

Studying the Post-COVID-19 Landscape of Higher Education in Bhutan: A Systematic Literature Review

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Abstract

The higher education sector is highly disrupted by the onslaught of the COVID-19 pandemic. The enforcement of social restriction protocols led to the closure of higher education institutions and the shifting of teaching-learning to online classes. Various studies show that the disruption has offered lessons that could improve practices in the post-pandemic period. This systematic literature review (SLR) aims to assess the impact of COVID-19 on higher education in Bhutan and identify possible areas of improvement in the post-pandemic period. It follows PRISMA guidelines to identify and screen studies, followed by a thematic analysis to classify and categorise challenges and opportunities created by the pandemic. A significant finding for Bhutan is that the adoption of digital pedagogy has paved the way for implementing a blended learning system, offering ample opportunities for educational advancement. This system will promote inclusivity as it supports diverse learning groups, helps promote personalised and self-directed learning systems to improve the

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quality of teaching-learning, and contributes to the development of a culture of lifelong learning. Another notable finding also shows an unprecedented level of priority accorded to the well-being of students and teachers, which is recommended to be sustained. The SLR may contribute to the discussions on education reform that is currently underway in Bhutan.

Keywords: online-teaching learning, COVID-19, remote classes, educational technology, Bhutan higher education

Introduction

The COVID-19 pandemic has disrupted the current endeavour in the social, ecological and economic development (Suriyankietkaew & Nimsai, 2021) and deepened social inequalities (Bhaskar et al., 2020) including the education sector (Walters, 2020). While it has revealed our vulnerabilities, it also opened up opportunities for improvement (McKinsey & Company, 2020, p. 9). The higher education sector is no exception as the COVID-19 pandemic shifted its operation from in-person-based teaching-learning to online classes (Amankwaa et al., 2024; Johninke et al., 2023). This shift made higher education institutions rethink their entire systems and structures during the pandemic with emerging needs to adapt to digital pedagogies (Paquet, 2023) amidst issues of equity (DeAngelo et al., 2024), privacy and surveillance (Johninke et al., 2023; Vetter & McDowell, 2023). Before the COVID-19 pandemic, motivation was lacking to enhance technology-enhanced innovation in higher education (Schneckenberg, 2009) with debates surrounding social, ethical and philosophical dilemmas (Lewin & Lundie, 2016). COVID disruption created the urgency to rush for technology (Garcia-Morales et al., 2021) to elude those dilemmas. It led to the development of a new market for ed-tech, which gave rise to a plethora of digital learning platforms (Teräs et al., 2020) including digital writing technologies powered by AI such as ChatGPT (Johninke et al., 2023; Strzelecki, 2024) that could continue to reshape digital pedagogy.

All these new developments and the adverse effects of the pandemic on the economy pushed higher education to the edge of uncertainty. Dennis (2020) discusses that no one will know with certainty what higher education institutions will look like after the upheavals of the pandemic. UK universities are already vouching for cutting costs, restructuring and reviewing admission policies in addition to seeking government funding (Ahlburg, 2020) to deal with the impact of the pandemic. In addition, many universities saw positive benefits of online learning like students being able to learn at their own pace, the ability to review lectures repeatedly, feeling empowered to ask questions freely, and saving time on travel (Stevanovic et al., 2021). Studies show that enhancing student digital competency and providing user-friendly platforms enhance student academic engagement (Heidari et al., 2021) thus leading to quality learning. Therefore, universities are leveraging the lessons learned during the pandemic to become more successful in offering online courses post-pandemic (Cox et al., 2022), identifying blended learning as a way forward (Laifa et al., 2023), which could contribute to quality, equity and promotion of lifelong learning.

This trend is also visible in Bhutan with two evident political priorities: the promotion of a digital economy at the aspirational level, and reforming education to undertake this. For instance, Bhutan's 13th five-year plan (2023-2028) aims to promote a green and sustainable economy (Gross National Happiness Commission [GNHC], 2018, p. xvi) with a strong emphasis laid on technology or digital economy (Kong & Li, 2022). The King's public speeches have been consistent on several occasions that leveraging technology is the way forward for Bhutan and reiterated the need to embrace technology to address various challenges facing Bhutan such as improving governance, education, agriculture, jobs, well-being, and creating safer and cleaner cities (The Bhutanese, 2019). This emphasis on technology has led to the identification of two national flagship programmes: Digital Drukyul, which targets digital transformation in various sectors, including Health, Education, Finance and Agriculture (Department of

Information Technology and Telecom, 2021); and Education Flagship Program, which aims to digitize schools and improve digital skills of all teachers and students across the country. It includes making ICT widely accessible in terms of infrastructure, capacity and content to support education (Ministry of Education, 2014). New initiatives such as digital identification system, digital currency and of late creation of an independent body (the GovTech) and its use of a tag line 'ICT as a key enabler of sustainable economic development' have emerged.

The ICTization process has been expedited by the pandemic. The Government responded to the onset of the COVID-19 virus in Bhutan with the imposition of a series of lockdowns, closing of the international border, halting tourism and implementing social distancing protocols such as the use of face masks, hand washing systems and closure of schools, colleges, restaurants, entertainment centres and banning public gathering (National Commission for Women and Children, 2021). While such a measure was effective in containing the virus, it brought about unprecedented adverse impacts on various social and economic sectors. For instance, the tourism sector saw an immediate halt affecting about 50,000 people who depend on the tourism and hospitality sector (NSB & UNDP Bhutan, 2020). The education sector too was hit hard with a pedagogical shift towards online teaching-learning due to the closure of schools and colleges (Ministry of Education and Skills Development, 2020; Royal University of Bhutan, 2021b) commencing on 19 March 2020. This new phenomenon led to students experiencing high levels of stress and emotional distress (Tshering & Dema, 2022) as they transitioned to unfamiliar practices.

Nevertheless, the pandemic's disruption exposed Bhutan to new systems and practices capitalising on technology. Some of the key ones include work-from-home (Dorji, 2021, p.444), online teaching and learning (Pokhrel & Chhetri, 2021), tracing and communication apps (Dorji, 2021, p.443), online business (Dorji et al., 2023, p.10) and telehealth services (Tsheten et al.,

2023, p.5). These creative ways emerged in the wake of social restrictions caused by the pandemic to provide undisrupted services.

As COVID-19 restrictions eased, Bhutan started to envisage a post-pandemic world that is different from the pre-pandemic period. His Majesty, the King of Bhutan, issued Royal Decrees to reform civil service and education with an assertion on the national aspiration of building a knowledge-based society and an innovation-driven economy (Kuensel, 2021). A knowledge-based society's pillars include education, research, development and innovation (Leon, 2011), for which higher education institutions will have a significant role to play by way of developing an educated and skilled population, conducting research to generate knowledge and promoting innovation (INTOSAI, 2020). Bhutan's grand vision will require higher education institutions to create a society of competent and critical mass with a strong culture of lifelong learning. It is therefore, timely, to look into lessons that could be drawn based on COVID-19 experiences, like all other universities, and look into how higher education in Bhutan can leverage the new experiences to define a new era of transformation. As the government begins to reform the RUB Colleges (Wangdi, 2022) as part of education reform, this research has become timely to contribute to the discussions.

Accordingly, this SLR aims to (i) assess the impact of COVID-19 on higher education in Bhutan, and (ii) identify possible new ideas to spur discussions on the higher education landscape as part of education reform based on the lessons learned.

Methods

This SLR uses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to identify and screen documents. Three databases were identified for searching the documents namely Scopus, Web of Science, and Google Scholar. Due to limited publications on the topic especially on higher education, additional sources of government documents were searched from the websites of

relevant government agencies including the Prime Minister's Office, the Ministry of Education and Skills Development, and the Ministry of Health. To get the perspectives of implementers, websites of all higher education institutions (the Royal University of Bhutan (RUB), Khesar Gyalpo University of Medical Sciences of Bhutan (KGUMSB), Royal Institute of Management (RIM) and Jigme Singye Wangchuck School of Law) were explored to search for relevant documents covering the pandemic period.

Inclusion criteria comprised of studies that cover i) higher education during the COVID-19 lockdowns, ii) contents on online/remote teaching-learning anywhere in the publication, iii) studies conducted within Bhutan, and iv) studies on adult learners studying online from Bhutan. Exclusion criteria comprised of studies related to i) topics on online classes for school education, ii) topics other than teaching-learning and iii) topics covering countries other than Bhutan. The identification and screening of government documents and other grey literature published will be carried out as per the inclusion and exclusion criteria.

Keywords and controlled Boolean operators used included "COVID-19 AND Bhutan AND Education" for Web of Science and Scopus. On Google Scholar the search terms used included "Bhutan" for all of the words, "covid 19" OR "pandemic" for with-exact-phrase, and "COVID-19" "Pandemic" "online learning" "college" "university" "higher education" for with-at least-one-of-the-words, with the search options included only in the title of the article.

The authors assessed the quality of the selected articles using the Joana Briggs Institute (JBI) Critical Appraisal checklist and Mixed Method Appraisal Tool (MMAT) (Garg, 2021) for qualitative and quantitative articles, respectively. Since a larger portion of the literature consists of government documents, the AACOD checklist (which covers authority, accuracy, coverage, objectivity, date, and significance) designed to enable evaluation and critical appraisal of grey literature was used to

assess the quality of government documents. The authors created Excel sheets JBI and MMAT (Mixed Method Appraisal Tool) and AACOD for this purpose.

Thematic analysis was used for the SLR to identify the impact of COVID-19 on the higher education sector in Bhutan. EndNote software was used for segregation and screening of studies and NVivo software was used for data coding and categorization.

Results

The search yielded 11 articles on Web of Science, six articles on Scopus and 67 articles on Google Scholar. 10 studies were removed due to duplication. Using the exclusion criteria 70 studies were removed. Therefore, a total of four studies were selected for the analysis from the databases. In addition, government documents searched through selected websites of relevant government agencies yielded four studies, higher education institutions (HEI) yielded six documents and a Google search yielded one journal article. Only two documents were screened out as the annual statistics and state of the national report did not discuss online teaching-learning in any part of the document. Therefore, a total of 13 studies and government documents were selected for the study. Details of the study identification and screening are given in Figure 1.

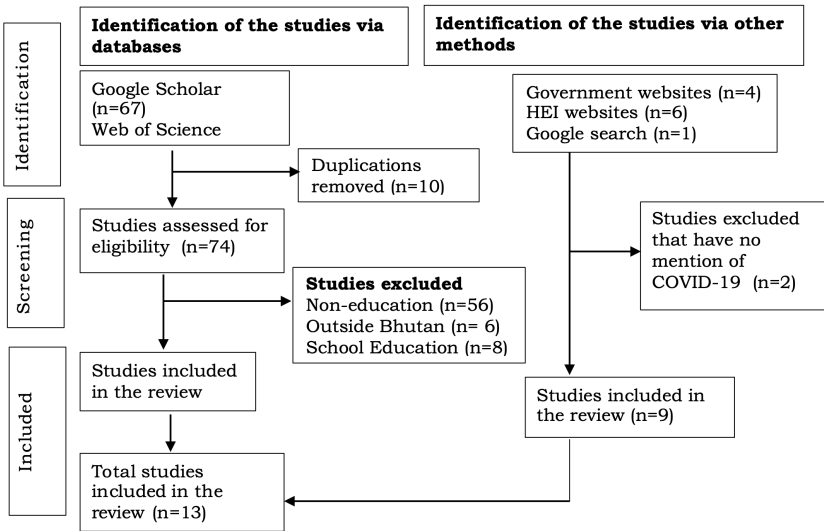


Figure 1. Identification and screening of studies and documents

As discussed under the methods, the review is discussed in two main categories of impact, namely challenges, and opportunities. Of the total 13 papers, 12 papers discussed challenges and 10 papers discussed opportunities. The general characteristics of the selected studies are provided in Appendix 1.

Analysis under each of the parts is segregated using thematic analysis. Five themes emerged under challenges and five themes emerged under opportunities. These themes are summarised as given in the Table 1.

Table 1. *Major Themes under Challenges and Opportunities*

Challenges	Opportunities
Student performance (n=8)	Effective learning (n=8)
Equity issues (n=6)	Facilities improved (n=4)
Disruption in implementation of planned activities (n=3)	Creativity improved (n=2)
Mental health issues (n=3)	Psycho-social wellbeing (n=3)
Routine activities affected (n=6)	Development of skills on the use of ICT (n=7)

Discussion

Based on the data, the SLR findings are discussed in three parts. It begins with the first part, which discusses the challenges posed by the pandemic to the higher education sector in Bhutan. The second part covers the opportunities it provided and based on the experiences, the discussion moves on to the third part, which explores the possible way forward. The detailed discussions are as follows:

Challenges

Findings show that COVID-19 has severely impacted higher education in Bhutan in three ways. Firstly, it has affected its core areas of teaching-learning by having to shift to remote teaching-learning. Secondly, it has impacted many key operational areas including the implementation of annual plans. Thirdly, the impact had also revealed the inequalities existing within higher education, especially the digital divide leading to unfair learning experiences, all of which not only impacted the learning outcomes of students but also affected its macro level developmental trajectory and led to psychological distress among the students. The three main areas of challenges are as discussed below, which will succeed with the underlying cause of challenges:

First, the COVID-19 restrictions have prevented normal lives and the way we conduct business. Higher education institutions, as public sector organisations, had to spend most of their time adapting and adjusting operations to safeguard and at the same time operate with minimal disruption (JSW

School of Law, 2021). It also involved reprioritization focusing only on the core services to allow the provision of resources for national initiatives to combat the disease (JSW School of Law, 2021). All events on the grounds such as contact sports, scheduled meetings and participation in research events and conferences requiring travel abroad had to be cancelled (JSW School of Law, 2021; Royal University of Bhutan, 2021b). International student services were suspended (Royal University of Bhutan, 2021b) and while all key activities were to be carried out as required, the annual performance assessment had to give due consideration to activities that could not be carried out due to extenuating circumstances (Royal University of Bhutan, 2021b). Thus, the overall expectation of the performance of higher education institutions was also compromised. In addition, it has affected the implementation of various long-term plans. For instance, some colleges like JSW Law had to cut expenses and defer the development of new programmes (JSW School of Law, 2021). Scheduled training was cancelled (JSW School of Law, 2021) and implementation of long-term human resources development activities was delayed.

Second, movement from face-to-face to online learning. COVID-19 has hit Bhutan's higher education system very hard posing serious challenges when face-to-face learning had to be discontinued and immediately shifted to online learning (n=13), a system for which both students and academics were not prepared (Pokhrel & Chhetri, 2021). As the situation prolonged with incessant lockdowns, it posed a risk of a reversal in educational gains and the potential to discontinue learning among students (Ministry of Health, 2020). A study revealed that it had a significant impact on the learning outcomes of most students (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021) and affected the smooth coverage of the curriculum as per the plan. Parts of courses requiring practical-based learning and hands-on experiences had to be shelved (Ministry of Education and Skills Development, 2020; Tenzin & Tshering, 2022) and courses taught by visiting faculty from abroad had to be postponed

(JSW School of Law, 2021) due to closure of borders. This unprecedented closure of colleges and sending students home to learn online had implications for the well-being of students (Ministry of Health, 2020). The heightened academic uncertainty has given rise to psychological distress among college students with a more severe impact on those who were at the cusp of college-to-work transition, lagging academically due to facilities, connectivity and resources problems, and those whose family members were engaged as frontline workers (Tshering & Dema, 2022). Therefore, the pandemic not only disrupted the operation of higher education but also caused psychological distress among students. The review showed that two main factors contributed to the challenges of remote teaching-learning. They include a skills gap and underdeveloped infrastructure as discussed below:

- i) Skills gap and lack of competence in the use of ICT tools came out as one of the most prominent issues (n=5) that affected the efficiency of online education and the motivation of both staff and students. One document reflected not only the lack of interest, active engagement and motivation among students but also a show of resistance and difficulty in learning new technology (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021). It was seen to be even more challenging among those with fixed mindsets (Pokhrel & Chhetri, 2021). Lecturers and students alike explored and learned using the technology through trial and error methods with uncertainty and confusion (Pokhrel & Chhetri, 2021). Therefore, a study had the majority of lecturer respondents being dissatisfied with their performance in conducting online classes due to frequent technical hitches (Tenzin & Tshering, 2022). Almost all lecturers had no online teaching experience at a time when accessibility, capacity and connectivity became necessary (Sharma et al., 2021) to handle the situation, and as such, many students/academics found it difficult to transition to online teaching learning (Royal University of Bhutan, 2021a; Tenzin & Tshering,

2022) causing setbacks in effectiveness. It caused frustration and affected student motivation in learning online, thereby, resulting in poorer learning outcomes and student preferences. In addition, the competency gap has also led to a lack of trust and confidence in conducting exams and assessing students online. Some faculty reported in a study that cheating by students will be unstoppable (Tenzin & Tshering, 2022). Without much policy and technical competency to protect security, concerns related to the data security (Royal University of Bhutan, 2021a) emerged on top of the poorly equipped facilities and operational policies.

- ii) Another cause of the hiccups to migrate smoothly to remote teaching and learning was attributed to infrastructure and facilities. Firstly, at the national level, a huge gap in national infrastructure in terms of connectivity and reliability of connectivity has caused serious disruption. Secondly, colleges were not ready to provide adequate support to go fully online. The college internet connectivity, storage capacity and battery backups were not yet developed (Royal University of Bhutan, 2021a) to support the smooth operation of online teaching-learning and hurdled in access to learning technology for academics and students (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021). Reports highlight poor connectivity, slow processing speed and insufficient access to library resources (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021) that led to compromising the quality of online classes (Tenzin & Tshering, 2022).

Third, widening inequality among students regarding access to resources due to income disparity and the location of students in Bhutan (n=6) was yet another challenge for online classes. Financial constraints in accessing learning resources and technological facilities (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021) including laptops and connectivity were a concern, especially for economically disadvantaged

students and those residing in remote areas (Ministry of Education and Skills Development, 2020). While students were paid the stipend to meet data charges (Royal University of Bhutan, 2021b), most of the students were in rural areas where connectivity was very poor, disconnection was frequent, student affordability was low and many students had to depend on smartphones. Therefore, taking both synchronous and asynchronous classes was difficult and students had to lean towards recorded videos for asynchronous learning (Muramatsu & Wangmo, 2020), which led them to lose access to subject specialists to clear their doubts as and when needed (Tenzin & Tshering, 2022). Thus, with limited guidance (Tenzin & Tshering, 2022) remote teaching-learning became frustrating resulting in 85% of students in a survey expressing their preference for traditional classes over remote teaching-learning. (Muramatsu & Wangmo, 2020). The primary reason for this preference was due to connectivity issues (Tenzin & Tshering, 2022) and a lack of appropriate resources and facilities underscored the significance of the online teaching-learning (Tshering & Dema, 2022). In addition, some students had to work to help their parents (Royal University of Bhutan, 2021b), making it hard for them to take classes.

Opportunities

Leveraging the potential of online teaching-learning at such a scale was only a distant dream before Covid-19. RUB introduced a virtual learning environment to complement face-to-face teaching about a decade ago. The COVID-19 pandemic led to the closure of colleges and a shift to online classes, which has facilitated the full use of this platform (Ministry of Education and Skills Development, 2020; Pokhrel & Chhetri, 2021; Royal University of Bhutan, 2021a) even when academics and students were not ready (Tenzin & Tshering, 2022). The introduction of online classes has helped develop capacity by improving skills among academics and students, and upgrading the facilities as discussed below:

First, with the shift toward online classes, higher education institutes urgently initiated training of academics on the use of

e-learning facilities. Academics learned skills overnight to redesign their teaching-learning strategy to cater to online classes (JSW School of Law, 2021; Ministry of Education and Skills Development, 2020; Royal University of Bhutan, 2021a). Those with a growth mindset adapted more swiftly to the changing environment as compared to others (Pokhrel & Chhetri, 2021). Academics had to be swift in transiting to online classes (Royal University of Bhutan, 2021b).

Second, it led to the formulation of strategies and the upgrading of facilities to support synchronous, asynchronous and blended learning systems. Institutional structures such as committees and task forces were formed to specifically develop and implement guidelines and strategies for online classes (Royal University of Bhutan, 2021a). E-learning strategies and guidelines, they developed, charted out the use of online learning platforms, teaching-learning resources, simulation, discussion forums, attendance and assessments (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021; Ministry of Education and Skills Development, 2020). Hardware infrastructure has been upgraded with additional smart boards, computers (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021; Royal University of Bhutan, 2021b), space storage servers, power backup, and wireless equipment (Ministry of Education and Skills Development, 2020). Online resources were boosted with additional databases and collections including HeinOnline, Research4Life, Elgar Law, University of Chicago Press online resources, SSRN, and Westlaw (JSW School of Law, 2021), and introduced new platforms such as ZOOM, BigBlueButton, Google Classroom, H5P, Ispring pro, Skype, Mentimeter, Camtasia and other authoring tools, (Ministry of Education and Skills Development, 2020). To support access to connectivity, the government has continued providing stipends and even self-financed students were supported with a data package worth Nu. 1199 per month (Ministry of Education and Skills Development, 2020). Therefore, technical issues have gradually declined with only 36% of them reported having faced technical glitches (Tenzin & Tshering, 2022).

The shift from face-to-face to online classes did not require the higher education institutions to change their curriculum (Ministry of Education and Skills Development, 2020). Instead, it enabled uninterrupted student progression with few adjustments in the academic calendar to cover up practical classes during vacation (Royal University of Bhutan, 2021a). Colleges explored and pursued creative ways of assessing students remotely such as through open book examination (Royal University of Bhutan, 2021a). This ensured that no student was left behind in terms of the learning needs, level of engagement and participation (Royal University of Bhutan, 2021b) although as discussed under the challenges many faced issues in the quality of learning due to connectivity problems. A study found that some academics and students have shown satisfaction while some expressed the need to get acquainted with this way of teaching (Royal University of Bhutan, 2021b). Thus, some students became comfortable with time and could learn with a new platform (Tenzin & Tshering, 2022). A study found that 4% of survey respondents (students) said online classes are better than traditional classes and 5% of respondents preferred online education (Muramatsu & Wangmo, 2020). A study also highlighted positive experiences regarding assessments with the majority of respondents due to the convenience it provided to submit assignments in softcopy and the online tests (Tenzin & Tshering, 2022). Seeing the greater benefit, Colleges such as Royal Thimphu College have initiated the development of a module for the online teaching-learning (Royal University of Bhutan, 2021a) to continue in the post-pandemic period.

The experience was more encouraging for those who had better access to connectivity and devices. For instance, medical students studying abroad who were repatriated to Bhutan were learning about COVID-19 using social media and found it more effective than the conventional way of learning (Dorji et al., 2021). Similarly, JSW School of Law saw a very positive experience going online. For instance, the school reported that the students have developed additional skills like reading habits, the ability to self-study, virtual learning, group

collaboration and digital competencies (JSW School of Law, 2021). Its annual report shared that:

The students adapted marvellously to four months of online studies, attending as many as eight hours of live and recorded classes a week from June to September. They quickly became facile with diverse software platforms - including Zoom, Flipgrid, and a variety of online presentation media, which allowed a high level of interaction with their instructors.

In general, online education has benefited in developing independent learning skills among students, which will be useful for serving diverse students with different paces of learning (Ministry of Education and Skills Development, 2020). It has been especially valuable in meeting the needs of non-traditional students who would not be able to afford to study on campus (Tenzin & Tshering, 2022). The flexibility of venue and timing were the strengths of the online education (Muramatsu & Wangmo, 2020; Tenzin & Tshering, 2022). Online learning also allows physically challenged students more freedom to participate in learning in the virtual environment, requiring limited movement (Pokhrel & Chhetri, 2021). Therefore, the adoption of online classes has helped develop a more resilient and responsive education system and paved the way for lifelong quality education in the post-pandemic period (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021).

In addition to the positive benefits above, higher education institutions became more innovative introducing new technologies and technology-based services to adapt to the changing situation. For instance, activities like competitions, student activities, conferences, scholarly engagement and meetings were held online (JSW School of Law, 2021; Royal University of Bhutan, 2021a), and a work-from-home system was introduced to provide uninterrupted services during lockdown (Royal University of Bhutan, 2021a). In addition, some Colleges forged the opportunity to promote innovation to

help society in times of crisis such as the development of a prototype for a sensor-based hand sanitiser dispensing machine by Jigme Namgyal Engineering College and the development of a web application to help the relocation of Bhutanese living across the border by Collge of Science and Technology (Royal University of Bhutan, 2021a). Therefore, the number of academics engaged in research did not drop during the pandemic (Royal University of Bhutan, 2021a).

Third, for the first time, the health and social well-being of the staff and students gained prominence in policy discussion. Safeguarding the safety, well-being, and health of students and staff while delivering core services (JSW School of Law, 2021; Khesar Gyalpo University of Medical Sciences of Bhutan, 2021; Royal University of Bhutan, 2021a) became one of the key highlights of the new normal. Introduction of orientation/training of students and staff on safe operations, hand washing stations, toilets, sick rooms, and continuous supply of water (Ministry of Education and Skills Development, 2020) were prioritized to ensure the safety of all students and staff. The role of its Happiness and Wellbeing Centres at the colleges was enhanced to provide psychosocial support services (Ministry of Education and Skills Development, 2020). Strategies were laid out to monitor the health of vulnerable staff/students and provide special care (Ministry of Education and Skills Development, 2020). Staff who were pregnant, elderly and/or with underlying health conditions were provided preferential relief from work depending on the situation (Royal University of Bhutan, 2021b). All of these decisions were very humanistic. As a result, all employees, whether regular or on fixed-term appointments, continued to receive their pay, allowances and benefits (Royal University of Bhutan, 2021b) and were shielded from the possible economic impacts of the pandemic.

Way forward

The experiences offered by the pandemic's disruption on the higher education sector have been valuable to reflect the potential areas of reform for the post-pandemic era. Lessons

drawn from the experiences have critical elements that will support the reform aspirations to develop Bhutan into a knowledge-based society. RUB's Annual Report 2020-21 states:

In keeping with the global trends, the University plans to adopt blended learning in a major way. It will require the University's substantial financial support to put in place all necessary ICT infrastructure, facilities and building capacity. The ICT capital budget which has never been featured in our budgeting proposal will now become a crucial component of our future budget planning. (p. 37)

Blended learning emerged as one of the important lessons from the pandemic experiences as all HEIs aim to leverage technology in teaching-learning. For instance, RIM is considering launching an e-platform for online courses as part of its anniversary (Royal Institute of Management, 2021). Having an online learning system offers room for personalised and immersive learning experiences to improve the quality of education required by the 21st-century job market. As discussed in the opportunity section, online teaching-learning can enhance inclusivity by helping students in the industry who cannot learn in conventional ways, students with different paces of learning and physically challenged students with mobility problems. It can help promote lifelong learning that will help realise the vision of a knowledge-based society.

The blended learning system will need to be supported with a diverse set of pedagogy to serve diverse learning needs (Khesar Gyalpo University of Medical Sciences of Bhutan, 2021). One of the studies suggested the use of flipped classrooms where students use the available resources online and use classroom time to deepen their understanding (Pokhrel & Chhetri, 2021). Such a strategy will enable students to become independent and self-directed learners, which will be useful for inculcating lifelong learning skills.

As previously discussed in relation to challenges, the main issues of online classes were due to connectivity problems and limited access to devices. Learning experiences were much more pleasant and robust among students of the law school and medical students in quarantine who were able to enjoy good internet connectivity and access to laptops. This indicates the need to strengthen network infrastructure to ensure reliable connectivity. The secondary infrastructure at the colleges may need to be improved too with subscriptions to adequate digital resources to allow students to access resources online from any part of the world and support with interactive virtual labs (Royal University of Bhutan, 2021a). Furthermore, adequate support needs to be provided to develop the capacity of academics (Tenzin & Tshering, 2022), develop digital skills among students, especially in validating the reliability of sources of information online (Dorji et al., 2021), help students possess laptops (Muramatsu & Wangmo, 2020; Royal University of Bhutan, 2021a) for a better quality of online learning and to address the digital divide.

In conjunction with the implementation of the blended learning system, the HEIs may continue to strengthen the existing structures and practices to promote the well-being of staff and students. Existing student wellbeing centres may continue to be upgraded with relevant staff and support services to protect both the physical and psychological safety of the students. It may include the protection of students from hazards and risks related to cybercrime, online bullying, and privacy issues.

Conclusion

Learning from COVID-19 disruption and experiences in emerging educational technology, universities globally have been utilising their experiences to enhance their policies and practices, fostering the promotion of digital pedagogy and operational efficiency. While some universities have been facing political pressure to downsize and reduce operational costs, Bhutan happens to enjoy a boost in political support for educational reform to improve the quality of teaching-learning in building a knowledge-based society. Therefore, learning from

the experiences of COVID-19 disruption, it has become timely and critical to explore lessons that could translate to the improvement of the systems and student learning processes in Bhutan.

This SLR explores the impact of the pandemic on higher education and draws possible lessons for higher education reform in the post-pandemic era. Specifically, challenges, opportunities and potential areas for higher education reform were highlighted. Major challenges include difficulty in adapting to online learning systems among both academics and students. Poorer facilities and problems of connectivity rendered challenges for students to learn in addition to widening the digital divide. Students even used inappropriate devices for learning such as smartphones which affected their learning quality besides their difficulty in getting access to library resources.

While developing and implementing response strategies, new opportunities opened up to reform the pedagogy and learning systems. The evolution of digital pedagogy and platforms, positive learning experiences among some students (especially those who had access to technology and online resources) and the realization of vast resources that can be leveraged can stimulate thinking on new pedagogy such as flipped classrooms. The COVID-19 experiences have to some extent upgraded facilities and developed capacity among both academics and students. Taking it further will require enhanced political support in the form of curating national resources in building primary infrastructure for connectivity and supporting the secondary infrastructure at the higher education institutions to have robust facilities, library resources and capacity development. Targeted intervention to address the digital divide in terms of access to online resources will ensure that no one is left behind.

Bhutan, therefore, has seen the institution of a blended learning system with digital pedagogy such as flipped classrooms as a way forward. This system will not only improve

the quality of learning but also save resources, and develop independent learning capabilities to build a culture of lifelong learning which is necessary for building a knowledge-based society.

An additional finding was an unprecedented focus on the well-being of staff and students, which is critical to be sustained. Therefore, the SLR argues for further enhancement of structures and systems that take care of the well-being part. Findings and recommendations from this SLR are timely and apt to contribute to the discussions on education reform that is currently underway in Bhutan.

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Appendix 1. General Characteristics of Selected Studies

Author	Type	Methods	Challenges	Opportunities
Dorji et al. (2021)	Journal article	Cross-sectional study	Closure of colleges	Medical students learning online very effective
JSW Law (2021)	Annual report		<p>Recalling of doctors studying abroad</p> <p>Disruption to lives and routine activities</p> <p>Closure of educational institutions ending face-to-face teaching</p> <p>Some classes deferred</p> <p>Reduced budget and halted planned activities including construction and training</p>	<p>Online classes safeguarded students</p> <p>Successful in online education – improved reading habits, self study, group collaboration, and digital competencies</p> <p>Conducted other services such as conferences, student competition and training online</p> <p>Library resources upgraded</p>
KGUMSB (2021)	Annual report		Faculty and students deployed as health services	
KGUMSB (2021)	Contingency guidelines		<p>Closure of institutes and disruption in meaningful learning</p> <p>Affecting learning achievement and performance</p> <p>Lack of infrastructure, resources, skills and unfavourable environment for online classes</p> <p>Inequalities in access to online learning</p>	<p>Distinctive rise of e-learning</p> <p>Opportunity to promote life-long learning</p> <p>Online learning ensured continuity of courses and also ensure student safety</p> <p>Faculty capacity and facilities upgrading done</p>
	Government document		Students studying abroad had to return home	Higher education sector did not have to change the curriculum during lockdowns

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Author	Type	Methods	Challenges	Opportunities
Ministry of Education (2020)			Institutions closed	Made use of virtual learning platform that was long established but underutilized in RUB
			Practical and hands-on courses shelved	Explored and used various applications and platforms for online learning
Ministry of Health (2020)	Government document		Lack of access to ICT facilities including laptops and connectivity problems	Upgraded facilities and skills immediately
			Closure of institutes	Established systems and structures to monitor and improve online classes
			Unprecedented risk to student learning, protection and well-being	Improved sanitation and health
Maramatsu & Wangmo (2020)	Journal article	Survey	Risk of reversal in educational gains	Plan to care and support sick were developed
			Avoided social events requiring large gathering	Mental health and psycho-social aspect gained better attention
			Connectivity issues and regular disconnection	Use of various platforms and online tools
Pokhrel & Chhetri (2021)	Journal article		Access and connectivity in rural areas	Exposure to online learning systems increased
			Students from poorer economic background could not afford internet connectivity	Some students enjoyed and learned more effectively through online classes
			Stressful online education	Opportunity to innovate and introduce digital learning
			Institutions closed and business hours affected	Included even physically challenged to learn properly
			Academics and students compelled to take up online teaching-learning that they were not familiar	
			Online assessment, based on trial and error method	

Author	Type	Methods	Challenges	Opportunities
RIM (2021)	Annual report			Realised and planned for virtual learning courses
RUB (2020)	Annual report		Delay in sending staff for training	Explored to use technology in other services including conference and research
			Construction works halted	Marked the beginning of online teaching-learning
			Conferences and events suspended	Created structures and institutions to manage online classes
			Colleges closed down	Most activities carried out uninterrupted
			Existing digital divide widened	Developed skills among academics
			Some students do not have access to laptops	Enhanced creativity in guiding students and testing such as open book exams
			Connectivity issues grave in remote parts	Instituted a work from home environment
			Some student found difficult to transition to online learning	Online platform used for other purposes also such as meetings
			Underdeveloped facilities- Existing facilities need to be upgraded	Innovation in research in creating sensor based hand sanitise at JNEC and app by CST
			Data security issues emerged	Offered opportunity to transform teaching learning using ICT
				Some colleges already initiated module for online teaching and learning
RUB (2021)	COVID-19 response plan		Closed down college campuses	Safety and welfare of students came to the fore
			Some students in villages not getting connectivity, no access to laptops	Academics were swift in transitioning to online teaching
			All events including contact sports on the ground suspended	Explored and used various online tools
			International student services suspended	Work from home implemented as alternative for continuous service

Post-COVID-19 Landscape of Higher Education

Author	Type	Methods	Challenges	Opportunities	
Tenzin & Tshering (2022)	Journal article	Quantitative method	Implementation of annual plan and strategic plan activities affected	Guidelines and structures in place to support online learning	
				All employees protected their services and received their pay cheque	
				Facilities upgraded	
				Cleanliness improved	
				Overtime some students became more comfortable and handled online classes well	
				Poor internet connectivity affected student motivation to learn	Online test and assignments made it more convenient
				Majority of academics not satisfied with online classes due to technical issues	Learning was very flexible
Tshering & Dema (2022)	Journal article	Web-based cross-sectional study	Lacked skills to teach different subjects online	Cater to non-traditional students too	
			Unable to track student works and check cheating practices	Online classes has no physical barrier and can use resources outside Bhutan	
			Courses with practical components could not be delivered online	Online classes became reality when it was just a topic of conversation	
			Increased risk of psychological distress among students		
			Not able to offer online classes as expected due to poor infrastructure		