

RESEARCH ARTICLE



Online Learning as a Resilient Approach During COVID-19 Pandemic: Reviewing the Challenges with Prospects

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Abstract: It is important to observe the effectiveness of online learning (OL) as a resilient approach for the smooth functioning of the educational systems in the post-pandemic for resilience purposes. This paper defines resilience as learners' capacity to cope with a crisis like COVID-19 and recover quickly from the challenges and prospects caused by the pandemic. Hence, this paper aims to find out the extent to which the use of OL in higher education institutions (HEIs) has served as a resilient means of accessing education in selected South and South East Asian countries during the COVID-19 pandemic. This paper uses a literature review method and adopts the integrative literature review approach. The reviewed literature was subjected to a content analysis method in order to provide the themes relevant to address the objectives of this paper. The results indicate that in the context of South and South East Asia, particularly in Afghanistan, Bangladesh, China, India, Japan, South Korea, Malaysia, Nepal, Pakistan, and Sri Lanka, there are country-specific differences in adopting OL as a resilient approach in HEIs. For instance, in China, OL was a "forced innovation" during the pandemic. However, this paper concludes that nearly all South Asian nations took recourse to OL during the pandemic without a proper understanding of the pedagogical implications of OL. Hence, the recommendation is that OL cannot be fully utilized unless critical issues like learners' engagement, investments, digital divides, infrastructure, and governmental and leadership support are properly addressed and assessed. Another recommendation is for policy guidance, especially in the South Asian developing countries in the post-pandemic contexts, to consider the best practices of OL as resilient strategies for sustainable education in HEIs.

Keywords: online learning, higher education institutions, COVID-19 pandemic, post-pandemic, resilient, sustainable education

1. Introduction

Online learning (OL) as a resilient educational approach has been widely discussed and debated including in the context of the COVID-19 pandemic. COVID-19 led to lockdown, which is one of the reasons for both popularization and emergence of OL in some developing countries like India, and thus intensified the existing challenges in imparting education. But the same accelerated OL worldwide with a view to offering scope for uninterrupted teaching-learning. In this paper, uninterrupted teaching-learning refers to the teaching-learning process that is not interrupted by challenges like no internet connectivity during OL. Although most studies like Akpen et al. [1], Rajabalee et al. [2], Händel et al. [3], and Rao et al. [4] had precisely dealt with the effectiveness of OL, there were important emerging concerns such as learners' engagement and tension. Additionally, Fredricks et al. [5] and Mandernach [6] defined student engagement in reference to dimensions of cognitive, behavioral, and affective, while the study by Moore [7] refers

to engagement in terms of student-to-student interaction, student-to-teacher interaction, and student-to-content interaction. For instance, Rajabalee et al. [2] referred to a positive correlation between the engagement of the learner in an online module and their overall academic performance. Martin et al. [8] reiterated the need to support learners to face the challenges of OL such as loneliness, worries, tension, stress, and learning during the pandemic. On the other hand, Rao et al. [4] added that internet accessibility is an impediment for students in India as well as the absence of classroom interactions, and therefore, these are challenges for OL. There are also reduced interactions with instructors, which is another challenge noted by Akpen et al. [1]. Martin et al. [8] reported that the rapid shift toward OL was challenging for students, instructors, administrators, and parents across the world, one key challenge being keeping the learners engaged. Therefore, mitigating the challenges of using technology, psychological mindsets, and hurdles toward the acceptability of OL with blended learning should also require addressing the need for proper theoretical frameworks for engaging online learners, identifying their learning needs and characteristics, and adopting suitable pedagogic strategies for engaging them in OL. It would, therefore, be important to observe the effectiveness of OL

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for the smooth functioning of the educational systems, particularly in the context of South and South East Asia.

Discussing the experience of OL in some South and South East Asian countries, Bandalaria [9] also stated that the population in Asia is increasing, and hence, the demand for more education and infrastructural development to support higher education institutions (HEIs). Amidst such existing concerns and challenges, COVID-19 caused shockwaves in academia, including in the Asian region, forcing it to either improvise on the existing means of education or try out new and resilient means during the closure of HEIs. This paper aims to explore OL, particularly during the pandemic, in selected South and South East Asian countries, namely, Afghanistan, Bangladesh, China, India, Japan, South Korea, Malaysia, Nepal, Pakistan, and Sri Lanka. Compared to the South Asian developing countries, the South East Asian developed countries are providing more techno-based learning experiences as most of them are industrial economies. Thus, this paper is guided by two main objectives:

- 1) To examine the challenges of imparting OL as a resilient means during the COVID-19 pandemic.
- 2) To explore the prospects of OL in post-pandemic situations based on some best practices of OL.

The significance of the paper is to provide a thorough review of the reasons, challenges, and prospects of OL in South and South East Asia, and the lessons learned would guide future educational interventions in the Asian region in the post-pandemic context. The outcome of this paper's findings can benefit HEIs including those imparting education through the Open and Distance Learning mode.

Additionally, Tuck and Berger [10] confirmed that mindfulness is associated with psychological well-being and resilience in tertiary education. Resilience, therefore, began to be seen as an important concept in education. Similarly, resilience is defined as a way of adapting to a disturbance [11]. In this paper, resilience refers to learners' capacity to cope with a crisis, to withstand or to recover quickly from the difficulties caused by a crisis like the pandemic. In HEIs, resilience as a concept has caught the attention of different scholars like Bozkurt [12], Ross et al. [13], and Sanwal [14] to understand how HEIs managed to cope with the COVID-19 pandemic by implementing online and other digital support services. Bozkurt [12] even stressed that the core themes in understanding HEIs during the crisis were resilience, adaptability, and sustainability. Fredericks et al. [15] shared the experiences of some teachers during the pandemic when coping with the virtual environment to continue teaching, and one of the teachers stated that "... using pieces of medium density hardboard panel and camera . . . , she successfully continued her math classes during COVID-19 pandemic by adopting a self-resilient approach."

2. Methods

2.1. Research design

This paper applied an integrative literature review. The integrative literature review as a research methodology explores published evidence regarding a phenomenon in order to identify the knowledge gaps to be addressed in subsequent research [16]. The selected literature for review in this paper is from 2020 to 2023. Only Scopus journal articles in the English language were considered for review. The selected South and South East Asian countries for this paper are Afghanistan, Bangladesh, China, India, Japan, South

Korea, Malaysia, Nepal, Pakistan, and Sri Lanka. These countries were selected due to their shared diversities in terms of cultures, environment, languages, and political and socio-economic systems. Search words like "Higher Education Institutions," "Online Learning," "COVID-19 pandemic," "Resilient," and "Best Practices" were used to explore for relevant journal articles. The selected search words served to address this paper's two questions which are: *What are the challenges imparting OL as a resilient means during the COVID-19 pandemic, and what are the prospects of OL in post-pandemic situations based on some best practices of OL?* Only journal articles that indicated the selected countries with the search words of interest to this study were included, and hence, the inclusion criteria were considered. Any journal articles published in 2019 and before the year 2019 were not considered for review. Therefore, the exclusion criteria were used for the year of publication of the reviewed journal articles since COVID-19 had not yet been announced as a pandemic globally by the World Health Organization.

2.2. Analysis

This paper applied content analysis based on the synthesis of the reviewed literature. This helped to draw the analysis from the reviewed literature and provide the themes relevant to address the study objectives. In order to analyze the data, emergent themes and coding were used as part of the content analysis. Two core themes, that is, "Online educational delivery" and "Coping strategies," and four codes were used against the emerging subthemes, that is, (Code 1) prospects, (Code 2) challenges, (Code 3) resilient approaches, and (Code 4) best practices related to OL during the pandemic across the selected South and South East Asian countries.

3. Findings and Discussion

3.1. Summary of the challenges and prospects of providing OL in South and South East Asia

A summary of the challenges and prospects of OL in the context of South Asia and South East Asia is provided in Table 1, which contains a review of the contents of the selected published research papers on the aspects of OL, particularly prospects and challenges in connection with the COVID-19 pandemic, which are of interest in this paper. In addition, Table 1 represents the relevant reviewed literature in terms of journal articles that were obtained from Scopus by highlighting the sources, countries, and findings.

From the above reviews, it was found that there were country-specific differences in terms of using OL during the COVID-19 pandemic. For South Korea, students were more resilient and more techno-friendly as OL had already been prevalent in that country. However, this was not the case for some other nations in the Asian region though they had a robust online infrastructure. China started to build a national network of online systems for delivering web resources for learners as COVID-19 compelled them to emerge as a *forced innovation* system. However, nearly all countries in South Asia adopted online tools for accessing online courses or for carrying out academic transactions during the pandemic without having the proper pedagogical knowledge and understanding of the OL per se. To carry out the research, the content analysis method was used in terms of two broad themes: (a) online educational delivery during the COVID-19 pandemic and (b) coping strategies, as well as four subthemes with specific codes (see Table 2). The analysis also helped to understand the problems, challenges, and prospects

Table 1
Relevant reviewed journal articles covering South and South East Asia

Source	Country	Findings
Bozkurt et al. [17]	India, South Korea, and Japan	The reaction to “Emergency Remote Education” during the pandemic by teachers from India was overwhelming. While several teachers faced difficulties, capacity-building programs to train the faculty members about online resources and creation of e-contents were held in many universities. The Educational Broadcasting System and the Korea Education and Research Information Service provided teachers and students with digital materials. Schools and universities in Japan enhanced information communication technology (ICT) and e-learning readiness through improved infrastructure and provided capacity building for teachers and students.
Agarwal et al. [18]	India	Online education for students would be more acceptable after the pandemic if the host institution could deliver on satisfaction, sophistication of online testing, and competition beyond geographical boundaries.
Gupta et al. [19]	India	Findings showed that though most respondents had access to virtual platforms, nearly half of them were inattentive during the online sessions. Others were having problems understanding the topic. Finally, it was presumed that OL may not substitute for offline learning to ensure holistic development for young minds.
Khamis et al. [20]	Pakistan	Reiterated on providing trust and opportunities for those with the requisite competencies to lead teaching and learning in a participatory and distributive manner amidst the scarce human and financial resources.
Lemay et al. [21]	Nepal	Learning about new tools and technologies, mostly without any previous knowledge or information amidst a serious lack of access and material support, continued struggle for survival against the virus, and economic hardships.
Roy et al. [22]	Bangladesh	Though the country had no specific policy for continuing education, OL in Bangladesh began to be seriously considered after COVID-19.
Shohel et al. [23]	Bangladesh	Many universities progressed to online mode quickly, while many others lagged behind. The views received from the teachers and students would help in addressing the issues of the digital divide and social justice.
Karunanayaka et al. [24]	Sri Lanka	The Commonwealth of Learning provided a much-needed framework for digital education in Sri Lanka through the C-DELTA program, which was implemented through the Open University of Sri Lanka. Subsequently, there was digital development and practices for teachers and students despite the COVID-19 pandemic.
Mathrani et al. [25]	India, Pakistan, Bangladesh, Nepal, and Afghanistan	Very limited access to basic digital tools, devices, and services in a way restricted the use of digital media by learners, particularly female learners, due to multiple factors. Urged policymakers to set up equitable and gendered policies for OL.
Lee et al. [26]	South Korea	Despite the disruptions, the pandemic was not as bad for learners as one might have feared. It was assumed that the Korean students were probably more resilient than they were thought to be.
Nakata [27]	Japan	The sudden shift toward digital and online instruction in Japan following the COVID-19 pandemic had related pedagogical implications in the field of teacher education. Although technology was not a problem, the perceptions of the teachers and students on motivation and well-being, their views on active learning, and the instructors’ perceived efficacy to teach digitally emerged as important aspects during online transactions. However, the findings suggested the need for careful selection of instruction formats.
Yang and Huang [28]	China	The findings revealed a forced innovation due to the pandemic. China resorted to institutionalizing and normalizing the actions taken during the COVID-19 pandemic..

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Table 1
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Source	Country	Findings
Yang and Yuan [29]	China	Developing nationwide online education in China despite the hurdles posed by the pandemic was stressed. However, using ICT in education did not occur early in China compared to Korea.
Jung et al. [30]	Hong Kong, China	The institutions in Hong Kong followed three ideas—controlling, supporting, and positioning a clear understanding of how the existing educational terminologies and practices were affected by the pandemic.
Sia and Adamu [31]	Malaysia	During the COVID-19 pandemic, East Malaysia had limited internet connectivity for OL. However, the pandemic also provided an opportunity to redesign the education systems.
Tonbuluğlu and Tonbuluğlu [32]	China	Blended learning studies from China have been increasing since 2006.
Saleh et al. [33]	Bangladesh, India, and Pakistan	Challenges of OL included technology readiness, performance improvement, and sustainability.

Table 2
Themes, subthemes, and codes based on the reviews

Themes	Subthemes with specified code	Findings
a: Online educational delivery during COVID-19 pandemic	Code 1: problems	All educational institutions were closed down. Sudden shift towards digital and online instruction caused fear even among the teachers with high ICT skills. Inadequate pedagogical knowledge in applying OL. University faculty had to create digitised contents and materials with minimum skills in ICT. Teachers were worried about content development online and use of technology. Rescheduling of all ongoing university evaluation and examinations during COVID-19 pandemic. Poor internet facilities. Limited access to the basic digital tools, devices and services that further restricted the use of digital media by the affected learners, particularly the female learners. More digital divide in the developing countries.
	Code 2: Prospects	The open universities, unlike F2F universities, were better equipped with online technology and tools. Online courses were already in place in most countries. The pandemic positively affected teachers and academic frameworks institutionally. Reactions of institutions were based on controlling, supporting and the need to position as a prospective move. Technical skills in both teachers and learners started to improve through capacity building programmes. Competencies on designing and using learning resources or materials in the form of MOOCs, OERs etc. increased. Enhanced ICT and e-learning readiness promoted the capacity of teachers and students. Planned initiatives for bridging the existing digital gaps helped the policy makers to set up equitable and gendered policies of OL. Personal development of teachers focused on how to learn and acquire skills for the new technologies. Social Serious lack of social interaction. Lack of physical attendance in schools, colleges and universities. Uncertainties and inequalities. The issue of sustainability of the education systems. Limited human and financial resources causing incompetence in leading an institution.

(Continued)

Table 2
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Themes	Subthemes with specified code	Findings
	Code 3: Challenges	Personal and Psychological Sudden psychological shock due to the pandemic. Coping with crisis through confidence. Stress and anxiety while using OL tools. Lack of attention and engagement on the part of the learners. Pressure of workload on the part of the teachers. Increased screen engagement. Learning new technology and pursuing online training amidst technology phobia Technological Adapting to new technologies. Low internet connection and bandwidth. Intermittent internet. Inadequate digital training and capacity building for teachers. Failure to focus on genuine learning. HEIs in the developing countries had inadequate infrastructure as well as policy to support OL.
b: Coping Strategies	Code 4: Resilient approaches as Best Practices	Teachers quickly switched to web-conferencing. Extensive use of online tools and platforms like ZOOM and Google. Meet provided enhanced teaching and learning experiences. Increased awareness regarding designing and enrolling in MOOCs created new learning ecosystems. Increased number of capacity-building workshops for teachers. Improvement of technology and related facilities providing more scope to educate and being educated. Subsidizing the use of the internet, repositioning the education system, and implementing emergency remote education laws to meet the challenges. Adoption of need-based initiatives for bridging the existing digital gaps was expected to set up equitable and gendered policies in OL. Using an institutional learning management system integrated with new technologies that support uninterrupted learning. Introducing learning in classes that are based on content, assignments, and activities. The Korean model is a good example. Formulation of nationwide online education policy in China.

Table 3
Findings based on themes and subthemes

Themes	Subthemes	Number of findings
a. Online educational delivery	1. Problems	9
	2. Prospects	9
	3. Challenges:	
	Social	7
	Personal and Psychological	6
	Technological	6
b. Coping strategies	4. Resilient approaches as best practices	10

and also to find out the best practices of OL adopted during the pandemic. The findings in Table 2 facilitated the summary of online educational delivery themes and subthemes as shown in Table 3.

Thus, from Table 3, due to the sudden shift toward OL during the COVID-19 pandemic, and from the four subthemes with specific codes, there emerged 9 common problems, 9 prospects, 18

challenges, and 10 best practices for a resilient approach. This means that the coping strategies adopted mostly through OL made education more resilient, and the same is expected to transform the education system in post-pandemic contexts. The problems, prospects, challenges, and best practices are shown in Table 3 and further discussed in Section 3.2.

3.2. OL for Asia: problems, challenges, and prospects

Based on the state of OL, the following problems, challenges, and future prospects in the context of South and South East Asia have been identified.

3.2.1. Problems

The major problems of OL with online educational delivery during the pandemic include closure of HEIs; sudden shift toward digital and online instruction causing fear even among teachers with high ICT skills; inadequate pedagogical knowledge in applying OL; low ICT skills by university teachers to create contents and materials; teachers feeling the load of too much content development; rescheduling of all the ongoing university evaluation and examinations during the COVID-19 pandemic; poor internet facilities; limited access to the basic digital tools, devices, and services that further restricted the use of digital media by the affected learners, mostly the female learners; and more digital divide in the developing countries. Most of the problems faced by these South and South East Asian countries such as the digital divide and sudden shift to OL support previous studies like Saleh et al. [33], particularly in the case of engaging students and technology readiness.

3.2.2. Challenges

The pandemic enhanced the importance of OL for educating learners irrespective of their age and geographical location. For instance, in Roy et al. [22]'s work, both teachers and students in Bangladesh, irrespective of their age, progressed to OL. However, this type of learning can never be seen as equitable OL in South and South East Asia due to their own specific socio-economic problems. In most South Asian countries under review, there can be seen visible digital divides and a lack of resources as are explicit through problems like lack of technological infrastructure between the rural and urban areas, schools with a single teacher, poor electricity and internet connectivity in remote areas, and lack of ICT knowledge and skills. In this context, UNESCO [34] also reported a number of barriers teachers and students often face including the lack of professional development and skill training with ICT and the limited access to hardware devices and data to keep in contact with students. Scholars like Xie et al. [35] opined that OL has certain inherent shortcomings in terms of constraints or engagements during online interactions.

3.2.3. Prospects

In connection with the context of the previous discussion, the following prospects could be considered.

- 1) Kauffman [36] mentioned that online courses are not perceived the same way as traditional courses and that OL may not be appropriate for every student. Therefore, knowing the attributes of learners can help the faculty members to design online courses of high quality in South and South Asian countries, particularly in the geographically and demographically diverse countries of South Asia, to meet their specific needs.
- 2) Finding cost-effective ways to learn at a distance is a potential prospect. For instance, students' time management with the integration of technologies is expected to emerge as the educational game changer.
- 3) The adoption of the Community Inquiry Theoretical Framework could keep the teaching-learning environment in both South and South East Asia cohesive and convenient. In this framework, the

teaching, emotional, social, and cognitive presences are considered while delivering the course contents to the learners. This framework, which makes teaching-learning more collaborative and interactive, will surely encourage close association between teachers/mentors and students/mentees even as part of OL.

- 4) As discussed by Lalani et al. [37], adopting targeted leadership strategies by HEIs can enhance efficacy in educational technologies, and increased resource sharing and collaboration could improve the situation with positive results.
- 5) Collaborations with international entities could play a role in supporting the education systems globally during times of crisis. This type of collaboration is evident in Sri Lanka as indicated in Karunanayaka et al. [24] by stating that the Commonwealth of Learning provided a much-needed framework for the digital education C-DELTA program that was implemented through the Open University of Sri Lanka.
- 6) The pandemic helped to shape policies that can respond to future pandemics. This will certainly mandate improvements in ICT infrastructure to implement equity and equality in the education systems across the Asian region.

4. Conclusion

OL in the post-pandemic can benefit HEIs in the Asian region in terms of prospects like time management for students. However, the absence of a robust OL ecosystem for educational purposes and the capacity building of both teachers and learners is a challenge. New research is still being undertaken to gauge the purpose and effectiveness of OL as a resilient means. Additionally, important recommendations are to be made to assist the respective governments of the Asian countries to adequately address the post-pandemic needs: extensive use of teaching tools such as social media, radio, television, and learning management systems; conducting capacity-building programs for teachers; and involving parents in the teaching-learning processes. However, in the context of South and South East Asia, these strategies can further endorse a resilient approach through OL that would require systematic planning and policy implementation to create an effective learning ecosystem.

The insights emerging from the reviews undertaken as part of this paper highlight suggestions for national policies by relevant stakeholders. With systematic planning and use of available resources, the governments of Asian countries could devise suitable remedies for marginalized learners. The experiences gained from the South and South East Asian countries reveal that OL can provide opportunities to sharing digital contents, communicating, collaborating, and solving problems, which can be seen as the pillars of sustainable education. The findings of this study will guide in restructuring the education systems and updating the existing models of educational delivery in the Asian region as a whole.

Therefore, for long-term survival and resilience as a practical implication for any future crisis, this study recommends that there is a need for a systemic and critical rethinking of educational and institutional policy implementation. In the context of theorizing resilience and for policy implication, OL can be beneficial to HEIs from the selected South and South East Asian countries, as well as help people all over the world make education stronger during tough times by applying some of the best practices as coping strategies, such as teachers switching to web-conferencing, extensive use of online tools and platforms to enhance teaching and learning experiences, subsidizing the use of the internet, and implementing emergency remote education laws. This paper's limitations involved

the use of an integrative literature review method and content analysis. Other studies may explore a systematic literature review and include more databases other than Scopus in order to yield comparative results. Similarly, this paper recommends for future research taking recourse to mixed methods to further understand the implications of OL beyond the post-pandemic contexts.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Author Contribution Statement

Ritimoni Bordoloi: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration. **Prasenjit Das:** Conceptualization, Validation, Writing – original draft, Writing – review & editing, Supervision, Project administration. **Kezia Herman Mkwizu:** Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration.

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How to Cite: Bordoloi, R., Das, P., & Mkwizu, K. H. (2025). Online Learning as a Resilient Approach During COVID-19 Pandemic: Reviewing the Challenges with Prospects. *International Journal of Changes in Education*. <https://doi.org/10.47852/bonview/IJCE52025351>