British Council*. Accessed March 18, 2022, from https://www.britishcouncilfoundation.id/en/english/articles/classroom-learning-benefits.

The Importance of Learning English and Why it Should be Fun. (2022). *ETS Insights*. Accessed April 7, 2022, from https://news.ets.org/stories/the-importance-of-learning-english-and-why-it-should-be-fun.2.

Toluei, B., & Tahririan, M. H. (2022). Resolving Disagreements: A Conversation Analytic Study on Disagreements in Completion Sequences Among EFL Learners. *The Language Learning Journal*. Accessed May 3, 2022, from https://www.tandfonline.com/doi/abs/10.1080/09571736.2022.2061580?tab=permissions&scroll=top.

CHAPTER 11

Impacts of Covid-19 on Institutions of Higher Education in Jammu and Kashmir

Zaffar Ahmad Nadaf and Javid Ahmad Ahanger

1 Introduction

On March 11, 2020, the World Health Organization (WHO) declared Covid-19 a global pandemic. In response to the rapid global spread of Covid-19 and to contain the disease's spread, both developed and developing nations across the globe enacted unprecedented social containment measures to stem the tide. The global spread of Covid-19 has caused shockwaves. The unprecedented public health crisis has resulted in significant human suffering and death. The exponential increase in infected patients and the dramatic effects of severe disease cases have overwhelmed hospitals and health professionals and significantly strained the health industry. Governments responded to the spread of the disease by closing down entire industries and imposing extensive mobility restrictions.

Z. A. Nadaf
School of Education, Central University of Kashmir, Kashmir, India
e-mail: drzanadaf@cukashmir.ac.in

J. A. Ahanger (✉)
Indian Council of Social Science Research, New Delhi, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_11

Among other things, these measures necessitated social separation and temporary physical closure of educational institutions.

The novel coronavirus disease 2019 or Covid-19 (Flack et al., 2020) or SARS-CoV-2 (Velavan & Meyer, 2020) pandemic outbreak has disturbed and altered how we socialize, work, and learn (Brynjolfsson et al., 2020; Daniel, 2020; Haase et al., 2021). Since the beginning of the internet, many human activities have moved online (Donthu & Gustafsson, 2020; Kramer & Kramer, 2020). However, education is particularly impacted by the pandemic's repercussions (Marinoni et al., 2020; Schleicher, 2020; Stambough et al., 2020). The pandemic is both a problem (Daniel, 2020) and an opportunity (Azorín, 2020) for education. Nevertheless, schools and colleges were shut down to prevent the spread of Covid-19 (Pokhrel & Chhetri, 2021), and thus the Covid-19 pandemic has disturbed conventional learning methods (Lemay & Doleck, 2020). It prompted a shift to online teaching and learning activities (Allen et al., 2020; Lemay et al., 2021). As a result of the disruptions produced by Covid-19 to daily life, as many as forty million children globally lost out on preschool education during their crucial prekindergarten year as reported by UNICEF (UNICEF, 2020).

2 Methodology

In the current study, a combination of qualitative and quantitative research techniques was used to examine the abovementioned critical elements. The research is conducted in two parts: in the first phase, historical, analytical, and descriptive methodologies are used. Recent relevant literature and secondary data, such as books, journal articles, editorials, and other sources, were thoroughly evaluated, therefore enhancing the understanding of all potential practical elements of the study subject. In addition, the analysis follows the chronology of political changes in J & K. Through this technique, an accurate image of political occurrences was analyzed and recorded in a proper context, along with their influence on the state of higher education in J & K. Similarly, online questionnaires were employed in the second phase to collect primary data. Through emails, professional websites, and personal platforms, those who agreed to participate were requested to complete the questionnaire. For the survey, a Google form with statements regarding the benefits, drawbacks, possibilities, and dangers was developed (SWOT analysis). During the lockdown, respondents were

requested to take an online survey regarding their perception of the organization's strengths, flaws, opportunities, and dangers. In addition, comments from faculty members and administrators were obtained using an interview schedule. The current research sample of 1200 was picked from many institutes of higher education such as the University of Kashmir, Central University of Kashmir, Islamic University of Science and Technology, and Sher-e-Kashmir University of Agricultural Sciences and Technology, Cluster University of Srinagar, and National Institute of Technology. However, only 978 students responded to the survey online. In addition, information on the style of learning was obtained from respondents. The data were analyzed using percentage analysis.

3 Instruments Used in the Study

The measuring items used in the study were sourced from existing validated scales and literature.

4 Contextualizing the Kashmir Conflict and Education

Before writing about Covid-19 and its varied effects on higher education in J & K, it is necessary to examine the contentious political history of the region to have a better understanding of the various elements that have severely influenced educational institutions throughout time. The contested political history of J & K has been recounted in academia; hence, we will not elaborate on the "Kashmir conflict" or "dispute" per se. Nonetheless, it cannot be denied that internal governance considerations have had a significant influence on every institution in J & K. Kashmir has been through a violent political culture through a series of public uprisings against the central government in the last three decades due to the highly ineffective policies at the national level towards Kashmir. The governance deficit coupled with the armed struggle and the counterinsurgency operations that erupted in the 1990s led to the institutional breakdown (Farhad, 2020). These acts of public and state violence led to the collapse of all institutions, with education being the first sector to be impacted. In those turbulent decades, schools, colleges, universities, and other institutions were closed frequently owing to the insurgency and counterinsurgency operations across the region. In the previous decade or so, the state has

seen curfews, internet shutdowns, and hartals (protests) (Pain et al., 2022; Wani et al., 2022). Since 2008, there have been three significant anti-state popular uprisings in the state: the first in 2008, the second in 2010, and the third in 2016. During all demonstrations, educational institutions were closed indefinitely, strict curfews were implemented, and the internet was always shut down as a "prerequisite for the restoration of law and order" in Kashmir, as deemed by the governments (Wani & Yaqoob, 2021). Thus the education sector was severely impacted and it became the first target in the conflict-ravaged valley of Kashmir.

The state (now separated into two Union Territories, J & K and Ladakh) has several state higher education institutions, such as the University of Kashmir in Srinagar and the University of Jammu in the Jammu region. Across J & K, these two public universities have more than one hundred affiliated institutions (colleges). Likewise, there are seven other state universities and two central universities catering to the educational needs of students. Despite these public institutions, many students go outside to pursue quality higher education (Tribune India 2019; Pathak, 2021). These state and central institutions have a limited capacity for admission. For example, the University of Kashmir and the University of Jammu can accommodate seven to eight thousand students for various degrees. However, in 2021, the population of J & K, excluding Ladakh, which was a part of the former state until the year 2019, was over thirteen million, with a literacy rate of 68%. Despite a growing youth population, J & K's public institutions have a total enrollment capacity of fewer than 20,000 students excluding the colleges affiliated to them. Due to the region's never-ending political unrest and bloodshed, the state did not see the same growth in the private sector, including education, like other regions of India. Similarly, it often took four to five (even sometimes six) years to finish three-year degree programs in J & K due to the political turmoil. Consequently, a large number of students relocate to different regions of India to pursue their education in public and private institutions. While interacting with Nasir Khuehami, national spokesperson of the J & K Students Association, he said that political disturbances are one of the leading causes for the "migration" of students to other Indian states, along with a lack of basic infrastructure and good academic institutions, which encourages students to seek education outside the state. It is believed that more than twenty thousand youngsters go outside the region, annually, to pursue education in other states of India (Indian Express, 2019).

5 Covid-19 and State of Education: Post-2019 Constitutional Changes in Kashmir

As a developing country, India, like the rest of the globe, was affected by the Covid-19 pandemic. The whole country, including J & K, was placed under a stringent lockdown, and all activities were stopped for more than a year. The countrywide lockdown was extended to several states, including J & K (Khanam et al., 2020). Before assessing the varied effects of Covid-19 on higher education institutions in J & K, it is equally crucial to document the situation in J & K after the 2019 constitutional amendments by the government. The government on August 5, 2019, passed a critical yet most contested law in the Parliament which abrogated the "special" constitutional provision under Article 370 of the Indian Constitution. The state was subdivided into two Union Territories, Jammu and Kashmir and Ladakh, all of which were now to be governed by the central government. After the abrogation of Article 370, strict security measures were implemented across the J & K. Under the military curfew, seven million residents in the Kashmir valley were confined to their homes. The state was effectively under military authority until 2020. Kashmir was off-limits to everyone; there was no internet, phone service, or public or automobile transportation, and life had come to a halt. Those Kashmiris living outside the region were desperate to hear whether their loved ones were safe.

Even before the Covid-19 shutdown in March 2020, all educational institutions were closed, and internet access was disrupted for approximately six months. From August 5, 2019, to March 2020, Kashmiris including the students suffered greatly; they lost contact with their education. The state considered it necessary for restoring peace and order in the wake of post-constitutional changes. Due to the closure in J & K, students missed the 2019 academic year. While the state was transitioning to "normalcy" after months of curfews, Covid-19 pandemic led to the next lockdown (Yousaf et al., 2020). While the rest of India continued to provide online education during Covid-19, Kashmir witnessed complete internet shutdowns (Majeed 2022). Even during the pandemic, when schooling/colleges moved online, there was little hope for Kashmiri youngsters due to the throttled 2G internet connection. This sorry state of affairs may be described in these words:

> The internet remains heavily disrupted in Kashmir, with severe economic, emotional, and academic consequences for Kashmiri scholars and students. This situation has hurt researchers, Ph.D. students, and academics who cannot access research publications, submit admission applications, meet publication deadlines or participate in intellectual exchanges. It makes it difficult for students registered in various universities across India who have returned to Kashmir during the pandemic to continue their education online, maintain contact with faculty, and access online resources. (Andrabi & Kadiwal, 2021)

Consequently, throughout Covid-19, the miserable situation of education in J & K continued. In the next part, we shall examine the effect of Covid-19 on education in J & K. The influence of Covid-19 on higher education was assessed by assigning points to several indices, such as timely course completion, campus recruitment, progression to higher education, ease of use in digital platforms, and SWOT analysis of online teaching and learning (Gonzalez et al., 2020; Lee, 2021; García-Peñalvo et al., 2021). All these aspects are examined in the next section using suitable techniques for data collection and analysis.

6 Impact of Covid-19 on Course Completion

The Covid-19 lockdown resulted in state-wide educational institution closures in J & K. The catastrophe produced by the Covid-19 virus had far-reaching repercussions in practically all spheres of society, including education. During the pandemic, the community of J & K students suffered. The pandemic has had a significant impact on higher education, with colleges and universities closing their doors and their facilities in reaction to lockdown measures. However, colleges and universities gradually replaced in-person lectures with online learning. Nevertheless, the educational community in J & K has made significant efforts to preserve learning continuity. Children and students have had to depend increasingly on distant learning options, such as the internet, television, and radio. Teachers were also required to adopt new pedagogical ideas and ways of instruction for which they may not have been educated. Particularly at risk of falling behind are learners from the most marginalized groups, who lack access to digital learning resources or high-quality instruction; children who lack a desk, books, internet connectivity, a laptop at home, or

supportive parents; and those who lack the resilience and motivation to learn on their own.

In this new and challenging situation, the educational institutions in the state opted for digital learning. Though Jammu & Kashmir had experienced natural catastrophes like earthquakes and floods that caused grave damage to education, it was also caught in a political crisis. Thus, there was limited knowledge and experience about how to deal with the pandemic situation and the challenges that rose from digital learning. In this way in J & K the pandemic considerably delayed the academic calendar and affected course completion. The foremost challenge in this situation was to administer academic assessment. For instance, in J & K, postgraduate students are usually assessed on two dimensions: Class Internal Assessments (hereafter CIA) and End Semester Examinations (hereafter ESE).

CIA provides touchpoints throughout the year to guide teachers to customize their practice and improve learning. They can be a combination of teacher-designed, short-cycle assessments. ESE is the year-end summative test that provides data regarding how well all students achieved the state's academic standards. These data provide insight into how effective educational institutions were overall in the previous year. CIA during the pandemic was held on time, but the authorities could not come to a consensus about the ESE. The uncertainty about the conduct of the ESE put students in constant worry and caused them anxiety to a great extent. As a result, the outgoing students could not complete their courses during the first phase. During the second wave of Covid-19 various revisions and amendments were carried out by the higher educational institutions in J & K regarding assessments and evaluation. The J & K higher education institutions, including universities, transformed their traditional paper exam practice of assessment and evaluation. They came up with the new digital open-book submissions or doing some modules coursework only. As a result, assessments become more flexible, more inclusive, and more representative of students abilities. However, mass promotion was given to the students of J & K during their courses in the first wave of Covid-19. While interacting with students from different universities in J & K, 65% believed that the Covid-19 pandemic did not affect the syllabus completion, and they were able to complete the syllabus though late, whereas 35% said that the syllabus was not completed on time. Likewise, the teaching faculty that we cross-examined believed that there were hindrances in syllabus completion but they were able to complete it with some extra classes. However, there was consensus among the students and teachers that

students of J & K higher educational institutions reported a decline in overall CGPA after the outbreak of the Covid-19 pandemic. Moreover, the respondents believed that in various educational institutions across Kashmir, some students neither attended classes nor submitted their assignments which resulted in the cancellation of their admissions.

7 Impact of Covid-19 on Campus Recruitment

The coronavirus pandemic that has swept the world and possibly the years of the epidemic will be recognized as the most significant and momentous event of this century (She et al., 2020; Motz et al., 2020). It goes beyond the limitations of the impacted countries' capacity for governance, public health infrastructure, and social administration. At the same time, the lockdown imposed to prevent the disease's spread has crippled economies and jeopardized a great number of employment opportunities. In these difficult times, when unemployment is surging, young college graduates searching for their first job feel stranded. The National Institute of Technology (NIT) Srinagar and the Indian Institute of Management (IIM) Jammu were the most severely impacted institutions in J & K. According to the *Business Standard* and the *Economic Times*, several companies have withdrawn their employment offers. The institutes were attempting to develop a mutually beneficial accord. During interviews with the administrators of NIT and IIM, they expressed a desire for businesses to treat their students with a modicum of consideration. They also noted that numerous companies have cancelled summer internships for students and replaced them with virtual internships. The internship is an excellent opportunity for students to get jobs and research experience and at the same time it is also included in the curriculum of all management colleges. Similarly, insufficient fieldwork experience also posed challenges for students and companies. In the light of the aforementioned circumstance, we are attempting to comprehend post pandemic placement position and student preparedness.

It was unclear when the lockdown would be lifted, leaving colleges and institutions in J & K in a quandary over placements. The placement season occurs in two phases at the majority of J & K institutions. The first phase concludes in December and the second in February–March, which was suspended owing to the lockdown crisis. The majority of placement officers anticipated that the placement season would resume and that they would be able to contact registered employers. Due to the shutdown, a

few corporations withdrew their bids or delayed participating. This is because businesses were similarly stifled by stagnation, which affected their employment and expansion decisions. The shutdown effect on the startups and small- and medium-sized businesses in J & K was also a factor. Numerous businesses were implementing wage cutbacks, stopping compensation increases, halting promotions, and delaying appointment of new employees. Companies do not specify if they are able to conduct new recruiting. In anticipation of an economic downturn as a result of the coronavirus epidemic, even early offers to students from state institutions were cancelled. Thus the Covid-19 epidemic in J & K has caused havoc among young qualified students both in the pre- and post-Covid period. Though the campus placements in the Placement Cells of universities arrange internships and placement rates were normal, in colleges, it suffered immensely. Thus the epidemic caused an interruption in recruitment across various educational institutions in Kashmir.

8 Progression to Higher Education

As we have discussed above the faculty and students in J & K were unprepared due to the abrupt cancellation of courses during the semester. Due to the pandemic, all education institutions were compelled to shut down. Face-to-face education was phased out of many institutions of higher education, which harmed educational activities. (García-Peñalvo et al., 2021). To prevent the spread of the virus and mitigate its effects, educational institutions were suspended from all face-to-face interactions. According to statistics from the United Nations Educational, Scientific and Cultural Organization by the middle of May 2020, more than 1.2 billion pupils were no longer attending face-to-face lessons (UNESCO) (United Nations, 2020). Both instructors and students were worried about the continuation of their sessions, the learning mode, proper evaluation, and the availability of learning resources.

Before the pandemic, students in J & K were in lockdown due to the abrogation of Article 370 (as discussed above). Though outcome-based education was being incorporated into the curriculum and its implementation, the actual delivery of learning is still under the control of instructors. After the pandemic, most countries have chosen to ensure educational continuity through online resources/teaching due to enhanced community quarantine. However, J & K was experiencing a lockdown within a lockdown because the state was without internet facility due to the post-2019 constitutional changes. The internet services offer a one-of-a-kind

opportunity for online teaching and learning: the abundance of pedagogical resources and communication tools available creates great platforms for bringing educational institutions and learning processes closer to homes and students in confinement. Students have switched to autonomous study as a consequence of their instructors' homework assignments. Many J & K students struggle to adapt to the increased emphasis on individual study. In the new environment, students in J & K were expected to read, comprehend, and finish their assignments independently. They were required to learn on their own initiative. A couple of students said to these researchers, "It is difficult to study in the constraints of the house, but we have no other option available." However, there is consensus that students have accepted new teaching and learning delivery platforms during the pandemic which in the long run have helped them.

Online (e-learning) refers to the use of different electronic devices (e.g., computers, laptops, cellphones, etc.) with internet connection in synchronous or asynchronous environments. E-learning may make education more student-centered, innovative, and adaptive (Singh & Thurman, 2019). When distributing curriculum to students in rural and distant areas, online course delivery is economical and easy (Akyol et al., 2009; Dhawan, 2020). The United Nations (UN) and World Health Organization (WHO, 2021) see online e-learning as a vital tool for meeting educational requirements, especially in developing nations (Colace et al., 2006). Various educational institutions across J & K have used a variety of inventive strategies to address the dilemma, such as using online courses with Google Classroom, Zoom, and Microsoft Teams, to finish the course and maintain continuous touch with the students. During the pandemic, e-learning virtual lessons were used to increase students' assurance and trust in their instructors (Fauci et al., 2020; Kaur et al., 2020). Students may build any world they can envision in a virtual environment of interaction. Likewise, simulation and collaboration were made possible through online learning (Song et al., 2004; Fendler et al., 2018; Thamarana, 2016). Thus with the advent of e-learning, it is anticipated that faculty members' duties would move from conventional teacher-centered to student-centered, which will better complement higher education institutions' new curricula. Nonetheless, the psychological effects of isolation on pupils are extensive (Allen et al., 2020; Brooks et al., 2020). The extended closure of college and home confinement of students is detrimental to their physical and mental wellbeing (Leite et al., 2020). According to research, the pandemic is a danger that produces worry, anxiety, and

uncertainty (Ling & Ho, 2020). The relationship between anxiety and health-related anxiety was favorable (Wheaton et al., 2012). It is crucial to comprehend the psychological elements that predict anxiety. According to research (Wheaton et al., 2010), high health anxiety is detrimental to a person's probability of suffering from a serious disease and is associated with worse health outcomes (Taylor et al., 2007; Naqshbandi et al., 2021). During the pandemic phase, students usually exhibit avoidance behavior out of fear of transmission (Rubin et al., 2009), restricting social distance. Similarly, previous research has shown that socially isolating behavior may be detrimental to everyday life, hence increasing risk (Brahmbhatt & Dutta, 2008; Mukhtar et al., 2020). All these factors and risks were there for the student community across the state of J & K.

9 SWOT Analysis of Virtual Classes Amid the Covid-19 Pandemic

During the Covid-19 education institutes in J & K adopted the government safety restrictions for a prolonged time and restrictions remained in the state in one way or the other. Students enrolled in higher educational institutions across Kashmir had a considerable pause in their studies, as a result of the closure of the educational institutions, which disrupted the academic year. Through official and informal forums, the academic community in J & K initiated a conversation about modifying the manner of instruction and enacted several measures and rules in response to the lengthening lockdown. Since they started before the Covid-19 pandemic, the programs have been implemented in all educational institutions. The higher education institutions in J & K were designed for in-class instruction and lack the infrastructure for online programs. After the repeal of Article 370, faculty and students in Kashmir were not mentally and technically equipped for online teaching modality, and the crucial component of online courses, internet connectivity, was unreliable owing to restricted 2G internet speed. Under such conditions, online instruction in J & K was highly unsatisfactory. This abrupt shutdown has emotional and psychological consequences for families and pupils. It is often said that "necessity is the mother of invention"; consequently, the education industry devised the concept of online instruction for pupils, allowing them to study in a

Table 11.1 Modes of learning

Modes of learning amid the pandemic	*No.*	*Percentage*
Zoom app	255	26.07%
Google Meet	130	13.29%
Google Classroom	163	16.67%
Teachmint	109	11.15%
Wise App	216	22.09%
YouTube	105	10.74%
Total	978	100.00%

secure environment from the comfort of their own homes; this became the new standard globally, including in J & K, throughout the epidemic.

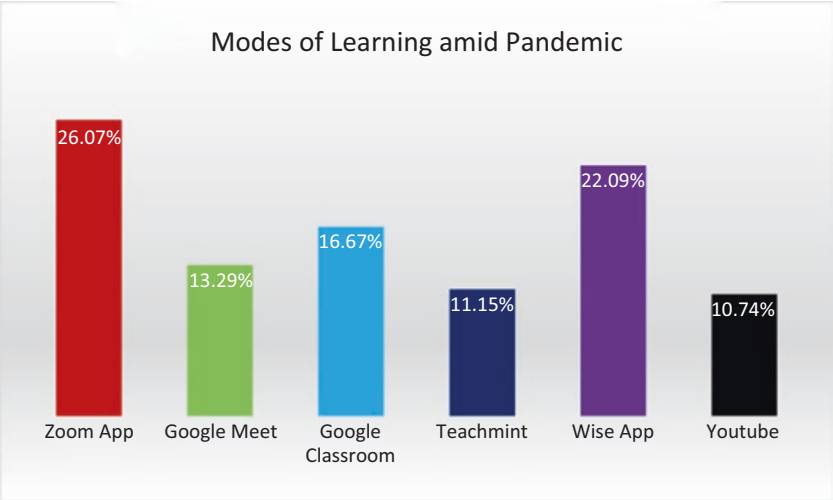
10 Result and Discussion

The data were analyzed, and the results of the survey are presented and discussed below.

10.1 Modes of Learning

The modes of online learning used by teachers/faculty and students during the lockdown just after the announcement by the government to start online mode are presented in Table 11.1.

Interpretation of Table 11.1
A peek at Table 11.1 reveals the teaching and learning methods used by students and instructors. The majority of students (26.07%) said that instructors originally used the Zoom app in the classroom. This was followed closely by the Wise App (22.09%) and Google Classroom (16.67%). In addition, few instructors used Google Meet, Teachmint, and YouTube classrooms for online instruction. The table's visual representation is seen below.



10.2 Strengths of the Online Teaching

Table 11.2 depicts the strengths of online learning as perceived by students after attending online classes.

Interpretation of Table 11.2
The table above (Table 11.2) illustrates the benefits of online education. 22.19% of respondents say that online teaching classrooms are easily accessible since students simply need a high-speed internet connection and a computer, tablet, or smartphone to attend class. 13.60% of respondents agree that online education is both convenient and flexible. Since online

Table 11.2 Strengths of online learning

Advantages of accessing anywhere	217	22.19%
Promotes retention of learning	172	17.59%
Reduces cost of commuting/ transportation	132	13.50%
Sharing of screens online makes learning easier	211	21.57%
Creative teaching	113	11.55%
Convenient and flexible	133	13.60%
Total	978	100.00%

courses include the preservation of lessons and the recording of the class, students may return to the lesson at any time and are not restricted to a particular place or device for their virtual class. 13.50% of respondents reported online instruction and says it reduces the expense of transportation and commuting. They claimed that instead of dealing with the everyday inconveniences of going to school through buses or carpools, pupils now simply need to connect their gadgets to their classroom. 21.57% of respondents said that internet screen sharing facilitates learning. The development of screen-sharing technologies has opened the path for a more effective and engaging educational setting. With the assistance of screen-casting and mirroring, students are more attentive and engaged in class. Through the recording of courses and quizzes, online learning increases learning retention, according to 17.59% of respondents, resulting in greater learning retention. Moreover, innovative applications of online learning technologies may aid students in retaining material more successfully. Students get frequent opportunities to explore new things thanks to the live virtual teaching, personalized assignments, and project-based activities made possible by an online education environment. 11.55% of respondents said that online learning requires instructors to be more innovative to interest pupils in the classroom. Educators who prioritize creative thinking and think outside the box are well equipped to assist students to flourish in a digital learning environment. Online education affords instructors the chance to innovate and provide compelling learning experiences for their pupils. Using an online curriculum, any lesson or subject, from science to social studies to physical education, may be taught in a virtual setting.

Table 11.3 Weakness of online teaching

Highly dependent on a solid network connection	401	41.00%
Inability to focus on screens	149	15.24%
Easily distracted by social media	101	10.33%
During online learning, a teacher can't have a check on every student	97	9.92%
Lack of transparency in conducting examinations online	76	7.77%
Hinders social life	154	15.75%
Total	978	100.00%

10.3 Weakness of Online Teaching

Interpretation of Table 11.3
Knowledge acquisition is the primary obstacle in online education. It is easy to get disoriented while looking for information on a certain issue since there is a vast quantity of knowledge accumulated from many sources. If one wants to learn anything, he or she must focus on the internet's limitless environment.

Inability to Focus on Screens
The inability to focus on screens was cited by 15.24% of respondents as one of the greatest obstacles to online learning. The parents are worried about the health risks associated with their children spending full days glued to a screen. Sometimes, pupils acquire poor posture and other physical issues because of prolonged screen use. Online teaching and learning are difficult and distracting. According to 10.33% of respondents, students are easily distracted by social media, texting, and family, which may divert their focus away from the subject at hand and reduce productivity. 7.7% of respondents said that online test administration lacked transparency. Students often engage in impersonation and get external assistance via cell phones or smartwatches. The systems utilized by applicants also provide many options for cheating, including the ability to connect external storage devices and screen sharing, among others. 41% of respondents felt that online instruction is significantly reliant on a stable network connection, posing a significant obstacle for online programs. Internet penetration has expanded by leaps and bounds in recent years. In smaller cities and villages, internet speed is problematic. Without a regular internet connection for pupils and instructors, education may lack continuity. Connectivity issues, plug-ins, and incompatible software and hardware are among the primary impediments associated with this feature. In addition, inadvertent computer failures and browser closures may lead students astray from the already challenging process of online learning. 15.75% of respondents said that online education hinders social life. In an online class, there is little physical contact between students and teachers. The absence of social connection with other students and teachers is a significant disadvantage of online learning compared to regular courses. This disadvantage has worsened as more and more individuals eliminate landlines and even

Table 11.4 Opportunities for teaching in virtual classroom

Implementation of a student-centered model of instruction	321	32.82%
Provides one platform to connect students and teachers from faraway places	269	27.51%
Implementation of authentic learning strategies	171	17.48%
Allows students to contact teachers as and when the need arises	217	22.19%
Total	978	100.00%

mobile phones, leaving students unable to reach instructors through telephone.

10.4 Teacher Training

Online education necessitates that instructors have a fundamental grasp of using digital modes of education. However, this is not always the case. Frequently, educators have a basic grasp of technology. Sometimes they lack the resources and technologies required to offer online courses.

To overcome this, institutions must spend on educating instructors on the most recent technological advancements so they can conduct their online lessons efficiently.

Interpretation of Table 11.4

The opportunities generated by online teaching are shown in Table 11.4. According to the data, 27.51% of respondents said that online education offers a platform for connecting students and instructors from distant locations. People may communicate in virtual classrooms in a manner that provides a feeling of presence absent from other mediums (Smith, 2007, 18). 32.82% of respondents said that virtual classrooms enable instructors to transition from a teacher-centered to a student-centered instructional approach. Student-centered modes of education combine constructivist learning theories in which students use their experiences to actively create a comprehension that makes sense to them, as opposed to receiving comprehension in a pre-organized manner (Rost & Candlin, 2014, 176).

Table 11.5 Threats to online teaching

Risk of cybercrime	147	15.03%
May affect private life	384	39.26%
Makes students lethargic	101	10.33%
Reduced student engagement	133	13.60%
Affect our eyes and overall health	213	21.78%
Total	978	100.00%

17.48% of respondents stated that realistic learning practices might be used in virtual classrooms. Using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice, authentic learning often emphasizes real-world, complicated issues and their answers. Virtual learning environments are heterogeneous by nature and are not designed to teach a specific topic. 22.19% of respondents said that virtual classrooms enable students to communicate with instructors when necessary. In a virtual classroom, professors engage with students in real time, and students may ask questions and converse with their classmates as they would in a traditional classroom, although through the internet.

10.5 Threats to Online Learning

Interpretation of Table 11.5

Students' perceptions of online learning dangers are shown in Table 11.5. A significant proportion of students, 39.26%, believed that online education impacts their private lives. On the one hand, 21.78% of respondents said that online learning negatively impacts their eyes and general health, while 15.03% indicated that online learning increases the likelihood of cybercrime. In addition, 13.60% of respondents claimed that online learning decreased student interest, while 10.33% reported that online learning made them drowsy.

11 Recommendations for Higher Education Institutions to J & K

Some important recommendations are as follows:

- Instructors should be assisted in developing interactive online resources. Universities must increase internet bandwidth, expand the capacity of data centers, acquire licensed e-learning technologies, and educate students and faculty in the necessary IT skills.
- Emphasis should be placed on online training and skill improvement courses to compensate for campus-based activities. Students should have access to timely and effective IT technical assistance and troubleshooting services, particularly during quizzes and examinations.
- Developing and maintaining effective communication techniques with staff, professors, and students is crucial for keeping all entities informed and abreast of the transition, training, and continuing support procedures. Developing robust communication channels between higher education administration, students, and faculty is crucial for keeping all stakeholders informed and aware of upcoming actions.
- Efforts should be made to construct online courses as opposed to just transferring face-to-face information into the online environment. To enhance student attendance in online classrooms, virtual chat rooms and forums for student-to-student and student-to-instructor online engagement should be created. There should be clear information about examinations, quizzes, and assignments informing students of how to get assistance and file petitions.
- If the government wants to reverse the migration of students to other regions of India, it must create educational institutions of world-class calibre in Jammu and Kashmir in partnership with private organizations.
- In J & K, we recommend adapting and creating infrastructure for well-equipped AI-based machine learning systems to address the oncoming mental health difficulties caused by the current scenario of conflict and violence coupled with the stress induced by the pandemic.

- Similarly, as we addressed in depth in the chapter, conflict and education are inextricably linked. Hence, it is crucial to develop a long-term conflict resolution strategy to deal with structural issues that have been left unattended for many decades in J & K, which will have a spillover effect on all sectors including higher education.

Declaration

Funding This is a non-funded research project specifically designed for the purpose of creating new knowledge for the specific purpose of this book.

Declaration of Competing Interest The authors declare that they have no conflict of interest.

Ethical Consideration Each participant in the survey received information about the study's goals and gave informed consent. The privacy of all participants of the study was protected by keeping their answers to the questionnaire anonymous and masking their identity.

References

Akyol, Z., Garrison, D. R., & Ozden, M. Y. (2009). Development of a Community of Inquiry in Online and Blended Learning Contexts. *Procedia-Social and Behavioral Sciences, 1*(1), 1834–1838.

Allen, J., Mahamed, F., & Williams, K. (2020). Disparities in Education: E-Learning and COVID-19, Who Matters? *Child & Youth Services, 41*(3), 208–210.

Allen, J., Rowan, L., & Singh, P. (2020). Teaching and Teacher Education in the Time of COVID-19. *Asia-Pacific Journal of Teacher Education, 48*(3), 233–236.

Andrabi, R., & Kadiwal, L. (2021). Education Under Surveillance in Kashmir in the Era of Covid-19. *NORRAG Special Issue, 6*, 85–88.

Azorín, C. (2020). Beyond COVID-19 Supernova. Is Another Education Coming? *Journal of Professional Capital and Community., 5*, 381.

Brahmbhatt, M., & Dutta, A. (2008). *On SARS Type Economic Effects during Infectious Disease Outbreaks*. The World Bani.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The Psychological Impact of Quarantine and How to Reduce It: A Rapid Review of the Evidence. *The Lancet, 395*, 912. https://doi.org/10.1016/S0140-6736(20)30460-8

Brynjolfsson, E., Horton, J. J., Ozimek, A., Rock, D., Sharma, G., & TuYe, H. Y. (2020). COVID-19 and remote work: An early look at US data (No. w27344). National Bureau of Economic Research. https://doi.org/10.3386/w27344 available at https://www.nber.org/system/files/working_papers/w27344/w27344.pdf

Colace, F., De Santo, M., & Pietrosanto, A. (2006). *Evaluation Models for e-Learning Platform: An AHP Approach. Frontiers in Education Conference, 36th Annual* (pp. 1–6). Institute of Electrical and Electronics Engineers.

Daniel, S. J. (2020). Education and the COVID-19 Pandemic. *Prospects, 49*(1), 91–96.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems, 49*(1), 5–22.

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on Business and Research. *Journal of Business Research, 117*, 284–289.

Farhad, S. (2020). The Making of a Disaster: Conflict Intractability and Governance Contradictions in Kashmir. In *Disaster Studies* (pp. 443–462). Springer

Fauci, A. S., Lane, H. C., & Redfield, R. R. (2020). Covid-19—Navigating the Uncharted. *New England Journal of Medicine, 382*(13), 1268–1269.

Fendler, R. J., Ruff, C., & Shrikhande, M. M. (2018). No Significant Difference--Unless You Are a Jumper. *Online Learning, 22*(1), 39–60.

Flack, C. B., Walker, L., Bickerstaff, A., & Margetts, C. (2020). Socioeconomic Disparities in Australian Schooling During the COVID-19 Pandemic. *Melbourne, Australia: Pivot Professional Learning, 13*, 319–340.

García-Peñalvo, F. J., Corell, A., Abella-García, V., & Grande-de-Prado, M. (2021). Recommendations for Mandatory Online Assessment in Higher Education During the COVID-19 Pandemic. In *Radical Solutions for Education in a Crisis Context* (pp. 85–98). Springer

García-Peñalvo, F. J., Corell, A., Rivero-Ortega, R., Rodríguez-Conde, M. J., & Rodríguez-García, N. (2021). Impact of the COVID-19 on Higher Education: An Experience-Based Approach. In *Information Technology Trends for a Global and Interdisciplinary Research Community* (pp. 1–18). IGI Global.

Gonzalez, T., de la Rubia, M., Hincz, K., Comas-Lopez, M., Subirats, L., Fort, S., et al. (2020). Influence of COVID-19 Confinement on Students' Performance in Higher Education. *PLoS One, 15*(10), e0239490. https://doi.org/10.1371/journal.pone.0239490

Haase, K., Cosco, T., Kervin, L., Riadi, I., & O'Connell, M. (2021). Older Adults' Experiences of Technology use for Socialisation During the COVID-19 Pandemic: A Regionally Representative Cross-Sectional Survey (preprint). *JMIR Aging, 4*(2), e28010. https://doi.org/10.2196/28010

Indian Express. (2019). 74% Rise in Jammu and Kashmir Students Taking Admissions in Educational Institutes Across India. Assessed September 15, 2021, from https://indianexpress.com/article/education/74-per-cent-rise-

in-jammu-and-kashmir-students-taking-admissions-in-education-institutes-across-india-6122495/.

Kaur, N., Dwivedi, D., Arora, J., & Gandhi, A. (2020). Study of the Effectiveness of E-Learning to Conventional Teaching in Medical Undergraduates Amid COVID-19 Pandemic. *National Journal of Physiology, Pharmacy and Pharmacology, 10*(7), 1.

Khanam, A., Dar, S. A., Wani, Z. A., Shah, N. N., Haq, I., & Kousar, S. (2020). Healthcare Providers on the Frontline: A Quantitative Investigation of the Stress and Recent-Onset Psychological Impact of Delivering Health Care Services During COVID-19 in Kashmir. *Indian Journal of Psychological Medicine, 42*(4), 359–367.

Kramer, A., & Kramer, K. Z. (2020). The Potential Impact of the Covid-19 Pandemic on Occupational Status, Work from Home, and Occupational Mobility. *Journal of Vocational Behavior, 119*, 103442.

Lee, C. M. (2021). Descriptive SWOT Analysis about Online Learning. URL: https://www.researchgate.net/publication/350621868_Descriptive_SWOT_Analysis_about_Online_Learning. Accessed April 24, 2022.

Leite, H., Hodgkinson, I. R., & Gruber, T. (2020). New Development: Healing at Distance Telemedicine and COVID-19. *Public Money and Management., 40*, 483. https://doi.org/10.1080/09540962.2020.1748855

Lemay, D. J., Bazelais, P., & Doleck, T. (2021). Transition to Online Learning During the COVID-19 Pandemic. *Computers in Human Behavior Reports, 4*, 100130.

Lemay, D. J., & Doleck, T. (2020). Online Learning Communities in the COVID-19 Pandemic: Social Learning Network Analysis of Twitter During the Shutdown. *International Journal of Learning Analytics and Artificial Intelligence for Education, 2*(1).

Ling, G. H. T., & Ho, T. (2020). Effect of Coronavirus (COVID-19) Pandemic on Social Behaviour: From a Social Dilemma Perspectives. *Technium Social Sciences Journal, 7*(1), 312–320. Available at: https://techniumscience.com/index.php/socialsciences/article/view/423.

Majeed, T. (2022). Embedded authoritarianism: the politics of poor press freedom in Indian Kashmir. *Media, Culture & Society, 44*(3), 613–624.

Marinoni, G., Van't Land, H., & Jensen, T. (2020). The Impact of Covid-19 on Higher Education Around the World. *IAU Global Survey Report*, *23*.

Motz, B., Quick, J., Wernert, J., Miles, T., Pelaprat, E., Jaggars, S., … Rivera, M. (2020, July 8). *Mega-Study of COVID-19 Impact in Higher Education*. Retrieved from osf.io/n7k69

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, Limitations and Recommendations for Online Learning During COVID-19 Pandemic Era. *Pakistan Journal of Medical Sciences*, Q;36(COVID19-S4):S27–31. pmid:32582310.

Naqshbandi, T. A., Gulzar, Z., Dar, A. A., & Farooq, U. (2021). Understanding Impact of Communication Ban on Mental Health in Conflict Zone:- Experiences from Young Kashmiri Research Scholars. *Journal of Loss and Trauma, 27*, 95. https://doi.org/10.1080/15325024.2021.1928841

Pain, P., Ahmed, A., & Zahra Khalid, M. (2022). Learning in Times of COVID: Journalism Education in Kashmir, India. *Journalism & Mass Communication Educator, 77*(1), 111–122.

Pathak, M. (2021). The 'Mass Migration' of Students from Kashmir MARCH 11. Assessed August 13, 2021, from https://www.thecitizen.in/index.php/en/newsdetail/index/9/20098/the-mass-migration-of-students-from-kashmir.

Pokhrel, S., & Chhetri, R. (2021). A Literature Review on the Impact of COVID-19 Pandemic on Teaching and Learning. *Higher Education for the Future, 8*(1), 133–141.

Rost, M., & Candlin, C. N. (2014). *Listening in language learning*. Routledge.

Rubin, J. T., Amlot, R., Page, L., & Wessely, S. J. B. (2009). Public Perception, Anxiety, and Behaviour Changes in Relation to Swine flu Outbreak: Cross-Sectional Telephone Survey. *BMJ, 339*, b2651.

Schleicher, A. (2020). The Impact of COVID-19 on Education: Insights from Education at a Glance 2020. Retrieved from OECD. org website: https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf.

She, J., Liu, L., & Liu, W. (2020). COVID-19 Epidemic: Disease Characteristics in Children. *Journal of Medical Virology, 92*(7), 747–754.

Singh, V., & Thurman, A. (2019). How Many Ways Can We Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988–2018). *American Journal of Distance Education, 33*(4), 289–306.

Smith, R. S. (2007). *2007 NMC Summer Conference Proceedings* (pp. 1–128).

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving Online Learning: Student Perceptions of Useful and Challenging Characteristics. *The Internet and Higher Education, 7*(1), 59–70.

Stambough, J. B., Curtin, B. M., Gililland, J. M., Guild III, G. N., Kain, M. S., Karas, V., ... & Moskal, J. T. (2020). The past, present, and future of orthopedic education: lessons learned from the COVID-19 pandemic. *The Journal of arthroplasty, 35*(7), S60–S64.

Taylor, S., Zvolensky, M., Deacon, B., Heimberg, R., & Ledley, D. R. (2007). Robust Dimensions of Anxiety Sensitivity: Development and Initial Validation of the Anxiety Sensitivity Index-3 (ASI-3). *Psychological Assessment, 19*, 176–188.

Thamarana, S. (2016). Role of E-Learning and Virtual Learning Environment in English Language Learning. *Research Scholar, 1*, 1–8. https://doi.org/10.13140/R.G.2.1.4665.1122

Tribune India. (2019). Over 15k Students Opt for Colleges Outside J & K, Annually. Assessed August 23, 2021, from https://www.tribuneindia.com/news/archive/j-k/over-15k-students-opt-for-colleges-outside-jk-annually-814425#top.

UNICEF. (2020). Childcare in a Global Crisis: The Impact of COVID-19 on Work and Family Life. Available at https://www.unicef-irc.org/article/2027-40-million-children-miss-out-on-early-education-in-critical-pre-school-year-due-to.html.

United Nations. (2020). *Policy Brief: The Impact of COVID-19 on Children.* Available at https://unsdg.un.org/sites/default/files/2020- 04/160420_Covid_Children_Policy_Brief.pdf.

Velavan, T., & Meyer, C. (2020). The COVID-19 Epidemic. *Tropical Medicine & International Health, 25*(3), 278–280. https://doi.org/10.1111/tmi.13383

Wani, A. S., Singh, D. K., & Singh, P. (2022, April). "Hartal (Strike) Happens Here Everyday": Understanding Impact of Disruption on Education in Kashmir. In *CHI Conference on Human Factors in Computing Systems* (pp. 1–17).

Wani, A. A., & Yaqoob, M. (2021). Governance and Democracy in Jammu and Kashmir: Measuring Public Trust in Formal Institutions. *Studies in Indian Politics, 9*(2), 192–207.

Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2012). Psychological Predictors of Anxiety in Response to the H1N1n (Swine Flu) Pandemic. *Cognitive Therapy and Research, 36*, 210–218. https://doi.org/10.1007/s10608-011-9353-3

Wheaton, M. G., Berman, N. C., & Abramowitz, J. S. (2010). The contribution of experiential avoidance and anxiety sensitivity in the prediction of health anxiety. *Journal of Cognitive Psychotherapy, 24*(3), 229–239.

WHO: Coronavirus Disease (COVID-2019) Situation Reports. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports. Last Assessed 2020 August 2021.

Yousaf, M. A., Noreen, M., Saleem, T., & Yousaf, I. (2020). A Cross-Sectional Survey of Knowledge, Attitude, and Practices (KAP) Toward Pandemic COVID-19 Among the General Population of Jammu and Kashmir. I*ndia, Social Work in Public Health, 35*(7), 569–578. https://doi.org/10.1080/19371918.2020.1806983

CHAPTER 12

Higher Education During Covid-19 Pandemic: A Case Study Based on a Rural College Campus in South 24 Parganas, West Bengal, India

Tinni Goswami and Shrimanti Ghosal

1 Introduction

The essential theme of this chapter is the status of higher education in the Covid situation in rural Bengal with a focus on measures to guide students for teaching-learning in the online mode. The role of the teacher is incredibly meaningful in the context of Covid-19 because it is the instructor who acts as a teaching decision-maker for emotionally fragile students and guides them through online teaching. Teachers are expected to be competent in their subjects and pace-setters of norms by creating meaningful

The original version of the chapter has been revised. A correction to this chapter can be found at https://doi.org/10.1007/978-3-031-20425-8_16

T. Goswami (✉)
St. Xavier's College (Autonomous), Raghabpur Campus, Kolkata, Kolkata, India

S. Ghosal
Bhakti Vedanta Research Centre, Kolkata, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_12

social interactions across the online education portal. These unrealistic expectations as well as the numerous socio-economic factors that characterise the Indian education climate particularly in rural areas have put immense pressure on the teachers in 24 Parganas region of rural West Bengal state.

Here we have chosen one case study to prove our hypothesis with a focus on college teachers, whose experience during the pandemic forms the content of our chapter. This chapter is an original attempt to assess the impact of Covid-19 on higher education in rural Bengal based on our case study, conducted in St. Xavier's College (Autonomous), Raghabpur Campus, 24 Parganas district of West Bengal state in India.

2 Higher Education and the Covid-19 Pandemic

As is well documented, the impact of the pandemic on the education system especially on higher education was adverse and destructive. However, the situation is changing and things are getting back to normal in the education sector along with other sectors.

Initially, the colleges were closed for more than one and a half year. The students had to battle with the online mode of education and the evaluation system. Most of the rural students are not very comfortable with IT though they have basic knowledge of using social networking sites. The background to this scenario is set by the students being compelled to pursue online education through specific software which is beyond their financial capacity to install. Both teachers and students, it was observed, experienced difficulty due to the lack of competency in handling the software. This led to the exposure of the failure of IT training which students had received until the 12th grade. The next factor is the economic background of rural students which is not favourable to the continuous process of online teaching-learning for the obvious reason that they could not buy mobile data pack on a regular basis. This leads us to the fact that almost all students in 24 Parganas region of West Bengal, where our sample group resides, use their cell phones for digital learning and not computers; both the computer and Wi-Fi are out of reach of a majority of rural students of this region.

Secondly, the students are not always in a position to afford smart phones; in many cases, the entire family possesses a single device, therefore making the online teaching-learning process almost impossible. Thirdly, the students did not get adequate study materials as all the textbooks were not available on the internet. Rural students are not tech-savvy; therefore,

they found it difficult to download books in PDF format. The students in the pandemic situation could not afford to visit libraries in major cities and towns nearby, and most challenging of all, online study materials in vernacular (local language) were not available.

3 Research Methodology

The research methodology was in the main, qualitative approach. Interviewing the stakeholders was one of our research tools. We have studied the reports available in the college for the socio-demographic background of our students for a better understanding of the home environment of our sample group. We focused on the personal experiences that the respondents shared with us which was validated by a set of close-ended questionnaires.

4 Case Study: St. Xavier's College (Autonomous), Kolkata, Raghabpur Campus

4.1 Brief History

The college is run by the Society of Jesus, a charitable minority organisation. St. Xavier's College (Autonomous), Kolkata, a Jesuit institution started its rural wing in 2014 at the village of Raghabpur in South 24 Parganas. The objective behind its establishment was the desire of the Jesuits to reach out to the less fortunate and underprivileged people of the region, predominantly geared towards their educational and human uplift to promote the overall socio-economic development of the entire South 24 Parganas district.

The college is perhaps the first college established in this area offering various courses to rural students especially for women. We made a detailed study of the students who came for admission to St. Xavier's College (SXC, Raghabpur Campus), and from their forms we come to know that the monthly family income of majority of these students is less than Rs. 2000. Earlier, after passing class 12 many girl students used to discontinue their studies due to the poor law and order situation and non-availability of transport in this specific area of South 24 Parganas. The situation changed in 2014 with the establishment of St. Xavier's College at Raghabpur area which became a milestone for promoting education among the rural population.

4.2 Socio-demographics

SXC Raghabpur initially started with about 100 students and majority of them were female. The students both male and female mostly belong the Christian community and their financial status was in and around the BPL/APL (below the poverty line/above the poverty line) (Table 12.1).

The students of this college chiefly are first-generation learners. If we consider the family background of these pupils, their fathers are engaged in the jobs of fishing, selling vegetables, pulling rickshaw, selling meat, farming, cooking and so on. Their mothers are mostly housewives, though there are some single mothers who are working as nurses or ayahs, sellers of fish and vegetables, domestic helpers and so on.

The girl students who are economically underprivileged or have no parents/relatives stay in the hostel run by the local sisters or nuns and their expenditure is borne by the Society of Jesus. Some of the students give tuitions to earn money to pay college fees which is subsidised and sometimes subject to fee concessions as well. The female students get the

Table 12.1 Socio-demographics

Sr. no.	*Year*	*Classification*	*Frequency*	*Percentage*
1	2020–21	Total students	2330	–
2	Gender	Female	1445	62
		Male	885	38
3	Financial status	BPL	1095	47
		APL	1235	53
4	Family	Single parent	293	13
		Both parents	2037	87
	2021–22	Total students	1792	–
5	Gender	Female	1201	67
		Male	591	33
6	Financial status	BPL	1004	56
		APL	788	44
7	Family	Single parent	219	13
		Both parents	1573	87

Source: Primary data

benefits of the Kanyashree project, run by the West Bengal Government. This project is aimed at helping poor girl children to continue education where she is entitled to receive financial grant from the government.

4.3 Dropout Rates

A considerable number of students, due to family pressure and poor economic conditions, leave the college before graduation which has almost become a norm. It is difficult to prevent dropout by students in this region. College authorities are unable to intervene in those matters which are considered private. Girl students after their marriage most of the time leave the college as they face problems in their family life. Either the in-laws are non-cooperative or they are not able to balance domestic responsibilities and academics. They discontinue studies and usually do not inform the office about their decisions. It has also been observed that in some cases, the students run away from home and secretly get married. They do not return to the institution as they are scared of their parents/relatives.

Male student dropouts are largely due to the need to search for jobs. As they belong to underprivileged families, their first priority is to earn so that they can support their families. Some students pursue part-time jobs in the evening and continue college, though their attendance and performance are below satisfactory level. They need a degree to get increments in their salary at their place of work. A significant number of students who graduate from college accept employment as delivery boys or security guards with a meagre salary of Rs. 3000–4000 per month. Even after pursuing masters, male students feel sceptical about their future especially those with social science and humanities degrees. Their lack of proficiency in English also makes their position weak in the competitive job market. This is also applicable for some of the female students who look for employment with sufficient wages.

The situation is much better for the commerce students. They mostly belong to the urban population who are financially affluent. They get more job opportunities and paid internships. Students who do not get admission in the main campus of St. Xavier's College which is situated in Kolkata, the capital city of West Bengal, prefer to opt for the rural campus at Raghabpur. Raghabpur Campus provides education mainly to the rural

poor but places no restrictions on admissions to students from other regions or to affluent students. The college had to face extreme adversities during the first and second waves of the coronavirus pandemic as the locals suffered to a great extent with regard to loss of livelihoods.

4.4 Admission During the Pandemic

In the pandemic situation the students because of their lack of knowledge in IT had to come to the college campus for admission even though the college authorities had also kept the option open for online admission. It took time for the authorities to decide the mode of admission in the rural campus as the rural population faced severe challenges from the pandemic: unemployment, poverty, lack of health infrastructure and death. This led to low rate of admissions in all departments during the last two years. Students could not afford virtual mode of education due to certain socio-economic factors.

First of all, the rural students had not been exposed to any form of online education. In government schools, in which most students did their schooling, smart class facilities are rare and children get very little exposure. Secondly, many students have no proper ambience for classroom teaching at home where they sometimes share one room with their entire family of 5–6 members or even more. Thirdly, for girl students, household work is a must; therefore, they have to compromise their studies as the teachers sometimes took classes in the evening.

Students could opt for graduation in any one subject or they could opt for a degree called General B.A. which did not have any specialisation. The trend in admissions in the college has been for students with higher percentage in their final school examinations to opt for degree courses with specialisation and those with lower percentages to opt for the 'general' degree course. However, during the Covid period, admissions to the general courses were higher. Students with a good percentage in higher secondary school examinations, also preferred General Courses as they were not sure of the future of online education in this rural district in 24 Parganas.

During 2020–21 and 2021–22 admissions, the college had to extend the deadline to facilitate late admission by students. The authorities also accepted admissions after the last date, due to the poor intake of students during these two years. Some students who were from other districts and had taken admission to the college faced the practical problem of commuting after classes became offline.

During the Covid situation, West Bengal was also ravaged by natural calamities like *Amphan*, the cyclone which had a fatal impact on South 24 Parganas. The villages of south 24 Parganas at that time suffered from power cut for consecutive days, leading to severe interruption in internet facilities and communication networks, and lack of potable water and medical infrastructure. Many houses were severely damaged and needed thorough repairing. These adversities made the situation tough for aspiring students to continue higher studies after their 12th standard. It increased the dropout rate with male students opting for jobs, including those that required unskilled labour, and girls opting for marriage. It must be pointed out here that marriages in this region as in the rest of rural India are arranged by the family and for poor families this is a socially sanctioned method to transfer a dependent family member to another family. As a result, the college saw an alarming drop in the rate of admissions and an increase in the number of dropouts. Higher education was severely affected in rural Bengal by multiple factors especially in South 24 Parganas during the pandemic.

4.5 Situating the College Teachers: The Limitations and the Responsibilities

The teachers faced numerous problems in discharging their responsibilities. A series of interviews with the college teachers revealed the extent of pressure they were under during the Covid period. The researchers have identified challenges in the virtual mode of education. They are:

1. Communication gap: The online mode of education created obstacles to a great extent in the teaching-learning process. A majority of the rural students are not competent to participate in the online mode. Most of the time, while taking online classes, students do not respond and the teachers feel confused and helpless. This results in the teachers needing to speak constantly and they often developed speech impediments including throat infections. In SXC, Raghabpur Campus, the students often blame poor network connectivity as a constraint behind smooth classroom interactions. The college offered in-campus virtual classes to those who faced network issues, but the response was unsatisfactory as students did not show up for classes, citing distance and transport costs.

2. Class timings: Due to limited IT infrastructure in the institution, it had to be shared between all the faculty and different classes. This resulted in long-drawn timetables that lasted from morning until late evenings with lot of gaps in between. This became burdensome both for teachers and for the students.
3. Lack of technical expertise of teachers: Finally, most teachers in the rural campus lacked technical expertise in IT. Numerous workshops were organised by the College to train the teachers to use the platforms like Google Meet, Zoom, Microsoft Teams and so on, but senior faculty members had great difficulty in adapting to online mode as they do not have the basic knowledge in even operating a computer or using Zoom or Google Meet. In Raghabpur SXC amenities do exist for conducting smart classes but in most of the rural colleges of South 24 Parganas smart class facilities are not available.

4.6 The Responsibilities of the Teachers

1. Student-centric approach
   The rural students need to be motivated and counselled at all times, as education is a luxury for them. Due to their poor economic background, it was noted from our college records that a large number of students quit studies during Covid-19. It is expected that teachers are compassionate and empathetic. In our case study, we have recorded the manner in which teachers worked very hard to get the students back to the college. They repeatedly called the students, went to their places and sometimes even offered them monetary help if required so that they could continue their studies. The college authorities even provided smart phones to the economically challenged students. Even the evaluation techniques were relaxed for such students, so that they could graduate and seek suitable employment.
2. Counselling and support services to students
   The teachers usually gave more time to the students even during online class hours just to listen to their problems during the first and the second waves of the pandemic. In fact, during the pandemic emotional stress was observed among students leading to severe depression and anxiety. Practically all the teachers at SXC were counselling students to

dispel their anxiety. There were cases of students facing domestic violence. We recorded cases of teachers providing support and security to such students. Both the teachers and the students had to witness the loss of their loved ones which made them vulnerable. These support services by teachers created a close bond between teachers and students. In online classes the teachers are supposed to put in more efforts than in the offline method as they are not in a position to have live interactions. Therefore, they repeated their lectures to make the students understand the subject. It is also seen that some teachers recorded their lectures in advance and posted them in the students' WhatsApp group so that they could listen to the same when they had time.

3. Creating audio visual content for students: It is also important to adopt attractive /innovative teaching-learning process which make students interested or inquisitive especially in the new normal situation that we experienced. Here the online mode could be implemented as a tool to impart audio-visual education where the students would watch relevant documentaries/movies or listen to the audio lectures. Keeping in mind the same, the teachers opted for PowerPoint presentations instead of lectures for some topics to make the class hours interactive. Many teachers did the same in Raghabpur especially the Commerce Department. The departments organised webinars for the students to engage them in academic discussions and debates. Some workshops/sessions with eminent medical practitioners were also organised to boost the mental and physical wellbeing of the students.
4. Flexible evaluation system: The college teachers also have felt the need to have a more flexible evaluation system as uploading the answer scripts by the students is dependent on the network connectivity which fails during the monsoons or in any natural calamity. This problem was so acute that many students had to rush to the college office to submit physical answer scripts. They had to make written applications for consideration. The time-bound submission process was a mammoth task both for the students and online invigilators/paper coordinators. Here the teachers and the support staff in Raghabpur played an important role to assist the students. Unfortunately, not all the rural colleges

have the same infrastructure like the rural wing of St. Xavier's College (Autonomous), Kolkata. Therefore, students faced a lot of technical issues in the said period all over West Bengal which is an undeniable fact.

4.7 The Students: Their Journey

1. Challenges faced by students: The students had to face ordeals to a great extent in these last two years. The online system of education was practically a farce for a country like India which has inadequate IT infrastructure in schools and colleges especially in the rural sector. The higher education system in India still follows conventional methods and pedagogy where there is hardly any scope for online education. During the coronavirus pandemic they had to face technical issues which were beyond their capacity to solve. The libraries were closed, books became obsolete, and the entire teaching-learning process relied heavily on online PDFs. Science students had to forget labs and their learning was compromised during the two years of the pandemic. The standard of teaching-learning and evaluation fell dismally.
2. SXC Raghabpur—its unique experience: The Raghabpur Campus of SXC, unlike other rural colleges in the district, continued providing education to the students amidst these difficulties. The students were regular in the online classes, responded in good numbers and performed well in their examinations. There were some disciplinary issues but overall results were satisfactory and a significant number managed to score above average marks. The number of dropouts definitely posed a challenge, but those students who took admission did attend online classes and made the attempts of the teachers worthwhile. The students from the vernacular medium from all the departments did exceptionally well, due to the well-established fact that learning in one's own 'mother tongue' or local language is far more effortless than learning in English.

   During examinations, the students had only 30 minutes for submitting online answer scripts as the examination pattern all over India during Covid had become objective type. The situation made them desperate to do well, resulting in high completion rates. It is true that the results

in these last two years have been exceptionally good largely due to objective-type questions, but we cannot discredit the efforts of the rural students. Many of them borrowed smart phones from their neighbours with a functioning camera to take better quality pictures. These efforts are commendable and many students after passing the final exams have continued with further higher studies now in offline mode. A significant number of married female students showed courage to continue even after household work and successfully completed undergraduate studies.

Some students though faced attendance issues as they were unwell or could not attend their classes due to various factors. The college authorities took a humanitarian standpoint and the cut-off for compulsory attendance was lowered to solve the problem of disqualification due to inadequate attendance. However, in the rest of West Bengal, a large number of dropouts were reported in higher studies. Being an autonomous college, SXC has the authority to take decisions independently. Therefore, the students were not victims of certain archaic university rules which became evident during the pandemic.

4.8 Administrative Challenges in SXC During Covid-19

1. Need to maintain timeframe in education: It was a big challenge to the college authorities to run the administration smoothly during the pandemic. The sudden lockdown practically shut the entire country for months, impacting the economy and the wellbeing of the people. The education sector witnessed a fatal blow as schools and colleges got closed for an indefinite period. Initially all were clueless and waiting for normalcy. Unfortunately, the situation became worse and alternatives were needed to maintain the timeframe in the education system to prevent year loss for the final-year students.
2. Selection of online platform: The Principal and the Vice-Principals worked hard to combat the adversities and many online meetings were held with the faculty members. The first action plan was taken to search for a virtual platform for teaching and the college chose MS Teams for the same. The teachers got almost one month training to operate the software where the IT Cell of the college worked efficiently to create

user id and password not only for the faculty members but also for all the students. The next step was to familiarise the students with the online platform. As per the instructions of the authorities, the teachers came forward and completed the procedure. The rural students initially faced major difficulties but gradually they learnt the system. The teachers started teaching and gradually overcame the initial difficulties like communication problem, utilisation of the various apps through MicroSoft Teams, activation of the recording option and registration of attendance.

3. Virtual classes, examinations and evaluation: Once the virtual classes began, the administration brainstormed on the probable ways of conducting examinations and evaluation. After a number of online discussions, the Covid format of question papers came into existence with certain considerations. Firstly, the authorities decided to follow the regular format for the students who had not cleared their previous examinations. After that the Covid format was followed for the regular students where they got questions from the customized syllabus covering 70% of the total. The faculty members were instructed to teach and frame questions accordingly. The faculty had to teach six days in a week without any preparatory day through online mode. These steps were later modified as per the needs of the situation.
4. Vaccination drives: The authorities conducted several vaccination drives in both rural and urban campuses for the students, faculty members and their families. Proper sanitary measures were taken on a regular basis to make the campus Covid-free even though the college was closed for the students. When the lockdown ended the administration allowed the students to enter the campuses in batches and the teachers on rotation. Overall, the college authorities handled the situation efficiently to continue the teaching, learning and evaluation processes. But the other colleges in West Bengal especially the rural colleges suffered to a great extent due to a lack of proper administration especially in the extreme Covid situation.

4.9 Observations

The response of students indicated that accessing online education was difficult for the students. Students had to face internet connectivity issues

for which they had to spend long hours in front of their device. Spending long hours in front of the device reduced their leisure time and increased their addiction to the device. A majority of the students used mobile phones as their financial conditions do not allow them to purchase laptops. Mobile phones are highly ineffective for both academic interaction and to sharing study materials.

Prolonged screen time is also strenuous for the eye. Printing the shared study materials is again unaffordable for poor rural students. Most of all the online mode of education deprived the students of being in close proximity to their teachers and peers which impacted their emotional wellbeing.

Table 12.2 Students' perception of online education

Question number 1	*70% responded*	*20% responded*	*10% responded*
How did you feel about the overall mode of online education?	**Average**	**Below average**	**Good**
Question number 2	75% responded	15% responded	10% responded
Did you have proper access to a device for learning online?	**Yes, but internet didn't work well**	**No, I shared it with others**	**Yes**
Question number 3	90% responded	10% responded	0% responded
How much time did you spend for accessing online education?	**6–7 hours**	**3–5 hours**	**1–3 hours**
Question number 4	85% responded	10% responded	5% responded
What kind of device did you use for online education?	**Smart phones**	**Laptop/ desktop**	**Tablets**
Question number 5	60% responded	40% responded	0% responded
How effective did you find remote learning?	**Slightly effective**	**Not effective at all**	**Very effective**
Question number 6	65% responded	25% responded	10% responded
Do you think accessing online resources was more effective than accessing physical resources?	**No**	**Same**	**Yes**

Source: Primary data

Table 12.3 Teachers' perception of online education

Question number 1	*50% responded*	*40% responded*	*10% responded*	*0% responded*
Teaching during the Covid-19 pandemic	**It was challenging**	**It was depressing and gloomy**	**It was boring**	**It was fun**
Question number 2	40% responded	30% responded	20% responded	10% responded
Response from students	**Average**	**Unsatisfactory** (especially those who taught lab-based subjects)	**Good**	**Excellent** (on the basis of the interest shown by the students)
Question number 3	70% responded	25% responded	5% responded	
Online teaching vs offline mode?	**Both can go side by side**	**Against online teaching**	**In favour of online teaching**	
Question number 4	75% responded	20% responded	5% responded	0% responded
Feedback on online evaluation system during Covid-19	**We had no other option left**	**It was okay**	**It was full of errors**	**It was good**
Question number 5	70% responded	20% responded	10% responded	0% responded
Response of students from vernacular medium	**Had difficulties, most of the online study materials are in English**	**Used Wikipedia**	**Used apps for translation**	**Enjoyed the teaching-learning process**

Source: Primary data

4.10 Observations

It is evident from the response/feedback of the teachers that most of them found online teaching-learning process challenging as they had to work under tremendous pressure and were overburdened with deadlines. The effort did not always meet with success because of the lack of response/communication from the students. Due to network issues the students did not reciprocate well which made online classroom teaching more problematic. The rural female students were not in a position always to attend

the classes as they had to do household work along with the family members. It caused an increase in dropouts. Many male students left the college in search for jobs to support their families.

5 The Future of Higher Education in Rural India: Some Possible Policy Outcomes

Teachers support hybrid method of learning as technology can make understanding better when the students experience visuals. This particular mode of learning can also be continued in future to make knowledge accessible for all through the nationwide online courses. For example, the MOOCs (Massive Open Online Courses) by University Grants Commission have become popular as they to cater to education for various target groups.

This chapter has assessed the impact of Covid-19 on higher education in rural West Bengal. It has established the severe impact Covid-19 has had on higher education in terms of low rates of admissions, high dropout rates and diminishing student strength for courses with specialisation. It highlights the pressure on college teachers as well as the college administration to extend their services beyond their official duties to help rural students during the pandemic. The results of this study help to situate the impact of Covid-19 on higher education in rural India. The results also reflect the challenges faced by HIEs (higher education institutes) including their very survival, across rural India. The present situation demands a more comprehensive and inclusive education policy that can provide higher education to the meritorious students from the socio-economically deprived sections of the population. It is important to adopt policies for their retention until course completion. Our study highlights the shortcomings of public policies on access to higher education for the rural student population, both in the pandemic and post-pandemic scenarios, as they do not have the capacity to mitigate the dropout phenomenon. The three most critical issues that impact rural students can be mitigated to some extent through the following inputs in the education policy:

1. In the case of HEIs in rural areas, Covid-19 has represented an exponential increase in opportunity cost as the student population does not make use of educational loans, when they drop out. As the educational loan secured is in most cases from public sector banks, they should be waived off, after due process is completed.

2. Since teacher recruitment is linked to student enrolment, the institution and its affiliating university could lower the minimum enrolment rates per class and protect the services of the teachers during such stressful periods.
3. The current framework of higher education is lacking in both mobility and flexibility, and it should be gradually replaced with a framework that allows for continuous learning without regard to enrolment, location or course completion time. Students who have dropped out of one institution should be allowed to continue in other institutions and their breaks in education could be condoned after establishing their bona fides.

Declaration

Declaration of Competing Interest We have no conflicts of interest to disclose.

Funding No funding was received to assist with the preparation of this manuscript.

Ethical Consideration Participants in the survey received information about the study's goals and gave informed consent. The privacy of all participants of the study was protected by keeping their answers to the questionnaire anonymous and masking their identity.

CHAPTER 13

COVID-19 and the Digital Divide in India

Saraswathi Unni

1 Introduction

Schools, colleges, universities, and other educational organisations were closed in the midst of the COVID-19 epidemic, and every effort was taken to maintain educational continuation online. The Department of Higher Education under the Ministry of Human Resource Development (MHRD) of the Government of India had issued a letter (MHRD Notice dt.21/03/2020) which suggested that stakeholders use digital learning platforms during the lockdown and quarantine to maintain continuity in the teaching-learning process. However, the global pandemic led to several ripple effects, one of them being the phenomenon of an enhanced 'digital divide'. The drive to maintain pedagogical continuity of the learning process from traditional mode to the online environment exposed the problem of inequality in the form of the 'digital divide'.

Larry Irving Jr., a former US Assistant Secretary of Commerce for Communication and Information, coined the phrase 'digital divide' in the

S. Unni (✉)
Water Policy Centre, Aurangabad, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_13

mid-1990s to call attention to the disparity in access to information services between those who can afford to purchase the computer hardware and software required to participate in the global information network and low-income families and communities who cannot. In terms of society's access to digital infrastructure and services, it alludes to the uneven and disproportionate speed of progress. This ground-breaking research motivated worldwide initiatives to start closing the gap and is still often mentioned by researchers looking at internet access throughout the globe today (Barram et al. 1995).

It is the inequality among people in terms of access to digital techniques as well as tools and information technology. It illustrates the divide between people who regularly and effectively utilise digital and information technologies and those who do not. It encompasses discrepancies among different demographics on both physical access and use of hardware technology, skills, and resources. From an educational perspective, the digital divide exists both among teachers and students. The concept of the digital divide may change with time and from one space to another. This digital divide is present with variations globally, regionally, nationally, and state-wide. The digital divide may exist in different dimensions of the education process (Dutta 2020). Dutta identifies them as (i) service availability, (ii) awareness of digital devices, (iii) extent of their use, (iv) opportunity to learn and use new media, and (v) experience, skills, support, disability, linguistic area, and gender. This type of disparity in access to information and education violates the human right of the Right of Access to Information and Education Article 26 (1) of the UDHR.

The fourth industrial revolution commonly referred to as the technology revolution has altered how we live, work, and connect. It has outgrown previous revolutions in terms of scale, scope, and complexity. If the first industrial revolution relied on water and steam power, second on electric power for mass production, and third on electronics and information technology for production automation, the fourth relied on a digital revolution that blurs the lines between the biological, physical, and digital spheres. The digital revolution has permeated every aspect of production, management, and governance, including education. The type of inequality that is likely to persist in the future is about access to, or lack of access to, digital technology and achievement of, or inability to attain, proficiency in the use of technology. Although this sounds superficial, digital technology has evolved into a vital part of routine life in the modern world. Therefore, before introducing any educational reforms and

reorganisation, the basic issue of the digital divide must be addressed. The construction of high-speed internet in every part of the country, as well as simple access to electronic devices for all sections of society, is one of the pre-conditions of educational changes today, and it will be the first step toward the broader goal of 'Education for All'.

2 Research Questions

India is a large and diverse country, with approximately 38 million students enrolled in approximately 1000 universities and 47,000 colleges (UNESCO Report, 2020). This chapter sets out to examine the following: (1) What are the various dimensions of the 'digital divide'? (2) What is the overall status and the rural and urban bifurcation of the 'digital divide' in India? (3) What are the probable factors responsible for this digital divide? (4) What are the impacts of the 'digital divide' on Indian higher education in the post-COVID-19 scenario?

3 Methodology

1. Survey of existing literature on the subject
2. Perusal of websites of the Government of India including the National Sample Survey Organisation
3. Data collection for micro-level study

To provide a macro view of the digital divide in India, existing literature was surveyed and corroborated with data from the websites of the Government of India. This helped to answer the four major research questions about the digital divide in India. The micro-level study based on data collected from select teachers and students in government universities, private universities, and aided and self-financing colleges affiliated to the University of Mumbai, Maharashtra state, India, helped to localise and examine directly how the digital divide operates and how it impacted higher education during the pandemic.

4 Higher Education Through Digital and Online Mode: Digital Access or Divide—Overall Context

Internet use has significantly improved and enhanced the quality of our lives. During the pandemic, global usage of the internet shot up by 45% (Report, Tele competitor, 2021).

Access to the internet has made it possible for people to continue living their lives by enabling remote employment and online education. However, the impact of the internet has not been uniform. Across nations and between citizens within nations, there exists a wide disparity in the use of the internet and the ability to maintain pre-COVID livelihoods. According to the Report of the International Telecommunication Union (ITU), an agency of the United Nations, almost half the global population (3.6 billion people), by the end of 2020, still lacked internet connectivity. As of March 2020, in terms of internet penetration rate (IPR), Asia is second from the bottom (55.10%) followed by Africa (39.30%). North America is at the top of the list (94.60%) and Europe is in the second position (87.20%). India's IPR is 40.40%, while China's is 62.80% (Report, International Telecommunication Union, 2020). In comparison to the countries of the Indian sub-continent like Bangladesh (7%) and Pakistan (5%), India (22%) has a higher percentage of mobile users. These data reveal a huge gap in IPR across continents and among Asian countries, though the percentage of internet users is higher in Asia (94.6%) in comparison to Europe which is 54.9% (ITU, 2020). Within the country, Mumbai has the highest number of internet users (13 million) followed by Delhi (11.3), Bengaluru (6.6), Kolkata (6.2), and Chennai (6.0) (Report, World Internet World Stats, 2020, "https://www.statista.com/statistics/1115129/india-internet-penetration-by-state"). In India, 68% of people are daily users of the internet. 40% of users access the internet on the go (i.e. outside the home, office, schools, colleges, or elsewhere). Even though fewer than half of all houses with an internet connection have a computer, being connected to the internet doesn't necessarily mean that a family has access to it at home. Even while some students have access to smartphones, just 24% of students possess a computer or other internet-connected device, compared to 70% of scholars (involved in research) who have access to computers (British Council, 2021). Residential programmes are available at many of the country's universities and institutes. Nearly five million students, or 15% of all college students, live away from home. The majority of them (55%) come from rural

families. During the pandemic, hostels were evacuated and students were sent home. About 48% of them however do not have access to the internet at their residence. Internet connectivity at home is only available to 42% of students who live in rural regions, compared to 69% of students in the urban region (Report_585_75th_round_Education_final_1507_0.pdf: www.mospi.gov.in).

A clear-cut case of the digital divide in ICT use exists throughout the globe. According to available data, 26.97% of respondents experienced platform problems and malfunctions, 24.34% of participants had problems with their internet connectivity, and 23.02% of people encountered problems associated to their competence in using online solutions, and only 32.23% of respondents had no problems. Similarly, teachers experienced many obstacles, especially those who taught through mobile phones (Dasgupta, 2019). The UNESCO noted, "Half of the total number of learners kept out of the classroom by the Covid-19 pandemic, did not have access to a household computer and 43 percent have no internet at home, at a time when digitally-based distance learning is used to ensure educational continuity in most countries" (UN https://www.un.org›uploads›sites›2020/0).

However, economically developed nations have greater resources at their disposal to put technology advances into practice. When it comes to addressing their own needs, these nations' financially independent residents concentrate on using the most recent technologies in communications and other fields (Zaporozhets, 2020). Continuing learning and accessing education through digital means is not a difficult task for them. For such countries and their citizens, online education is fairly widespread. This creates another digital division among countries that are economically independent and economically dependent (Table 13.1).

5 The 'Digital Divide' in the Indian Context

Approximately 78% of Indians have mobile phones. However, in rural areas, mobile ownership is 57%. 68% of the schoolchildren in higher classes (secondary education and above) have access to a smartphone. It was considered to be particularly difficult to hold online lessons for students who had gone home during the crisis. Students belonging to urban households had uninterrupted internet access in most cases. In contrast, pupils from rural locations only had sporadic access to the internet. Among students from rural households, only 28% had internet access at home. The rural

Table 13.1 Continent-wise internet penetration rate (IPR—2020)

Continent	*IPR*	*Internet users*
North America	94.60%	347,916,694
Europe	87.20%	743,602,636
South America	80.4%	533,171,730
Australia/Oceania	70.1%	30,549,185
Asia	64.10%	2,790,150,527
Africa	43.01%	601,327,461

Source: Data from International Telecommunication Union, United Nations, Report for 2020 & World Internet Usage and Population Statistics 2022 Year-Q1 Estimates www.internetworldstats.com, Miniwatts Marketing Group

households with internet facilities are 14.9% and those with a computer are 4.4%, whereas the percentage in urban households with the internet is 42% and those with a computer are 23.4%. The availability of computers and the internet in rural and urban families differs significantly (NSS, Govt. of India, 2017–18). The composition of rural-urban telephone subscriptions as of December 2021 was 44.82% (rural) and 55.18 (urban). 44.07% of rural subscribers had landline phones and 55.93% had wireless phones, while 12.05% in urban areas had landline phones and 87.95% had wireless phones in urban areas (The Indian Telecom Services Performance Indicators, Oct.–Dec, 2019). The percentages of people using 2G, 3G, 4G, and Wi-Fi internet in rural and urban India are 5, 13, 84, and 3 in rural areas and 4, 13, 86, and 9, respectively, in urban areas. Additionally, the top 30 cities in the nation account for more than 75% of the nation's broadband connections (Statista, 2020). Clearly, there is a significant digital gap between urban and rural areas. Additionally, there is a huge divide between urban and rural inhabitants in the context of internet use and connection issues (Table 13.2).

6 Factors Responsible for the Digital Divide

While it is undeniable that persons from underprivileged groups are unable to utilise ICTs due to lack of devices, poor levels of literacy, and computer skills, there are a plethora of precipitating social, geographical, and cultural factors that are responsible for the digital divide. These factors can be narrowed down to accessibility, usability, and quality of use.

Table 13.2 Internet connectivity and device ownership in India

Classification	*Urban population*	*Rural population*	*Students in higher education (urban)*	*Students in higher education (rural)*
Landline	12.05%	55.93%	–	–
Mobile phone	78%	67.60%	79%	61.80%
Computer	23%	4.40%	71%	10%
Internet access	59%	40%	69%	52%

Source: Data from the 2017–18 National Sample Survey-based Key Indicators of Household Social Consumption on Education in India Report

Factors related to the access divide refer to the socioeconomic differences between people and regions. Factors related to the usability divide refer to the lack of digital and ICT skills, for example, how to send an email or arrange a Google Class. Very often this has been identified as a cultural factor. Factors related to the quality of use divide refer to the skill and ability of handling and using digital devices and technologies efficiently for getting the most out of it, for example, accessing high-quality and relevant journals through remote accessing facilities or best use of institutional email id.

The Digital Access Index (DAI) established by the ITU grouped various factors into categories like quality, infrastructure, knowledge accessibility use, computer literacy, use of information, working knowledge of English, economic inequality, device availability, social mobility, and network availability as some of the influential factors of the digital divide (ITU, 2020). Additional factors that contribute to this divide are gender and age bias, physical disability, attitudinal factors, irrelevant content, delay in implementation of government policies, literacy and skill barriers, lack of training, and unfair competitive edge (Dhari et al., 2020). According to Al Sadrani and Soomro et al. (2020), there is a digital gap among faculty members in terms of their positional and personal characteristics, such as gender, age, and university type. Additionally, not all of faculty members, especially in the developing countries, have access to ICT. Research findings in this area have established that gender is a key factor in the digital divide since use of the internet by men is exponentially higher than its use by women. We might draw the conclusion that the

digital gap is influenced by technology as well as sociocultural factors and socioeconomic status (Sadrani et al. 2020).

7 Impacts of the Digital Divide on Indian Higher Education

The worldwide health emergency created by COVID-19 had numerous effects on India. Like the rest of the world, India was completely unprepared. It suffered huge human, material, and financial losses. Physical separation was the sole method of avoiding the spread of virus due to the lack of effective treatment and vaccinations in the initial stages of the pandemic. In a nation of 1.3 billion people, it was impossible to keep deliberate physical distance from one another. As a result, the Indian government decided to implement a nationwide lockdown. The lockdown led to the closure of all educational institutions along with economic, financial, industrial, and the transport sector. In the education sector every stakeholder but most of all students faced considerable setback in their educational programmes.

To ensure continuity in India's education system the government brought out circulars stating that online pedagogy be used. The government provided both platforms and repositories of subjects for teachers and students to use. Meanwhile educators began online instruction using government platforms, repositories, as well private sector online programme management (OPM) partnerships. However, numerous issues cropped up. It was difficult for teachers as well as students to switch over to the digital alternative. It quickly became apparent that many students, particularly those from low-income families and those living in rural regions, were unable to take advantage of online learning opportunities because of the scarcity of cell phones, computers, and mobile networks. It exposed the harsh reality that the online style of teaching and learning was unfair to students who were poor and underprivileged. Students' mental health suffered due to the shift to online instruction, which initially caused anxiety among them.

Students faced various problems related to rescheduling or cancellation of examinations or assessments, admission to colleges or universities, attending classes, anxiety, depression, bad internet connection, and an unfavourable study atmosphere at home. During the epidemic, students in rural and underprivileged places experienced major difficulties in their

education. In the online mode, students were largely exposed to theoretical knowledge. Online instruction in laboratory-based and fine art-related disciplines was not possible, because it was problematic to assess the volume and quality of work done. Courses designed to be taught on a personal level could not be taught effectively online. The impact was more severe for rural students and students from families below the poverty line because of a lack of devices or connectivity. According to Nandy, the nation's mean fixed broadband speed decreased from 41.48 Mbps in January 2020 to 35.98 Mbps in March 2020. However, network outage difficulties have been present all year in locations that are remote from or elevated above major urban centres (Nandy et al., 2020).

Singh and Gangopadhyay (2017) discovered that students and researchers with lower levels of computer proficiency, access to technology, and search competency are significantly disadvantaged while seeking opportunities for personal and professional development. Jena (2020) reported that the pandemic created many challenges for all stakeholders of ODL (Open and Distance Learning) mode as well, especially during the lockdown periods. He listed several issues, including lack of computer literacy, social status, technical difficulties, absence of pre-admission counselling and admission counselling, lack of motivation, absence of face-to-face induction meetings and counselling classes, difficulty in joining online orientation courses and later difficulty in turning in assignments, and inability to download study materials online. Dhawan (2020) states that ensuring digital equity was crucial both for teachers and students as a significant number of teachers also did not have internet connectivity, digital devices, as well as proper digital tools, particularly during the first lockdown in India, beginning in March 2020. This led to students losing out on learning opportunities. According to Jena (2020), many students do not have access to the internet or had access that was very restricted, and many did not have access to computers, laptops, or even mobile phones at home because they were unable to buy them. There are a significant number of students across all levels of education who had to share one device with the entire family (ASER, 2021). The digital gap amongst students has been exacerbated in many ways by online learning and teaching.

Thus, the use of online teaching and learning during the COVID-19 epidemic further widened the difference between the affluent and the poor and between rural and urban areas. There has been a huge drop in the demand for foreign higher education as a result of the vast number of

Indian students registered at several colleges overseas, particularly in the worst-affected countries, who have returned to India (Khatri, 2020).

8 Advantages of Online Education

Digital discrimination is a type of poverty and social exclusion which has been fully exposed during the COVID-19 epidemic. Several teachers, students, and other stakeholders of education found it difficult to access and continue education and research online. It gave rise to the problems of communication and social isolation; barriers to access to knowledge; continuation of research, examination, and further studies; gender and regional discrimination; job and employability problems; and most of all, barriers to psychosocial wellbeing.

Although there are numerous challenges in online education, there are also many advantages. Technology, according to Gutierrez et al. (2020), is an increasingly useful instrument to help the teaching and learning procedure but is not a replacement for face-to-face interactions that take place in the classroom. Learning happens more quickly for students using online techniques (often half of the time), and retention rates are better (between 25% and 60% versus 8% offline learning). Learning at one's own speed, preserving schedule flexibility, and other factors all contribute to greater learning for students and, therefore, better results. EdTech companies have seen tremendous development as a result of using this transition to their advantage. While there has been a general digital transition, the switch from offline to online has been a reaction to an emergency. The use of the internet has been accelerating, and students have shifted online. Online learning is thriving and will continue to do so, that much is certain (Biswas, 2020).

9 Findings and Outcomes of Macro- and Micro-Level Study of the Digital Divide in India

The macro-level study was largely based on literature survey and perusal of relevant government websites and newspaper articles which provided rich and reliable data on the digital divide across India. The analysis also incorporates policies and cultural issues that have a bearing on the digital divide.

9.1 Validation of Research Questions

The following research questions were formulated and evaluated from the data collected for the macro-level study.

RQ1: Different segments of society were affected differently by the online mode of teaching-learning with students from low-income groups, women students, students from marginalised groups, and rural areas being most negatively impacted.

RQ2: Rural India lacks the necessary infrastructure for online learning in higher education and this led to significant levels of disengagement of rural students with higher education during the pandemic.

RQ3: A plethora of factors have contributed to the digital divide, the most significant ones being lack of internet access, lack of devices, and computer literacy among both faculty and students.

RQ4: Online pedagogy will be utilised more as an enriching tool for improving the teaching and learning process, and the future of pedagogy in higher education in India is likely to embrace the hybrid 'phygital' (both digital and physical) mode. All-round digital transformation has taken place at an accelerated pace and a significant number of learners desire to pursue education in this mode even in the post-pandemic era.

The findings support **RQ1, RQ2, RQ3, and RQ4.**

9.2 Micro-Level Study on Digital Divide

These two domains interact with one another: the macro-level and the micro-level study. Research that occurs on one level is likely to have multiple implications across domains. Hence this chapter comprises more than one level of analysis. The micro-level study on select students and faculty of the University of Mumbai on the digital divide validates the results of the macro-level study. The study investigated the experiences of students and faculty and perceptions of online classes during the pandemic.

A Google form containing a fixed number of questions was developed to understand respondents' experiences and perceptions of online classes during the pandemic. The link to the questionnaire was circulated online to students of higher education, aged 18–30 years in select colleges affiliated to Mumbai University, in urban, suburban, and rural regions in Maharashtra state. Online surveys were created using Google Forms to investigate the degree of digital gap among higher education students at

the local level during the epidemic. The survey was conducted for two months, from October 2, 2021, to December 10, 2021. 416 valid responses were collected through the online survey.

Combination data collection methods were used with structured and semi-structured online questionnaires and comprehensive online interviews conducted among 41 faculty members and 375 students, to collect data on various aspects of online teaching and evaluation.

9.3 Research Methodology

The analysis produced data that was subsequently transcribed to derive conclusions. Following the transcription of the data, insights into the participants' experiences and viewpoints on the issue of access to digital modes of learning were obtained. Findings were triangulated which strengthened the validity of the results of the survey. As the analysis developed, patterns began to emerge. These patterns or themes for instance reflected the urban-rural divide, income divide, and attitudinal differences between students, among other criteria

9.4 Research Questions

The following research questions were formulated and evaluated from the data collected for the localised study of the given sample size.

RQ1: The digital divide impacted students from low-income groups the most.
RQ2: Mobile phones were the most widely used device for online classes. More students from urban areas had access to laptops and desktop computers.
RQ3: Rural students faced issues of connectivity to the internet, while a majority of students from urban and suburban regions did not.
RQ4: Urban students were satisfied with the efficacy of online teaching, while rural students were not.
RQ5: Students across all sociodemographic strata were open to e-learning as a tool of pedagogy for the future.
RQ6: A majority of faculty believed that hybrid teaching will increasingly predominate in India's higher education system.

9.5 Findings and Discussion

*Out of 375 responses from students, 237 respondents (62.87%) were female and 138 (37.13%) were male.

*In terms of caste, the majority of the responses, 251 (67%), were received from the General Category. There were 124 responses (33%) from all Reserved Category students including Scheduled Caste (SC), Scheduled Tribe (ST), Notified Tribe (NT), Backward Classes (BC), and Other Backward Class (OBC). This finding is linked to the digital divide in Indian society and could be indicative of higher levels of stress among students belonging to the Reserved Category due to their inability to participate effectively in online classes.

*Mobile phones were found to be the most used device (259 respondents—70%) for digital learning. Only 116 (31.14%) respondents used computers (laptops and desktops). The majority of students from rural colleges did not have access to the internet to participate in online learning. It can be safely assumed that students using mobile phones belong to low-income families. This finding is indicative of the digital divide caused by economic factors.

* It was established that a majority (73% of 57 rural respondents) of the students who went back to their native places in rural areas faced connectivity issues: both lack of access to the internet and disruption in mobile connectivity or 'range' issues as is commonly referred to in India. 96% (out of 108) of students from urban and 81% (out of 210) of students from suburban colleges had access to the internet. The rural-urban digital divide due to lack of access to the internet impacted students adversely in pursuing online learning.

* Of the 41 faculty members surveyed, a large majority (97%) thought that digital pedagogy in the post-COVID period would have a significant influence on higher education. The majority of respondents believed that hybrid teaching will increasingly predominate in India's higher education system.

*The engagement of students in the e-learning process is another sign of the future direction of higher education. Despite all the technical hitches and inadequate infrastructure, student participation in the online classes was high with 259 respondents out of 375 (69%) attending classes regularly. 31% (116 respondents) did not attend online classes. An assumption that students were open to e-learning in the future can be made from this data.

*Students from urban colleges, even though a small percentage 30% (112 respondents), indicated that they were very satisfied with the efficacy of the online mode of learning. However, 55% (206 respondents) largely belonging to suburban colleges gave neutral responses, while 15% (57 respondents) belonging to rural colleges indicated dissatisfaction. This finding further validates the digital divide as the very satisfied students are from urban regions and those dissatisfied are from rural regions.

These findings support **RQ1–RQ6** (Tables 13.3, 13.4 and 13.5).

Table 13.3 Sociodemographics

Classification	Sub-classification	Frequency	Percentage (%)
Gender			
	Male	138	37.13
	Female	237	62.87
Caste			
	General Category	251	67
	Reserved Category	124	33
Region			
	Urban	112	30
	Suburban	206	55
	Rural	57	15

Source: Primary data

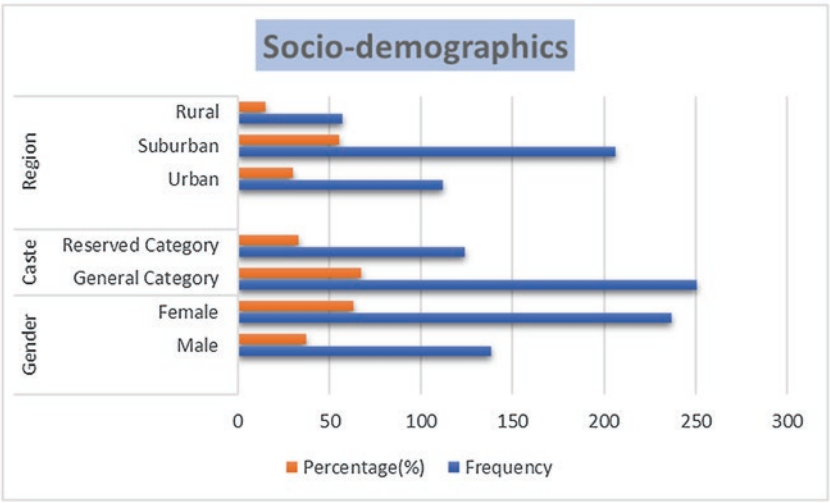
Table 13.4 Device ownership and internet accessibility

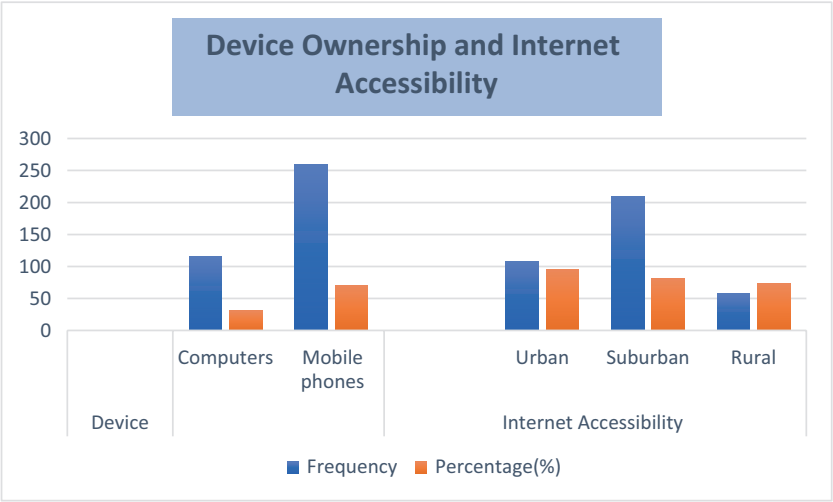
Classification	*Sub-classification*	*Frequency*	*Percentage (%)*
Device			
	Computers	116	31.14
	Mobile phones	259	70.00
Internet accessibility			
	Urban	108	96
	Suburban	210	81
	Rural	57	73

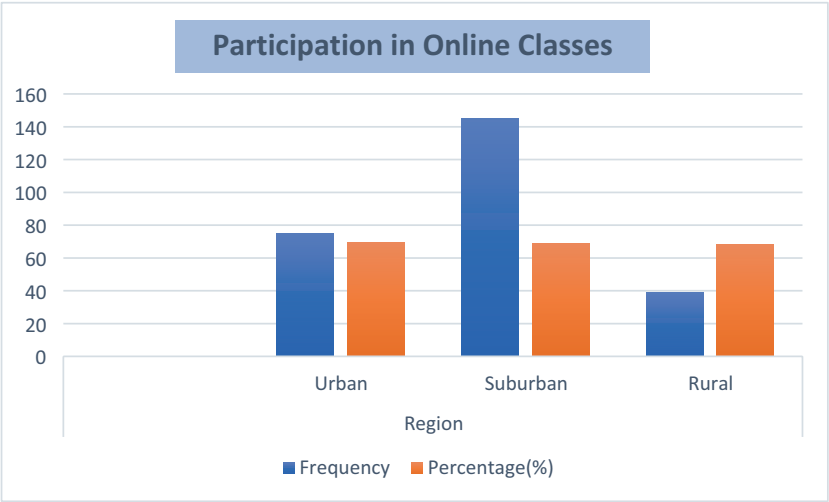
Source: Primary data

Table 13.5 Region-wise participation in online classes

Classification Region	Sub-classification	Frequency	Percentage (%)
	Urban	75	69.44
	Suburban	145	69.05
	Rural	39	68.42







10 Conclusion

In sum, the focus should be on narrowing down the digital gaps among various demographics but not narrowing the use of digital devices and technologies as these are demands of the era. Both government and private institutions, globally, have been striving to narrow this divide. To

close the digital divide, information technology skills and knowledge are just as crucial as electronic devices like computers and smartphones. One should consider the creation and improvement of the quality of virtual courses given in such circumstances rather than only concentrating on the benefits associated with the use of online learning during emergencies (Affouneh et al., 2020). E-learning takes a lot of effort and money. The acquisition of the tools and equipment, equipment maintenance, training of human resources, and creation of online materials all need considerable expenditure. Consequently, to provide education over the internet, an efficient and effective educational system must be created. The gap can be minimised by 'digital access', 'digital capacity', and 'digital utilisation'. Additionally important in bridging the gap are digital academic libraries.

10.1 Government's Initiatives to Bridge the Digital Divide

To close the digital gap, there are several initiatives in India. The government's Digital India Initiatives reflect these efforts.

The Digital Learning Initiatives of MHRD dated March 20, 2020, state: "Institutions shall promote digital learning among students so that they can continue their learning by making full use of available digital/e--learning platforms i.e., for School Education *DIKSHA*, *E-Pathshala,* National Repository of Open Educational Resources (NROER) and for Higher Education- *Swayam Prabha*, Digital Libraries Project and the *Muktabodha* Digital Library Project. It is also suggested that the examinations should not be cancelled out completely; instead, the examinations should be held online so that the results of students could be marked as per their performance." Several libraries have created digital and institutional repositories to provide people free access to their books. ("National Digital Library of India https://ndl.iitkgp.ac.in").

The advisory goes on to list actions to be taken:

*Institutions should make an effort to guarantee that every faculty member and student has access to the necessary materials even in the post-pandemic period.

*In case pupils don't have computers, they must also make sure that all the instructional applications are compatible with mobile devices.

* Both individual and community participation in this situation is highly desirable for minimising the digital divide.

*Academic institutions may make a stepwise manual to instruct students and instructors on how to access and utilise different e-learning

tools and how to cover key curriculum topics using such technologies, thus lowering digital illiteracy.

*In case of low connectivity and low bandwidth, asynchronous, Moodle, and blended mode will be more effective than synchronous mode.

*Teachers may utilise texts, audio, and videos to present the curriculum in a variety of ways.

* As a result, it would be more acceptable to implement a grading system based on the students' prior activity.

*Since India's villages are where its people live, rural libraries can play a crucial part in closing the digital gap as well as fostering a culture of literacy and knowledge ("https://www.mhrd.gov.in/sites/uploadfiles/mhrd/files/Covid%2019").

10.2 The Future of Pedagogy in Higher Education in India

The use of online teaching and learning has opened up new opportunities for India to transition from the conventional system to a new era of digital technologies for instruction delivery, curriculum development, and pedagogical shift towards the blended mode of learning. It has also encouraged all teachers and students to become more tech-savvy and encouraged the use of a soft copy of study content and learning assessments and to improve teamwork. The post-pandemic environment in higher education in India will be characterised by greater digital literacy, better use of electronic media for information exchange, global exposure, better time management, and a need for open and remote learning.

Since the beginning of the 2000s, interventions in 'digital education' have been taking place. Since the early 2000s, the majority of higher education institutions have been experimenting with providing digital education; when the pandemic struck, this tendency expanded. Ashoka University, a private university, extended education outside the four walls of a classroom to remotely reach students aged 18 and above, while IIM Bangalore became the first management school in India to join with EdTech provider, edX, to offer students MOOC (massive open online courses).

Siddharth Banerjee, MD, India and Asia, Pearson, while talking about the 'The A-B-C-D Of Future Proofing India's Higher Education System' says:

> A stand for alliances and partnerships. In a bid to create a multi-disciplinary education system with a focus on new-age skills and vocational training, Universities should increasingly see the value in becoming collaborators, rather than staying competitors. This will enable a fair and balanced growth of the sector as a whole.
>
> B stands for a blended learning model which simply means that we have gone above and beyond face-to-face learning to usher in an era of hybrid or multimedia formats. The classroom experience has become so much richer thanks to accessing digital tools by both faculty and students. There are digital tools today that enable students to access their course books at their convenience, from anywhere, on any device for a seamless learning experience. It is true democratization of education, as envisaged by the government's new National Education Policy (NEP) of 2020.
>
> C stands for Context - both in terms of the regulatory framework of the NEP 2020 and changing stakeholder behaviour. The NEP 2020 plans to infuse India's education system with innovative content, delivery, and pedagogy that will enable institutes to prepare for the future - making them more international and globally competitive. Similarly, as learners seek an increasingly personalized, versatile curriculum, education providers will have to rise to the challenge.
>
> D stands for digital, the very backbone of the future education system that will allow us to re-imagine how learning can be delivered at scale. Here it is important to reiterate that digital will never replace the traditional classroom. Much like the printed book opened up new vistas of exploration for the student when s/he was away from the teacher, digital will expand education as never before. Now, that's a future worth looking forward to. (Banerjee, 2022)

The most challenging aspect of the digital divide is its changing nature. "The main challenge is whether or not we have the social, political, and educational imagination to adapt and effectively use these technologies. If we do not then a relative few will be able to leverage these new powers and tools, while the remainder may be worse off for it" (O'Byrne, 2019). For the present, the stumbling blocks that persist are chiefly inequalities in access to information and education. Execution and implementation of any initiative to reduce the divide will require optimal collaboration between all stakeholders: students, teachers, institutions, and government.

Declaration

Declaration of Competing Interest I have no conflicts of interest to disclose.

Funding No funding was received to assist with the preparation of this manuscript.

Ethical Consideration Participants in the survey received information about the study's goals and gave informed consent. The privacy of all participants of the study was protected by keeping their answers to the questionnaire anonymous and masking their identity.

References

Affouneh, S., Khlaif Z. N., & Salha, S. (2020, May). Designing Quality E-Learning Environments for Emergency Remote Teaching. *Interdisciplinary Journal of Virtual Learning in Medical Sciences, 11*(2) https://doi.org/10.30476/ijvlms.2020.86120.1033. Retrieved from https://www.researchgate.net/journal/interdisciplinary-journal-of-virtual-learning-in-medical-sciences-2476-7623 on 14.6.2021

Banerjee, S. (2022, January 14). Future-Proofing India's Higher Education System. The Economic Times. Future Proofing India's higher education system. https://economictimes.indiatimes.com/industry/services/education/futureproofing-indias-higher-education-system/articleshow/88899008.cms?from=mdr

Barram J. David, Irving Larry, Ronald H. Brown (1995, July). Falling Through the Net: A Survey of the "Have Nots" in Rural and Urban America, U.S. Department of Commerce, . Retrieved from https://www.ntia.doc.gov/ntiahome/fallingthru.html on 19.7.202

Biswas, V. S. (2020). Edtech Platforms Cash in on Pandemic. *Posts Surge in Users and Time Spent.*. https://www.financialexpress.com/brandwagon/ed-tech-platforms-cash-in-on-pandemic-posts-surge-in-users-and-time-spent/1947135/

British Council: Teaching and Technology: Case Studies from India. https://www.centralsquarefoundation.org, May 2021. Accessed July 11, 2021.

Dasgupta, T. India's Digital Divide a Study on Aspects of India s Digital Divide. The Indian Telecom Services Performance Indicators (October–December 2019) https://www.researchgate.net/publication/329365743_India's_Digital_Divide

Dhari, B., Aggarwal, L., & Aggarwal, R. (2020, June 20). On Exploration and Then Establishing the Inter Relationships amongst the Challenges in Implementing Digital Divide in India. *International Journal of Computer Applications, 176*(34), 15–19.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems, 49*(1), 5–22. https://www.ijcaonline.org›volume176›number34. https://journals.sagepub.com. https://doi.org/10.1177/0047239520934018. Accessed July 10, 2021

Dutta, D. (2020). *Development under Dualism and Digital Divide in Twenty-First Century India'*. Springer. https://link.springer.com/book/10.1007/978-981-10-6344-29. Accessed July 10, 2021.

Gutierrez, D., Javier, E., & Espinoz, K. G. (2020). *Educating and Evaluating in Times of Coronavirus, The Situation in Spain*. Accessed June 11, 2021, from https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-633834

International Telecommunication Union (ITU). (2020). Time Series of ICT Data for the World, by Geographic Regions and by Level of Development (2005–2019). Retrieved from https://www.itu.int/en/ITUD/Statistics/Pages/stat/default.aspx on 30.5.2021

Jena, P. K. (2020, July). Challenges and Opportunities Created by Covid-19 for ODL, A Case Study of IGNOU. *International Journal of Current Research, 12*(7), 12582–12586. Available online at http://www.journalcra.com. https://doi.org/10.24941/ijcr.39209.07.2020. Accessed June 25, 2021.

Khatri, B. (2020, April 13). COAI Warns of Mobile Services, Internet Interruption in Covid-19 Hotspots. Retrieved from Inc42 Media. https://inc42.com/buzz/coai-warns-of-mobile-services-internet-interruption-in-covid-19-hotspots on 2.7.2021.

Soni Vishal Dinesh Kumar. Global Impact of e-Learning during COVID 19. SSRN Electronic Journal, June 2020. Available at https://ssrn.com/abstract=36300732020). Vishal Dinesh kumar Soni- - -Google Scholar-http---scholar.google.co.in › citations

Ministry of Education, Government of India, National Digital Library of India, https://ndl.iitkgp.ac.in, June 2018, Accessed July 5, 2021

Ministry of Human Resource Development: 'Digital Learning Initiatives' 20/03/2020. https://www.mhrd.gov.in/sites/upload_files/mhrd/files/Covid%2019_0.pdf. Accessed June 11, 2021.

Nandy, M., Lodh, S., & Tang, A. (2020). Lessons from Covid-19 and a Resilience Model for Higher Education. https://doi.org/10.1177/0950422220962696. https://journals.sagepub.com full Accessed June 15, 2021.

O'Byrne. (2019). Leading Concerns about the Future of Digital Life. (Eds: Anderson, Rainie, and Stansberry) Accessed July 20, 2021.

Report, International Telecommunication Union: Measuring Digital Development: Facts and Figures 2020 – ITU, https://www.itu.int › ITU-D › Statistics › Pages › facts Accessed June 19, 2021.

Report on "Key Indicators of Indian Telecom Services Performance Indicators for the Quarter ending July-September 2020". Retrieved June 10, 2021, from

https://www.trai.gov.in/release-publication/reports/performance-indicators-report

Report on Key Indicators of Household Social Consumption on Education in India 2017–2018, NSS 75TH Round, Government of India. Report_585_75th_round_Education_final_1507_0.pdf: www.mospi.gov.in. Accessed July 20, 2021

Report, TELECOMPETITOR, Oregon, USA, 17 Feb 2021. Retrieved from https://www.telecompetitor.com › report-pandemic-driv... Accessed May 10, 2021.

Report UNESCO. (2020). Regional/National Perspectives on the Impact of COVID- 19 on Higher Education. ISBN: 978-92-9002-211-4, International Association of Universities (IAU), August 2020. Regional/National Perspectives on the Impact of COVID-19 on … https://www.iau-aiu.net/IMG/pdf/iau_covid-19_regional_perspectives_on_the_impact_of_covid-19_on_he_july_2020_.pdf. Accessed July 1, 2021.

Report, World Internet Stats. (2020). Top 20 Countries with Highest Number of Internet Users – 2020. Retrieved from https://www.internetworldstats.com/top20.htm on 10. 5.2021

Report, World Internet World Stats. (2020). Internet Usage in Tier 1 Cities Across India. Retrieved from https://www.statista.com/statistics/1115129/india-internet-penetration-by-state on 10.5/2021

Report: Annual Status of Education (ASER). (2021). Annual Status of Education Report (Rural) 2021 - ASER Centre https://img.asercentre.org/docs/aser2021finalreport_16.116.54pm1.pdf

Sadrani, A., Badriya, M. A., Alsheikh, N., & Elshazly, E. E. (2020). Tile Digital Divide in Inclusive Classrooms. *International Journal of Learning, Teaching, and Educational Research, 19*(3), 69–85.

Singh, P. K., & Gangopadhyay, S. (2017). Digital Divide in Higher Education: Role of Academic Libraries to Bridge the Gap. *Vaichariki, 7*(4), 35–40. (ISSN: 2249-8907). Accessed June 10, 2021, from https://www.academia.edu/35594626/Digital_Divide_in_Higher_Education_Role_of_Academic_Libraries_to_Bridge_the_Gap.

Soomro, Kamal Ahmed, Ugur Kale, Reagan Curtis, Mete Akcaoglu, and Malayna Bernstein. (2020). Digital Divide among Higher Education Faculty. *International Journal of Educational Technology in Higher Education 17*(1). Statista

Statista, India. (2020). University-wise Enrolment. Retrieved from https://www.indiastat.com›data›education›university. Accessed July 20, 2021.

Zaporozhets, T. (2020). Development of Digital Infrastructures as a Factor of Overcoming the Digital Divide. *Derzhavne Upravlinnya: Udoskonalennya Ta Rozvytok, 5*. Available at https://www.dy.nayka.com.ua/?op=l&z=l681.M. https://doi.org/10.32702/2307-2156-2020.5.56 UDC: 35.07. Accessed June 19, 2021.

CHAPTER 14

University Autonomy in the Post-Covid-19 Scenario: Limitations and Possibilities

Chetna Trivedi

1 Introduction

Universities present a microcosm of the existing society and a mirror image of a rational community. Institutions of higher education particularly universities do not function independent of the state but definitely bargain for a certain level of autonomy from the state and governmental institutional control, in order to rationalise and operate efficiently towards the purpose of knowledge dissemination and production. The idea of university autonomy in the Indian context has remained contested as universities in the form of modern institutions were established essentially by the state in British colonial India. Therefore, it is not surprising that the state has always ensured a particular system of guaranteeing accountability from the universities in general.

The ecosystem of higher education in India consists of 1043 universities, 42,343 colleges and 11,779 stand-alone institutions, thus making it

C. Trivedi (✉)
Centre for Political Studies, Jawaharlal Nehru University, New Delhi, India

National Institute of Educational Planning and Administration, New Delhi, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_14

one of the largest higher education sectors in the world (All India Survey Higher Education (AISHE) 2019–2020). A compartmentalised size and parameter or policy of transforming the teaching and learning processes cannot suit them all, especially in the wake of the Covid crisis. For a large number of teachers, a prompt response to the Covid crisis has been switching to the online mode. Faculty adopted these changes largely as interim measures to meet and respond to a crisis, secure in the faith that in the academy where human interactions are deeply valued, the 'virtual' communities of the electronic wonderland will not make committed and competent teachers obsolete. The current structures of education are trying to prepare students for futures that we cannot foresee, given the rapid pace of change. It is difficult to ascertain what new skills can or should now be learnt and acquired for the jobs of tomorrow. The ability to constantly learn and re-learn will be key to traverse the maze of the future, for which institutional autonomy is a must. Addressing this lack of autonomy is an essential reform that should be undertaken. Governments in both the states and the centre must realise that it is in their best interests to empower universities to run themselves in accordance with their needs.

The milieu of higher education in India has witnessed radical transformation since its inception, in the form of massification of higher education, expansion of institutions, massive surge in the enrolment ratio and transformation at the level of curriculum and knowledge production and dissemination. The responsibility of transmitting higher education has primarily been vested with the universities in most of the countries. It can be argued that the state enjoyed near-monopoly in terms of establishing universities and forming policies related to higher education and its development in India. Public universities are often considered as extensions of the public service. The increasing role of the state in providing directional transformations and development to higher education institutions (HEIs) led to a state-controlled model of higher educations' governance (Neave & Vav Vught, 1994).

However, the state-controlled model of higher education development always had its limitations (Varghese, 2020, p. 4). The state-controlled model worked in favour of higher education's development until access to these institutions became restricted due to affirmative action or reservation of seats to those communities who were traditionally excluded from higher education. As soon as the universities and higher education institutions began to expand along with structural changes and fiscal crisis of the 1980s, the state-controlled model began to collapse. It eroded the

capacity of the state to intervene extensively in the universities (Altbach, 2010). The state could not meet the demand of expanding higher education institutions, which ultimately led to privatisation of public institutions. The private sector does not rely upon the state for the purpose of funding and policy making. It rather provides an alternative to the state-controlled model of higher education. Since the institutions liberated themselves from the absolute control of the state, they had more autonomy in terms of forming curriculum, preparing strategic plans, diversifying funding sources, preparing courses and programmes and so on.

The diversification and expansion of higher education has also led to the emergence of new structure inside the universities as well as new kinds of institutions to cater to the growing demands of skill development and skilled labour. The emergence of such institutions has also significantly impacted the relationship of the higher education institutions and the state. This new scenario is characterised by a change in the relationship of the state and universities. The role of the state has changed from that of exercising direct control to steering from a distance (Malik, 2017). This has resulted in an undue emphasis on performance-based outputs, instead of results being determined by inputs. On the other hand, the state has not completely withdrawn from the governance process of universities; on the contrary it is argued that the state is not facilitating the market's outcome-based agenda, under the pretext of the new public management system, through various interventions to be implemented in the universities.

The universities in India are ranked through the National Institute Ranking Framework (NIRF) and those with a higher ranking have special privileges to operate with greater autonomy than those with a lower ranking. There are various domains in which public and private universities have either more constraints or more unrestricted decision-making power. The unprecedented crisis of Covid has made educational institutions realise their flaws, limitations as well as potential. It has given rise to new pedagogical practices. Universities have experienced fundamental changes in their functioning. The public universities had to absolutely rely on online teaching and learning in the wake of the pandemic. It invited a number of challenges for the universities as there was a severe lack of experience to confront an unprecedented lockdown. While the majority of colleges and universities around the world tried to combine a particular form of online education into their coursework, moving all programmes to online learning proved challenging. It is also a fact that on one hand, some

of the universities possessed concrete online systems, while on the other hand, many universities struggled to digitalise study programmes. To go online, university course creators and instructors had to work closely with their technical departments and ensure their programmes could be supported online. A majority of the HEIs found this transition a challenging and daunting task.

2 Methodology for Ranking of Universities and Colleges in India

This chapter has used the data available on the NIRF website. The metrics and parameters that have been created uniformly apply to each and every university in all sectors, taking into cognisance the fact that the universities in India have been developed necessarily to cater to research and post-graduate disciplines. The parameters provided 40% weightage to research productivity, 30% to teaching and learning, 5% to graduation outcomes, 5% to outreach and inclusivity and lastly 10% to perception. Though weightages assigned for ranking of colleges were suitably modified, the process still involves complexities in terms of collection and authentication of data. Since the data has to be collected from a very large number of institutions of higher learning, the ranking metrics have facilitated the universities and colleges to self-assess themselves in terms of quality, enhance their abilities, and apply for autonomous status and hopefully find a place in world rankings. With the available data, it is but natural to conclude that institutions with higher rankings faced less disruption during the pandemic, but the emphasis of this chapter is on how institutional autonomy should be used to develop pedagogy for post-Covid education and upskill both faculty and students for the future.

3 Conceptualising University Autonomy

The idea of university autonomy is directly linked to the institutional freedom with regard to the decision-making process and its implementation in the financial, administrative as well as academic domain. The institutional structure in higher education worldwide has become complex. The right approach towards ensuring the efficiency of universities is the introduction of decentralisation in the decision-making process (Malik, 2017). Autonomy is generally defined as the level of capability and right of an

institution to decide its own plan of action and institutional policy, financial management, academic processes and so on without any external interference (OECD, 2005). The dimensions of autonomy largely include academic autonomy, financial autonomy and administrative autonomy. It is the freedom enjoyed by an institution to determine its own goals and practices to develop its own study programmes, to selects its own leaders, to employ staff and to determine employment size (Saint, 2009). It is the freedom of an institution to run its own affairs without control from any level of government (Anderson et al., 1998). It is often argued that autonomy can never be absolute. The two terms associated with autonomy; freedom and independence, must be seen in relative terms. Granting autonomy, however, is not a one-way process or simply a set of policies to achieve a successful higher education (Dahiya, 2001). Autonomy does not essentially denote the academic freedom which the universities are provided by the government, it rather signifies what freedom the government is willing to grant to the universities without any external interference, in short the extent of flexibility that can be reasonably granted to them.

The shift from medieval to modern universities is crucial to explain, in order to contextualise the emergence of university autonomy. In the medieval times the institutions of higher education were essentially in the form of guilds, which were influenced by local religious bodies and never functioned beyond the norms and ideology of the authorities. However, the shift from medieval to modern universities was essentially based on the idea of questioning the rigid forms of authority and intensifying the quest of knowledge as well as research.

This can be elucidated from the perspective of Kant who has extensively *written* around these themes. He described the ideal modern university as the one where unity was grounded 'not medieval guilds of the *universitas magistrorum scholarium* or in political ends of the state but in a constant feud among the university faculties, which critically philosophy ensured never ended. It has to be a constant rigorous questioning of the grounds of knowledge, the university should flourish the critical capacities to distinguish good from the bad, real knowledge from mere information (Wellmon, 2015). The university was to be constituted not just of bricks and mortar but of people, practices and norms'. Keeping this very principle in mind the founders of the University of Berlin in 1810 dedicated a poem to its making and describing the essence of a modern university.

Historically situating the idea of university autonomy can be traced back to Germany, with the establishment of the University of Berlin and

Gottingen (Menand et al., 2017). These are often considered as the first modern universities, wherein the three principles were must to be followed. The University of Berlin has been an important one while analysing the shift; there were three main principles upon which the foundation of the modern university was laid: (1) the unity of research and training, (2) protection of academic freedom and the freedom to teach (*lehrfreiheit*) and learn (*lernfreiheit*) and (3) the central importance of the faculty of philosophy. These three principles necessitated the domestication of the idea of university autonomy in the institutions. The British model was also influenced and inspired by the German University model up to a great extent. The Indian university system was initiated by the British colonial government and was essentially based on the London University model in the beginning. It was in 1857 that the first three universities were established in India. The Calcutta University Commission was endowed with the task of making a policy framework and highlighting issues related to the sphere of higher education and universities in Bengal. Their recommendations were of utmost importance because they were going to be implemented in Bombay, Madras, Allahabad and other newly established universities.

While outlining the structure of the university, the commission had two main aims in mind: granting more freedom and responsibility to universities as teaching bodies and trying to invigorate universities which can respond to the needs of the communities in which it is situated. The relationship of the state with the universities has also been that of a patron and a client. The state has been an active manager of the universities and established regulatory bodies, taking policy decisions in matters of university governance. The UGC (University Grants Commission) and All India Council for Technical Education (AICTE) are the two main policy making bodies for the universities. The UGC serves as a vital link between the universities, central government and state government. It has two major responsibilities: to grant funds and to determine the maintenance of standards. The AICTE was established as an advisory body but soon assumed an important role in the development of technical education in the country.

In the Indian case there is a tendency of state-led decision making. The system has yet not evolved from state control to state supervision. Within the universities there is intense centralisation in the governing practices. The universities generally have five bodies: the Senate, the Syndicate, the Academic Council, the Finance Committee and the Board of Studies. The

major decisions are taken by the Academic Council and the Finance Committee decides the budget to be spent in various programmes, and the Board of Studies decides upon the various course- and department-specific issues.

The dimensions of autonomy have transformed in distinctive ways during the Covid crisis. The university system was posed with an unforeseen situation. The major decision was taken by the central government with regard to the central universities. The University Grants Commission's purpose is to preserve higher education standards. It makes rules to keep higher education standards high. The winter semester's classes could not be completed. As a result, the UGC formed a committee and, based on the recommendations, offered a few options, including online courses, conducting online assessment and using multiple platforms to select course materials, as well as using MOOCs (massive open online courses). At least 25 advisories were issued to deal with the situation.

In the last advisory the UGC had given guidelines to the universities to switch to online mode of teaching and learning. However, it was to be implemented by the university administration. The major crises which emerged from the pandemic relate to the financial burden, manpower shortage, technical know-how and pedagogical approach.

4 University Autonomy and the Covid Crisis

The universities in India mostly function according to their territorial jurisprudence as specified in their statutes and acts. University autonomy in India has remained a disputed concept since the inception of first-generation universities. Even the central universities established after independence by an Act of Parliament have limited control out of their jurisdiction. However, the universities are in no case supposed to enjoy absolute freedom; they only have freedom until they are doing what they are expected to do. Various regulatory bodies are expected to respect the autonomous status of the universities and facilitate in regulating their standards. Conflicts arise when the two institutions (universities and the regulatory bodies) upholding legitimate authority created by law begin to transgress their power. The UGC mandated the closing of all universities, after the Covid crisis escalated. The universities were then left on their own to prepare themselves to function during the unprecedented crisis. This involved preparing themselves for the online teaching and learning procedures, familiarising themselves with the technical know-how and

adopting new pedagogic approaches and infrastructural arrangements for online processes and classes. The universities with higher ranking in the National Institute Ranking Framework, for instance Indian Institute of Science (IISC), Jawaharlal Nehru University (JNU), Benares Hindu University (BHU) and Calcutta University, to name a few, had more autonomy to decide on the course of action during the Covid crisis. The universities overall lacked infrastructure; however, the better ranked universities possessed financial resources in order to prepare themselves for the crisis as compared to the other lower-ranked universities. The financial situation was not greatly altered during the pandemic; the universities continued to operate within the same financial structure as before (Tables 14.1 and 14.2).

The financial burden on the state universities though accentuated during the Covid crisis, mostly due to the lack of infrastructural facilities. The high-ranking central universities did not witness a sweeping shift in their financial expenditure in the years 2019–20 and 2020–21, whereas the state universities witnessed a considerable rise in expenditure in the same years. The higher-ranking central universities were relatively better equipped to quickly decide upon opening of the universities as they were better prepared for handling the situation.

Further, there has been an increase in fees due to the cost-push factor. From the information received, the average fee hike is 4.71%: 3.91% in wholly government-owned and administered institutions, 5.09% in aided (privately managed with government funding staff salary) and 6.26% in non-aided (privately owned and managed with no funding by the government) institutions. Annual fees are Rs. 10,000 per person per annum in government and Rs. 20,000 per person per annum in private-aided and non-aided institutions. It is a very modest hike, but difficult for students from economically and socially backward classes (National Institute of

Table 14.1 Utilised amount for operational expenditure for the previous three years of high-ranking central university

University	*2020–21*	*2019–20*	*2018–19*	*2017–18*
IISC	54,058,443,884	5,722,830,393	6,441,986,974	5,243,703,039
JNU	5,029,524,860	6,690,916,903	5,597,620,372	5,561,436,460

Source: *National Institutional Ranking Framework*, Ministry of Education. Retrieved from https://www.nirfindia.org/2022/UniversityRanking.html

Table 14.2 Utilised amount for operational expenditure for the previous three years of lower-ranking state universities

University	*2020–21*	*2019–20*	*2018–19*	*2017–18*
Gauhati University	2,764,347,226	3,152,606,149	1,705,336,742	2,928,378,977
Sri Venkateswara University	1,277,699,130	1,398,111,860	979,354,377	987,641,093

Source: *National Institutional Ranking Framework*, Ministry of Education. Retrieved from https://www.nirfindia.org/2022/UniversityRanking.html

Table 14.3

	% increase in fee	*Enrolment (million)*	*Assumed fee (Rs.)*	*Total fee (million Rs.)*	*The total increase in fee (million Rs.)*
Government	3.92	12.54	10,000	125,400	4911.918
Aided	5.09	24.6	20,000	495,200	24375.127
Non-aided	6.27				
Grand total	4.72	37.4		620,600	2987.045

Source*: Covid-19 and Higher Education in India: A survey Report (July 2020)*. National Institute of Educational Planning and Administration. *New Delhi*

Educational Planning and Administration, 2020). All government institutions however offer freeships and fee concessions to students from this category. Accordingly, the total increase in fees is anticipated to be Rs. 29,280 million. Approximately Rs. 30,000 million is the extra burden that students will have to bear for enrolling in higher education institutions (Bhushan, 2020, p. 23) (Table 14.3).

The universities had to take decisions in order to implement the UGC guidelines efficiently and simultaneously assess and decide upon their course of action regarding evaluation assessment curriculum development and teaching methods. The academic, financial, and administrative, all three dimensions of autonomy play a crucial role in determining the course of action. Once the lockdown was lifted, it was left to the universities to assess their preparedness to open campuses. The better equipped universities were able to proceed with hybrid mode. Those with lesser autonomy and preparedness had to continue with the online mode for a longer time. The UGC notified the universities and colleges that they could reopen for offline classes and exams following strict Covid-19 protocols (UGC, 2022).

5 Pedagogical Transformation and the Role of University Autonomy

The primary goal of university teaching is to alter and improve students' comprehension of disciplinary knowledge (Barradell, 2013). Faculty encourage student thinking on the relationship between theory and professional practice in their particular discipline to meet this goal (Grewal, 2008). To encourage this reflection, faculty must necessarily engage in a process of (re)consideration of what is taught, how and why (Norton et al., 2005). Dewey has highlighted that there is a basic metaphysical distinction between knowing and doing, and this distinction characterises a rather longstanding view of education: education at its roots works with knowing it thrives on certainty, which is recorded via facts, catalogue and curriculum. However, it is ironic that, during such uncertain times, it is not the curriculum which has been thrown into confusion—the facts in the curriculum are secure enough in their isolation—it is instead the practices of higher education, those of universities, which have suddenly been disrupted. The pedagogical changes brought by the pandemic have repositioned the facts differently; they are hidden in distinctive forms of practices which alter their meaning: how are they known and in what ways they are communicated to the learners depend largely on the pedagogy used.

While the abovementioned argument highlights the importance of pedagogy in university teaching, it is interesting to investigate the role of university autonomy in bringing pedagogical changes in university teaching. During the Covid situation it was mostly contingent upon teachers to adopt different pedagogical approaches for teaching and learning purposes. Face-to-face teaching-learning was constructed as a specific threat from which the communities needed to be protected, and emergency eLearning was the security measure invoked to protect the universities as well as communities. The securitising moves not only invoke the authority of public health officials who warned about the dangers of community transmission, but also reify the right of the university officials to enact exceptional measures. However, the consensus among infectious disease specialists, epidemiologists and public health officials would seem to indicate that the decision of universities to limit face-to-face classes as a means of reducing close-proximity interactions was justifiable.

Because of the extent of the community transmission threat posed by campus encounters, it is difficult to foresee what the educational landscape will look like a decade into the post-Covid scenario (e.g. Weeden &

Cornwell, 2020). Many educationists are discussing the need to extend emergency eLearning to avoid a probable third and fourth wave of Covid-19 worldwide (Kalaichelvi, & Sankar, 2021). However, by attempting to mainstream emergency eLearning measures, as getting back to post-pandemic pedagogy appears impossible, the education sector is robbing itself of the opportunity for open discussion about how the sector may be emancipatory for all students. eLearning does not imply that all forms of online learning are bad. Indeed, one may argue that eLearning provides a new kind of independence. The radical portability of eLearning may enhance access to education in rural regions, bridging the digital divide. Individuals and working professionals, who are unable to attend a typical full-time face-to-face education owing to personal or economic reasons, may be able to benefit from the flexibility of asynchronous eLearning. Even within the traditional higher education institutions, hybrid or blended forms of instruction can aid face-to-face teaching by relocating content delivery online and emphasising in-person sessions on active learning (e.g. Bowen, 2012). The pandemic has pushed universities to universally adopt many existing technologies in higher education. Universities had to rethink their epistemological underpinnings to engage with traditional academic practices and embrace digital pedagogy to ensure effective teaching and learning. They had to adopt dramatic changes in order to ensure their survival.

In India, universities were given guidelines by the UGC to follow Covid protocols and switch to the digital mode during the first lockdown. Universities with better infrastructure were able to transform themselves with more ease. They were able to take quick decision in terms of the processes through which the transformations were to be made: with regard to finances, infrastructures, courses, evaluation, assessment and so on. A similar scenario played out after the second and third lockdown. In February 2022, the University Grants Commission urged the HEIs to reopen and begin teaching as well as assessment in the offline mode.

6 The Pedagogical Shifts

eLearning cannot be perceived as an auxiliary to face-to-face education (Murphy, 2020). The post-Covid scenario has given impetus to blended learning (hereafter referred as BL). BL is a methodology that was introduced over a decade ago that is used in the field of education (Peters et al., 2020). This methodology incorporates online learning with

face-to-face learning or traditional classroom-based learning. It necessitates the actual presence of both the student and the teacher. It also requires technical support along with the necessary study material for online interaction. Moreover, student control over pace, time and path is also needed (Friesen, 2012). Though the students should attend physical classes in the presence of a teacher, to motivate them to analyse the given content, traditional classroom practices must be facilitated with computer-mediated activities in content and delivery (Strauss, 2012). This will enrich the teaching-learning experience. BL is also used in professional development and training settings across the globe (Lothridge et al., 2013). It is highly context dependent and therefore a universal conception of it is hard to come by (Dziuban & Moskal, 2011). In the current scenario blended learning in the hybrid mode is the most commonly adopted pedagogical approach worldwide (Sim et al., 2021). Similarly in Indian universities, faculty have adopted these practices in order to reach out to students and ensure effective teaching. However, two elements are of utmost importance for blended learning: financial support and essential curriculum alignment (Darling-Hammond et al., 2020). Provisions are usually made for innovative teaching practices and aid in the annual budgets of all HEIs. The pace of innovation and accomplishment of blended learning is fast in higher educational institutions' teaching and learning processes (Hofmann, 2011).

The higher education sector has traditionally supported pedagogical improvement due to their technological background and the need to engage bright young learners by breaking away from traditional teaching styles. Also, it is essential to have curriculum alignment in blended learning as no part of the syllabi can be overlooked. Meticulous planning must be made to ensure that the curriculum is evenly distributed between the two kinds of learning formats (Madani, 2019).

7 Role of Teacher's Autonomy in Pedagogical Transformation

University teachers and faculty in HEIs need to have specific skills and practices that are applicable to a particular context. This is point of fusion of autonomy and academic freedom. Having said this, academic freedom and autonomy may at times be used as synonyms. However, there is a major distinction between both especially in the context of public

institutions under the ambit of the nation-state. The idea of academic freedom necessitates absolute freedom in the decision-making process relating to teaching and learning, whereas autonomy is relative. The idea of autonomy therefore is relative vis-à-vis the state or the authorities. The autonomy of teachers in deciding the pedagogical transformations in the post-Covid scenario can be analysed through two dimensions, that is, autonomy in the sense of freedom to teach and freedom in content development.

Autonomy is considered to be a crucial matter for education, according to Hoyle and John (1995). It is important to consider the nature of teacher autonomy specifically since they are crucial actors in the discussion of pedagogy. This is challenging given that teacher autonomy is a constantly evolving concept (Pearson & Moomaw, 2005), particularly given the current relentless pace of reform in education (Day, 1997; Grenville-Cleave & Boniwell, 2012). However, there is some consensus that teachers need to have autonomy (Pearson & Moomaw, 2005, Wilson, 1993), with Grenville-Cleave and Boniwell (2012) raising its status to that of a psychological need. To some extent, autonomy is an essential element in teachers' work as, by its very nature, judgement calls are made in uncertain situations (Hoyle & Wallace, 2009) and specific contexts must be accounted for within such decision making (Biesta, 2009). In terms of working towards a definition, Hoyle and John's (1995) succinct statement seems a strong starting point: 'a positive form of autonomy represents a teacher's freedom to construct a personal pedagogy which entails a balance between personality, training, experience and the requirements of the specific educational context' (Hoyle & John, 1995, p. 92).

The discourse on teachers' autonomy has always been contested as it is often argued that teachers lack absolute freedom in terms of what and how to teach. The teachers are mostly functioning under the supervision of authorities and teaching a prescribed curriculum which does not provide much scope to experiment with their teaching techniques and content development especially in the case of Indian higher education institutions and their faculty. Teachers' autonomy can be looked at from four perspectives. As teacher autonomy is the subject of much writing, naturally there are a range of conceptualisations; a brief overview of the most prominent will be given. Probably the most commonly used model is MacBeath's (2012) work autonomy whereby workers maintain control over activities and theoretical knowledge.

In contrast, Pitt's (2010) professional autonomy is less about a release from governing authorities, but conceptualised more 'as grounded within a complex relation to the influence and authority of individuals, ideas, and ideals we reject or claim as our own' (Pitt, 2010, p. 1). Engaged autonomy (Gabriel et al., 2011) builds on the premise discussed previously that autonomy does not equate to isolation, as within this model teachers are encouraged to be innovative and develop independently while a sense of collaboration is maintained and shared expertise is valued. Continuing along the spectrum of increasing control leads to regulated autonomy (Dale, 1982); this term is usually describing a situation where teachers' autonomy exists in a vacuum of limited scope, perhaps even to the oblivion of teachers. Parallels can be drawn to Berry's (2016) occupational autonomy whereby the journey can be of one's own determination, but the destination is set in stone (Parker, 2015).

It may be argued that the universities with better infrastructure and preparedness were able to realise the transformations into digital pedagogies (eLearning, blended learning, etc.) and utilise them as an entry into new spaces and cultures of understanding. These digital platforms made it possible for individuals to access information through a variety of sources. The digital platforms in many ways revolutionised the teaching-learning practices in higher education (Saboowala & Mishra, 2021). The digital mode of communication has ample benefits for scholarship and pedagogy, given that these pedagogical spaces are dialogical and offer new forms of enculturation (Lo, 2011). However, they must be accompanied by enthusiastic and imaginative presentation on the part of teachers and preparedness by universities to take bold decisions regarding pedagogical changes which may be 'out of the box'.

8 Suggestions for the Future

1. ***Contextual analysis of universities*:** There is the emerging need on the part of regulatory authorities to undertake various specific situational analyses of the universities, in order to gauge their preparedness for implementing strategic approaches in a crisis situation. The universities must also be given more choices and autonomy in order to negotiate the extent to which they can adopt to the changes suggested by regulatory authorities.

2. ***Adapting pedagogical transformations*:** It is essential to equip the universities to adapt to pedagogical transformations with the changing times. University faculty members should be provided with the required training and more academic freedom to develop strategies and use various methods in order to adapt to the new teaching-learning processes. The faculty members should not be restricted to the adherence of prescribed norms or held under surveillance during the content development as well as delivery. Teachers should have the choice of preparing the materials in the form of PDF, docs and video lectures and also acquaint themselves with tools to assess the students' learning outcomes.
3. ***Resuming offline teaching-learning***: Offline teaching with online as supplementary may become part of the new normal, depending on the preparedness of the faculty and the institution concerned. The offline teaching pedagogy must incorporate digital methodologies routinely so as to make 'phygital' (physical + digital) learning an essential component of post-Covid pedagogy. Campus life and interaction with teachers are crucial components of learning. An awareness campaign may be launched to build confidence among the parents and students before the commencement of physical classes as well as to sensitise them about the need to incorporate digital learning into the curriculum. Online teaching is commodifying higher education, in which the teacher is treated as a producer and the student as a consumer. Therefore, human interaction forms an essential base for knowledge transmission.
4. ***Blended learning through online teaching*:** Online teaching should begin with innovations, as offline, particularly face to face, teaching poses a greater probability of mass spreading of the virus. In online teaching, teachers must remain in continuous contact with the students. The students may have a choice to clarify their doubts and interact with teachers offline or online. Students must be given the full support in order to ensure that teachers and students are accessible to each other.
5. ***Active role of regulatory authorities***: The UGC can deliberate with due participation of the university leaders and plan to resume offline teaching with proper preparations. It can collaborate with various university faculties and prepare teachers for online teaching and learning. The authorities should urge universities to support students from vulnerable groups.

9 Conclusion

The effect of the pandemic percolated down across all sectors and the education sector could not be immune to it. It is being strongly speculated that its impact will last for quite a long time. The pandemic has been a testimony to the changing times and has necessitated the cardinal need for the education sector to adopt what may seem like revolutionary changes. Against such backdrop, one of the strong approaches advocated globally by eminent research scholars and educators has been blended learning. Experiences learnt from implementing education in times of crisis like the Covid-19 pandemic are valuable for designing new flexible educational programmes.

The transition to distance learning became a rapid 'crash course' for many stakeholders. The introduction of alternative teaching methods and digital solutions has accelerated, and it has encouraged teachers to develop digital competencies (Ossiannilsson, 2021). However, the shift towards digital mode of teaching and learning did not operationalise in a smooth manner in the universities. It took place with all sorts of obscurities in terms of staff, delivery, expertise, infrastructure, student engagement and so on. It is indeed surprising that even for the best of universities switching to the digital mode was not a cakewalk; they were slow to offer the online classes and witnessed the most obvious hurdles and difficulties. A major problem was that teachers themselves were not initially well equipped. However, with the passage of time, the teaching and learning process became smooth. The teachers did struggle with multifaceted issues in developing content and switching to digital pedagogy. At the present juncture, the system is adjusting to physical classrooms after a hiatus of two years while preparing to be competent to deal with future crises.

A major complexity which arises out of digital pedagogy relates to the very fundamental existence of the university space—the simple reason being that digital pedagogy does not encourage the kind of sociality that forms the core of education. A core function of university education has been to provide a social and cultural formation which has its basis in the social interaction of individuals. This leads to the grim reality of the absence of sociality is when the faculty is meets students and students meet each only in the digital spaces. Another fundamental issue was the inability of teachers to assess difficulties faced by different groups of students in classroom participation. These issues along with the issues of inequality

and access are the explicit areas that must be confronted by the academic community in the post-Covid digital learning scenario.

The Covid-19 crisis can be analysed through three phases. *Phase one* was the lockdown crisis when HEIs shut down along with all educational institutions. In this phase HEIs' response was to shift to online teaching and learning and provide resources to universities to implement and expand online teaching and learning. In the *second phase* the key issue was adapting to the new normal while opening up HEIs to the post-pandemic scenario. Finally, in the *third phase*, educators and leaders are attempting to consolidate the achievements of the first two phases to integrate online education (which differs from emergency remote teaching) into the core values and organisational culture of universities. There will be a need to co-create values, cultures and rules within new learning spaces to ensure fair, accessible, inclusive and equitable quality learning solutions that will make it possible to develop a cohesive culture of learning even in the most unprecedented time (Ossiannilsson, 2021). At each phase, the autonomy of universities plays a decisive role since the extent to which these practices will be imparted in the universities' teaching-learning practices will essentially fall under the domain of institutional autonomy.

The extent of university autonomy in the decision-making process has also been revealed during the crisis situation. The universities have to equip themselves better in order to respond to such emergency situations. Associated with this is the need to also revaluate the role of government authorities and regulatory bodies in relation to the decision-making process in the universities. Not all the universities can have a similar policy in such a situation. The financial burden on the lower-ranked universities was heavy: they lacked the infrastructure to implement many of the processes of teaching and learning due to infrastructural crisis. Dealing with the existing crisis demands rapid response and freedom to act upon those responses. The autonomy of the universities has to be strengthened in order to equip them for such unprecedented situations. The administrative, financial, operational and academic freedom all together encompass the idea of institutional autonomy. University autonomy is mostly used as an umbrella term to denote the extent of freedom different university bodies possess in the decision-making processes. The university bodies have to respond in a quick and efficient manner to deal with situations such as Covid. The teaching and learning processes should not come to a closure due to the incapability of the universities to take operational and functional decisions. The universities have to function efficiently as they

are accountable for their outputs; therefore, those with lesser autonomy were handicapped in different ways, which ultimately hindered their output. Autonomy essentially constitutes the core of universities' functioning. It not only relates to the administrative processes but also to the pedagogical developments in the teaching-learning processes.

Indian higher education institutions need to prepare themselves to meet future disruptions in an appropriate manner. They too need to be better prepared to respond by recognising the varied contexts. The leadership challenge lies in coming up with innovative solutions—prepare for online, offline and hybrid teaching, remove the fear among parents and other stakeholders, make study materials available both online and offline as per revised curricula and seek financial stimulus package—to minimise the threat of closure.

In the Indian context, it may be underlined that the universities have expanded with the massification of higher education in the last 20 years and cater to a major responsibility of knowledge production and dissemination. The relationship between the universities and the state (regulatory bodies) must be dialogical, in order to enhance the decision-making process. The universities must feel more independent in their academic, administrative and financial domains to respond to any crisis.

Declaration

Declaration of Competing Interest I declare that there is no conflict of interest regarding the publication of this chapter.

Funding No funds, grants or other support was received for the submission of this work.

References

All India Survey of Higher Education Report, 2020, Department of Higher Education, Ministry of Education, Government of India. aishe_eng.pdf (education.gov.in).

Altbach, P. G. (2010). University Ranking Season Is Here. *Economic and Political Weekly*, 14–17.

Anderson, D., Johnson, R., & Training, E. (1998). *University Autonomy in Twenty Countries*. Department of Employment, Education, Training and Youth Affairs.

Barradell, T. (2013). The Secrets of Facilitation: The SMART Guide to Getting Results with Groups. *Industrial and Commercial Training, 45*(5), 304–305. https://doi.org/10.1108/ICT-04-2013-0029, Emerald Group Publishing Limited.

Berry, J. W. (2016). Burnout, Autonomy, and Job Satisfaction in Full-Time Public Community College Faculty Members: A Regional Survey and Analysis.

Biesta, G. (2009). Values and Ideals in Teachers' Professional Judgement. In *Changing Teacher Professionalism* (pp. 204–213). Routledge.

Bowen, W. G. (2012). *The 'Cost Disease' in Higher Education: Is Technology the Answer?* The Tanner Lectures Stanford University.

Bhushan, S. (2020). *COVID 19 and Higher Education in India: A Survey Report.* National Institute of Educational Planning and Administration.

Dale, R. (1982). Education and the Capitalist State: Contributions and Contradictions. In M. Apple (Ed.), *Cultural and Economic Reproduction in Education*. Routledge and Kegan Paul.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for Educational Practice of the Science of Learning and Development. *Applied Developmental Science, 24*(2), 97–140.

Dahiya, B. S. (2001). *The University Autonomy in India: The Idea and the Reality.* Indian Institute of Advanced Study.

Day, M. D. (1997). *Preparing Teachers of Art*. VA: National Art Education Association.

Dziuban, C., & Moskal, P. (2011). A Course Is a Course Is a Course: Factor Invariance in Student Evaluation of Online, Blended and Face-to-Face Learning Environments. *The Internet and Higher Education, 14*(4), 236–241.

Friesen, N. (2012). *Report: Defining Blended Learning.* Retrieved July 2, 2020, from https://www.normfriesen.info/papers/Defining_Blended_Learning_NF.pdf

Gabriel, R., Peiria Day, J., & Allington, R. (2011). Exemplary Teacher Voices on Their Own Development. *Kappan, 92*(8), 37–41.

Grenville-Cleave & Boniwell (2012). Surviving or Thriving? Do Teachers have Lower Perceived Control and Well-being than Other Professions? Semantic Scholar. https://doi.org/ 10.1177/0892020611429252. Corpus ID: 143219690.

Governance of Higher Education in India: India Higher Education Report, Garima Malik, N.V. Varghese, https://doi.org/10.4135/9789353885748, Sage Books, 2020.

Grewal, R., Dearden, J. A., & Llilien, G. L. (2008). The University Rankings Game: Modeling the Competition Among Universities for Ranking. *The American Statistician, 62*(3), 232–237.

Hofmann, J. (2011). Top 10 Challenges of Blended Learning. Soapbox.

Hoyle, E., & John, P. D. (1995). *Professional Knowledge and Professional Practice*. Cassell.

Hoyle, E., & Wallace, M. (2009). Leadership for Professional Practice. In S. Gerwirtz, P. Mahony, I. Hextall, & A. Crib (Eds.), *Changing Teacher Professionalism; International Trends, Challenges and Ways Forward* (pp. 204–214). Routledge., Chapter 17.

Kalaichelvi, R., & Sankar, J. P. (2021). Pedagogy in Post-COVID-19: Effectiveness of Blended Learning in Higher Education. *Asian EFL Journal, 28*(3.1), 86–109.

Lothridge, K. et al. (2013). Blended Learning: Efficient, Timely and Cost Effective. *Australian Journal of Forensic Sciences, 45*(4), Taylor & Francis Online. https://doi.org/10.1080/00450618.2013.767375

Lo, W. Y. W. (2011). Soft Power, University Rankings and Knowledge Production: Distinctions between Hegemony and Self-Determination in Higher Education. *Comparative Education, 47*(2), 209–222.

MacBeath, J. (2012). *Future of Teaching Profession*. Education International Research Institute.

Madani, R. A. (2019). Analysis of Educational Quality, a Goal of Education for All Policy. *Higher Education Studies, 9*(1), 100–109.

Malik, G. (2017). Final NUEPA CPRHE REPORT(18), 7.2.1 Governance and Management of Higher Education in India. http://www.cprhe.nuepa.org

Menand, L., Reitter, P., & Wellmon, C. (Eds.). (2017). *The Rise of the Research University: A Sourcebook*. University of Chicago Press.

Murphy, M. P. (2020). COVID-19 and Emergency eLearning: Consequences of the Securitization of Higher Education for Post-Pandemic Pedagogy. *Contemporary Security Policy*, *41*(3), 492-505. Ministry of Education. *National Institutional Ranking Framework. (NIRF)*. Retrieved July 16, 2022, from https://www.nirfindia.org/2022/UniversityRanking.html

Neave, G., & Van Vught, F. A. (1994). Government and Higher Education Relationships across Three Continents: The Winds of Change. Issues in Higher Education Series, Volume 2. Pergamon Press, Elsevier Science Ltd., The Boulevard, Langford Ln., Kidlington, Oxford OX5 1GB, England, United Kingdom.

Norton, L., Richardson, T. E., Hartley, J., Newstead, S., & Mayes, J. (2005). Teachers' beliefs and Intentions concerning Teaching in Higher Education. *Higher Education, 50*, 537–571.

OECD. (2005). *Annual Report*. https://www.oecd.org/about/34711139.pdf.

Ossiannilsson, E. (2021). Some Challenges for Universities, in a Post Crisis, as Covid-19. In *Radical Solutions for Education in a Crisis Context* (pp. 99–112). Springer.

Parker, G. (2015). Teachers' Autonomy. *Research in Education, 93*(1), 19–33.

Pearson, L. C., & Moomaw, W. (2005). The Relationship between Teacher Autonomy and Stress, Work Satisfaction, Empowerment, and Professionalism. *Educational Research Quarterly, 29*(1), 38–54.

Peters, M. A., Rizvi, F., McCulloch, G., Gibbs, P., Gorur, R., Hong, M., et al. (2020). *Reimagining the New Pedagogical Possibilities for Universities Post-Covid-19: An EPAT Collective Project* (pp. 1–44). Educational Philosophy and Theory.

Pitt, A. (2010). On Having One's Chance: Autonomy as Education's Limit. *Educational Theory, 60*(1), 1–18.

Saboowala, R., & Manghirmalani Mishra, P. (2021). Readiness of In-Service Teachers Toward a Blended Learning Approach as a Learning Pedagogy in the Post-COVID-19 Era. *Journal of Educational Technology Systems, 50*(1), 9–23.

Sim, S. P. L., Sim, H. P. K., & Quah, C. S. (2021). Online Learning: A Post COVID-19 Alternative Pedagogy for University Students. *Asian Journal of University Education, 16*(4), 137–151.

Strauss, V. (2012, September 22). *Three Fears About Blended Learning.* The Washington Post.

University Grants Commission, New Delhi, 11th February, UGC Guidelines for Reopening of Universities and College Post Lockdown Due to COVID 19 Pandemic 2022. https://www.ugc.ac.in/pdfnews/1360511_UGC-Guidelines-for-Re-opening-of-Universities-and-Colleges.pdf

Varghese, N. V. (2020). Internationalisation and cross-border mobility in Indian higher education. *International Journal of African Higher Education, 7*(2).

Weeden, K. A., & Cornwell, B. (2020). The Small-World Network of College Classes: Implications for Epidemic Spread on a University Campus. *Sociological Science, 7*, 222–241.

Wellmon, C. (2015). *Organizing Enlightenment: Information Overload and the Invention of the Modern Research University.* JHU Press.

Wilson, M. (1993). The Search for Teacher Leaders. *Educational Leadership, 50*(6), 24–27.

CHAPTER 15

Summary and Conclusion

K. V. S. Sarma and Santishree Dhulipudi Pandit

The post-pandemic understanding has changed how higher education institutions plan for, manage and fund education. Online education is being recognised as core to every institution's plan for institutional resilience and academic continuity. Online learning is being integrated into existing academic leadership structures and processes.

Reforms in education will need to be initiated for renovating higher education in the post-COVID-19 period. The term 'post-COVID-19' does not refer merely to the period after the outbreak of COVID-19, but up to the moment at which the after-effects of the pandemic persist. The pandemic in divergent forms may persist, with the indication that the social, economic and behavioural changes induced by the pandemic will continue for a considerable period of time in future. So, the COVID-19 period and after does not refer to a break but a continuum of particular sociocultural, economic and behavioural practices. Meanwhile the

K. V. S. Sarma (✉)
Maharashtra National Law University, Aurangabad, India
e-mail: vc@mnlu.ac.in

S. D. Pandit (✉)
Jawaharlal Nehru University, New Delhi, India

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_15

organisational structure and the business of teaching and learning in universities have been undergoing considerable transformation, and so, no institution can get away from planning for restructuring the academic and administrative design.

Many of the findings and conclusions in this volume from student well-being, teacher preparedness, new digital pedagogy, problems of infrastructure, the digital divide to the need for more autonomy for HIEs are evidence-based new knowledge derived to help HEIs progress and adapt to change. This volume has incorporated all valid viewpoints which include experiences from various regions in India from different disciplines as well as divergent views on online pedagogy. These research papers contribute to a deeper understanding of the ongoing, new, resurfacing and freshly emerging concerns and problems that HEIs encountered both during the epidemic and in the post-COVID era.

Prof. Amruth Kumar's 'Lived Experiences of College Students During Remote Learning in the Time of Covid: Implications for the Future Education' shed light on the questioning of higher education institutions as centres of knowledge dissemination during remote learning in the COVID outbreak. He has rightly pointed out that the anomie and isolation faced by students during the lockdown had in fact further reinforced its role as a social institution. His study has exposed how digital learning caused a social deficit and he argues cogently on the restoration of education as a social process.

In their chapter on 'Certainty and Resilience of Online Education Through SERVQUAL: A Study in Odisha' Anamika Singh, Manas Kumar Pal and Shiba Prasad Parhi have quantitatively assessed online education service quality using SERVQUAL instrument and service triangle in the higher education context to determine service quality gaps. Their findings have demonstrated that the quality of education through offline mode is significantly higher than the online mode in all respects of service quality dimensions such as reliability, assurance, empathy, tangibility, aesthetics and responsiveness.

Raosaheb Bawaskar's chapter on 'COVID-19 and the Development of Online Pedagogical Tools in Higher Education in India: An Assessment' has underscored the manner in which online learning has led to the development of appropriate software tools for teaching, learning and assessment. His chapter has brought out the effectiveness of multiple online pedagogical tools that have emerged in higher education in India, during the pandemic. The findings in this chapter clearly point to the adoption of

digital tools as an intrinsic part of the educational pedagogy in the future that will be universally accessed across all institutions.

The chapter on 'Curriculum Transaction and Clinical Teaching of Audiology and Speech Language Pathology Course During the Pandemic in India: Zooming in from an Academic Perspective' authored by Kamalika Chowdhury, Suman Kumar and Usha Dalvi provided an overview of the situation experienced by students of audiology, speech and language pathology (B.ASLP) during the COVID-19 pandemic. The authors have proven that physical training and hands-on 'patient handling' alone could equip students with the required clinical skills. The study's evidence-based conclusion that practicum learning and service delivery to patients were negatively impacted and participants reported dissatisfaction during the COVID period can be applied to all practical-based disciplines.

Dr. Tanvee Karande, Dr. Zunjarrao Badade, Dr. Sameer Kadam, Dr. Dattatray Bhusare, Dr. Aditya Nayak, Dr. Kshitij Badade and Dr. Prasad Karande in their chapter 'Psychological Effects of the COVID-19 Pandemic on the Medical Students in Maharashtra' have outlined the stress, anxiety, confusion and sleep deprivation of medical students and loss of clinical practice. Their recommendations on the setting up of a substantial platform with recorded clinical cases and explanations, as well as demonstrations of various tests on patients with various diagnoses, to provide a strong foundation for students in the event of future crises are expedient suggestions that may well be considered for implementation by policy makers in the field of medical education.

The chapter on 'Wellbeing of Resident Doctors During the Covid-19 Pandemic: Its Impact on Medical Education and Its Future' by Dr. Dhruv Parmar, Dr. Ruksheda Syeda and Dr. Heena Merchant was a comprehensive analysis of the existing structural and systemic challenges applicable to medical students and teaching/training programmes and the impact of COVID-19 on medical students and their education. Their chapter has predicted the need for a quantum jump in manpower requirements in the health sector in India and the need for the re-designing of medical education for the future.

Dr. Antra Singh and Prof. Seema Singh in their chapter on 'Covid-19 and Future of Technical Education in India: A Focus on Employability Skills of Engineering Graduates' have come out with well-researched solutions to the employability skills of engineering students, the primary focus being on the preparation of engineering graduates to transition smoothly and sustain in an increasingly complex post-pandemic labour market.

The chapter on 'Proximate to Remote Learning: The Impact of COVID-19 on Law Students of Indian Higher Education Institutions in India—An Empirical Study' by Richa Yadav and Dr. Dipti Pandey has been developed to examine the challenges in legal education during the pandemic and the techniques used to overcome them. Law colleges had to train students in the new art of remote legal services and to anticipate how this would change the practice of law and what it means to be 'practice ready'.

In her chapter on 'The Disparate Impact of Covid 19 on Women English Learners with Regard to Students in a College in Kerala State' Dr. Nila N. analysed the challenges encountered by both educators and women English language learners and came to her evidence-based conclusion that prolonged remote learning adversely impacted not only learners of English language, but all languages.

The chapter on 'Impacts of Covid-19 on Institutions of Higher Education in Jammu and Kashmir' authored by Dr. Zaffar Ahmad Nadaf and Dr. Javid Ahmad Ahanger has highlighted how the inadequate number of higher education institutions in J&K, the quality of teaching and learning, the absence of adoption of scientific-technological methodologies and prolonged conflict have impacted the state of education which almost collapsed under the COVID lockdown. They meticulously trace the manner in which digital pedagogy was adopted and continuity maintained in education and strongly urge the authorities to invest in educational technology in the state to mainstream and overhaul the education system so that it is well prepared to face any future crises.

The chapter on 'Higher Education During Covid 19 Pandemic: A Case Study Based on a Rural College Campus in South 24 Parganas, West Bengal, India' authored by Dr. Tinni Goswami and Shrimanti Ghosal has through their rigorous research of the lived experiences of rural students laid bare the technical, infrastructural and financial challenges faced by students in rural W. Bengal which can be surmised as the challenges faced by rural colleges across India. The narrative of how they faced these challenges with faculty going beyond the call of duty is not only commendable but also provides a strategy for educationists to deal with future crises.

In the chapter titled 'COVID-19 and the Digital Divide in India' Saraswathi Unni has analysed the manner in which the COVID-19 outbreak had exposed and expanded the digital divide in India. She has

focused on the major initiatives needed to help reduce the digital divide in India including increasing digital literacy, expanding broadband connectivity to rural villages and increasing funding for existing programmes, such as the Digital India Project.

The final chapter by Chetna Trivedi on 'University Autonomy in the Post Covid-19 Scenario: Limitations and Possibilities' discussed the distinctive ways in which a transformation has been underway in the governing mechanism of the universities specifically in the context of institutional autonomy. The global pandemic of COVID-19 has drastically transformed the sphere of education specifically in the developing world. This, according to the author, has precipitated the rethinking of the models and approaches of governance hitherto adopted by the state in the context of higher education.

1 Concluding Remarks

One of the prerequisites of the educational reforms today is the establishment of high-speed internet in every nook and corner of the country and easy access to the electronic devices for all sections of the society. 'Internet for all' in the present context is going to be the first step towards the larger aim, 'Education for All'.

One of the lessons that COVID-19 taught us is the interconnectedness of all phenomena. It is pertinent to note that COVID-19 did not remain a health-related issue. It affected our economy, social life, movements, business, cultural life and even our everyday life. These lessons must be incorporated into the curriculum to provide insights into the interrelatedness of nature.

The awareness gained from the experiences of COVID-19 pandemic must be the launching pad to take the journey forward. The success of a few is not a sign of development or progress, be it in the classroom or in society. Competition for the survival of the fittest is not the strategy required of a country like India, but cooperative and concerted efforts towards academic excellence. If cooperation and collaboration is developed among educational institutions, all of them are likely to grow and flourish. Incessant interaction between universities, university departments, research institutes and colleges and sharing of resources including human resources, library resources and facilities in the laboratory can help

in developing a new model of educational practice as against the theory of 'compete or perish' for the protection, promotion and upgradation of our educational institutions. It is vital to promote academic cooperation among educational institutions in order to make the institutions exemplary and to provide high-quality education for all.

We are very sure that this compilation of well-researched papers on the pedagogical experiences in various parts of India in different disciplines will be a worthy addition to the existing literature on pedagogy in COVID times.

Correction to: Higher Education During Covid-19 Pandemic: A Case Study Based on a Rural College Campus in South 24 Parganas, West Bengal, India

Tinni Goswami and Shrimanti Ghosal

Correction to:

Chapter 12 in: S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice, https://doi.org/10.1007/978-3-031-20425-8_12

The affiliation of the author T. Goswami was published wrong and has been updated as below in the proofs.

T. Goswami, St. Xavier's College (Autonomous), Raghabpur Campus, Kolkata, Kolkata, India.

The updated original version for this chapter can be found at https://doi.org/10.1007/978-3-031-20425-8_12

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8_16

Index

S. Unni et al. (eds.), *COVID-19 and the Future of Higher Education In India*, South Asian Education Policy, Research, and Practice,
https://doi.org/10.1007/978-3-031-20425-8