How students and teachers voyaged from physical classroom to Emergency Remote Teaching in COVID-19 crisis: A case of Nepal

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Abstract

COVID-19 pandemic forced schools to shift from traditional to remote teaching globally. Most schools in Nepal, however, could not adopt remote teaching. Only some schools, particularly those located in urban areas initiated remote teaching after the outbreak of the pandemic in 2020. This article, thus, reports an analysis of secondary students and teachers' experiences of remote learning. It as qualitative research employed semi-structured interview and observation of online classes to investigate students' ways of managing remote learning and teachers' strategies of teaching through online mode. This paper reports that both students and teachers were, at first, intimidated by the new mode of learning. Remote learning, albeit it was observed as an alternative mode of education where there was minimum information and communication technology (ICT) infrastructure, seems to increase the digital divide in rural areas. Students, particularly from government schools, struggled to manage their remote learning due to limited access to digital technology, the sudden shift from the physical classroom to remote learning and a lack of government support. Thus, parents play a vital role in influencing their children's attitudes toward remote learning. It is essential to equip students and teachers with ICT and minimal ICT skills and provide with subsidy on digital devices and the internet for students to completely implement remote learning.

Keywords

Information and communication technology, COVID-19, remote learning, challenges, access

Introduction

The outbreak of COVID-19 declared as a public health emergency by the World Health Organisation (WHO) in early 2020 has influenced all sectors including education across the world. The

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WHO advised members of the public to maintain social distancing, wear a mask, maintain personal hygiene and promote awareness to protect people and prevent the spread of the disease (World Health Organization, 2020). After the outbreak of the pandemic in March 2020, the government of Nepal shut down all the schools and universities and advised them to explore alternative modes of learning (Ministry of Health and Population, 2020). About nine million students in Nepal were forced to stay home away from schools and universities (UNESCO, 2020). Although schools particularly in developed countries switched their physical classroom to remote learning immediately after the outbreak of COVID-19 in China in December 2019 and gradually across the world (Huang et al., 2020), most Nepali schools could not adopt remote learning due to lack of information and communication technology (ICT) infrastructure and knowledge. Only some especially urban private schools attempted to continue their educational activities through online mode by using various ICT tools such as Zoom, Teams, Messenger, Viber, Google Meet and Skype. However, most government schools have been completely shut down. Students and teachers' lack of access to ICT and ICT skills (Rana, 2018; Rana et al., 2022) seem to be barriers to implementing remote learning.

The government of Nepal developed the guideline to safely engage students in alternative ways of learning including internet-based learning during the pandemic crisis (Ministry of Education Science and Technology, 2020). However, the lack of ICT infrastructure and ICT-skilled teachers at the majority of schools in Nepal (Rana et al., 2020) have become barriers to switching from physical classrooms to remote learning. While remote learning in Western countries during the COVID-19 pandemic reduced children's stress, promoted their interactions with teachers and friends, and increased their self-learning habits (Champeaux et al., 2020), most schools especially in rural Nepal were completely shut down during the crisis. In those Western schools, teachers' pedagogical and technological knowledge has played a significant role to manage the online mode of learning (Bagoly-Simó et al., 2020). In particular, their constructive approaches to remote teaching and adequate pedagogical knowledge eased the online learning mechanism. In the context of Nepal, such practice, albeit it was limited, was observed in urban private schools.

While ICT has become an integral part of school education in many countries (Agyei, 2020), most Nepali schools still rely on traditional chalk-and-talk teaching methods. The lack of ICT infrastructure and skilful teachers has become a barrier to the implementation of ICT projects in education in all schools. During this pandemic crisis, the issue of ICT use in education has been highly discussed to continue educational activities by utilising various available means of online learning. The Ministry of Education Science and Technology (2020) has published Guidelines for Student Learning Facilitation with Alternative System 2020 (2077BS) to help schools and universities facilitate students through an alternative way of learning during the pandemic situation. The document has provisioned to classify students into five categories based on their access to (a) computer and internet, (b) only computer, (c) radio and television, (d) only radio and (e) none of them, and facilitate students accordingly. The students and teachers involved in this study had access to computers, mobiles and the internet. Following the guidelines, some urban particularly private schools and colleges attempted to conduct remote teaching. However, most students who had no digital device and internet were unable to join online classes. We identified some students and teachers who were practising remote learning during the lockdown situation. Then, we aimed to explore their experiences of a complicated transition from a traditional classroom to remote learning. In particular, we sought answers to mainly three questions: How is secondary students' experience of remote learning in the COVID-19 pandemic situation? In what ways do secondary teachers teach lessons through an online mode of learning? How do secondary students manage to learn through online mode? This paper, thus, reports an analysis of students' remote learning experiences and teachers' support to them in the crisis.

Access to information and communication technology

Studies (Mesfin et al., 2018; Thapa and Sæbø, 2014; Belt and Lowenthal, 2019) have reported the significance of ICT infrastructure in schools and access to internet facilities for teaching and learning. In his study in Nepal, Shields (2011) reported that the use of ICT in education rapidly increased in the first decade of the new millennium. He emphasised that it develops students' critical thinking skills, improves educational quality and expands students' access to education. In the words of Acharya (2014), ICT has become an important part of teaching and learning to fulfil the needs of growing youths, and it has brought significant changes in the traditional teacher-centred ways of teaching. Similarly, some studies (Thapa and Sæbø, 2014; Thapa et al., 2012) investigated that the integration of ICT in education can ensure equity and education quality for students from marginalised and disadvantaged communities. However, other studies (Rana, 2018; Laudari and Maher, 2019; Rana, 2017) reported that while the government lacks specific strategies to implement the ICT policies, equip schools with ICT infrastructure and train teachers to use ICT, non-governmental organisations (NGOs) and private educational institutions have trained teachers to utilise ICT facilities in educational activities.

It is essential to address ICT-related issues, such as the lack of ICT infrastructure in schools, teachers' limited or no digital literacy and students' lack of access to digital technology, to enhance the quality and efficiency of education in the context of Nepal (Lim, 2007). Rana et al. (2022) suggest developing a specific strategic plan, funding for ICT infrastructure and providing adequate ICT training for teachers to implement the education policy on ICT and transform traditional pedagogies to modern learning. Agyei's (2020) study in African countries investigated that intensive ICT training enables teachers to effectively use ICT facilities and increases the sustainability of ICT practices in education. In a similar study in New Zealand, Mackey et al. (2012) identified that access to digital devices and the internet-enabled schools to manage teaching and learning in the crises such as an earthquake when normal routines were interrupted. Subedi (2020) suggested adopting virtual learning, a feasible and viable option to a physical classroom in the COVID-19 pandemic, and revising the curriculum to mitigate the crisis.

Strategies for remote teaching and learning

Many studies have suggested using internet facilities for allowing learners to manage their flexible learning. For example, a study (Löfström and Nevgi, 2007) in Finland reported that learners benefitted from engagement in knowledge-building online communities. Similarly, research (Hung et al., 2010) in Taiwan focused on applying specific strategies such as self-guidance, motivation, promotion of ICT skills and self-control to effectively conduct online learning. In their study in New Zealand, Mackey et al. (2012) investigated that teachers succeeded to blend online and offline interactions by promoting the use of online pedagogies with socially networked feelings. However, Gao et al. (2012) reported that teachers in the UK needed to focus on appropriate instructional activities to improve participants' performance in an online environment. In their analysis of students' relationship in online learning, Song et al. (2018) found that teachers' social behaviours promoted students' independent learning from home. However, Ragusa and Crampton (2018) argued that teachers' social behaviour and level of devotion determine the effectiveness of online teaching. They emphasised the development of a collaborative relationship between teachers and students to engage distant learners in learning activities.

Many studies (Tarus et al., 2015; Teo et al., 2018; Wagner et al., 2008) have reported that teachers and students can be initially intimidated by new technologies and the online mode of learning. In

this situation, Bolliger and Martin (2018) suggested teachers apply dialogue as a strategy to negotiate learning activities and enable students to share knowledge and ideas. Aitken (2021), for example, investigated that the dialogue between teachers and students in UK schools eased their communication and sharing of relevant learning materials through ICT tools. However, Hart et al. (2019) found equal importance of learner, instructor and content to enhance knowledge through remote teaching. Similarly, a comparative study (Wang et al., 2020) on different forms of an online class in China found that students appreciated an interactive strategy more effective than any other teaching strategies. Jaber et al. (2019) earlier reported that the interaction between students in remote learning developed their confidence in sharing ideas and the capacity of managing autonomous learning. Similar research (Damsa and Muukkonen, 2019) in Finland and Norway found that students' interaction and practices enhanced their subjective knowledge and increased their collaborative learning.

Teachers' pedagogical competency is significant in the management of remote teaching (Rana, 2022). For example, Becerra-Alonso et al. (2020) in their study in Spain investigated that the daily feedback system in online classes was effective to promote students' participation in interactivities and develop their self-learning habits. Likewise, Berry and Hughes (2020) in their study in the USA reported that students appreciated remote teaching during the pandemic situation because it provided them with flexibility for learning their courses. Gislev et al.'s (2020) study in Denmark found that schools' digital network helped teachers develop suitable pedagogies for remote teaching during the crisis. However, in their study in Finland, Kauppi et al. (2020) argued that teachers need to be supported to develop suitable pedagogy and content for effective remote teaching. Nevertheless, Rapanta et al. (2020) emphasised teachers' social and cognitive skills to facilitate students' remote learning during a crisis such as the COVID-19 pandemic. In the pandemic situation, König et al. (2020) suggested that teachers need to be provided adequate ICT training and other technical support to manage online classes.

The above writings indicate that internet-based teaching and learning can be an effective pedagogy to continue educational activities even without physical classes. Literature also informs that infrastructure management, teachers' preparedness and the knowledge of e-based learning are fundamental to making remote teaching productive. Literature crystalised our contextual observations of remote teaching practices and provoked how school students and teachers in the context of Nepal would learn new technologies during the pandemic crisis and move to a remote learning environment from a conventional physical classroom. We, then, planned and conducted this qualitative study during the pandemic situation.

Method

This study aimed to investigate secondary students and teachers' experiences of remote learning during the COVID-19 pandemic. It as qualitative research utilised semi-structured interview and observation to gather qualitative information (Cohen et al., 2018). Moreover, the documentary analysis helped identify the research gap, theorise ideas and analyse data. In particular, the analysis of contents of various archived documents such as journal articles, books, reports, and policies provided a ground for the planning of this study, conduct interviews and observations, and analyse data systematically.

As suggested by Denzin and Lincoln (2011), participant students and teachers were selected purposively from three secondary schools located in three districts. We identified these schools, which adopted remote learning, through teachers who participated in various webinars during the pandemic situation. Begnas and Khaptad schools are community schools located in the Hilly region,

and Gokarna School is a private school located in the Terai region. We sent an information sheet and consent form to headteachers to obtain their written consent to involve their teachers and students in this study. After we had obtained their informed consent and their teachers and students' name list, we sent both the information sheet and consent form to their teachers and students. In particular, we sent a request to many students and teachers at the participant schools through Facebook Messenger to participate in this study. Based on the first-come-first-serve approach, six teachers (two from each school) and twelve students (four from each school) were involved in this study based on their voluntary participation. It means that following our target number of participants, we welcomed interested participants' responses of voluntary participation. Then, we involved only two teachers and four students from each school who expressed their interest in participating in this study.

Data collection procedure

Participants were communicated on their phones to obtain their informed consent before starting the data collection process. They were followed on their phone and Facebook Messenger to build rapport for data collection. Secondary students and teachers were followed by online semi-structured interviews and observation of their online classes. A semi-structured interview with the idea of Cohen et al. (2018) explored how students and teachers learned to utilise ICT to initiate remote learning, teachers' strategies of teaching and students' experiences of remote learning during the pandemic situation. The participants were interviewed on multiple occasions using Zoom, Facebook Messenger and smart mobile. All the interviews with the participants were recorded on a mobile device and audio-recorder. Observation of teachers' online classes strengthened the data gathered through interviews. At least four online classes of each teacher were observed. Observation activities were recorded on a diary and laptop.

Data analysis

The data gathered through interviews and observations from students and teachers were analysed thematically based on the idea of Braun and Clarke (2006). An inductive approach to data analysis allowed us to identify themes and analyse the data. First, we transcribed audio records of interviews and identified initial ideas. Second, we coded the interviews based on common ideas found in the data. Third, we searched themes from the list of initial codes. Fourth, we read the coded interviews and identified themes. Fifth, we reviewed the themes and developed stories out of the data into these themes. Sixth, we produced a comprehensive report. Moreover, various archived documents were read to follow the analysis of primary data. Original names are replaced by pseudonyms to maintain anonymity in this paper.

Results

The analysis of qualitative data gathered through interviews and observations has identified specific findings. The following themes offer a systematic analysis of how students and teachers were intimidated by new technologies and ways of learning, their strategies for managing remote teaching and the challenges they experienced.

Students' initiative for remote learning

It was revealed from the interviews that the majority of student participants appreciated online classes for their learning in absence of physical classroom learning during the COVID-19 pandemic. However, the participant students from rural community schools reported that they had to plead to their parents to purchase new smart mobile and expensive mobile data for their remote learning. Some of them had to use their parents' mobile devices and rely on relatives' wi-fi for accessing online classes and learning materials. Besides, they shared their frustration that they were reluctant to use Zoom, a videoconferencing tool, for their online classes as they never used it in the past. For example, Purushottam, one of the students in the interview, said:

> I took my father's mobile and went to my aunty's (father's sister) house and asked for a wi-fi password. With the help of teachers' instruction, I was able to connect the first online class. Then I jumped up. (Purusottam, student at Begnas School)

His comment provided a picture of how many students living in rural areas have struggled to access online education. It also indicates that most students in remote villages who have no smart devices or computers and where there is no internet are beyond access to remote learning. In this challenging situation, the participant students were able to manage mobile device and the internet for their remote learning. However, they reported that they were initially intimidated by a new learning environment. In this situation, their teachers' basic instruction supported them to join videoconference on Zoom and gradually develop confidence in using it for learning. They also reported that their teachers who had no previous experience of remote teaching could not help them as much as they needed. It was evident from observations that students struggled to communicate and share learning difficulties in online classes. They reported that 40 min of freely available time on Zoom was insufficient for productive learning. For example, Samjhana, a student at Gokarna School, recounted her experience of learning various subjects through the online mode:

> An online class is different from a physical classroom. For theory, it is good, but we cannot practise Science and Computer experiments. Especially for Maths, the time on Zoom is very short and teachers mostly try another attempt to rejoin Zoom.

Samjhana's comments indicated how she and her friends were initially daunted by their lack of digital literacy, and how they gradually learned to use the Zoom app for remote learning activities. She acknowledged that there was some pressure on them to accept remote learning. Besides, they learned that the limited time of online classes was inadequate for the practice of Science and Computer experiments as these subjects require physical laboratories. In this situation, students attended online classes to get some help for the offline study of their prescribed textbooks. Teachers' focus on exercises in their online classes indicated that they needed intensive training to use ICT in their instructional activities in online classes. It was evident from observations that the teachers involved in this study just advised students to study their lessons in the textbook instead of involving them in discussions in online classes. For example:

> Sir! According to your suggestions, I read the text. I could not get a clear answer to question 2 on page 18 of English. Please, make me clear. (Prerana, student at Gokarna School)

> Page no […] I got it. […] Are you clear now? Study your book. OK. (Nim, teacher at Gokarna School)

Although students appreciated remote teaching, they doubted its sustainability in the context of Nepal where most students cannot afford it. However, they shared their bitter experiences of learning through a new model that they had to rely on their limited ICT knowledge they received from teachers and develop their autonomous learning strategies with teachers' limited support in online classes.

Opportunity for learning new technology and pedagogical skills

Interviews with teachers investigated that COVID-19 became an opportunity for them to experience remote teaching, a new pedagogical practice in their careers. The majority of teachers iterated that the pandemic provided them with an opportunity for switching their conventional physical classroom to remote learning. The use of search engines such as google significantly helped them explore digital materials for teaching courses. Their friends who had computer skills supported them to use Zoom to manage online classes.

> If the situation was normal, I would not start online classes. I have been developing my technological skills to make my online classes effective and interesting. I work for hours to prepare attractive PowerPoint slides. (Pratap, teacher at Khaptad School)

> COVID-19 pandemic caused a serious effect on different sectors but at the same time, it has become an opportunity for developing computer and teaching skills. We would never start such online classes if there was no pandemic crisis. (Kisan, teacher at Begnas School)

Their comments indicated how teachers with limited knowledge of remote teaching tools struggled at the initial stage of their practices. There might be many teachers who had experienced similar difficulties adapting to new online pedagogies to mitigate the challenges during the COVID-19 pandemic. It was evident from interviews that participant teachers did not have previous experiences of teaching through online mode. Few teachers who heard about remote learning doubted the quality of remote learning. All the participant teachers reported how they struggled to learn new technologies and pedagogies to support students' remote learning during the pandemic situation. Also, they expected intensive training in ICT for effective remote teaching. They wished to have a better alternative tool to manage an online class as effectively as a physical class. For example, Kisan, a teacher at Begnas School, shared:

> We felt we could not make the online class effective in this situation. We expect advanced ICT training to use apps and deliver lessons. We need a better tool for effective online teaching.

His comment indicated the lack of a proper ICT tool to manage remote learning and provide the necessary support to students' learning from home. Their initiative to conduct teaching and learning through an online mode indicates how teachers in the contexts where the use of digital technology in education is at the early stage learn and use digital technologies to create a new learning environment. It was much clearer from Kisan's expressions that suitable ICT applications would help them effectively manage online classes. It was evident from observation of teachers' online classes at Gokarna School that the paid version of Zoom allowed both teachers and students to share audio-visual materials and extend their class hours as much as they needed which was not possible on a free app.

> The paid version costs hundreds of dollars. It has many features such as creating a group for discussion and sharing materials. So, it is more effective than the unpaid version for the quality delivery of lessons. (Balendra, teacher at Gorkarna school)

Balendra's comment affirmed that his school would have been proactive to mitigate the pandemic crisis and help both teachers and students to conduct educational activities from their homes. Teachers tended to say that in the early practice of remote teaching, they experienced difficulties to teach hesitant students to communicate in online classes. They reported that school administration convinced parents to observe their children's online classes and offline studies. Such support from parents gradually developed children's confidence in using new technologies for learning from home. For instance:

> In the beginning, we found many students were careless about online classes. We discussed and organised parents' online meeting. When the parents convinced their children, students actively participated in online classes. (Nim, teacher at Gorkarna School)

Nim's comment indicated that the cooperation between teachers and parents enabled students to learn through online mode and develop their independent learning skills. The role of parents, therefore, is important to develop students' remote learning habits. Teachers reported parents' appreciation of their role in motivating students to participate in online classes.

However, teachers' responses indicated that both teachers and students need initial intensive ICT training to utilise available online resources for learning. It was evident from observations that teachers hardly managed to learn new technologies and continue educational activities through online mode.

Rurality as a challenge for remote learning

The majority of students (about 70%) were unable to access online classes organised by few teachers, particularly in rural community schools. Although few schools in villages tried to create a remote learning environment for secondary students during the COVID-19 pandemic by following the ideas of urban schools, their initiative did not become as effective as they expected it to be. Begnas School, for example, in the Hilly region attempted to manage online classes for Grade 9 and 10 (Year 9 and 10 in Western countries). Teachers from the school reported that most students could not access online classes due to the lack of broadband internet and stable mobile data. It was much clearer from the observation that, although few students were connected to online classes, they would not be able to stay online for the whole class because of their weak mobile data and unreliable electricity. It was further investigated that the school managed radio classes for students living in remote areas who had no access to the internet.

> We are trying our best to operate an online class for Grade 9 and 10. We have chosen only three (English, Maths and Optional Maths) subjects for online teaching but only less than half of the students are present in online classes. Most students are from rural areas where there is no electricity and no network coverage. It is the main challenge for us in rural areas. We have managed radio classes and we hope it supports those who cannot join the online class. (Laldhwaj, teacher at Begnas School)

Laldhwaj's comment indicated that their limited practice of remote teaching can be questioned against its quality and sustainability. It indicates that most students who did not have access to a

digital device and the internet were not prepared for remote learning. It was evident from interviews that participant teachers had to identify students who had digital devices and the internet to connect them on Zoom. Laldhwaj's response provided a picture of how teachers tried their best options such as radio classes to support their students in their learning during the crisis.

> The main problem is power cut. Another problem is slow or no internet service. We frequently rejoin the online class but sometimes we cannot join it due to the power cut and internet problem. (Ramita, student at Begnas School)

Ramita's comment indicated that unreliable internet and electricity created frustration in their learning through online mode. It was evident from interviews that lack of access to a digital device and the internet is a problem for urban teachers and students too. Kahptad School, for example, an urban community school, was found to operate online classes for all students from Grade 1 to 12. Participant teachers from the school reported that the majority of students, who were from urban areas, were present in online classes. They also reported that most students from rural areas could not access online classes due to weak mobile data. Teachers' stories about how their students used to go to the cliff of hills in the villages to find a mobile network to open messenger, download assignments and submit their works provided a picture of how the students would have developed some level of learning motivation with limited support from teachers. Ram, for example, a teacher at the same school, shared students' difficulties:

> They go to the hilltop of their village with their parents' mobile where they can get a mobile network. Unfortunately, mobile data is too expensive. They open Facebook messenger, download materials and assignments and study offline with their textbook. (Ram, teacher at Khaptad School)

Similar problems were reported by students from urban areas. For example, Roshan reported unreliable electricity and the internet that influenced his online classes.

> Recurrent power cut disturbs the internet connection in our town, and we cannot join online classes. Some of our friends have a backup system but we cannot go to their home. (Roshan, student at Khaptad School)

Roshan's comment indicates that many families cannot afford expensive backup batteries and broadband internet for the sake of their children's remote learning. However, Gokarna School, a private urban school, had a higher level of online education practice. It was revealed from interviews and observations that most students at Gokarna School managed basic requirements such as the internet and digital devices for remote learning during the pandemic crisis. The students who had no backup batteries in their houses were able to manage mobile data for online classes. The online class in that school was observed more effective than the other two community schools involved in this study. Teachers from the school reported that they could go to school where there was a power backup system and an internet facility and conduct online classes.

> Most of our students have power backup in their house. We have good power backup in our school too. Teachers can come to the school to conduct online classes from here. If the situation of COVID-19 pandemic remains the same, we can easily operate online classes for years. (Balendra, teacher at Gokarna School)

Balendra's expression reflected how urban private schools have managed to switch physical classes to remote learning and why government schools are unable to effectively manage remote teaching. Lack of digital devices for students, unreliable electricity and lack of broadband internet are major challenges in rural areas to adopt remote learning.

Discussion: Implication for online education

This study has revealed that the participant teachers viewed remote learning as an important alternative to physical classroom learning in schools. They regarded such new normal practice as not only an essential mode of learning in the crisis but also as a strategy to continue educational activities. Despite limited resources and knowledge of remote teaching, they deemed it as a new opportunity for learning technological and pedagogical skills. International studies (Aitken, 2021; Hung et al., 2010) have demonstrated that it is essential for schools to prepare teachers and students to navigate technology and content in the rapidly developing world. Aitken (2021) stressed that the trend towards internationalisation of education makes it important for teachers to learn new technologies and pedagogies, and incorporate ICT in instructional activities as a strategy for educational development. He also emphasised that students need to be equipped with digital devices, the internet, and minimal digital skills to move from a physical classroom to remote learning.

It was evident from interviews that participant teachers and students relied on mobile devices and free apps such as Zoom and Messenger. Nevertheless, teachers dared to initiate remote teaching during the COVID-19 crisis despite their lack of previous experiences and knowledge of remote teaching. It was a new experience for them to develop technological skills and utilise various ICT tools for learning activities. Although students appreciated the initiation of online classes while all the schools were shut down, teachers' pedagogies were often traditional and limited to lectures (Acharya, 2014). For many teachers and students, access to digital devices and the internet was limited in their lives. As a result, most students from rural areas were unable to access remote learning. Even when some students managed a digital device and expensive mobile data for their learning, they had frustration in their learning due to unreliable electricity and mobile data. Furthermore, for most teachers who used free Zoom, a forty-minute online class on it, was inadequate for the presentation of lessons and discussions. Teachers' limited digital literacy, lack of ICT infrastructure in schools, and absence of intensive ICT training for teachers to use ICT have been identified as recurring problems in rural Nepal (Rana et al., 2018; Adhikari and Rana, 2022; Baral and Rana, 2022). In such a complicated situation, the participant teachers embraced free apps, little smartphones and mobile data to conduct teaching and learning in the crisis.

Students' comments indicated that remote learning has become an alternative mode of learning. However, their expression reflected their frustration that they could not demonstrate Science experiments in online classes as such practical activities require physical laboratories. Indeed, laboratory practice is a significant issue. The participants' perception of remote learning seems to align with the findings of international studies (Berry and Hughes, 2020; Bolliger and Martin, 2018) that there can be a broad gap between an ideal online learning environment and localised practice. For many teachers, accessing and utilising experimental digital learning materials can be difficult.

Being able to access digital tools and understanding their use are interrelated. The participants' responses indicated that, while they were interested in using ICT tools available for them, they had limited knowledge of how to use videoconferencing tools and no previous experience with remote learning. They were, therefore, initially daunted by new technologies. However, participants' comments indicated that they gradually developed some level of confidence in using apps such as

Zoom and Messenger to share learning materials and ideas relevant to courses. According to Walker et al. (2020), it is normal for teachers who are new to digital technologies that they often have hesitation to use these technologies in their instructional activities. The participant teachers in this study gradually developed basic ICT skills from their consistent practice of teaching through an online mode. However, their comments indicated that they needed intensive training to use ICT in their instructional activities.

Due to a lack of experience with remote teaching, both teachers and students had to struggle to learn new technologies and overcome frustrations to survive in a new learning environment. It was evident from observations that teachers engaged students in the prescribed textbooks instead of following flipped learning strategies. Their replication of physical classroom pedagogies in online classes heavily depending on prescribed textbooks would have augmented what they used to do in the normal physical classroom (Rana, 2018; Rana et al., 2018; Rana, 2022). It was evident from the participants' comments that schools are unprepared to implement remote teaching. Unfortunately, many teachers and students are unable to afford expensive digital devices and the internet for their learning activities. While teachers experienced difficulties to support students' remote learning, parents' cooperation significantly helped students manage their independent learning. Bouchey et al. (2021) also suggest that cooperation between teachers and parents is essential to tackle the challenges of remote learning and make it sustainable.

The findings indicated that there was a gap between what ideal online learning is and the actual practices of the online mode of learning. Most students, for example, did not have access to online education due to a lack of the internet, electricity and digital devices in rural areas. Teachers reported that about a quarter of the total students from the Hills managed a mobile device and expensive data to study major subjects such as English, compulsory Maths and optional Maths through an online mode. Students' comments indicated that teachers' strategy of supplying learning through Facebook Messenger and giving feedback on students' work motivated distant learners to study independently from home. However, the incorporation of students' lifelong knowledge (Laudari and Maher, 2019; Rana et al., 2022) was rarely acknowledged. Moreover, observations indicated that when both teachers and students were beginning to learn how to use ICT tools in teaching and learning activities, they needed intensive training support. According to Mesfin et al. (2018), teachers who are new to digital technologies and online pedagogies often experience difficulties to learn and manage a new learning environment with the integration of those technologies. It was evident from interviews and observations that the teachers and students from urban areas who were familiar with digital technologies in their daily lives were comparatively more comfortable in a new learning environment. Research (Rana et al., 2018; Rana et al., 2020) suggested that teachers require minimal initial training about how to use digital technologies in their instructional activities, as well as ongoing support to improve their technological and pedagogical skills.

Conclusion

There is always a challenge when adopting remote learning, a new practice in school education, and it is definitely the case in Nepali schools where both teachers and students have limited digital skills. Teachers in this study expressed their difficulties in the management of remote teaching as they did not have previous experience and knowledge about it. They were initially intimidated by new technologies. For many of the teachers particularly from community schools in this study, developing digital skills was essential. Nevertheless, knowing how to use free mobile apps such as Zoom and Messenger in their pedagogies was necessary to ensure that the technologies helped students learn through online mode. Besides, access to a digital device and the internet was an issue.

Most students from rural areas, who did not have access to digital technologies, were unable to join online classes, and did not have other feasible ways to communicate with teachers for learning either. However, some students from villages managed their parents' mobile devices and data for receiving digital learning materials and assignments from teachers and submitting tasks to them. Moreover, some students relied on neighbour's Wi-Fi for remote learning.

Remote learning became an alternative to the traditional physical classroom during the pandemic situation when all the schools were shut down. Despite their limited ICT knowledge and skills, participant teachers were able to create a remote teaching environment for students and develop their independent learning skills. Indeed, there is a lot of work to be done in improving the remote learning mechanism. It is important to remember that lack of access to digital devices and the internet, teachers' limited technological knowledge and lack of administrative preparation are major challenges. As a result, the implementation of a remote teaching in all schools across the country is an expensive and complex task. However, in this pandemic situation, some school teachers identified students who had access to a digital device and the internet, and utilised these technologies to conduct teaching and learning activities through online mode with their limited ICT knowledge. Despite some frustration teachers experienced when managing online classes, their courage to learn new technologies and create a new learning environment enabled them to improve technological and pedagogical knowledge in course of their practices. Moreover, their collaboration with parents increased students' participation in remote learning activities.

Findings suggest that without the development of ICT infrastructure across the country, the limited practice of remote teaching, particularly in urban areas, would not bring significant changes in educational practices. It may rather increase the digital divide between urban and rural areas and further create complications in social and educational development. However, based on the evidence identified in this study, further research can explore possibilities of developing and making remote teaching effective and sustainable in Nepal. It indicates that there can be primitive challenges such as a lack of administrative preparation for educational transformation and ICT infrastructure development of a country like Nepal attempting to adopt global practices of online learning.

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