

How to cite in APA:

Baral, R. P., & Rana, K. (2022). University teachers and students' preparedness and management of online learning in COVID-19 pandemic. In E. J. Valeau, R. L. Raby, & U. Gaulee (eds), *Shaping a humane world through global higher education: Pre-challenges and post-opportunities during a pandemic* (pp. 91-104). STAR Scholars.

7. University Teachers and Students' Preparedness and Management of Online Learning in COVID-19 Pandemic

Rohit Prasad Baral and Karna Rana

Abstract

This chapter examines university and students' preparedness for and management of online learning during the COVID-19 pandemic in Nepal. We report on the processes of technical preparation, managing challenges, and creating an e-learning atmosphere at the university. We utilized semi-structured interviews and observations to gather qualitative data. We report on how university teachers and students, particularly in urban areas, struggled with limited information and communication technology (ICT) infrastructure, weak administrative support, lack of training, and poor internet connectivity to manage their online learning. An alternative learning mode, online learning enabled students to explore their self-learning strategies and work on their knowledge from home in their flexible time. Many rural students could not access online education due to a lack of digital devices and the Internet. Developing basic ICT infrastructure, adequate budget allocation, and extensive training for teachers would support creating an effective online teaching and learning atmosphere in higher education institutions.

Keywords

COVID-19; online learning; ICT infrastructure; higher education; training

Introduction

The outbreak of COVID-19 forced educational institutions to suspend their academic educational activities. While billions of children were forced to stay home in the pandemic, the lockdowns in Nepal affected about nine million (8,796,624) students' education (UNESCO, 2021). Most schools and universities suspended their educational activities in early 2020 in Nepal. Although some urban private colleges gradually adopted online learning, most particularly government colleges and universities, waited for the normal situation to resume their physical classroom and could not adopt online learning until the mid-2020. Various ICT tools such as Zoom, Google Classroom, and Teams helped teachers and students to communicate with each other. In the pandemic, these technologies have been widely used to manage online learning in higher education institutions. Some

university departments have provided initial ICT training to their lecturers to manage online learning in crisis (Paudyal & Rana, 2021). Without prior knowledge and experience of online teaching, initial one-shot training to use ICT in instructional activities encouraged them to create online learning and support remote learners. Online workshops, webinars, and a community of practice enabled lecturers and students to use videoconferencing tools at some level.

The online learning model is new to many higher education institutions in Nepal. However, Western universities practiced it in the first decade of the new millennium for various purposes. For example, Australian universities practice online learning to meet the need of lecturers (Dunn et al., 2006) to support students' learning in remote areas (Downing & Dymont, 2013). Online learning encourages distant learners to take responsibility for learning and seek learning communities for collaborative learning (Garrison, 2009). However, lack of access to digital technologies determines the level of e-based education (Rana et al., 2018). Lack of ICT infrastructure, students' limited or no access to digital devices and the Internet, and a lack of government funding for ICT in education (Rana, 2018) are significant barriers to implementing online learning in Nepal.

Schools and universities in China prepared and managed to switch to online learning in early 2020 (Bao, 2020), and this model was followed by many universities globally (Murphy, 2020). In the second quarter of 2020, some university departments in Nepal also initiated online learning by providing basic ICT training for lecturers. The first author's campus also briefly trained lecturers, including him, to use digital technologies and manage online learning. He, a student at an online-based university, quickly learned to manage online learning. However, he observed his colleagues struggling to use ICT tools to create online classes, deliver lessons and support remote learners' knowledge. This provoked some questions: How are lecturers and students preparing for online learning? In what ways do they manage their online education? How did they learn to use ICT tools for online learning? These questions guided us in planning research in mid-2020, identifying participants, collecting data in the third quarter of the year, and developing this paper in late 2020. However, we updated this draft later in mid-2021 to incorporate the progressive development of online learning.

Teachers' Readiness for E-learning

Teachers' capability to use ICT tools in instructional activities is essential to managing e-learning (Usluel et al., 2008). Especially their technological, pedagogical, and content knowledge (TPACK) (Koehler et al., 2007) manage plays a substantial role in managing technology-based teaching and learning. However, administrative support determines their technological and pedagogical knowledge (Rana et al., 2021). Cubeles & Riu (2018) argue that university teachers need to develop minimum

understanding to use ICT tools in instructional activities to survive in the academic profession in the 21st century. Moreover, Giri & Rana (2022) focus on teachers' capacity to recognize what the use of ICT in learning offers and their innovative ICT practices for students' productive learning. They suggest teachers have advanced knowledge of managing online learning, such as time management, learning materials, digital devices, and the Internet. In addition, Clayton and colleagues (2010) emphasize that teachers' attitude toward ICT and motivation for innovative use in instructional activities plays an essential vital role in managing e-based learning.

An institutional atmosphere impacts teachers' use of ICT in teaching and learning (Castro & Tumibay, 2021). Moreover, the level of ICT infrastructure and administrative support for teachers' use of ICT determines how effectively they can use available ICT facilities in instructional activities (Rana et al., 2020). In addition, teachers' level of ICT practice in educational activities depends on students' access to ICT, level of training support, and school context (Rana, 2018). Nilsson and Karlsson (2019) suggest administrators regularly provide professional development training to teachers to update their professional skills to handle ICT tools, search for necessary learning materials and support remote learners' learning. Lim et al. (2020) insist that teachers need to be encouraged to create their professional communities and share their learning issues.

Both teachers and students have challenges in learning new digital technologies and online pedagogies in a short time and adapting to the new learning environment (Bergdahl & Nouri, 2021). Lack of experience in online learning can be a barrier to adopting it (Baticulon et al., 2021). Chang & Fang (2020) argue that because of limited or lack of online learning experience, teachers may not be able to fulfill remote learners' learning expectations. They suggest administrators motivate their teachers to work on online learning in the worst situation, such as the pandemic. Otherwise, teachers in unfavorable conditions lose their hope and gain frustration (Peters et al., 2020). Therefore, Singh et al. (2020) focus on counseling teachers and Singhcounselling counseling, providing them adequate training to manage online learning.

Qualitative Research

This qualitative research utilized semi-structured interviews and observation to gather qualitative data to understand lecturers, lecturers, and students' experiences and preparedness for online learning. This study involved fifteen participants, including three English lecturers and twelve students. Three English lecturers at King's University (pseudonym) were teaching through an online mode, and students who were studying in online classes during COVID-19 lockdowns were involved in this study. The university is involved in this study because this has the largest and most significant number of campuses and students. The English lecturers were approached

through personal contact and asked for their participation in this study. Twelve master's students from the Social Science department included six first-semester and six-semester third-semester students who agreed to participate in this study. Initially, all the participants were contacted on their mobile and explained the research to obtain their consent for the data collection. We emailed information sheets and consented forms to get their written permission. When they agreed to participate in this study, we obtained consent. Pseudonyms replace their original names to maintain anonymity in this study.

The author contacted about ten English lecturers who were expected to be teaching through online mode. Based on the "first-come-first-serve" strategy, only three lecturers, as mentioned above, were selected for this study. After obtaining their informed consent, two online classes for each teacher were observed for about two weeks. Observation notes were recorded in a diary. They were interviewed on Facebook Messenger and phone on multiple occasions. With the help of these teachers, their students were approached for their participation. Similar to the teacher selection procedure, all the student participants were selected. They were interviewed on Facebook Messenger and phone on multiple occasions, depending on the issues raised in the interviews. An interview schedule was used to interview lecturers and students. All the interviews were recorded on a mobile device. Audio records of the interviews were transcribed and categorized into specific themes. An inductive coding scheme helped identify themes and organize the data pieces.

Results

The analysis of findings is reported into three themes: learning to use digital technologies, teachers' strategies for preparation, and psychological and structural preparedness for online classes.

Learning to use digital technologies

All the students reported that collaborative learning helped develop technological skills for online classes. There were confusion and difficulties with technical preparedness in the initial phase. After the notice from their campus administration about the online course, students learned various ICT skills from YouTube videos. They shared knowledge and skills to operate computers and apps such as Zoom, Google Classroom, and Microsoft Teams. Their campus organized a webinar for the students to prepare and develop skills for using ICT tools for online learning. Urban students experienced less difficulty than those living in rural areas utilizing them effectively. For example, Lakshman, a first-semester student, said:

I saw a video instruction on YouTube, learned, and did it myself. I found it easy to handle. College also asked us to be ready by giving

virtual education and skills. I helped and shared skills with my friends to control technology.

Both institutional and individual initiation for the online class was productive. Online learning became effective in a collaboration between lecturers, students, and the university. Lakshman's comment indicated that initial induction, webinars, and YouTube videos enabled students to manage online learning. Their collaborative learning methods developed their learning autonomy. Students' self-efficacy to explore informative materials about the use of various apps such as Zoom, Google Classroom, and Microsoft Teams provides a picture of how students' initiative can help implement an institutional plan for switching physical classrooms to online learning in a crisis like the COVID-19 pandemic. Moreover, organizational training on ICT use has become an additional benefit for students and lecturers to manage online learning smoothly. Balaram, a student, said:

Our campus provided the ID and password and asked us to join Microsoft Teams. In the beginning, I was in confusion and had problems, but I learned with my friends' help. Campus gave some online instruction in a webinar to download and handle Microsoft Teams. I participated in a virtual orientation organized by campus and learned from there.

His comments showed that the campus knew how initial training and continuous support would develop lecturers' and students' confidence in using ICT facilities and managing online learning during the pandemic. Students in urban areas had limited complaints about the Internet and digital devices. For example, Manju, another student, said: "I felt little difficulties in the beginning. I solved my problems with the help of friends and prepared myself". Similarly, Radha added: "I asked my friends how to download Microsoft Teams, and I did all other activities myself." Although urban areas are equipped with ICT infrastructure where students can access computers and Internet facilities, students in remote villages do not have such facilities. Many rural students cannot migrate to towns and cities for online education. However, in this study, few, for example, Ramhari, moved to cities for online learning to do their courses during the lockdowns posed by the pandemic.

I am from a village, and I did not have a laptop and Internet connection in the town. Mobile data was too poor. I could not attend the class, and I came to the city hoping to join online courses. (Ramhari, student) Lecturers' preparation strategies for online learning

Lecturers shared that they learned to use teaching tools with the help of initial online ICT training organized by campus and IT experts. Technical assistance from campus and their self-learning motive helped them prepare

for online classes. Most lecturers reported that webinars enabled them to use various applications such as Microsoft Teams and Google Classroom to initiate and manage online courses for students. For example, Nabin, a lecturer, said:

ICT training helped me a lot, and I had done all the preparation myself. We need more advanced ICT training to solve technical problems. I had to solve issues like power cuts and an internet connection. I learned to create group learning activities for students, manage assignments, and deal with students' misbehaviors and low attendance of the students in online classes.

From their initial training and continuous practices, lecturers might have learned how to deal with diverse students in online classes. They sounded like they were able to organize students' regular assignments and give feedback on them. However, observation showed that they heavily relied on lecture methods, although they tried to talk to students to motivate them to participate in interactivities. They experienced difficulties dealing with some undisciplined students in online classes. They expected more advanced training on e-pedagogies to manage their online learning effectively. Initial one-shot training to use ICT tools and self-explored ideas was not adequate. However, Lal Dev, a lecturer, was already familiar with online classes that eased in managing his online courses. Also, he had international exposure to the online mode of learning. He said:

Yes, campus administration organized some orientation sessions on virtual mode. I attended them and learned some ideas for managing online learning. Then, I prepared myself. I got an opportunity to attend an online class from IIM India to enhance my knowledge. This was helpful for online teaching.

His comment indicated that initial online training eased the adoption of online learning during the COVID-19 pandemic. However, lecturers expressed that limited training provided by their campus and other organizations was not adequate to make online learning sustainable.

Another lecturer, Milan's experience was different as he said:

I did not attend the online learning campus webinar, but I prepared myself with self-practice. I had not taught any online classes before the pandemic. But my experience of teaching Masters's students in online courses is quite good and effective for them. The number of students is higher than in the physical classroom.

His expression reflected how lecturers' self-practice helped them use ICT for online learning management. However, observation of lecturers' online classes identified that lecturers struggled to share their device screens

and control sound on MS Teams and Zoom. It indicated that the initial one-shot training did not help them teach in online classes. However, training support, albeit limited, encouraged them to create and manage online learning, a new practice for them; teachers followed collaborative learning methods such as inquiry activities, discussion in groups, and presentation of works in online classes. They had to troubleshoot technical problems in online courses. However, students reported that some of their lecturers did not teach them in online classes due to limited or lack of computer knowledge. Milan, for example, said: “Because some lecturers cannot operate a computer, they are not taking online classes.” Similarly, Indraman complained about lecturers and online classes:

Teachers are also not competent enough to teach in online classes, and they are learning. Some of them are not taking classes. So, I am worried about my exam. They need advanced training to teach through online mode, and students also need training support for online learning.

His comment indicated that lecturers were intimidated by the online mode of learning. It noted that lecturers had limited technological and pedagogical knowledge to deliver content knowledge in online classes. Students’ remarks on lecturers’ teaching indicated that extensive training would develop teaching knowledge in online courses. Especially, lecturers needed adequate ICT training to use available ICT tools to manage online learning effectively.

Psychological and Structural Preparedness for Online Classes

Teachers’ mental preparation and administrative planning to shift from physical class to online learning were necessary to conduct online learning smoothly. Preparing lecturers to use ICT facilities was essential. The campus administration played a vital role in preparing lecturers for online teaching. The official decision to adopt online learning for Masters’s students and distribute MS Teams ID to lecturers and students created an atmosphere for lecturers and students to be prepared for online classes. Campus administration hired e-learning experts and organized many online training sessions for lecturers to enable them to operate MS Teams and deliver lessons.

The campus had organized webinar training to operate Microsoft Teams and conduct online learning. I had basic knowledge and learned some more ideas and techniques from emergency training programs. It was an excellent session that made many teachers digitally literate too. (Kunja, lecturer teacher)

Initial orientation and instructional webinars energized students and developed their confidence in learning in an online mode that they had

never experienced before the pandemic. Some students' confidence in technology and eagerness to make the class interactive showed how they continuously improved their technological and self-learning skills. Their support for each other in handling apps and devices reflected their confidence level in managing online learning. Observation of students' Messenger group interaction showed their learning excitement in online classes. Frequent notice from the program coordinator to students and lecturers helped them maintain regular online courses.

Students! Enter your ID and one-time password in Microsoft Teams and be ready for online classes. Microsoft Teams is different from Google Classroom and Zoom. So, see videos on YouTube to download and operate Teams. Learn how to log in with the ID I provided you long ago. (Milan, MA program coordinator)

However, observation of online classes investigated students' limited participation in online courses. The number of regular students in online courses and classes was far less than reported in interviews. Lecturers said that a lack of students' access to the Internet and digital devices in rural areas prevented many rural students from accessing online education. Moreover, students, particularly females who had to look after their children and family, would be unable to manage their time for online learning. Female students reported barriers to their studies, such as time and work at home. It was evident from observations that the background noise of children and the kitchen disturbed students' online interaction.

Yes. I have minor problems with kids and family members managing my study. Due to the lack of a separate study room, I get disturbances. I request my family members to keep silent. I am hopeful that I will be able to solve my problems and manage the situation. (Manju, student)

Working students had difficulty managing time for online study compared to non-working students. Some students were schoolteachers who had to teach their students online classes. Thus, they were unable to work time for their online learning.

I listened to the recorded class because I could not manage time for live classes. I must teach my students at the same time. The recording facility of types has helped students like me who have jobs. (Salami, student)

The sudden shift from the physical classroom to online learning might have influenced many students' regular study and work. However, digital technology has helped cover their education from home without live communication with their lecturers and friends. Online learning can benefit university students who have access to the Internet and digital devices.

Discussion

Findings suggest that lockdowns in the COVID-19 pandemic forced universities to switch physical classes to online learning in Nepal. The situation has opened new opportunities to shift from traditional pedagogy to online learning. However, limited ICT infrastructures, poor internet connectivity, lack of specific strategies for e-learning management, and poor administrative preparation (Rana et al., 2020) have been identified as significant barriers to implementing online learning for all students, including those living in remote villages. Teachers had to rely on initial short-term webinars to use ICT tools and create online learning after the outbreak of COVID-19 in Nepal in early 2020. Although it encouraged them to learn new technologies, the initial one-shot training provided by the university campus (Paudyal & Rana, 2021) did not equip teachers and students with adequate ICT skills. In this situation, lecturers utilized online resources such as YouTube videos and free webinars to learn to use video conferencing tools to create online classes and support remote learners. It indicates that lecturers' self-efficacy seems to be a powerful tool for developing their professionalism. In the absence of institutional preparation for online learning, lecturers' capacity to learn and utilize available ICT facilities played an essential role in managing some level of online education in the crisis. In addition, students' ability to learn new technologies indicates that even the limited effort from the university can bring significant changes in educational practices. In the words of Poudel and Subedi (2020), lecturers need to be provided with a working environment and motivated to learn new technologies and pedagogies for educational transformation. Failing to provide moral support and encourage them to work in a new environment may result in their frustration (Peters et al., 2020). In this study, some lecturers did not dare to teach online classes due to a lack of computer skills.

Online learning-enabled lecturers to learn new technologies and pedagogies in the lockdowns. The new way of learning allowed students to learn digital skills and manage their online learning from home. However, challenges such as lack of digital devices and the Internet among many rural students, unreliable Internet and electricity in towns, and limited administrative support (Devkota, 2021; Rana & Rana, 2020; Rana, 2022) prevented many students from accessing online learning. Lecturers struggled to present their lessons, create discussions, and implement online quizzes. While technological, pedagogical, and content knowledge (Koehler et al., 2007) is essential for lecturers to manage online learning, lecturers need to be provided adequate training to use digital technologies and implement online pedagogies for effective online learning. Advanced knowledge of student-centered methods such as discussions and group work (Bao, 2020) would make online learning effective and productive.

Despite limited knowledge and lack of experience, campus administration played an active role in creating online learning by involving heads of

different departments and program coordinators to communicate with students and support them in managing online learning in the crisis. Lecturers were provided initial ICT training to conduct online learning. For most lecturers and students, online learning was a new experience, which challenged them at an early stage of online learning practice. Dogar et al. (2020) argue that these technologies often daunt teachers new to digital technologies. However, the lecturers in this study learned some digital skills and new pedagogy from brief online training and their online teaching. In this situation, teachers need to be mentally ready to learn new technology and pedagogy (Singh et al., 2020). Campuses must be well-equipped with ICT infrastructure to manage online learning (Laudari, 2019).

Findings suggest that online learning was limited to urban areas while most rural students did not have access to it due to a lack of broadband Internet and digital devices. Those who managed to access online classes also struggled with unreliable electricity and the Internet. Such urban-focused online learning widens the educational gap between rural and urban areas (Haight et al., 2014). Moreover, the lack of adequate preparation for the implementation of online learning promotes inequality in communities (Shakya et al., 2017). Such discriminatory practices (Rose, 2007) of online education focused on urban students will worsen educational crises than the pandemic. Findings suggest developing minimum ICT infrastructure across the country to develop e-based learning.

Conclusion

Implementing online learning at a university in the COVID-19 pandemic received positive and negative responses. First, initial online training for teachers to use videoconferencing tools for online learning was appreciated by teachers. Although it was not adequate to manage online learning effectively, lecturers could utilize the basic ICT skills to learn advanced technological and pedagogical skills. Similarly, initial ICT training for students enabled them to use the Internet for their online learning.

Second, lecturers' capacity to understand the potential of ICT for online learning seems to be important in making online learning effective. Despite a lack of experience and limited ICT knowledge, they explored supporting online materials to develop their technological and pedagogical expertise. They were able to engage students in collaborative learning activities. Their motivation played an essential role in managing a new learning environment.

Third, lecturers' efforts were not adequate without significant support from campus administration in their professional development, online teaching activities, and learning resource management. They need to have technological and pedagogical knowledge to deliver content knowledge through online mode.

Fourth, students' access to digital devices and the Internet determines online learning success. Most rural students did not have access to online

learning due to a lack of digital devices and the Internet. They also relied on an initial orientation for online learning. Urban-focused online education seems to widen the existing educational gap in Nepal. It indicates the university's low level of preparation for online learning.

The government and universities need to develop ICT infrastructure in rural areas and implement ICT policies to adopt e-based learning. Moreover, the universities need to revise their curriculums for the changing learning context.

References

- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113–115. <https://doi.org/10.1002/hbe2.191>
- Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Tiu, C. J. S., Clarion, C. A., & Reyes, J. C. B. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical Science Educator*, 31(2), 615-626. <https://doi.org/10.1007/s40670-021-01231-z>
- Bergdahl, N., & Nouri, J. (2021). COVID-19 and crisis-prompted distance education in Sweden. *Technology, Knowledge and Learning*, 26(3), 443-459. <https://doi.org/10.1007/s10758-020-09470-6>
- Castro, M. D. B., & Tumibay, G. M. (2021, 2021/03/01). A literature review: Efficacy of online learning courses for higher education institution using meta-analysis. *Education and Information Technologies*, 26(2), 1367-1385. <https://doi.org/10.1007/s10639-019-10027-z>
- Chang, C.-L., & Fang, M. (2020). E-Learning and online instructions of higher education during the 2019 Novel Coronavirus Diseases (COVID-19) epidemic. *Journal of Physics: Conference Series*, 1574, 012166. <https://doi.org/10.1088/1742-6596/1574/1/012166>
- Clayton, K., Blumberg, F., & Auld, D. P. (2010). The relationship between motivation, learning strategies, and choice of environment whether traditional or including an online component. *British Journal of Educational Technology*, 41(3), 349-364. <https://doi.org/10.1111/j.1467-8535.2009.00993.x>
- Cubeles, A., & Riu, D. (2018). The effective integration of ICTs in universities: The role of knowledge and academic experience of professors. *Technology, Pedagogy, and Education*, 27(3), 339-349. <https://doi.org/10.1080/1475939X.2018.1457978>
- Devkota, K. R. (2021). Inequalities reinforced through online and distance education in the age of COVID-19: The case of higher education in Nepal. *International Review of Education*, 67(1), 145-165. <https://doi.org/10.1007/s11159-021-09886-x>
- Dogar, A. A., Shah, I., Ali, S. W., & Ijaz, A. (2020). Constraints to online teaching in institutes of higher education during pandemic COVID-19: A case study of CUI, Abbottabad Pakistan. *Romanian Journal for Multidimensional Education*, 12(2Sup1), 12-24. <https://doi.org/10.18662/rrem/12.2Sup1/285>
- Downing, J. J., & Dymont, J. E. (2013). Teacher educators' readiness, preparation, and perceptions of preparing preservice teachers in a fully online environment: An exploratory study. *The Teacher Educator*, 48(2), 96-109. <https://doi.org/10.1080/08878730.2012.760023>

- Dunn, L., Wallace, M., & Development. (2006). Australian academics and transnational teaching: An exploratory study of their preparedness and experiences. *Higher Education Research & Development*, 25(4), 357-369. <https://doi.org/10.1080/07294360600947343>
- Garrison, R. (2009). Implications of online and blended learning for the conceptual development and practice of distance education. *Journal of Distance Education*, 23(2), 93-104. <https://doi.org/ijede.ca/index.php/jde/article/view/471/888>
- Giri, P. C., & Rana, K. (2022). Lessons learned from teaching English through Facebook Live for the future. *International Journal of Technology in Education and Science (IJTES)*, 6(1), 14-31. <https://doi.org/10.46328/ijtes.309>
- Haight, M., Quan-Haase, A., & Corbett, B. A. (2014). Revisiting the digital divide in Canada: the impact of demographic factors on access to the internet, level of online activity, and social networking site usage. *Information, Communication & Society*, 17(4), 503-519. <https://doi.org/10.1080/1369118X.2014.891633>
- Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar: Integrating content, pedagogy, and technology. *Computers & Education*, 49(3), 740-762. <https://doi.org/10.1016/j.compedu.2005.11.012>
- Laudari, S. (2019). *Breaking barriers: exploring digital practices of teacher educators in Nepal* [Doctoral thesis, University of Technology Sydney, Australia]. <http://hdl.handle.net/10453/137075>
- Lim, C. P., Ra, S., Chin, B., & Wang, T. (2020). Leveraging information and communication technologies (ICT) to enhance education equity, quality, and efficiency: Case studies of Bangladesh and Nepal. *Educational Media International*, 1-25. <https://doi.org/10.1080/09523987.2020.1786774>
- Murphy, M. P. A. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy*, 1-14. <https://doi.org/10.1080/13523260.2020.1761749>
- Nilsson, P., & Karlsson, G. (2019). Capturing student teachers' pedagogical content knowledge (PCK) using CoRes and digital technology. *International Journal of Science Education*, 41(4), 419-447. <https://doi.org/10.1080/09500693.2018.1551642>
- Paudyal, G. R., & Rana, K. (2021). How university lecturers and students interpret opportunities and challenges of online mode of learning. *International Journal of Research in Education and Science (IJRES)*, 7(4), 1006-1022. <https://doi.org/10.46328/ijres.2383>
- Peters, M. A., Wang, H., Ogunniran, M. O., Huang, Y., Green, B., Chunga, J. O., Quainoo, E. A., Ren, Z., Hollings, S., & Mou, C. (2020). China's internationalized higher education during COVID-19: Collective student autoethnography. *Postdigital Science Education*, 2, 968-988. <https://doi.org/10.1007/s42438-020-00128-1>
- Poudel, K., & Subedi, P. (2020). Impact of COVID-19 pandemic on socioeconomic and mental health aspects in Nepal. *International Journal of Social Psychiatry*, 66, 748-755. <https://doi.org/10.1177/0020764020942247>
- Rana, K. (2018). *ICT in rural primary schools in Nepal: Context and teachers' experiences* [Doctoral thesis, University of Canterbury, New Zealand]. <http://hdl.handle.net/10092/15166>
- Rana, K. (2022). How teachers developed remote learning during the COVID-19 crisis: What can we learn from rural teachers in Nepal? In M. Hammond (Ed.), *Supporting remote teaching and learning in developing countries: From the*

- global to the local* (pp. 48-61). British Council. https://www.britishcouncil.org.np/sites/default/files/teaching_learning_book.pdf?fbclid=IwAR3QxkAFWmZT7hxYi4ES2gzQMPinajhyh1un2mcQy50vRzmFjRTQlBx5rVk
- Rana, K., & Rana, K. (2020). ICT integration in teaching and learning activities in higher education: A case study of Nepal's teacher education. *Malaysian Online Journal of Educational Technology*, 8(1), 36-47. <https://doi.org/10.17220/mojet.2020.01.003>
- Rana, K., Greenwood, J., & Fox-Turnbull, W. (2020). Implementation of Nepal's education policy in ICT: Examining current practice through an ecological model. *The Electronic Journal of Information Systems in Developing Countries*, 86(2), 1-17. <https://doi.org/10.1002/isd2.12118>
- Rana, K., Greenwood, J., & Henderson, R. (2021). Teachers' experiences of ICT training in Nepal: how teachers in rural primary schools learn and make progress in their ability to use ICT in classrooms. *Technology, Pedagogy, and Education*, 1-17. <https://doi.org/10.1080/1475939X.2021.2014947>
- Rana, K., Greenwood, J., Fox-Turnbull, W. H., & Wise, S. (2018). A shift from traditional pedagogy in Nepali rural primary schools. *International Journal of Education and Development using Information and Communication Technology*, 14(3), 149-166. <http://ijedict.dec.uwi.edu/viewarticle.php?id=2521>
- Rose, R. M. (2007). *Research committee issues brief: Access and equity in online classes and virtual schools*. North American Council for Online Learning. ERIC. <https://files.eric.ed.gov/fulltext/ED509623.pdf>
- Shakya, S., Sharma, G., & Thapa, D. (2017). State education system with e-learning in Nepal: Impact and challenges. *Journal of the Institute of Engineering*, 13(1), 10-19. <https://doi.org/10.3126/jie.v13i1.20344>
- Singh, D. R., Sunuwar, D. R., Adhikari, B., Szabo, S., & Padmadas, S. S. (2020). The perils of COVID-19 in Nepal: Implications for population health and nutritional status. *Journal of Global Health*, 10(1). <https://doi.org/10.7189/jogh.10.010378>
- UNESCO. (2021). *Education: From disruption to recovery*. <https://en.unesco.org/covid19/educationresponse>
- Usluel, Y. K., Askar, P., & Bas, T. (2008). A structural equation model for ICT usage in higher education. *Educational Technology & Society*, 11(2), 262-273.

Authors

Rohit Prasad Baral (rohitprasadbatal@gmail.com), a lecturer of English at Tribhuvan University (Prithivi Narayan Campus, Pokhara), is an MPhil Scholar at Nepal Open University, Nepal. He has done an MA in English at Tribhuvan University, Nepal. His areas of research interest include reading literary theory and criticism and teaching English.

Karna Rana (karnabdr@gmail.com) is an Assistant Professor of ICT and E-learning at Nepal Open University. His areas of research interest are online and distance learning, ICT for education, education and language policy, education for rural development, educational leadership, EMI, Indigenous studies, multilingualism, and mother-tongue-based education.