



[www.ijtes.net](http://www.ijtes.net)

## Teachers' Capability, Students' Motivation and Parents' Support in Online Learning

**Usha Kaphle**   
Nepal Open University, Nepal

**Karna Rana**   
Nepal Open University, Nepal

### To cite this article:

Kaphle, U. & Rana, K. (2023). Teachers' capability, students' motivation and parents' support in online learning. *International Journal of Technology in Education and Science (IJTES)*, 7(2), 192-210. <https://doi.org/10.46328/ijtes.442>

The International Journal of Technology in Education and Science (IJTES) is a peer-reviewed scholarly online journal. This article may be used for research, teaching, and private study purposes. Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material. All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations regarding the submitted work.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

## Teachers' Capability, Students' Motivation and Parents' Support in Online Learning

Usha Kaphle, Karna Rana

---

### Article Info

#### Article History

Received:

17 December 2022

Accepted:

24 April 2023

---

#### Keywords

COVID-19 pandemic

Online learning

Parental participation

ICT resources

Teacher efficacy

---

### Abstract

This study examines how primary teachers developed online education and how parents helped their kids learn from home during the COVID-19 pandemic. To investigate the experiences and subjective perceptions of online classrooms, we used semi-structured online interviews with teachers, parents, and students. The data gathered through the observation of online classes crystalized the interview data. The results of this study showed that teachers struggled to handle online learning due to their insufficient information and communication technology (ICT) knowledge and skills, unstable internet, and a lack of administrative support. Students' engagement in interactivities rose as a result of teachers' ongoing efforts to improve their online pedagogies. Because of the teachers' efforts to administer online classes during the pandemic, students were able to continue their learning at home. To ensure that everyone receives an equal education, online learning is a viable alternative to traditional classroom settings.

---

### Introduction

Since the COVID-19 outbreak in China and other countries, including Nepal, online teaching and learning using a variety of tools, notably Zoom, Teams, Google Meets, Messenger, Viber, and Skype have become increasingly popular. Following the pandemic situation, schools, especially in affluent nations, transitioned from traditional physical classrooms to online instruction (Huang et al., 2020). Since all schools were closed in March 2020 to stop the spread of the coronavirus, Nepal has seen the effects of the pandemic on the education sector. When all schools were closed for an extended period of time, some private schools in particular switched their physical classrooms to online learning to continue their educational operations. Daily classes in different subjects were arranged on many local radio and television stations around the nation to assist parents in educating their children at home. Many students were forced to wait until their schools were officially reopened because they had no access to radio, television, or the internet. Millions of students in Nepal, however, might experience increased mental stress as a result of COVID-19 anxiety and long absences from the classroom (Paudel & Rana, 2022). Additionally, it was predicted that the gap between schools with access to online education and those without it would widen the digital divide.

Most schools would have had an online mode of learning, an alternative education system during the COVID-19 pandemic if the nation had invested in information and communication technology (ICT) in education projects

after the National Curriculum Framework for School Education 2005 had identified ICT as a tool for education transformation and to be taught as a separate subject. Instead, the government of Nepal permitted non-governmental organisations (NGOs) to implement the ICT educational policy (Rana et al., 2020). The School Sector Development Plan 2009-2015 anticipated providing schools with ICT infrastructure and teachers with the knowledge and skills to use ICT in educational activities, but it also stated plainly that finance for the project was not available (Ministry of Education, 2009). Similarly, the School Sector Development Plan 2016–2023 aims to expand ICT access to enhance classroom instruction (Ministry of Education, 2016). To systematically improve Nepal's educational system and deliver cutting-edge ICT education, the Digital Nepal framework 2019 places a priority on making IT education in schools and colleges mandatory (Ministry of Communication and Information Technology, 2019). But following the COVID-19 outbreak in Nepal in early 2020, most schools were unable to switch their physical classrooms to online classes, demonstrating the lack of preparation of teachers and schools. The government, still, urged educational institutions to use an online mode of teaching and learning whenever possible to continue educational activities during the COVID-19 crisis (Ministry of Education Science and Technology, 2020). The majority of schools, however, were unable to transition their traditional classrooms to online learning because they had poor or no internet connectivity, ICT-illiterate teachers, and inadequate ICT infrastructure (Rana, 2022). Many students, particularly in rural areas were unable to participate in online learning because they lacked smart devices, internet access, and ICT skills (Adhikari & Rana, 2022). However, a small number of urban private schools made an effort to teach their students online using a variety of apps like Teams, Zoom, and Skype.

In order to study, students can utilise all available teaching resources, including audio, video, animated and simulated objects, software tools, and digital tools (Pangeni, 2016). Students can improve their ability to learn independently and collaborate with others from different locations by taking classes online (Gemmell et al., 2015). Through the online learning environment, students can acquire course material at their pace and establish a learning community (Tao, 2009). Teachers can be crucial in determining student motivation and online learning success (Xie et al., 2006). However, it can be challenging for teachers to hold online students' attention and promote higher-order thinking (Brooke, 2006). The efficacy of students' online learning is influenced by their motivation in both face-to-face and online classrooms (Hartnett et al., 2011). Students should have an external incentive in the online learning environment to advance their learning and support engagement (Selvi, 2010). Additionally, teachers' ongoing comments on students' consistent efforts can accelerate their online learning (Bonk & Khoo, 2014). Teachers' tactics for educating students online, in particular, can foster the appropriate learning environment and students' motivation in searching for digital learning materials (Boticki et al., 2015). Parents' participation and contact in online learning encourage students to learn and boost their efficiency in course activities, instil a positive attitude toward studying (Chang & Chen, 2011) and encourage regular assignment completion (Bird, 2015). Additionally, parental participation in online classes aids teachers in enhancing lessons and their delivery (Duman et al., 2018). In Nepal, the COVID-19 pandemic led to a rapid shift from traditional to online teaching, bringing both advantages and difficulties for teachers and students. Initially, both teachers and students in primary schools faced challenges adapting to the online format. Parents played a key role in their children's online learning during the crisis, providing support from home. This study aimed to understand the extent of parent support for their children's online learning during the pandemic. Then, we developed questions

to conduct this study such as: how did parents support their children's online learning during the COVID-19 pandemic? How was children's motivation for learning? In what ways did teachers manage online learning? What were the challenges in managing online learning? These research questions led to the review of literature and theorise our research problem. Thus, parental support for online learning, teachers' management of online learning and students' motivation are examined in this paper.

### **Students' Motivation for Learning in Online Classes**

A person's level of motivation and innate happiness are typically determined by how well they do a task (Deci, 1971; Deci & Ryan, 1985). According to Keller and Suzuki (2004) in relation to online learning, students' intrinsic motivation in that setting shapes and structures their self-assurance in autonomous studying with peers. Hoskins and Van Hooff (2005) contend that while some students may be competent in handling the challenges of online learning, many students may not be able to benefit from online courses. Pangen (2016) emphasises the rising ICT practices in education to support online learning in Nepal. Rana (2022) contends that the majority of students, particularly those in rural regions, might not even be able to participate in online teaching and learning because they lack smart devices, internet access, and ICT skills. Similar findings were found by Laudari (2019), who discovered that because of their families' poor socioeconomic status, pupils would not be able to acquire expensive digital equipment and mobile data/internet to utilise internet resources. Therefore, Thapa and Saeb (2014) earlier mentioned that it is necessary to concentrate on the role of ICT in educational growth and eventually in sociocultural transformation.

The use of ICT in the classroom increases teachers' and students' confidence in their ability to use technology, and training in teaching and learning fosters achievement and motivation (Rana et al., 2022). However, Beluce and Oliveira (2015) explored how teachers found it challenging to inspire students in virtual classes, which had an impact on the way the students performed. Fryer and Bovee (2016) looked into the rise in student dropout rates in online courses in their study conducted in Japan and proposed that teachers could support students in finding their motivation for independent learning. In a previous study conducted in the United States, Bonk and Khoo (2014) discussed how learner motivation in an online learning environment can be considered crucial to learner success because it might affect students' decisions to continue taking the classes or not. Whalley and Barbour (2020) indicate that learners can choose their learning curriculum, manage their learning in flexible time, engage in collaborative work, and explore endless online learning resources in their examination of online learning experiences.

### **Parents' Involvement in Children's Online Learning**

Many studies (Barnes et al., 2020; Borup et al., 2019; O'Toole et al., 2019) have reported the role of parents in their children's learning activities and progress. For instance, Di Serio et al. (2013) emphasised in their study in Spain that parents' participation in their children's activities inspires them to learn lessons and achieve greater performance. In a previous study conducted in the USA, Black (2009) investigated that parent involvement in K–12 students' educational activities improved their results. According to Chang and Chen's (2011) survey in

Taiwan, online learning environments allowed parents to support their children's multimedia interaction and communication as well as express ideas regarding teaching strategies, class dynamics, and school-related issues. A qualitative case study conducted in the United States (Carpenter & Gann, 2016) highlighted the importance of parents' involvement in educational activities, instruction, curriculum selection, and working with their children as an instructor to help students perform better in online learning courses. Further, Taylor (2016) explored that parental involvement in students' learning decreased the challenges faced by kids during the learning process and encouraged them to study efficiently. Duman et al. (2018) investigated public school parents' low level of involvement in their children's activities and recommended increasing parental involvement to improve children's education and create a safe environment for the children.

The educational knowledge of parents affects how well their children learn and perform (Sehati et al., 2020; Watson et al., 2020). In the context of the UK, Blair (2011) discovered that parental instruction, along with other elements like course flexibility and chances for social connection between classmates and teachers, helped make online learning beneficial for students, particularly those in rural areas. Burdette and Greer (2014) discovered that in the USA, parents supported their impaired children's online learning by helping them learn information, improve behavioural skills, and manage their time. Parents at Singaporean schools taught their kids about social awareness to control their unethical behaviour and reduce the risks associated with using the internet (Shin & Lwin, 2017). Liu et al. (2010) stressed in a previous study in South America that parental involvement in children's academic activities is crucial for students' academic success in a virtual learning environment where there is a physical absence of a teacher. According to a study conducted in Pakistan during the COVID-19 pandemic (Bhamani et al., 2020), parents can support their children's learning at home when their teachers are not present, and online classes can strengthen the relationship between parents, teachers, and students.

### **Teachers' Role in Online Classes**

The responsibility of a teacher is to give students the required academic, practical, and technological skills (Lee et al., 2017; Lee, 2019; Nabi et al., 2018). The way teachers use instructional technology in their pedagogical practices determines how effective it is (Rana et al., 2020). In a previous study, Limniou and Smith (2010) emphasised the need for teachers of online courses to concentrate on the learning materials of their students to support them with their academic needs. Similarly, Guasch et al. (2010) in a case study in Spain argued that teachers need to be subject-matter experts, possess the capacity to deliver information and be able to support students' learning through the use of technological tools. To increase students' learning activities in online classrooms, Simpson (2012) advises teachers to give students clear directions and examples. Fisher and Kim (2013) contend that if technology issues arise during a student's learning, both teachers and students become discouraged. However, Song et al. (2016) argue that in a virtual learning environment, the interaction between teachers and students impacts learning results. Teachers, thus, need to learn to play the role of facilitator in online classes (Borup et al., 2019).

The ongoing professional development of teachers improves their ability to use digital technologies (Garcia et al., 2019; Üzümlü et al., 2020). Rana (2018) advises offering teachers extensive ICT training to encourage the use of

ICT resources in the classroom. Zhang and Hu (2020) discovered that elementary school teachers in China were able to improve their performance after receiving ICT training. According to Otterborn et al. (2019), instructors' self-confidence in their ability to use contemporary technology, such as digital tablets in preschools, helped students in their learning. Di Serio et al. (2013) stated in their prior study that a lack of focus in a digital presentation using actual items would result in students paying less attention to the teacher in a virtual setting.

## Method

### Data Collection Procedures

This study, which was based on a qualitative interpretative design, used online semi-structured interviews with teachers, parents, and students to examine their perceptions of online classes, particularly teachers' capability of, students' motivation for, and parents' support in online learning. We were able to delve deeper into the information the study participants supplied by using semi-structured interviews. The semi-structured interviews based on the interview guidelines (Cohen et al., 2011) enabled us to create a flexible environment for the participants to express their ideas openly. We conducted interviews with participants in the COVID-19 epidemic using Zoom, a free videoconferencing technology when it was not feasible to meet them in person. We developed an interview guideline (See Table 1) that consisted of open-ended questions to lead our interviews with the participants. Depending on the topics discussed in the initial interview, we followed the participants at least twice. Each participant's interview took an average of 30 minutes. Using a voice recorder, the interviews were captured and saved on a laptop. Data gained through interviews was reinforced by information discovered through observation of teachers' online classes. Over a month, five of each teacher's online classes were observed. A laptop was used to record the observational activities. We acquired informed consent from the participants before we began interviewing the participants and observing online classes.

Table 1. Interview Guidelines

Questions for teachers	Questions for students	Questions for parents
How did you create an online learning environment during the COVID-19 pandemic?	How did you begin your online learning from home?	What is your understanding of online learning?
What is your perception of this online learning?	What technologies do you use to manage online learning?	How do you support your children's online learning from home?
What are the challenges you faced when you began and while you are teaching in the new environment?	How did you learn to use new technologies?	Do you stay with them and observe their learning activities? If so, what specific activities do you observe?
What kinds of technologies do you use to support students' remote learning?	What kind of support did you get from your teachers?	How are your children's reactions to your support for them?
How did you identify these technologies and learn to use	How is your family support to manage your online learning?	How do you communicate with children's teachers?
	What are the difficulties you have faced to study online?	
	How do you share your learning with your friends and	

Questions for teachers	Questions for students	Questions for parents
them in your teaching and learning?	teachers?	How is teachers' response to your communication with them?
What kind of support did you get from your school to create online learning?	How did you manage digital devices and the internet for online learning?	What information about your children's online learning do you share with their teachers?
How is students' online motivation, difficulty and participation?		What kind of advice do teachers give to you for the management of children's online learning?
How do students manage their online learning from home?		What challenges have you found for children to manage online learning?
How is parents' response to students' online learning?		

---

## **Participants**

The participants involved in this study were selected from two urban private schools in a city located in the Terai Region. Based on reported information regarding online classes, the schools were chosen for this study. Private schools in Nepal, which are funded by student fees, are more likely to have access to educational technology and ICT. These schools cater to students who can afford higher fees and are located in urban areas, where both teachers and students have internet access. To find out if schools were using online learning during the COVID-19 pandemic, we spoke to many friends on their phones. Then, we got in touch with the principals of the schools that had transitioned from traditional classroom teaching to online classes. We emailed a written consent form with an information sheet to the principals and obtained their written consent. After obtaining their consent, their teachers were contacted for their participation in this study.

Based on the "first-come-first-serve" approach, six primary teachers – three from each school – were selected. We sent an information sheet and consent form to primary school teachers in targeted schools to recruit participants for the study. The number of participants was determined based on the target number. Priority was given to those who sent back written consent forms first. Following the idea of Rana et al. (2019), we approached and selected the participants. In this regard, we spoke with teachers to discover more about their experiences with online instruction, particularly how motivated their pupils were to learn online. These teachers assisted in approaching parents and pupils. Only six of the many parents who initially agreed to participate in this study were ultimately chosen.

We consulted with parents to hear about their observations of how their children engaged in online learning at home. We included their children in this study with their permission. We involved students to understand more about the driving forces behind online learning. For all the participants and schools, we have utilised pseudonyms (see Table 2) to protect the identities of the participants involved in this study.

Table 2. Schools and Participants

School	Teachers	Sex	Qualification	Students	Sex	Class	Parents	Sex	Qualification
Araniko Secondary School	Anu	Female	B.Ed. in English	Umesh	Male	3	Nirmala	Female	Year 10
	Anmol	Male	B.Ed. in English	Ramesh	Male	2	Sarita	Female	I.A. (Year XI)
	Binod	Male	B.Ed. in Nepali	Puja	Female	4	Gyan	Male	SLC (Year 12)
New Light Secondary School	Pushpa	Female	B.Ed. in English	Dipak	Male	5	Lalita	Female	SLC (Year 12)
	Rama	Female	I.Sc.	Rupa	Female	2	Paru	Female	B.Ed.
	Mira	Female	B.Ed. in Nepali	Chura	Male	4	Kiran	Male	B.A.

### Data Analysis

We used a thematic approach to analyse the data. We were able to find themes and subsequently organise a significant amount of data using the inductive coding system as suggested by Braun and Clarke (2006). We first cleaned the raw data and transcribed the interview audio. Second, we read the raw data obtained and developed preliminary codes. Third, we created themes using the draft codes. Fourth, we examined the themes and read the facts into them. Fifth, we defined the final themes. Finally, we developed the ideas from the data into a narrative shape.

### Results

The analysis of the information obtained through semi-structured interviews with primary teachers, students, and parents, as well as observation of teachers' online classes has been presented into three themes: perception of online learning, challenges in managing online classes and teachers' capability of understanding students' interest.

#### Teachers' Capability of Managing Online Learning

The study of teacher perspectives revealed how teachers adapted to the COVID-19 pandemic by creating an online learning environment in early 2020. Teachers utilised their basic understanding of digital devices and social media to start online classes and utilised the videoconferencing tool Zoom to communicate with students. Despite this, teachers faced difficulties in creating an effective online learning environment with limited ICT and online teaching knowledge. They had to quickly learn how to use new technologies and teaching methods to plan and deliver lessons online. For example, Rama said:

It was a kind of scary beginning of online teaching. Little knowledge about Facebook and Messenger helped though. I think it was a common experience of all teachers. Never learned to teach online ... suddenly a new teaching ... remote teaching. I was reluctant at the beginning.



Our observation of teachers' online classes made it much clearer that despite their efforts to support students' remote learning in Nepal, where online teaching was new, teachers needed greater expertise to effectively develop online learning systems. Teachers' comments indicated that just their effort was not enough to manage online teaching for primary students who were learning to use new technologies for remote learning. Anu said:

I faced many problems while teaching on Zoom as it is very hard to get feedback from students in online classes. I individually ask questions but all students reply at a time. I cannot convince them to mute their microphone but they mistakenly unmute microphone and answer the questions asked by other students. (Anu, teacher at Araniko School)

The comments highlight the challenges teachers faced using videoconferencing to interact with primary students. It was more difficult to monitor students' engagement in online classes compared to encouraging them. Teachers discussed difficulties in presenting audiovisual materials online because students struggled to follow basic classroom rules. Our observation, however, found that teachers' use of audio-visual materials motivated their students to participate in interactions and learn lessons. Mira, a teacher at New Light School, said:

I motivate students by showing different pictures of materials in PowerPoint to attract their attention to my teaching. Sometimes I play different types of video and other learning materials.

Despite not having prior experience in online teaching, the teachers' online teaching activities demonstrated their ability to learn new technologies and teaching methods. They improved their understanding of online learning management over time, despite expressing frustration with engaging young children in online classes. For example:

For primary students, a physical class is better but all the schools are locked down during the COVID-19 pandemic. Something is better than nothing. Online classes are ok to engage our students. (Rama, teacher at New Light School)

Face-to-face teaching is easy. We get immediate feedback. We can teach by watching children's activities. (Pushpa, teacher at Araniko School)

Teachers claimed that teaching in-person classes would be considerably more comfortable than doing it online. They also mentioned that, in physical classrooms, they could manage the learning atmosphere and students' behaviour by watching their facial expressions. Anu, a teacher at Araniko School, claimed that despite her best efforts to inspire her students by using visual aids, typical primary students were unable to comprehend their material in the condensed time allotted for online lessons. Observations of their classes confirmed that teachers found it difficult to control disruptive student behaviours such as frequent unapproved communication, voice and video muting or unmuting, and shouting. However, they acknowledged parents' support for their children's remote learning from home. Particularly, they appreciated parents being with their children while the children were learning lessons through Zoom. Teachers also emphasised the role of parents in early-age primary students'

online learning as the children would not get hands-on support from teachers.

### **Students' Motivation for Online Learning**

Although teachers initially found it difficult to enrol pupils in their online classes, parents eventually assisted in encouraging their children to enrol. Parents reported that the lessons offered by the teachers in their children's online sessions were difficult for their young children to comprehend. Similar to how parents felt, students expressed that they felt discouraged from participating in online classes because of the short time they had on the Zoom app to discuss content with their lecturers. For example, Ramesh, a Grade Two student, illustrated:

I have much curiosity in classes, but teachers are unable to answer us. They complete their presentation and go. I leave the class and watch cartoons on YouTube.

His response provided a clear picture of how early-grade teachers were unable to properly engage pupils in interactivities when utilising free apps like Zoom with time restrictions. Online class observations made it much more obvious that students wanted teachers to engage with each of them rather than depending solely on the delivery of lessons. Some teachers, however, were observed to be adaptable with their students and make an effort to understand and meet their diverse demands. Some pupils appreciated that their teachers encouraged them to work together and communicate with both their peers and teachers by creating a positive learning environment. Students, however, voiced their displeasure with teachers' one-sided communication and total control over them. Teachers, on the other hand, grumbled about the workload required to manage online classes. Mira, a teacher at New Light School, said: "In addition, teachers had to deliver lessons in the constrained amount of time allotted for class. Teachers had to rely on the meagre free time the Zoom app gave them." Most teachers anticipated that their students would introduce themselves and be encouraged to share further information with them, including their main areas of interest and hobbies. Parents advised that to keep students motivated in virtual classes, teachers should maintain individual contact with them by phone or messenger. Students acknowledged teachers' appreciation for the management of online teaching which helped students be with teachers and peers, and share their learning activities along with experiences of remote learning in the pandemic situation. For example, Puja, a Grade Four student at Araniko School, said:

For one week, I was unable to join the Zoom class. My parents and teacher used to support me to join virtual classes. But after two months of taking online classes, I became familiar with ICT devices by the help of my teachers.

In line with the parents' opinions, the students who participated in the interviews stated that they initially struggled with the procedure of enrolling in online classes, but eventually gained confidence in utilising Zoom for their courses. For example:

In the first week, I was not interested in joining online classes. My father forced me to join online classes. I used to cry a lot. But my teacher motivated me by telling jokes and stories. She used to appreciate me

when I answered her question. Two months passed. Now, I enjoy learning in online classes. (Umesh, student at Araniko School)

In light of the pandemic situation, students' responses painted a clear picture of how their parents constructed a remote learning environment for them at home. For the children to master the courses, it was beneficial for parents to be present throughout the online classes. The children's proactive participation in the assigned tasks crystallised the development of their e-learning behaviours, which was much more visible through online class observations. She implied that as children are still too young to understand new technology at a young age, parents play an important role in encouraging children to participate in online classes. Students' self-learning responsibilities and perseverance during the learning process in virtual learning environments can be encouraged by using teachers' and parents' additional support. Teachers played a vital role in managing a new learning environment with the incorporation of ICT tools during the COVID-19 pandemic.

### **Parental Support to Children's Online Learning**

Throughout the interviews, parents expressed appreciation for the instructors' online learning program since it allowed them to include their children in educational activities at home. They specifically mentioned how their kids had the chance to express their views and experiences during the pandemic because there were no face-to-face classes. Online interactions with their friends and teachers helped children feel social and less stressed because they were unable to leave the house. Children gained information about remote learning through using internet resources, in addition to learning how to use new technology. For example:

At first, our children faced a problem, and now they enjoy learning in virtual classes. For active children, virtual classes are effective but for passive children it creates boredom. (Nirmala, parent)

In the past, it was easy to teach in face-to-face classes but in this COVID-19 pandemic, virtual classes are good. After this pandemic, our children will be familiar with ICT devices. So, they are enjoying virtual classes. (Sarita, parent)

As a novel setting for both teachers and children, online learning was something we observed that teachers alone would not be able to manage without parental support. Teachers needed a lot of parental assistance because the children were inexperienced Zoom users. Parents talked about how important it was for their children to understand how to use technology before discussing how they could take courses online. Parents, however, questioned whether pupils in isolated places had access to digital devices and the internet.

Students who study in Kathmandu can attend their classes from the rural area. It is possible due to online classes. So, students can learn from home if they have the internet. (Lalita, parent)

Parents agreed that although their children were initially perplexed and uninterested in attending virtual classes, they eventually became accustomed to the technology's capabilities and enjoyed attending sessions with their

teachers on Zoom. When they were approached for interviews, they stated that their children used Zoom for online learning without any difficulty.

### **Challenges of Managing Online Class**

A lack of necessary infrastructure made it difficult for the participating teachers to convince parents and students to enrol their children in online programs. Despite having some degree of satisfaction from their online course instruction, the majority of teachers reported that they frequently encountered technological issues, such as slow internet connectivity and power outages. They discussed how unanticipated technological problems they encountered while teaching prevented them from finishing their intended lectures in a single period (40 minutes). For example:

I am facing a lot of challenges while teaching in virtual classes. Only a few students participate in the class and those who participate are not regular. It is very hard to motivate students and parents in online classes. Sometimes some students cannot join online classes due to unstable internet and power cut in their area. (Rama, teacher at New Light School)

I am facing a challenge in virtual classes. I think I could not properly give feedback to students, and I am unable to evaluate them. I am facing the challenge of ICT. Sometimes due to internet connection and the problem with Zoom, I am unable to join my classes. (Anu, teacher at Araniko School)

These remarks portray the reality of how teachers struggle in situations when there is a lack of administrative support, inadequate ICT infrastructure, and insufficient ICT literacy. Most teachers talked about their first encounters with using digital technology. Despite having just rudimentary computer abilities, they said they had to administer their online classes. Observation of their classrooms confirmed that the issues experienced by the teachers at their beginning stages were technological illiteracy and reluctance to use new technologies. Students, however, voiced discontent with their teachers' limited use of existing technology and demanded that their teachers use the internet in lesson delivery, as well as to provide regular feedback on students' work and assessments. In line with students' opinions, parents stated that ICT skills are crucial for all teachers to integrate ICT into daily teaching practices and maximise their capacity to aid in enhancing students' digital competence. For example, Paru, a parent, shared her experiences:

Most of the students are in rural areas due to the COVID-19 lockdown. There is no Wi-Fi and mobile data is weak. Few students are participating in virtual classes. I faced too many problems to join my children in virtual classes, when I was in the village. Virtual classes are comfortable for urban areas but not for rural areas.

She implied in her remark that there might be many students in rural areas without access to ICT devices and internet services. Her facial expression demonstrated how the divide between rural and urban areas would widen as a result of a lack of ICT infrastructure. The limited enrollment in online courses, notably among students from

metropolitan regions with access to ICT facilities, was seen when teachers' online classrooms were observed. Further discussions with teachers revealed that many students were unable to participate in online learning due to a lack of essential ICT infrastructures, such as the internet, in remote locations.

## **Discussion**

With inadequate ICT infrastructure, ICT skills, and weak administrative assistance, teachers initially had difficulty using the Zoom app and managing online classrooms. Inadequate ICT knowledge and abilities, inconsistent internet, and limited experience with online teaching, all of which were documented in Rana (2018), have become obstacles to effective learning and teaching through the use of online mode. To include ICT tools in teaching and learning activities, parents consequently highlighted the importance of teachers' ICT expertise. They emphasised the need for teachers' technological and pedagogical knowledge to use available ICT resources for remote teaching. Teachers stressed the need for a different approach to teaching and learning during the COVID-19 pandemic emergency, when all academic institutions had to close in order to stop the disease's spread and save lives. It is consistent with the viewpoint of Hodges et al. (2020), who encourage using whatever resources the schools have to switch to online learning in situations like the COVID-19 pandemic. Teachers said that while they had some joy from teaching online classes, they frequently ran into technical issues like unstable energy and the internet. Researchers (Rana, 2022; Acharya & Rana, 2023; Adhikari & Rana, 2022; Baral & Rana, 2022) also reported the lack of access to digital devices and the internet in remote villages due to which students in rural areas were unable to continue their learning activities during the pandemic situation. They argued that the urban-centric practice of online learning that kept many rural students away from learning opportunities during the pandemic widened the existing digital divide. However, teachers in our study who were highly motivated to use online learning continuously worked hard to make it a viable alternative mode of instruction during the pandemic. Their regular use of Zoom for online classes boosted their comfort level while using internet resources for educational purposes. Otterborn et al. (2019) suggested teachers provide consistent support to students' online learning activities by giving them access to learning resources and timely feedback on their assignments so that students could develop their learning autonomy.

Teachers discussed how undesirable student behaviours such as unauthorised gossiping, voice and video muting, and unmuting of the latter disrupted lessons affected their ability to carry out routine plans. Due to the unavailability of a paid version of the Zoom application, teachers were forced to use Zoom's free offering. Perhaps this situation is unique to Nepal, where the majority of schools would not be able to pay the high cost for a subscription version of Zoom and other comparable apps for educational purposes. In addition, the lack of ICT infrastructure in classrooms and homes had an impact on students' ability to engage in online learning (Eşici, 2021; Adnan & Anwar, 2020). Many rural students were unable to enrol in online classes. The Zoom app for online learning was first difficult to use for students who had access to the internet and digital gadgets too. However, they eventually acquired the skills necessary to manage their online studies from home, as well as the confidence to take courses online. Teachers played an important role to develop children's basic technological skills for their online learning. In addition, parents played a key role in establishing a home-based online learning environment for their children. This remote learning became effective when parents consistently encouraged their

children to learn online. Rana (2022), on the other hand, contends that it would not be feasible to continue the practice of online learning among a small group of students while keeping many students away from online learning.

Students' self-learning habits and dedication to learning were considerably enhanced by the cooperative support of teachers and parents. This was consistent with the findings of Barnes et al. (2020), who found that parental support boosted children's participation in online classes and information sharing with friends. Parents' support to teachers in managing online mode of learning during the pandemic and teachers' quick creation of online teaching approaches could serve as models for many other developing nations in comparable settings. It indicates how the flexibility of time and space allows students to engage in collaborative activities with friends. However, teachers preferred face-to-face traditional classrooms to virtual classes where they could have face-to-face interaction with their students and get instant responses from their students. In the physical presence, they could communicate with their pupils right away and give them the assistance they needed with their learning activities. Similar to the suggestion of Borup et al. (2019), teachers would have looked into alternate strategies to offer the required support to their pupils who were learning at home with limited resources. To manage online learning effectively, Garcia et al. (2019) encourage school administrators to give their teachers ICT training so that they can use the internet resources and support students' online learning.

Parents saw online learning as a useful way for their children to study when their children's schools were shut down during the COVID-19 pandemic. However, they had trouble encouraging their children to participate in online classes due to a lack of computer expertise. Because of the lack of ICT infrastructure in schools, teachers' lack of basic ICT knowledge and skills, and students' restricted or nonexistent access to computers and the internet outside of school (Rana, 2022; Rana et al., 2020; Rana et al., 2018), online teaching and learning during the COVID-19 pandemic posed a challenge for both teachers and students. Initial rigorous ICT training for teachers, students, and parents, as well as ongoing encouragement for teachers and students to begin and develop an online method of learning, could increase their level of preparation for online learning (Wei & Chou, 2020). The results of this study, similar to those of reports from international studies (Agarwal & Kaushik, 2020; Dhawan, 2020; Wei & Chou, 2020; Zhou et al., 2020), suggest that schools should provide teachers and students with basic ICT knowledge and skills and educate parents to get their consistent support for the management, development, and implementation of online learning to reduce the challenges brought on by a crisis like the COVID-19 pandemic.

## **Conclusion**

The introduction of online learning following the COVID-19 pandemic elicited both favourable and unfavourable reactions. On the one hand, it offered an opportunity for teachers, students, and parents to increase their ICT literacy and alter their perspectives on online education. In particular, teachers' courage to shift from traditional physical classrooms to online learning demonstrated their capability to learn digital technologies and pedagogies during the pandemic crisis. Although they had no previous experience with remote teaching through the Zoom application, they explored ways to use this technology and support children's remote learning. Had they got formal ICT training to manage online learning, they would have managed online learning more comfortably. When

primary students were not prepared for the quick transition from traditional classrooms to online learning because they were young and had no experience in using the internet and other digital devices, teachers identified viable internet resources to manage remote teaching. Despite obstacles to the efficient management of online learning, including a lack of administrative support, low level of digital literacy, and limited ICT infrastructure, teachers explored how parents' support for their children enabled them to properly manage remote teaching. ICT training would specifically enable teachers in schools to use the ICT tools available for online instruction and learn new pedagogies. According to this research, schools needed to provide both teachers and students with a minimal level of ICT skills and educate parents on how to help their children deal with challenges brought on by crises like the COVID-19 pandemic.

For teachers and students, the lack of appropriate ICT tools made it difficult to undertake online learning throughout the pandemic. Only free applications would not be highly beneficial to foster online interactions between students, especially outside of virtual classes, and offer them essential online assistance. For instance, the free edition of the Zoom app barred students from discussing academic concerns with their lecturers outside of online classes. Parents, however, appreciate the schools' proactive role in getting their children started with online learning throughout the crisis. Teachers found it challenging to engage elementary children in online lessons at the same time. The task of planning extracurricular activities was substantially more difficult for them. Therefore, to engage elementary pupils in online classrooms and inspire them to independently learn courses from home, teachers needed to possess comprehensive knowledge and skills in e-pedagogies and digital gadgets.

## **Acknowledgements**

We acknowledge the support of our participants.

## **References**

- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission*, 2(1), 45-51.
- Agarwal, S., & Kaushik, J. S. (2020). Student's perception of online learning during COVID pandemic. *Indian Journal of Pediatrics*, 1. <https://doi.org/10.1007/s12098-020-03327-7>
- Barnes, S.-A., Bimrose, J., Brown, A., Gough, J., & Wright, S. (2020). *The role of parents and carers in providing careers guidance and how they can be better supported*. [https://cica.org.au/wp-content/uploads/ier\\_gatsby\\_jpm\\_parents-carers\\_final\\_report\\_v8\\_final.pdf](https://cica.org.au/wp-content/uploads/ier_gatsby_jpm_parents-carers_final_report_v8_final.pdf)
- Beluce, A. C., & Oliveira, K. L. d. (2015). Students' motivation for learning in virtual learning environments. *Paidéia (Ribeirão Preto)*, 25(60), 105-113. <https://doi.org/10.1590/1982-43272560201513>
- Bhamani, S., Makhdoom, A. Z., Bharuchi, V., Ali, N., Kaleem, S., & Ahmed, D. (2020). Home learning in times of COVID: Experiences of parents. *Journal of Education and Educational Development*, 7(1), 9-26. <https://doi.org/10.22555/joeed.v7i1.3260>
- Bird, K. (2015). *Influence of Parental Involvement on Student Assignment Submission Punctuality in the Private Online Learning Environment* [Doctoral Thesis, Northcentral University]. Prescott Valley, Arizona.

- <https://search.proquest.com/docview/1758006225?pq-origsite=gscholar&fromopenview=true>
- Black, E. (2009). *An Evaluation of familial involvements' influence on student achievement in K-12 virtual schooling* (Publication Number 304883948) [Doctoral Thesis, University Of Florida]. America. [http://etd.fcla.edu/UF/UFE0024208/black\\_e.pdf](http://etd.fcla.edu/UF/UFE0024208/black_e.pdf)
- Blair, R. (2011). Online learning for gifted students from the parents' perspectives. *Gifted Child Today*, 34(3), 28-30. <https://doi.org/10.1177/107621751103400308>
- Bonk, C. J., & Khoo, E. (2014). Adding some TEC-VARIETY: 100+ activities for motivating and retaining learners online. Open World Books.
- Borup, J., Chambers, C. B., & Stimson, R. (2019). Online teacher and on-site facilitator perceptions of parental engagement at a supplemental virtual high school. *The International Review of Research in Open and Distributed Learning*, 20(2).
- Boticki, I., Baksa, J., Seow, P., & Looi, C.-K. (2015). Usage of a mobile social learning platform with virtual badges in a primary school. *Computers & Education*, 86, 120-136. <https://doi.org/10.1016/j.compedu.2015.02.015>
- Brooke, S. L. (2006). Using the case method to teach online classes: promoting socratic dialogue and critical thinking skills. *International Journal of Teaching and Learning in Higher Education*, 18(2), 142-149.
- Burdette, P. J., & Greer, D. L. (2014). Online learning and students with disabilities: parent perspectives. *Journal of Interactive Online Learning*, 13(2).
- Carpenter, D., & Gann, C. (2016). Educational activities and the role of the parent in homeschool families with high school students. *Educational Review*, 68(3), 322-339. <https://doi.org/10.1080/00131911.2015.1087971>
- Chang, C.-S., & Chen, H.-M. (2011). Parental involvement in traditional and online education. *International Journal of Learning and Change*, 5(2), 158-177. <https://doi.org/10.1504/IJLC.2011.044188>
- Cohen, L., Manion, L., & Morrison, K. (2011). *Descriptive statistics* (Vol. 35). Routledge.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18(1), 105. <https://doi.org/10.1037/h0030644>
- Deci, E. L., & Ryan, R. M. (1985). Conceptualizations of intrinsic motivation and self-determination. In E. L. Deci & R. M. Ryan (Eds.), *Intrinsic motivation and self-determination in human behavior* (pp. 11-40). Springer. [https://link.springer.com/chapter/10.1007/978-1-4899-2271-7\\_2](https://link.springer.com/chapter/10.1007/978-1-4899-2271-7_2)
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22. <https://doi.org/10.1177/0047239520934018>
- Di Serio, Á., Ibáñez, M. B., & Kloos, C. D. (2013). Impact of an augmented reality system on students' motivation for a visual art course. *Computers & Education*, 68, 586-596. <https://doi.org/10.1016/j.compedu.2012.03.002>
- Duman, J., Aydin, H., & Ozfidan, B. (2018). Parents' involvement in their children's education: The value of parental perceptions in public education. *The Qualitative Report*, 23(8), 1836-1860.
- Eşici, H., Ahmet, A., Yetim, D., Yasti, S. Ç., & Bedir, N. (2021). Teachers in COVID-19 period: Psychological effects, practices and career needs. *Turkish Journal of Education*, 10(2), 157-177. <https://doi.org/10.19128/turje.855185>
- Fisher, L., & Kim, D. (2013). Two approaches to the use of blogs in pre-service foreign language teachers'



- professional development: A comparative study in the context of two universities in the UK and the US. *The Language Learning Journal*, 41(2), 142-160. <https://doi.org/10.1080/09571736.2013.790130>
- Fryer, L. K., & Bovee, H. N. (2016). Supporting students' motivation for e-learning: Teachers matter on and offline. *The Internet and Higher Education*, 30, 21-29. <https://doi.org/10.1016/j.iheduc.2016.03.003>
- Garcia, C. A., Caiza, G., Naranjo, J. E., Ortiz, A., & Garcia, M. V. (2019). An approach of training virtual environment for teaching electro-pneumatic systems. *IFAC-PapersOnLine*, 52(9), 278-284. <https://doi.org/10.1016/j.ifacol.2019.08.221>
- Gemmell, I., Harrison, R., Clegg, J., & Reed, K. (2015). Internationalisation in online distance learning postgraduate education: A case study on student views on learning alongside students from other countries. *Innovations in Education and Teaching International*, 52(2), 137-147. <https://doi.org/10.1080/14703297.2014.881264>
- Guasch, T., Alvarez, I., & Espasa, A. (2010). University teacher competencies in a virtual teaching/learning environment: Analysis of a teacher training experience. *Teaching and Teacher Education*, 26(2), 199-206. <https://doi.org/10.1016/j.tate.2009.02.018>
- Hartnett, M., George, A. S., & Dron, J. (2011). Being together-factors that unintentionally undermine motivation. *Journal of Open, Flexible, and Distance Learning*, 15(1), 1-16.
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, 27.
- Hoskins, S. L., & Van Hooff, J. C. (2005). Motivation and ability: Which students use online learning and what influence does it have on their achievement? *British Journal of Educational Technology*, 36(2), 177-192. <https://doi.org/10.1111/j.1467-8535.2005.00451.x>
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., & Gu, X. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*, 395(10223), 497-506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
- Keller, J., & Suzuki, K. (2004). Learner motivation and e-learning design: A multinationally validated process. *Journal of Educational Media*, 29(3), 229-239. <https://doi.org/10.1080/1358165042000283084>
- Laudari, S. (2019). *Breaking barriers: Exploring digital practices of teacher educators in Nepal* [Doctoral Thesis, University of Technology Sydney (UTS)]. <https://opus.lib.uts.edu.au/handle/10453/137075>
- Lee, H., Longhurst, M., & Campbell, T. (2017). Teacher learning in technology professional development and its impact on student achievement in science. *International Journal of Science Education*, 39(10), 1282-1303. <https://doi.org/10.1080/09500693.2017.1327733>
- Lee, Y.-L. (2019). Assembling Technology Teacher Education: Translating Technological Skills into Educational Praxis. In K. Nolan & J. Tupper (Eds.), *Social theory for teacher education research: Beyond the technical-rational* (pp. 69-86). Bloomsbury Academic.
- Limniou, M., & Smith, M. (2010). Teachers' and students' perspectives on teaching and learning through virtual learning environments. *European Journal of Engineering Education*, 35(6), 645-653. <https://doi.org/10.1080/03043797.2010.505279>
- Liu, F., Black, E., Algina, J., Cavanaugh, C., & Dawson, K. (2010). The validation of one parental involvement measurement in virtual schooling. *Journal of Interactive Online Learning*, 9(2).
- Ministry of Communication and Information Technology. (2019). *2019 Digital Nepal Framework*. Ministry of

- Communication and Information Technology. <https://mocit.gov.np/application/resources/admin/uploads/source/EConsultation/EN%20Digital%20Nepal%20Framework%20V8.4%2015%20July%20%202019.pdf>
- Ministry of Education Science and Technology. (2020). *Guidelines for the management of alternative learning for School Students 2020 (Translated from Nepali)*. Ministry of Education Science and Technology. <https://www.examsanjal.com/2020/school-student-alternative-teaching-learning-guideline-2077/>
- Ministry of Education. (2009). *School Sector Reform Plan 2009-2015*. [https://www.moe.gov.np/assets/uploads/files/SSRP\\_English.pdf](https://www.moe.gov.np/assets/uploads/files/SSRP_English.pdf)
- Ministry of Education. (2016). *School sector development plan, Nepal, 2016–2023*. Ministry of Education, Government of Nepal Kathmandu. [https://www.moe.gov.np/assets/uploads/files/SSDP\\_Book\\_English\\_Final\\_July\\_5,\\_2017.pdf](https://www.moe.gov.np/assets/uploads/files/SSDP_Book_English_Final_July_5,_2017.pdf)
- Nabi, G., Walmsley, A., Liñán, F., Akhtar, I., & Neame, C. (2018). Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration. *Studies in Higher Education*, 43(3), 452-467. <https://doi.org/10.1080/03075079.2016.1177716>
- O'Toole, L., Kiely, J., & McGillicuddy, D. (2019). *Parental Involvement, Engagement and Partnership in their Children's Education during the Primary School Years*. <https://researchrepository.ucd.ie/bitstream/10197/9823/2/Parental%20Involvement%20Research%20Doc.pdf>
- Otterborn, A., Schönborn, K., & Hultén, M. (2019). Surveying preschool teachers' use of digital tablets: general and technology education related findings. *International Journal of Technology and Design Education*, 29(4), 717-737. <https://doi.org/10.1007/s10798-018-9469-9>
- Pangeni, S. K. (2016). Open and distance learning: Cultural practices in Nepal. *European Journal of Open, Distance and E-learning*, 19(2), 32-45. <https://doi.org/10.1515/eurodl-2016-0006>
- Paudel, R., & Rana, K. (2022). How secondary students develop multi-task and collaborative skills through online video games: A case of Nepal. *International Journal of Education & Development using Information & Communication Technology*, 18(2), 127-142. <http://ijedict.dec.uwi.edu/viewarticle.php?id=2520>
- Rana, K. (2018). *ICT in rural primary schools in Nepal: Context and teachers' experiences* [Doctoral Thesis, University of Canterbury]. New Zealand. <https://ir.canterbury.ac.nz/handle/10092/15166>
- Rana, K. (2022). How teachers developed remote learning during the Covid-19 crisis: What can we learn from rural teachers in Nepal? In M. Hammond (Ed.), *Supporting remote teaching and learning in developing countries: From the global to the local* (pp. 48-61). British Council. [https://www.britishcouncil.org.np/sites/default/files/teaching\\_learning\\_book.pdf?fbclid=IwAR3QxkAFWmZT7hxYi4ES2gzQMPinajhyh1un2mcQy50vRzmFjRTQlxb5rVv](https://www.britishcouncil.org.np/sites/default/files/teaching_learning_book.pdf?fbclid=IwAR3QxkAFWmZT7hxYi4ES2gzQMPinajhyh1un2mcQy50vRzmFjRTQlxb5rVv)
- Rana, K., Greenwood, J., & Fox-Turnbull, W. (2020). Implementation of Nepal's education policy in ICT: Examining current practice through an ecological model. *The Electronic Journal of Information Systems in Developing Countries*, 86(2), 1-16. <https://doi.org/10.1002/isd2.12118>
- Rana, K., Greenwood, J., & Henderson, R. (2022). Teachers' experiences of ICT training in Nepal: how teachers in rural primary schools learn and make progress in their ability to use ICT in classrooms. *Technology, Pedagogy and Education*, 31(3), 275-291. <https://doi.org/10.1080/1475939X.2021.2014947>
- Rana, K., Greenwood, J., Fox-Turnbull, W., & Wise, S. (2018). A shift from traditional pedagogy in Nepali rural primary schools? Rural teachers' capacity to reflect ICT policy in their practice. *International Journal of*

- Education and Development using ICT*, 14(3), 149-166. <http://ijedict.dec.uwi.edu/viewarticle.php?id=2521>
- Rana, K., Greenwood, J., Fox-Turnbull, W., & Wise, S. (2019). Challenges in accessing fieldwork in rural Himalayas: an emerging researcher's experiences. *Waikato Journal of Education*, 24(1), 67-77. <https://doi.org/10.15663/wje.v24i1.605>
- Sehati, M. A., Mirabi, M., Mortazavi Zarch, S. H., Sardari Zarchi, M., & D'Souza, L. (2020). Designing a virtual-social learning environment for awareness about diabetes and its effectiveness on the knowledge and self-efficacy of male students' mothers. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, 11(1), 54-60.
- Selvi, K. (2010). Motivating factors in online courses. *Procedia-Social and Behavioral Sciences*, 2(2), 819-824. <https://doi.org/10.1016/j.sbspro.2010.03.110>
- Shin, W., & Lwin, M. O. (2017). How does "talking about the Internet with others" affect teenagers' experience of online risks? The role of active mediation by parents, peers, and school teachers. *New Media & Society*, 19(7), 1109-1126. <https://doi.org/10.1177%2F1461444815626612>
- Simpson, J. M. (2012). *Student perceptions of quality and satisfaction in online education* [Doctoral Thesis, University of Alabama Libraries]. Tuscaloosa, Alabama. <https://ir.ua.edu/handle/123456789/1571>
- Song, H., Kim, J., & Luo, W. (2016). Teacher-student relationship in online classes: A role of teacher self-disclosure. *Computers in Human Behavior*, 54, 436-443. <https://doi.org/10.1016/j.chb.2015.07.037>
- Tao, Y. (2009). *The relationship between motivation and online social presence in an online class* [Doctoral Thesis, University of Central Florida]. Orlando, Florida. <https://stars.library.ucf.edu/cgi/viewcontent.cgi?article=4871&context=etd>
- Taylor, K. M. (2016). A descriptive case study examining the perceptions of Haitian American parents and the perceptions of their children's teachers on the parents' involvement in a structured parent intervention program [Doctoral Thesis, Florida International University]. Miami, Florida. <https://digitalcommons.fiu.edu/etd/2535/>
- Thapa, D., & Sæbø, Ø. (2014). Exploring the link between ICT and development in the context of developing countries: A literature review. *The Electronic Journal of Information Systems in Developing Countries*, 64(1), 1-15. <https://doi.org/10.1002/j.1681-4835.2014.tb00454.x>
- Üzümlü, B., Akayoglu, S., & Yazan, B. (2020). Using telecollaboration to promote intercultural competence in teacher training classrooms in Turkey and the USA. *ReCALL*, 32(2), 162 - 177. <https://doi.org/10.1017/S0958344019000235>
- Watson, S., Williams-Duncan, O. M., & Peters, M. L. (2020). School administrators' awareness of parental STEM knowledge, strategies to promote STEM knowledge, and student STEM preparation. *Research in Science & Technological Education*, 1-20. <https://doi.org/10.1080/02635143.2020.1774747>
- Wei, H.-C., & Chou, C. (2020). Online learning performance and satisfaction: do perceptions and readiness matter? *Distance Education*, 41(1), 48-69. <https://doi.org/10.1080/01587919.2020.1724768>
- Whalley, R., & Barbour, M. K. (2020). Collaboration and virtual learning in New Zealand rural primary schools: A Review of the literature. *Turkish Online Journal of Distance Education*, 21(2), 102-125. <https://doi.org/10.17718/tojde.727983>
- Xie, K., Debacker, T. K., & Ferguson, C. (2006). Extending the traditional classroom through online discussion:

The role of student motivation. *Journal of Educational Computing Research*, 34(1), 67-89.  
<https://doi.org/10.2190/7BAK-EGAH-3MH1-K7C6>

Zhang, S., & Hu, Z. (2020). Kindergarten teacher training system in China by IT technology. *International Scientific Conference "Digitalization of Education: History, Trends and Prospects" (DETP 2020)*, 659-664. <https://doi.org/10.2991/assehr.k.200509.117>


Zhou, T., Huang, S., Cheng, J., & Xiao, Y. (2020). The distance teaching practice of combined mode of massive open online course micro-video for interns in emergency department during the COVID-19 epidemic period. *Telemedicine and e-Health*, 26(5), 584-588. <https://doi.org/10.1089/tmj.2020.0079>

---

### Author Information

---

#### Usha Kaphle


 <https://orcid.org/0000-0002-0855-7634>

Faculty of Social Sciences and Education

Nepal Open University

Lalitpur, Nepal

#### Karna Rana

 <https://orcid.org/0000-0003-3665-878X>

(Corresponding author)

Faculty of Social Sciences and Education

Nepal Open University

Lalitpur, Nepal

Contact e-mail: [karnabdr@gmail.com](mailto:karnabdr@gmail.com)

---