Case study

Challenges of emergency eLearning in rural Bhutan: A case of Kengkhar Middle Secondary School during the COVID-19 pandemic

Abstract

With the spread of COVID-19 pandemic across the world, countries were locked down and the borders were sealed. Like in other countries, the education institutes in Bhutan were closed and the mode of learning shifted to online. There were some challenges with the online teaching and learning (eLearning). This is a case study of Kengkhar Middle Secondary School. It attempts to examine various challenges of eLearning faced by the tutors, learners, and parents and guardians of schoolchildren. This study used primary data, which were collected from teachers, learners, and randomly selected parents using three tools (Student Survey, Online assignment, and Interview). It was found that about 90 percent of the students did not have personal smartphones and 80 percent of the students used smartphones of their parents and guardians. Moreover, 87 percent of the respondents received supports from their parents and guardians during emergency eLearning. However, there were several challenges involved with the eLearning. Some of the major challenges included poor attendance of the students, limited digital skills, unfamiliarity of Google Classroom, and financial burden for parents. Similarly, teachers experienced challenges such as poor response from students, low turnout rate, language barrier, and lack of proper planning and direction.

Keywords: eLearning challenges; COVID-19; online assessment; Google Classroom; rural Bhutan.

1. Introduction

Novel coronavirus (COVID-19) was identified in December 2019 in Wuhan, China [1] [2], which is the third coronavirus outbreak in the 21st century [3]. Within a few months, the COVID-19 spread rapidly across the world. By February 17 2020, the pandemic had spread to 29 countries and recorded 1775 deaths [2]. In response to rapid spread of the pandemic, the governments and authorities adopted various preventive measures and protocols which included physical distancing, hand washing, avoiding mass gathering, and wearing face masks, and nationwide lockdowns [4].

The pandemic has caused unprecedented disruption to education. School closures have affected over 1.6 billion learners globally [5]. During school closures, schools and tertiary education institutes implemented various remote learning strategies to mitigate the effects of the pandemic, which included eLearning, television broadcasts, radio programming, and provision of print packages [6] [7] [8]. Among others, eLearning (either synchronous or asynchronous) was the most widely adopted remote learning method across the world [7], which became "the largest 'online movement' in the history of education," [9].

Bhutan detected the first COVID-19 case on March 5 2020 in American tourist [10]. The government decided to close all the educational institutes throughout the nation on 18th March 2020 as a precautionary measure against the outbreak of COVID-19 and over 170,000 students (from Early Learning Centres to Higher Secondary schools) were sent home [11] [12]. All education institutions in the country remained fully closed from March 18 to July 31, 2020 [12]. The Ministry of Education (MoE) declared teaching-learning should continue through various means including the national mainstream television Bhutan Broadcasting Service (BBS), and other online platforms [13]. The MoE initiated several programs to deliver lessons through online platforms. On 26th March 2020, the MoE launched 'Bhutan e-Learning' [14] and published a 'Guidelines for Curriculum Implementation Plan for Education in Emergency (EiE)' [15]. The guidelines prescribed means of teaching and assessment, roles of students, teachers, parents, and relevant stakeholders. There were modifications in the curriculum and the education system adopted various modes of learning and different means of delivering lessons [15] [16]. Similarly, thousands of teachers across the country came together and formed Volunteers Teachers of Bhutan (V-ToB) to engage the schoolchildren during the emergency [17]. The V-ToB recorded lessons and broadcast on BBS, posted on Facebook, and circulated on WeChat groups [17]. At the school level, teachers delivered lessons online by forming groups on social media such as WeChat and Messenger.

The location, people's living standards, availability of amenities and infrastructures, socioeconomic status, and strategies used by teachers have profound impact on the effectiveness of learning. Notwithstanding numerous initiatives undertaken by the government and education institutes, the COVID-19 pandemic posed grave challenges in teaching, learning, and assessment. The nature and degree of challenges imposed by the pandemic demand a comprehensive study. While numerous researches have been conducted on the impacts of COVID-19 and emergency learning across the world, very few researches have been conducted

in Bhutan on the subject although education sector in Bhutan was disrupted as much as in any other countries [12] [16]. A group of researchers gathered perspectives of Bhutanese students on emergency online learning and found that internet cost for students was too expensive and the teachers were not prepared for online classes [18]. Other reports compiled by the MoE and international agencies such as UNESCO, UNICEF, and the World Bank also shows that the pandemic has severe impact on the education sector in Bhutan [11] [12] [16].

This case study primarily examines the challenges of emergency eLearning at Kengkhar Middle Secondary School (Kengkhar MSS) during the first school closure (from March 18 to July 31, 2020). This study hopes to provide background knowledge about students and the school so that teachers adopt appropriate online teaching pedagogies. Similarly, it helps to identify pupils and areas of support for effective learning and present guidelines for emergency learning in future. The study also provides relevant insights about other schools in rural Bhutan vis-à-vis the structural challenges (such as infrastructure, parental support, learning environment, and instrument for eLearning).

1.1 A Brief Overview of Education Responses in Kengkhar MSS

Kengkhar MSS is located beneath Kengkhar gewog center, which is over seventy kilometers away from Mongar district center. The gewog comprises 37 villages covering 155.49 square kilometers. In the past, Kengkhar was known for poverty and an acute shortage of water [19]. In 2007, Kengkhar was identified as one of the poorest gewogs in Bhutan with 62.9 percent of the population living below the poverty rate [20]. Presently, the gewog and villages are connected with motor road, electricity, and telecommunication facilities but many people do not have access to these amenities. For instance, Munma lies over 10 kilometers beneath the gewog center and the mobile network is poor. The farm road is accessible for larger vehicles but the road is prone to frequent landslides and roadblocks. Moreover, there is no shop in the village and people have to travel for hours to visit the nearest shop.

There were 549 students (in the academic year 2020) coming from far-flung villages such as Romangla and Tongkangla, 23 teachers, and 11 support staff as presented in Table 1. Kengkhar MSS adopted different strategies considering the location, availability of resources, accessibility to modern infrastructure, and people's livelihood. The strategies included the use of Google Classrooms and social media, redesigning timetables, and assigning home tasks. The school used both synchronous and asynchronous eLearning methods.

Table 1. Total number of students, teachers, and support staff in Kengkhar MSS, 2020.

Students		Teachers		Support staff	
Male	Female	Male	Female	Male	Female
260	289	16	7	4	7
Total: 549		Total: 23		Total: 11	

The school created education email accounts for students in grade seven and above and oriented on the use of Google Classroom before dispersing from the school. Later, the class teachers created a GoogleClassroom for each section and invited students and subject teachers to the groups. However, several students, as well as teachers, were not familiar with the Google Classroom. Moreover, the majority of the students did not possess smartphones that support Google Classroom. Thus, WeChat was used as an alternative means. While the senior students could use WeChat independently, the children in lower classes had to depend on their parents and guardians. Hence, the teachers of primary classes formed WeChat groups with children's parents and guardians. The primary teachers worked closely with the parents and guardians of the children.

The people in Kengkhar are mostly involved in agriculture and farming and students help their parents with household chores and other errands. The normal periodic teaching was inconvenient for both parents and students. Therefore, there were merely two subjects allotted for each day as scheduled in Table 2. The morning period extended from 7:00 am to 1:00 pm and the afternoon period from 2:00 pm 8:00 pm.

Table 2. Emergency eLearning timetable for grades seven to ten at Kengkhar MSS.

Class	Day I		Day II		Day III		Day IV		Day V	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
X	English	Biology	Dzongkha	Chemistry	Math	Geography	Physics	History	Math	Economics
IX	Dzongkha	Biology	English	Chemistry	Physics	History	Math	Geography	Economics	Math
VIII	English	Geography	Dzongkha	History	Math	Science	Physics	Math		
VII	Dzongkha	History	English	Geography	Math	Science	Math	Physics		

2. Methods

This study used primary data. The data were gathered using three tools: Survey, Online assignment, and Interview. Each tool was used for different purposes although they are interlinked and complementary. Overview of the participants is presented in Table 3.

Table 3. Overview of participants for the study

Research tools	Student survey	Online survey	Online assignment	Interview
Sample area	All students	Random students	IX & X students	Teachers & parents
Sample size	549	288	113	73

Firstly, we conducted student census to survey the accessibility and availability of tools for eLearning. The eLearning tools included smartphones, the internet, and television (with access to BBS). The census involved all sections from pre-primary to grade tenth. The census form is attached in Annexure A. Similarly, an online survey was conducted to gather overall opinions from the students on eLearning. The online survey included 288 randomly selected students from pre-primary to tenth grade. The data were gathered through three basic means: a) emails for the senior students, b) phone calls for the primary children, and c) face to face interviews with the nearby students. To minimize errors in the findings owing to misinterpretations, the statements were translated and explained into local dialects for the participants from primary classes. Subsequently, data were interpreted using the descriptive method and the findings were analyzed, interlinked, and compared with the conclusions derived from the census. There were nine statements with five scales (Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree) as attached in Annexure B.

The second tool was online assignment. Grades nine and ten students were assigned to read a book and write a conclusive review. The students were permitted to review books they read in the past. Subsequently, the students were instructed to submit their tasks on Google Classroom. Instructions, assessment rubrics, and guidelines were provided via WeChat groups and Google Classrooms. The primary purpose of the assessment was to examine the feasibility of assessing the eLearning outcomes. The instructions are attached in Annexure C. Based on the online assignment, we developed a questionnaire to comprehend the implications suggested by the second tool. There were three questions (attached in Annexure D). The respondents completed through various means such as email, Messenger, WeChat, and phone calls.

Finally, this study used structured interview. The interviews were conducted for two different groups of population with a separate set of questions: a) Teacher and b) Parents. The interviews were conducted to identify various challenges faced by teachers and parents during eLearning. Moreover, interviews with parents presented opportunities to gather their opinions and suggestions regarding emergency education. The interview involved 21 teachers of the school and52 parents. The participants from the parents were randomly selected. The interview questions are attached in Annexure E.

3. Results and Discussion

3.1 Student Census

ELearning requires smartphones, internet service, and other electronic devices such as laptop, desktop, and television. Fig.1 presents the census data gathered vis-à-vis the availability of smartphones for the students.

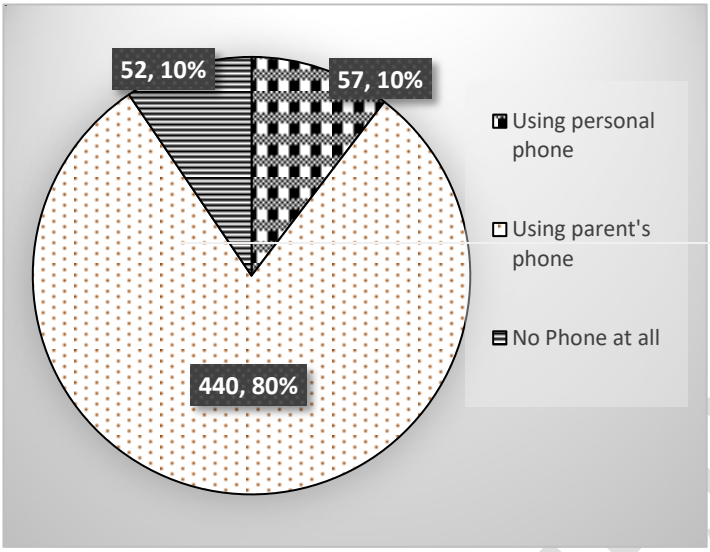

Fig. 1 shows 440 (of 549) students used smartphones of their parents or guardian while 57 students owned smartphones on their own. There were 52 students without access to smartphones. In other words, 90 percent of the students did not have personal smartphones and only 10 percent of the students owned smartphones. It indicates that the majority of the students did not have readily access to smartphones and a few students did not have access to smartphones at all.

Fig.1. Availability of smartphones for the students

The second survey statement aimed to examine students' accessibility to the internet. For this study, the internet is referred to as Bhutan Telecom and the Tashi InfoComm network. A student is considered to have access to the internet if he or she can browse the internet from home.

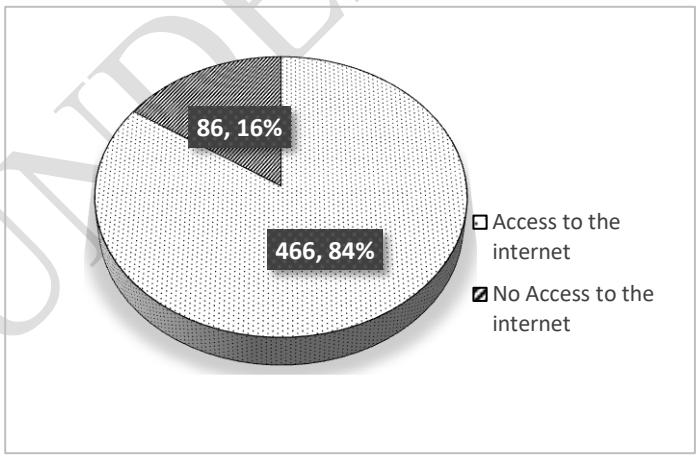

Fig. 2 shows 466 students (84 percent) had access to proper internet connection at home and 86 students (16 percent) did not have access to proper internet. The problem of internet facility was less severe compared to the accessibility of eLearning tools (smartphones).

Fig.2. Accessibility of the internet at students' home

Alternatively, the lessons were also delivered on BBS channels nationwide. This study has also examined the availability and connectivity of BBS television at home. Fig. 3 shows the students' accessibility to BBS television at home.

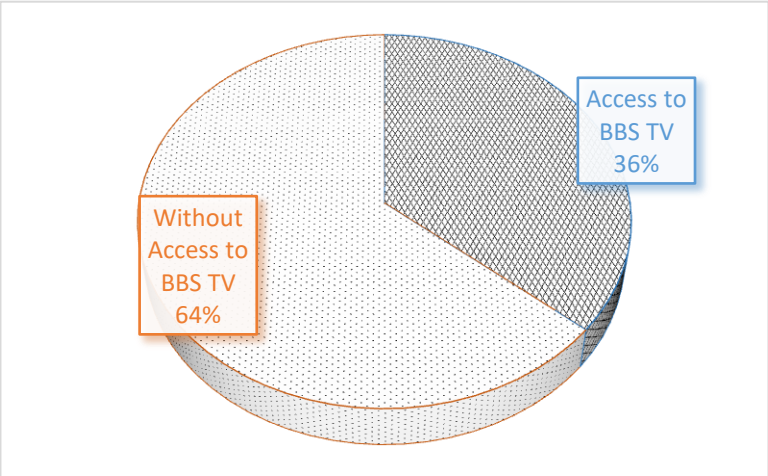

Fig. 3. Many students did not have access to BBS television

According to Fig. 3, only 64 percent of the students had access to the BBS television at home and 36 percent did not. It suggests that the majority of the students could not attend the lessons broadcast on the BBS television.

The student census on the availability and accessibility of resources for eLearning provides three major conclusions. First, the majority of the students did not have easy access to smartphones (80 percent of the students used parent's smartphones) and few students were entirely disconnected. Some students did not have proper internet connection at home. Secondly, the majority of the students (357 of 549) did not have access to the lessons broadcast on BBS television. Third, eLearning requires paramount support from parents and guardians. 80 percent of the students were using smartphones of their parents or guardians.

3.2 Online Survey data and Interpretation

During the interview, many teachers reported poor attendance of the students as a major drawback of the emergency eLearning. On 5th May 2020, subject teachers took a random attendance on WeChat groups to check the student's turnout rate. Table 4 shows the attendance report on May 05, 2020.

Table 4. Poor students' attendance on WeChat groups on 5th May 2020

Class	X (A, B)	IX (A, B)	VIII (A, B, C)	VII (A, B, C)	Total (no.)	Total (%)
Subject	Chemistry	Chemistry	History	English	-	-
Present	26	43	19	39	127	39.3%
Absent	37	33	83	43	196	60.7%
Total	63	76	102	82	323	

Table 4 shows that out of 323 students in classes seven to ten, 127 students attended online classes on May 5, 2020 and 196 students did not. It suggests only about 40 percent of the students attended eLearning regularly while 60 percent of the students missed online classes. Thus, the student survey attempted to identify other challenges besides resources and facilities. The first statement of the survey was *I prefer eLearning to classroom learning*. The primary purpose of the statement was to study students' interests and opinions toward the eLearning. The result is presented in Table 5.

Table 5: Majority of students did not prefer eLearning to normal classroom learning.

Response	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Total Respondents	51	64	44	50	79
Total	**115 (39.9%)**		**44 (15.3%)**	**129 (44.8%)**	

According to Table 5, 115 of 288 respondents preferred eLearning to normal classroom teaching. However, 129 respondents disapproved of the statement. By a simple majority, it indicates that the students preferred normal classroom learning to eLearning. 79 participants responded 'strongly disagree', which implies that students were uncertain or less enthusiastic about the eLearning.

The second statement of the survey was *I receive support from my parents/guardians/siblings for eLearning.* It attempted to examine the supports and guidance from the parents, guardians, or siblings during the emergency eLearning. Fig. 4 presents the responses of the statement.

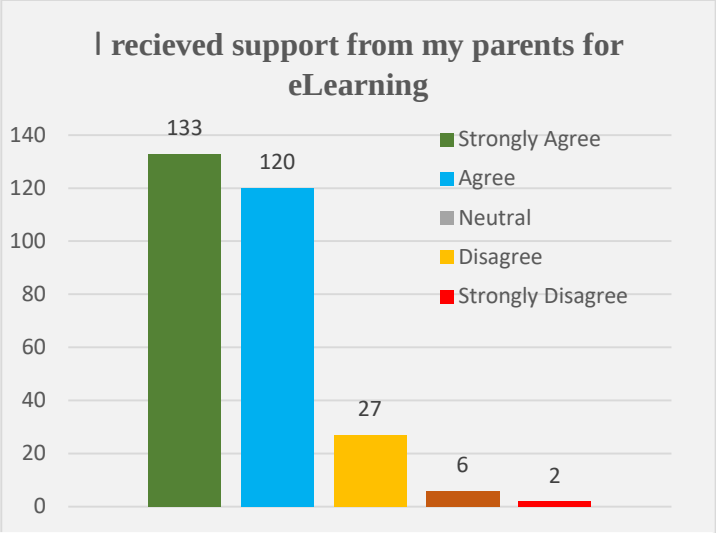

Fig. 4. Students received support from parents or guardians during emergency eLearning

According to Fig. 4, the majority of the respondents received supports from their parents or guardians. Of 288 participants, 133 responded 'strongly agree' while 120 respondents agreed with the statement. Hence, 87 percent of the respondents agreed that they received supports from their parents. Thus, it indicates parents and guardians were supportive during the emergency eLearning.

While smartphones and the internet package are provided, students are often engaged in household chores. During interview, some parents mentioned that children were left unattended since they were engaged in farming and other chores. Similarly, some teachers also mentioned about students seeking leave to assist their parents with electric fencing, performing rituals, and carrying luggage. Therefore, the survey also attempted to examine the convenience of the eLearning hour and suitability of timetables for the students. Statement 3, *Timing for eLearning is suitable*, refers to the duration, interval, and instructional hours allotted for a day. Statement 4, *Timetable for e-Learning is suitable*, refers to the subject timetable. (Refer to Table 1). The data for statements 3 and 4 are represented in Fig. 5 and Fig. 6 respectively.

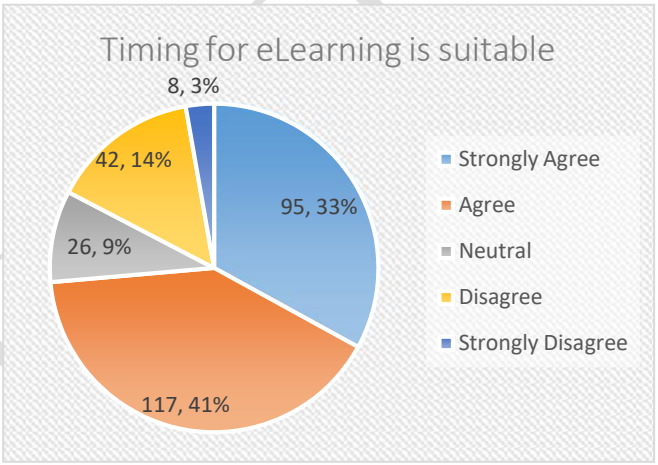

Fig.5. Suitability of the eLearning timing adopted by the school for the students.

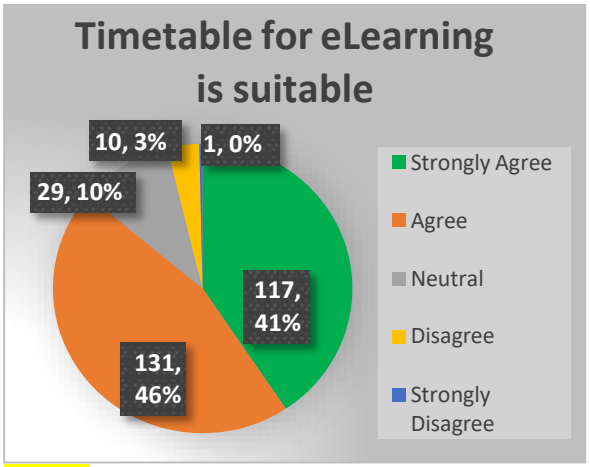

Fig. 6. Suitability of eLearning timetable developed by the school for the students

As per Fig. 5, 95 respondents (33 percent) strongly agreed that the online teaching hour is convenient while 117 participants (41 percent) agreed with the statement. Nonetheless, 42 respondents did not agree with the statement and 3 respondents strongly disagreed. It indicates the majority of the students were comfortable with the eLearning period but a considerable number of students were not contented with the time allocation. Similarly, Fig. 6 shows that 87 percent of the respondents were comfortable with the subject schedule developed by the school. Remarkably, 41 percent of the respondents strongly agreed that the timetable was suitable. One participant strongly disapproved of the timetable and ten respondents disagreed with the statement. Hence, the time factor can be dismissed from the hypothetical cause of poor attendance for eLearning.

Another potential factor for effective eLearning is the level of digital knowledge and skills. The fifth statement, *I have enough IT knowledge for eLearning*, aimed to gauge students' perceptions of the adequacy of IT knowledge and skills. Specifically, IT knowledge and skills refer to the ability to use smartphones and familiarity with eLearning platforms, which included WeChat group and Google Classroom. The result is presented in Fig. 7.

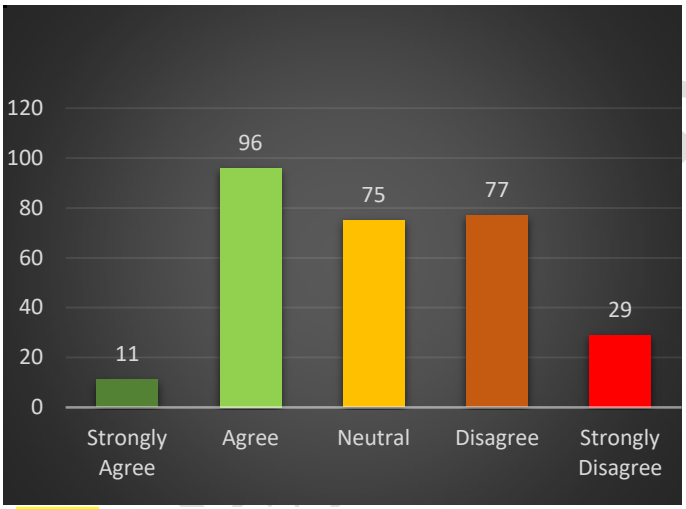

Fig. 7. Many students are not confident about their ICT knowledge and skills for eLearning

Fig. 7 shows that 11 participants were very confident about their knowledge and skills to use smartphones and online learning platforms and 96 of the 288 participants were quite confident. On the other hand, 106 participants disagreed. Moreover, 75 respondents remained neutral. Thus, it indicates that unlike in urban regions, a majority of thestudents in the school were not confident about their ICT knowledge and skills.

Therefore, the inadequacy of digital knowledge and experience stands as a potential cause of poor attendance in eLearning platforms. This finding corresponds with a finding from Table 8 under *Online Assignment*.

The next survey statement was, *WeChat group is better than Google Classroom*. It aimed to determine students' preference for eLearning platforms especially between WeChat group and Google Classroom. The result is shown in Fig. 8.

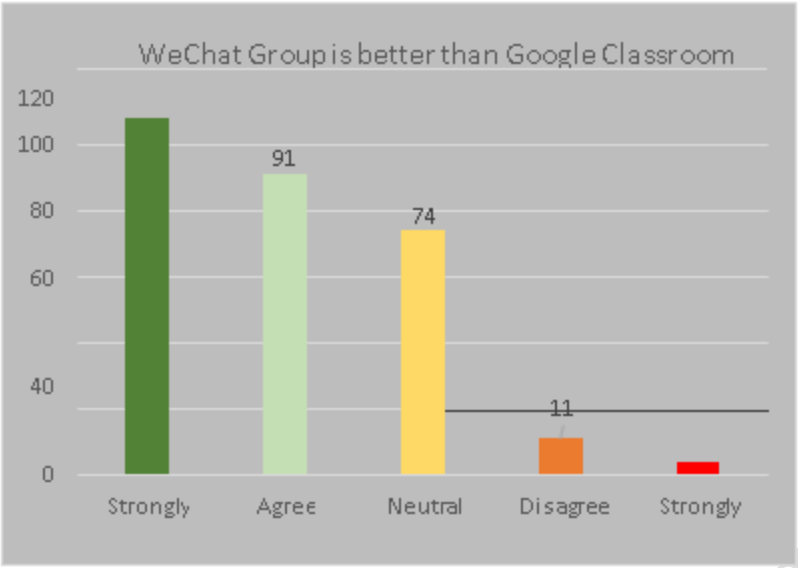

Fig. 8. Students preferred WeChat to Google Classroom.

Fig. 8 shows 108 participants 'strongly agreed' and 91 students 'agreed' that they preferred WeChat to Google Classroom. In total, 199 students responded WeChat was better than Google Classroom for eLearning. Excluding 74 respondents who remained neutral, the number of respondents who disagreed (and strongly disagreed) was negligible. Thus, it indicates that WeChat was more preferable learning platform than the Google Classroom.

3.3 Online Assignment

The primary purpose of assigning online tasks was to examine the feasibility of assessing the learning outcomes of the students online. Students were allotted 7 days to complete the assignment.Table 6 shows the assignment turnout rate by the due date.

Table 6. Assignment turnout rate within the due date

Class	Total no. of student	No. of student submitted	% of student submitted	No. of student NOT submitted	% of students NOT submitted
X A	29	19	65.52	10	34.48
X B	34	26	76.47	8	23.53
IX A	41	28	68.29	13	31.71
IX B	35	20	57.14	15	42.86
Total	**139**	**95**	**66.91**	**46**	**33.09**

As per Table 6, 95 students (out of 139) submitted their assignment while forty-six students did not submit their assignments by the due date. In other words, only 66.91 percent of the students submitted their assignment by the due date. The assignment turnout rate was slightly greater for class ten compared to the ninth grade.

Based on the online assignment, we developed a questionnaire to examine the feasibility of online assessment. The survey involved three questionnaires. Table 7 shows the number of days taken to obtain information about the assignment.

Table 7. Number of days taken for the students to know about the assignment.

No. of days Class	1st day	2nd day	3rd day	Later than 4 days	After the due date	Never	Total
X A	28	1	0	0	0	0	29
X B	21	2	8	1	0	0	32
IX A	24	4	0	2	0	0	30
IX B	20	0	1	0	0	1	22
Total	**93**	**7**	**9**	**3**	**0**	**1**	**113**

Table 7 shows that 93 participants (out of 113) knew about the assignment on the first day of assigning the task. By the second day, 100 participants had obtained the information. One respondent had never heard about the assignment. It indicates that the majority of the students obtained information about the assessments through certain means.

The second question was, *from where did you get the information about the assignment*? It was designed to identify the effective means of circulating information. Fig. 9 shows various means of acquiring information about the assignment.

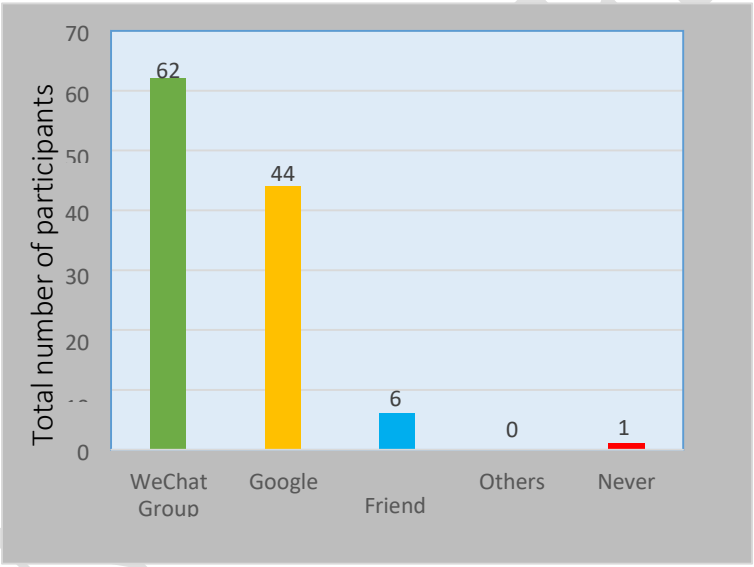

Fig. 9. Various sources of information about the online assignment during eLearning.

Fig. 9 shows 62 participants obtained the information from WeChat groups and 44 participants from the Google Classroom. The graph also shows that 6 respondents were informed by their friends. One of the respondents did not know about the assignment. It suggests that WeChat was the most effective means of circulating information about the assignments to the students followed by Google Classroom. It also shows that students share information among themselves.

As suggested by the survey result, another pertinent challenge for the students was limited knowledge and experience with smartphones and eLearning platforms. Fig. 10 enumerates students who submitted their assignments on various forums. (Note that the students who submitted late are also included in the list. The primary motive was to identify the convenient means to submit online assignments).

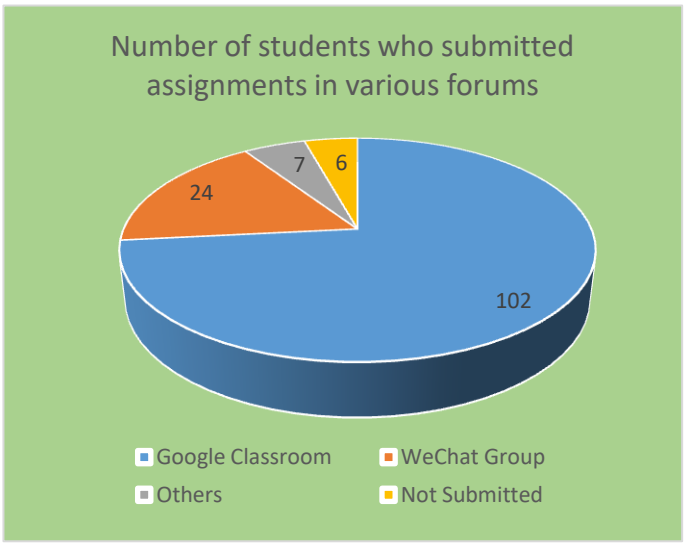

Fig. 10. Students submitted their assignment on various online platforms

Fig. 10 shows that 95 (out of 113) participants submitted their online assignments on Google Classroom. Eight respondents submitted their work on the WeChat group while the 8 participants submitted on other forums such as Messenger. Two participants did not submit their assignments. According to the pie chart, the majority of the students submitted their assignments on Google Classroom, which was new and complicated for the students compared to WeChat.

Therefore, it suggests the senior students were familiar with the Google Classroom. However, upon further research, it was found that numerous students had not submitted their assignments in the right platform as presented in Table 8.

Table 8. Students submitted their assignments on various online platforms

Forum	Google Classroom		WeChat Group	Not submitted	Others	Total
	Right platform	Randomly posted				
Total	43	52	8	8	2	113
	95					

Table 8 shows that of 95 students who submitted their assignments on Google Classroom, merely 43 students have submitted in the proper platform. The majority (52 students) had posted their assignments on a random forum on Google Classroom. It indicates the students were not versed with Google Classroom. It indicates WeChat was more preferable than Google Classroom forthe majority of the students. It is consistent with the findings from Figure 8 and complementary to Fig. 7, which suggests students did not have adequate digital knowledge and experience for eLearning. (Note: During the interview, teachers also stated WeChat is better than Google Classroom to deliver lessons, disseminate information, and provide guidance).

To summarize the findings from students' data, students were not well-equipped with eLearning materials and over half of the students did not partake in eLearning. The survey, online assignment, and questionnaire show the majority of the students received

support from their parents and guardians for eLearning. Moreover, it suggests students were comfortable with the eLearning period and timetable developed by the school. However, it appears inadequate digital knowledge and unfamiliarity of eLearning platforms undermined the outcome of eLearning. In addition, the findings from the survey suggests that students were less enthusiastic about eLearning and WeChat was more preferable than other online platforms.

3.4 Interview with Parents

ELearning demands unprecedented supports from parents and guardians. Parents have to provide smartphones, net packages, and BBS television for their children's learning. Besides materialistic supports, parents and guardians are obliged to guide and monitor their children daily. Therefore, interviews were conducted to gather opinions and suggestions from parents and guardians.

Participants for the interview (that involved 52 parents) were randomly selected from different chiwogs. Since the participants were illiterate, written interviews were not feasible and the questions were translated into local dialect. Subsequently, the responses were transcribed and translated. The major findings from the interviews are discussed below.

Firstly, the majority of the respondents did not have a clear understanding of eLearning. Some parents referred eLearning to learning through WeChat while others limited the meaning of eLearning to education through smartphones. It shows parents were not able to provide proper guidance and supports.

Second, parents and guardians faced financial burden as their children compelled them to purchase smartphones and net packages. For instance, a participant from Tongla had to purchase two smartphones for his daughter and son by selling an altar. Similarly, other participants said they spent around Nu. 200 weekly on average for the net package alone. Parents with multiple children stated financial burden as the primary challenge.

The third prominent challenge reported during the interviews was time management. It was not pertinent for the parents and guardians of the primary children who required constant guidance and monitoring. Several participants stated they had to compromise their household chores, errands, and other farming works for their children's learning. Many parents were skeptical about their children's enthusiasm toward eLearning. Parents were also skeptical about wasting time on YouTube videos and social media.

Finally, several participants expressed their concern about the quality of eLearning, disciplinary problems owing to social media, and misusing smartphones. Children were often found chatting, playing games, and watching playing music and videos.

3.5 Interview with Teachers

Children's education ultimately depends on the teachers and emergency education has imposed numerous challenges for teachers. While the teachers were lifted from the normal teaching- learning practices, eLearning led to entirely different set of problems. Thus, written interviews were conducted for teachers to identify issues and gather their insights and suggestions. 21 teachers took part in the written interview. The responses were coded and analyzed through thematic analysis approach. The major findings of the interview arediscussed below.

First, teachers used various online platforms including WeChat, Google Classroom, and Messenger. Several teachers stated that teachings were not limited to a single platform but provided options for students. However, the majority of the teachers believed WeChat groups to be the most convenientand effective means of online teaching and assessment. It suggests teachers were also not familiar with Google Classroom.

Secondly, several teachers stated that poor attendance of the students as a major concern. Poor attendance led to several other challenges. "Since many students do not have smartphones and internet service, it seems unfair for them to assign tasks and award marks,"remarked one of the teachers in the interview. Similarly, several teachers stated they were not comfortable to proceed with online teaching since over half of the students could not join the sessions.

Additionally, some teachers mentioned 'language barrier' as another challenge especially among primary children. Normally, English is used as a medium of instruction except for Dzongkha discipline. However, online teaching for the primary classes mandated teachers to provide instructions in local dialect since their lessons were routed through their parents and guardians. Moreover, primary pupils were unable to understand the lessons and instructions until they were explained in local dialect.

Similarly, many subject teachers said online teaching was ineffective and inconvenient. Subjects such as Chemistry, Physics, Economics, and Biology involve technical terms and requires practicalworks. Besides, Mathematics involves symbols and figures which could not be decoded in some smartphones. Thus, the majority of the teachers were skeptical about the efficacy of the eLearning.

4. Limitation

This study is based on the primary data gathered during the first month of eLearning. The data and information are subject to change especially about the availability of smartphones. Moreover, students might be able to enhance their digital knowledge and experience as the pandemic prolongs. Furthermore, the government takes various initiatives to support students from poor background. For instance, the Ministry

of Education has distributed Self-Instructional Materials (SIM) for the students without smartphone and BBS television while this study was undergoing data interpretation.

Essentially, this research is limited to identifying structural challenges in rural schools. It has disregarded other factors such as students' interest, content, nature of subject, and monitoring services provided by teachers, which are otherwise influential for fruitful learning. Thus, the findings are limited to rural schools alike Kengkhar MSS. Moreover, this study does not provide recommendations and practical measures for the challenges considering the school will conduct action research based on this case study.

Nevertheless, having identified various challenges for students, this study will serve as a situational analysis for action researches. Indeed, this study calls for numerous action research. Some of the subject areas include enhancing students' attendance on online platforms, improving eLearning outcomes, designing effective ways to assess students' eLearning outcomes, developing the efficiency of Google Classroom, and ensuring active participation of the students on eLearning platforms. Similarly, opinions gathered from the parents and teachers will provide better insights from the grassroots that might benefit the education ministry, planners, and policymakers in designing the programs to enhance eLearning outcomes.

5. Conclusion

This is the early case study of Kengkhar MSS during the first month of emergency eLearning. This study has identified various challenges faced by students, parents or guardians, and teachers during the emergency eLearning. We found that the majority of the students did not have access to basic resources and facilities for eLearning. 90 percent of the students did not own personal smartphones and they had to depend on their parents and guardians. Similarly, majority of the students did not have access to the lessons broadcast on BBS television. In addition, the study found that students were not confident about their ICT knowledge and skills and they were not prepared for online classes. Thus, students preferred social media such as WeChat to Google Classroom. Online assessment was not effective during the emergency eLearning as students did not get proper instruction, information, and clear idea about completing the assignments and submitting to the right platform.

Teachers and parents experienced different sets of problems. Among others, parents faced difficulty in time management as they were involved in farming and agriculture works. Moreover, parents and guardians were not clear about the modality of eLearning and their roles in helping their children learn. The study also found the emergency eLearning was burdensome for parents and guardians they had to purchase smartphones, provide net packages, and monitor their children.

Similarly, teachers were also not contented with the eLearning. Many teachers reported poor attendance and responses from the students. Primary teachers faced the problem of 'language barrier' and providing clear instructions to the students. Teachers of the senior grades faced difficulties in engaging students in online discussion, explaining certain concepts (for science subjects and mathematics), and assessing students' assignments.

References

1. Zhu H, Wei L, Niu, P. The novel coronavirus outbreak in Wuhan, China. Global Health Research and Policy. 2020; 5(6). Available: 10.1186/s41256-020-00135-6

2. Lupia T, Scabini S, Pinna SM, Perri GD, De Rosa FG, Corcioni S. 2019 Novel Coronavirus (2019-nCoV) Outbreak. Journal of Global Antimicrobial Resistance. 2020; 2:, 22–27. Available: 10.1016/j.jgar.2020.02.021

3. Sahu KK, Mishra AK, Lal A. Comprehensive update on current outbreak of novel coronavirus infection (2019-nCoV). Annals of Translational Medicine. 2020; 8(6). Available: 10.21037/atm.2020.02.92

4. Sintema EJ. Effect of COVID-19 on the performance of grade 12 students: Implications for STEMeducation. EURASIA Journal of Mathematics, Science and Technology Education. 2020; 16(7). Available: 10.29333/ejmste/7893

5. UNESCO. COVID-19 Educational Disruption and Response. 2020. Accessed 26 June 2020. Available: https://en.unesco.org/covid19/educationresponse/.

6. The World Bank, UNESCO, UNICEF. The State of the Global Education Crisis: A Path to Recovery. Washington D.C, Paris, New York. 2021.

7. OECD. Strengthening Online Learning When Schools Are Closed: The Role of Families and Teachers in Supporting Students during the COVID-19 Crisis. 2020. 2020. Accessed 27 June 2020. Available: https://www.oecd-library.org/social-issues-migration-health/

8. Donnelly R, Patrinos HA. Learning loss during Covid-19: An early systematic review. CASES/TRENDS. 2021. Available: https://doi.org/10.1007/s11125-021-09582-6

9. Li C, Lalani F. The COVID-19 Pandemic Has Changed Education forever. This Is How. Teaching & Learning in COVID-19 times study. 2021. Accessed 2 March 2022. Available:https://omeka.cloud.unimelbi.edu.au/teaching-and-learning-in-a-pandemic/items/show/131

10. Kuensel. First confirmed coronavirus case in Bhutan. Kuensel. 2020. Accessed on 3 March 2022. Available: https:// kuenselonline.com/first-confirmed-coronavirus-case-in-bhutan/

11. Ministry of Ministry of Education. COVID-19 Response Plan: Education in Emergencies (EiE) Phase II. Thimphu, Bhutan. 2020.

12. UNICEF, UNESCO. Bhutan Case Study: Situation Analysis on the Effects of the Responses to COVID-19 on the Education Sector in Asia. 2021. Accessed 5 March 2022. Available: https://www.unicef.org/rosa/media/16496/file/Bhutan%20Case%20Study.pdf

13. Zam T. Schools and educational institutes closed as precautionary measures. Bhutan Broadcasting Service. 2020. Accessed 28 June 2020. Available: http://www.bbs.bt/news/?p=129835

14. Namgay T. e-Learning begins today. Bhutan Broadcasting Service. 2020. Accessed 1 July 2020. Available: https://kuenselonline.com/e-learning-begins-today/

15. Ministry of Education. Guidelines for Curriculum Implementation Plan for Education in Emergency (EiE). Thimphu, Bhutan. 2020.

16. Education Monitoring Division (EMD). Education in Emergency (EiE) During COVID-19 Report. Ministry of Education, Thimphu, Bhutan. 2020.

17. Rinzin YC. Teachers come together to offer voluntary service. Kuensel. 2020. Accessed 3 March 2022. Available: https://kuenselonline.com/teachers-come-together-to-offer-voluntary-service/

18. Wangdi N, Dema Y, Chogyel N. Online learning amid COVID-19 pandemic: Perspectives of Bhutanese students. International Journal of Didactical Studies. 2021; 2(1). Available: 10.33902/IJODS.2021167818

19. Choden K, Wangchuk J, Yoezer D, Wangdi N, Wangchuk S, Tenzin K. Climate Change Vulnerability Assessment in Kurichhu Watershed: A case of Gangzur and Kengkhar, Bhutan. UWICER Press. Lamai Goempa, Bumthang. 2018.

20. National Statistics Bureau (NSB). Poverty Rate 2007 (Mongar). 2020. Accessed 23 June 2020. Available: http://www.nsb.gov.bt/map/thematic/g_details.php?id=7&cat=1

Annexure A: Students' census form used for gathering information about the availability of resources for e-Learning

Sl. No	Name	Class	Village	Chiwog	Gewog	Dzongkhag	Personal smartphone	Parents' smartphone	Internet connection	BBS TV

Annexure B: Survey for Students

Rating scale→ Statement ↓	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I prefer E-Learning to Classroom Learning					
I receive support from my parents/guardian/siblings for E-Learning					
The timing for E-Learning is suitable					
The timetable for E-Learning is suitable					
I am happy with the workload assigned					
I have enough IT knowledge for E-Learning					
The lessons taught online are important for me					
WeChat group is better than Google Classroom					
I am satisfied with E-Learning					

Annexure C: Instructions for Online Assignment

Instructions for Book Review:

a) Write a short book review including:

i) Title of the book
ii) Author
iii) Characters
iv) A summary of the book
v) Lessons learned from the book

b) Your assignment will be graded out of 10 using the rubrics attached (rubric was posted on Google Classroom)

c) Due date: 13th April 2020 (from 6th April to 13th April 2020)

Annexure C: Questions for the questionnaire

Name: ……. Class …….. Section ……

Q.1) When did you know about the assignment?

On day 1	On the 2nd day	On the 3rd day	Later than 4 days	After due date (7 days)	Never

Q.2) From where did you know about the assignment?

WeChat group	Google Classroom	Messenger	Friends	Never	Others (please specify)

Q.3) Where did you submit your assignment?

Right place (Google Classroom)	WeChat group	Others (specify)	Not Submitted

Annexure D: Interview Questions for Teachers and Parents

Interview questions for teachers

1. Which mode do you think is the most effective/convenient for online teaching?
2. How do you take attendance for online classes?
3. Do you think online teaching is effective for the students?
4. How do you assign a project/homework/assignment to the student?
5. How do you assess the work of the students?
6. Are you comfortable with the timetable for online teaching? Please comment
7. Do you have any other comments regarding online teaching?

Interview Question for Parents

1) What is your understanding of E-Learning?
2) Could you please share some major challenges you face during e-learning?
3) Would you recommend e-Learning for your children?
4) How can you support your children for effective e-Learning?
5) Do you have any other comments on e-Learning?