Journal of Pedagogical Sociology and Psychology
Volume 5, Issue 1, 2023
https://doi.org/10.33902/jpsp.202313626

Research Article

An investigation into Bhutanese students' perception of the use of Google Classroom as an online learning platform amid the COVID-19 pandemic

Dorjee Wangchuk[1], Kado Kado[2] and Nim Dem[1]

[1]Katsho Lower Secondary School, Haa Bhutan; [2]Gongzim Ugyen Dorji Central School, Haa Bhutan

Correspondence should be addressed to Kado Kado kadoscs@education.gov.bt
Received 23 October 2021; Revised 2 September 2022; Accepted 10 January 2023

In response to the COVID-19 school closures and the emergency transition to online teaching and learning, for the first time, Bhutanese students embraced Google Classroom as tools for teaching and learning.From this perspective, this study aims to investigate the students' perception of the efficacy of Google Classroom and identify the challenges and opportunities in implementation of Google classroom. We employed the embedded mixed method design with 100 students from Gongzim Ugyen Dorji Central School. Survey questionnaires and structured interview were used to collect the data. Findings indicated that Google Classroom is useful online learning management system. Concerning the challenges and opportunities the students of less affluent family may deprive to attend online classes because of cost of digital devices, data plans and poor network connectivity. However, embracing Google Classroom as online learning platform will create new opportunities for the use digital tools to meet the needs of the on-going COVID and future online deliveries.

Keywords: Google Classroom, online teaching and learning, COVID-19

1. Introduction

The COVID-19 catastrophe struck the whole world, plunging global economy into its deepest slump (Kokoç & Zauniddin, 2020). Education sector also suffered similar effect of pandemic, resulting in suspension of physical classes (ElSaheli-Elhage, 2021). Globally, over 1.2 billion children were out of the classroom (World Economic Forum [WEF], 2020). The suspension of physical classes in all the institutions and schools worldwide accelerated the acceptance of digital technology in an attempt to replace the traditional teaching and learning style. The exponential surge in spread of the pandemic forced educators to shift from face to face didactic instructions to online learning modalities overnight (Dhawan, 2020; Serhan, 2020).Thus, relatively in short period of time, COVID-19 become stimulant in search of innovations in educational institutions.

The first case of COVID 19 was found in Bhutan on March 6, 2020, when an American tourist tested positive. The transmission of the virus was predominantly linked to arrivals from foreign countries, resulting in the shutdown of physical classes in Thimphu, Paro, and Punakha(Kado et al., 2020).Subsequently, as precautionary measures, all the higher institutions and schools were closed, coercing to shift from traditional face to face instruction to remote instruction. The traditional in-person learning has been supplanted by innovative learning modality from textbook-based instructions to television, radio-based remote learning, and asynchronous and synchronous online learning via Google Classroom and other social media platforms (Kado et al., 2020).

In accordance with the mandate of the Ministry of Education, all the higher institutions and secondary schools have adopted Google Classroom as their management system for online learning. Primary students, on the other hand, employed various web 2.0 applications such as We chat, Messenger and Telegram for teaching and learning (Kado et al., 2020). For the first time Bhutanese students adopted digital tools exclusively for online learning, though the integration of

technology in education was envision in our education blue print and iSherig ICT Master plan (Ministry of Education [MOE], 2014). The digitization of education as envisioned in our iSherig-2 Education ICT master plan 2013-2019, was intended to leverage the potential of ICT to strengthen the quality of teaching and learning (MOE, 2014). Azhar and Iqbal (2018) also suggested ICT integrated teaching and learning promotes collaboration, imparts active learning and individualized learning experiences through the uses of digital resources. Thus, an emergency progression from traditional didactic instructions confined by space and time to ubiquitous remote learning modalities is a remarkable moment in the history of the Bhutanese education system.

Among the variety of e-learning tools, one among them is the Google Suite for Education. It is one of the powerful web 2.0 tools effective for teaching and learning. It includes Google App tools like Drive, Gmail, Docs ,Forms, Sheets and Slides (Bhat, Raju, 2018). All these tools can be used collaboratively in the Google Classroom to facilitate online learning effectively. This application has been approved by the educational community to support e-learning. It makes it simple for both teachers and students to connect both within and outside of the classroom (Astuti & Indriani,2020). This application is initially launched in 2014 (Astuti & Indriani,2020), therefore the research related to Google Classrooms are limited in international contexts.

It has been experimentally demonstrated that Google classroom has insignificant effect on teaching and learning strategies, but it helps to facilitate the document and basic class management (Azhar & Iqbal, 2018). They employed qualitative technique to study the perceptions of 12 higher educators who implemented Google Classroom for at least one semester. This method attempted to unearth only the perceptions of educator not the learners. It is equally crucial to determine the learners' perceptions about the effectiveness of the tools as they are one who uses the tools intensively for teaching and learning purposes.

More recently, Khalil et al (2017) conducted a study on the impact of Google Classroom on the teaching efficiency of pre-teachers. The researcher employed experimental design, the control group was taught by the traditional style while the experimental group studied using the GC. The result revealed the significant difference between the control and experimental groups. It has been experimentally demonstrated that the teaching effectiveness of college students significantly improved their academic achievement, planning, executions and evaluation compared to traditional approach of teaching and learning.

Shaharanee et al. (2016) examined the relationship between identified factors and efficacy of GC by analyzing the learning activities using the TAM (Technology Acceptance Model).This study applied quantitative techniques. TAM is theoretical model to assess the students' technology usage behaviors. The technology usage behaviors were determined by two factors such as perceive ease of use and perceived usefulness. The findings showed overall students' satisfaction and better comparative performance in the areas of communication & interaction, perceive usefulness, perceive instruction delivery, and ease of access. Another research was conducted by Iftekhar (2016) at Daffodil International University which mainly emphasized on teachers' and students' perceptions of using GC. Generally, teachers use GC as it is required by the university. The use of GC creates a better interaction between teacher and students, while students believe that this platform is helpful since they can easily get the learning materials uploaded by teachers.

The GC tools are compelling in educating and learning as they demonstrate improvement in teaching and learning. Studies have shown that GC is a potent tool in instruction and learning among learners. Moreover, it can be construed that knowledge and skills acquired over GC is preferable over the conventional lecture-based instructions (Mafa, 2018). The similar previous findings demonstrated the significant impact of using Google Classroom as an e-learning tools compared to traditional methods of learning (Bhat et al., 2018). The GC facilitates effective paperless online collaboration between students and teachers. Teachers can generate the online discussion or post any online learning activities. Students also get an opportunity to give feedback or seek clarification regarding the particular topics with their virtual classmates and teachers (Alim et al., 2019).Moreover, GC caters the participation of a larger and more diverse groups of students compared to the traditional classrooms. Unlike the traditional classrooms where introverted

students may be reluctant to participate in teaching and learning, the virtual classroom provides platform for all the learners to participate in teaching and learning process. However, anecdotal evidence revels that most of the Bhutanese students are reluctant to participate effectively in GC. Gupta and Pathania (2020) asserted that in the Asian context, students may be reluctant to participate in online learning and this can be attributed to lack of confidence. The GC also helps teachers to disseminate the teaching and learning materials and academic related information directly to students instead of emailing individually. Students get timely e-learning materials which will help them to improve their e-learning experiences (Alim et al., 2019).Moreover, the GC provides platform for the ease of learning as if students and teachers are not able to attend the usual class due to unavoidable circumstances, the virtual class will still happen through the notes and materials posted through GC.

Some of the challenges encountered by students while navigating the Google Classroom were non-personalized user-interface, lack of communication with peers, privacy for assignments, and lack of reliable internet facilities at home (Kumar, 2020). Similarly, teachers also face difficulty to get feedback from students when comments were streamed and security threats as anonymous students can join the class if they know the class code. Additionally, students may use Google Classroom as more of a social networking sites that e-learning platform (Rossytawatii, 2018).

More recently, it has been demonstrated that online learning applications are constraint by slow internet connectivity or reliable internet connectivity (Al Yakin et al., 2022). Ahmed and Opoku (2021) also claimed that technical obstacles such as slow internet connections and interruptions hampered online deliveries. The other challenges are lack of adequate smartphones or data plans to attend the online classes due widen digital division. The significant gap between those from privileged and disadvantaged background in US still exists. Nearly 25% of those from disadvantaged background do not have reliable internet access and digital tools to participate in e-learning (WEF, 2020). The existence of digital divide is still concerned in highly affluent nations like Australia and US. Globally, three out of four students who live in rural cannot be reached with any of remote learning modalities (UNICEF, 2020). Digital division still exists in Bhutan being a developing nation.

Consequently, the use of Google Classroom by the teachers and students may not be optimally effective as disadvantaged students find difficulty in accessing the GC. Alim et al.(2019) also posit that one of the crucial barriers that deprive the efficiency of GC is lack of accessibility to smart gadgets, data plan and lack of online Google accounts.

1.1. Online learning in Bhutanese Education System

Until the advent of modern education system in 1960, the monastic education served as primary source of teaching and learning in the Bhutanese education system. With the onset of modern education, the Bhutanese education system had mounted many landmark through the periodic efforts in the form of policy changes, nationalization of school curriculum since early 1970s, introduction of New Approach to Primary Education (NAPE) in the mid-eighties, nationalization of the high-stake examination, Educating for GNH to ICT integration in Bhutanese Education System, intended to improve the quality of teaching and learning.

The Bhutanese education system made commendable and rapid progress in producing the younger generation that benefited the development of the country, however, challenges of providing quality education to our children still remain (Bhutan Council of School Examination and Assessment [BCSEA], 2019). To address this challenge, ICT is accorded as one of the crucial tools to enhance the quality of education. Thus, Ministry of Education (MOE) launched iSherig-2, ICT Education Master Plan after a successful completion of iSherig-1(2014-2018) to harness the potential benefit of ICT in enhancing the quality of education.

Despite the overwhelming vision to produce "an ICT-enabled, knowledge-based society as a foundation for Gross National Happiness" through the pervasive use of digital educational resources (MOE, 2019), the educational technology like Google Classroom are seldom integrated in teaching and learning. Thus, COVID-19 pandemic situation actually transforms the challenges of

adopting Google Classroom e-learning platform into opportunities, embarking its e-learning journey to produce globally competent learners through pervasive use of emerging and relevant technology. It was challenging for Bhutanese students to adjust their learning via online platform, as learning in Bhutanese context has always been confined to classroom with a limited integration of technology. Furthermore, many of them are not well-equipped with digital tools especially for teaching and learning.

The quality of the online learning not only depends the quality of IT infrastructures but also students' and educators' perception, knowledge and skills in navigating the features of digital tools. Implementing a technology that is not willingly to be accepted and used by end users exhausts resources and is a waste of time and money. Based on the available research studies, much research had been done on an e-learning platform; however the academic discourse that focuses on GC as a means of learning are still limited in general, and Bhutan in particular. Moreover, the adoption of Google Classroom as an alternative to traditional classroom created a need to ascertain the effectiveness of its tools through an empirical study. The study conducted by Azhar and Iqbal (2018) also recommended conducting the study in secondary schools by employing quantitative techniques to validate and corroborate their findings.

1.2. The Aim

The aim of the study is to determine students' perceptions about the efficacy, challenges, and opportunities of adopting Google Classroom as an online learning platform. The objectives are as follows: 1) to ascertain the students' perception of the effectiveness of Google Classroom; 2) to identify challenges and opportunities of adopting google classroom as an online learning platform. Therefore, the paper sought to find answers to these questions:

RQ 1) How do the students perceive the effectiveness of Google Classroom as an online learning management system?

RQ 1a) What are the students' perceptions of the effectiveness of Google Classroom?

RQ 1b) What are the challenges and opportunities in using Google Classroom?

2. Method

2.1. Research Design

Mixed method design was used, with survey questionnaire as a tool to collect the quantitative data and the structured interview to collect qualitative data. An embedded mixed method was adopted as different research questions entail different types of data (qualitative and quantitative) (Creswell, 2013). This approach was selected because the researcher felt that quantitative data was more relevant since it answered the main research questions, whilst qualitative data was used to identify the challenges and opportunities related to the use of GC as an online learning platform.

2.2. Sampling

For quantitative design, simple random sampling had been used in selecting the sample. Whereas, non-probability convenience sampling was used to select ten students. In purposive sampling techniques, samples were selected on the basis of their knowledge, relationships and expertise regarding the research subject (Mertens, 2020).In this study sample selected had sufficient and relevant experience in the usage of Google Classroom.

2.3. Instruments

The self-developed survey questionnaires using Google forms were used to collect the quantitative data, whereas the structured interviews were used to collect the qualitative data. The 5-points Likert scale ranging from 1 (Strongly Disagree) to 5(Strongly Agree) were used to measure the students' perceptions. The validity of survey questionnaires was ensured as the survey questionnaires were validated by an expert in the field of online learning. Regarding the reliability of survey questionnaires, the Cronbach alpha was .78, indicating the reliability of questionnaires to measure the intended objectives.

2.4. Data Collection

Before data collection, the administrative and ethical procedures were strictly followed to get approval to conduct the study with participants from the cluster research committee. After getting an approval, informed consents were sought from all the respondents of the study. An online survey questionnaires was sent to all the students of Gongzim Ugyen Dorji Central School for the purpose of quantitative data collection. A total of 100 responses were received from a total of 200 questionnaires dispensed, which shows a response rate of 50%.

2.5. Data Analysis

SPSS 22.0 was used to analyze the quantitative data. Participants' responses to the items of the scale were presented descriptively, primarily in percentage and frequencies. The initial stage of analyzing the qualitative data comprise of transcribing the recorded interviews. Subsequently, the transcripts were read repeatedly to generate the themes. The identified themes were presented in cohesive manner to address the research questions.

3. Findings

This section summarizes the main findings of this research. Students' perception about the Google Classroom were analyzed in the realm of perceive usefulness, perceived ease of use, facilitating conditions, communication & interaction and hedonic motivation using the mean and standard deviation (SD) , challenges, and opportunities in using GC.

3.1. Finding regarding Students' Perceptions

The Table 1 depicts the analysis of students' perception using the mean and standard deviation. The highest mean and lowest SD is the perceived usefulness with the weighted mean of 3.55 and SD 1.16. This result indicates that on average the respondent strongly agreed that Google Classroom is useful online learning management system. The lowest mean and highest SD is the hedonic motivation with the weighted mean of 2.71 and SD 1.92. This indicates that respondents lack intrinsic motivation to embrace GC as a synchronous form of e-learning tools.

Table 1
Students' Perceptions

Factors	*Mean*	*SD*
Perceived usefulness	3.55	1.16
Perceived Ease of Use	3.54	1.61
Facilitating Conditions	3.37	1.18
Communication and Interaction	3.38	1.21
Hedonic Motivation	2.71	1.92

3.1.1. Finding of students' perception of usefulness

Based on the Table 2, the highest mean and lowest SD is usefulness of Google Classroom as e-learning tools with weighted mean 4.05 and SD 1.05.Respondents strongly agreed that in term of perceived usefulness, the accepting GC as virtual learning platform is considered as useful. The lowest mean value and highest SD went to the component of Google Classroom not having the distinctive useful features with weighted mean value of 3.01 and SD 1.01.This result signifies that respondent disagreed that Google Classroom does not have any distinctive features for learning.

Table 2
Mean Value of Perceived Usefulness

Items	*Mean*	*SD*
I find Google Classroom useful e-learning tools.	4.05	1.05
Google Classroom enhances my learning productivity.	3.60	1.15
Google Classroom enables me to accomplish tasks more quickly.	3.50	1.28
Google Classroom improves my performance.	3.70	1.32
Google Classroom saves my time.	3.52	1.18
Google Classroom doesn't have any distinctive useful features.	3.01	1.14
Overall Mean	3.55	1.18

3.1.2. Finding of students' perception of ease of use

Based on the Table 3, the highest mean and lowest SD is for submission for assignments/project/homework via Google classroom with weighted mean value of 4.06 and SD 1.02.This depicts that respondents strongly agreed that Google classroom allows submission of assignments/project/homework effectively. The lowest mean value and highest SD goes to the component that it is convenient for them to learn via Google Classroom that other social media platforms like WeChat and messenger with weighted mean value 3.00 and SD 3.52.This result depicts that respondents prefer other social media platforms than Google Classroom for teaching and learning.

Table 3
Mean Value of the Perceived Ease of Use

Items	*Mean*	*SD*
It is easy to navigate the Google Classroom	3.52	1.17
Google Classroom enables me to access the teaching and learning materials	3.67	1.31
Google Classroom is convenient and user-friendly.	3.55	1.15
Google Classroom allows me to submit my assignments/projects/Homework	4.06	1.02
It is convenient for me to learn via Google Classroom than other social media platforms like WeChat, messenger and etc.	3.00	3.52
I dislike using Google Classroom in mobile because small sized screen cause me difficulty in navigation and typing	3.47	1.49
Overall Mean	3.54	1.61

3.1.3. Finding of students' perception of facilitating conditions

Based on the Table 4, the highest mean and lowest SD is about the teachers' orientation about the navigation of Google classroom with weighted mean value of 4.06 and SD 1.08. Respondents strongly agreed orientation regarding the features and navigation of Google classroom was done before the implementation. The lowest mean and highest SD is students lacking necessary knowledge and skills to participate in Google classroom with weighted mean value 2.71 and SD 1.25. Respondents disagreed that they had necessary knowledge and skills to participate in Google Classroom.

Table 4
Mean Value of the Facilitating Condition

Items	*Mean*	*SD*
I have the resources necessary to participate in Google Classroom	3.38	1.19
I have the knowledge necessary to participate in Google Classroom.	2.71	1.25
I can get help from others when I have difficulties participating in Google Classroom.	3.34	1.19
My teacher oriented me about the features and navigation of Google Classroom	4.06	1.08
Overall Mean	3.37	1.16

3.1.4. Finding of students' perception communication and ınteraction

Based on the Table 5, the highest mean and lowest SD is about the teacher keeping students engaged and participating in discussions with weighted mean value 3.83 and SD 1.15. Respondents agreed that teacher kept them engaged meaningfully in the wake of COVID-19 when all the schools are closed. The lowest mean and highest SD is students feeling comfortable to interact with their friends and teacher. Respondents disagreed that they feel comfortable to interact with their friends and teacher via Google classroom.

Table 5
Mean Value of Communication and Interaction

Items	*Mean*	*SD*
I felt comfortable conversing through this medium for learning	3.10	1.25
Teachers helped to keep all the students engaged and participating in productive discussion.	3.83	1.15
I felt comfortable interacting with other participants through Google Classroom	3.12	1.22
My point of view was acknowledged by other participants during online discussion	3.20	1.18
Teachers are enthusiastic in teaching and explaining via the Google Classroom.	3.68	1.18
Overall Mean	3.38	1.21

3.1.5. Finding of students' perception of hedonic motivation

Based on the Table 6, the highest mean and lowest SD is students feel fun to participate in Google Classroom compared to traditional classroom with weighted mean value 2.85 and SD 1.18.Respondents claimed learning via Google Classroom is fun compared to conventional teaching and learning. The lowest mean and highest SD is learning via Google classroom is entertaining with weighted mean value 2.60 and SD 3.29. Respondents disagreed that participating in Google Classroom is entertaining as compared to traditional teaching and learning.

Table 6
Mean Value of Hedonic Motivations

Items	*Mean*	*SD*
Participating in Google Classroom is fun, compared to traditional (offline) courses.	2.85	1.18
Participating in Google Classroom is enjoyable, compared to traditional (offline) courses.	2.69	1.29
Participating in Google Classroom is entertaining, compared to traditional (offline) courses.	2.60	3.29
Overall Mean	2.71	1.92

3.2. Finding regarding Challenges and Opportunities

3.2.1. Challenges While using Google Classroom

When students were asked about challenges faced while using Google Classroom, the main thing emerged was inequality in knowledge dispersal via Google Classroom due to digital division. Some of the students do not have smart gadgets, lack of connectivity and unable to afford the internet data. Some of the students also claimed that small sized screen causes difficulty in navigation and typing. For instance Student1 (STD1) expressed that, "He do not have the smart phone, I use to borrow my parent's phone for online learning. Moreover, during rainy seasons, the network connectivity is poor at my place". Further student 2 (STD2) expressed that, "His parents are working in the farm and he cannot afford to buy the smart phones. If I buy phone with loan, I cannot bear the cost of data plan as my parents have no source of income". Student 3(STD 3) asserted that "I had a smart phone but I feel uncomfortable to use the google classroom in phone due to small sized screen".

When students were asked about their preference of mode of learning, a student expressed that he prefers the conventional offline teaching and learning instead of a virtual, asynchronous form of learning. For instance student 4(STD 4) expressed that, "Instead of online learning, I like the conventional offline class. While using phone we waste our time for social networking instead of using for academic purpose". In summary, the lack of digital devices, poor network connectivity, and expensive data plans are challenges while using GC for online learning.

3.2.2. Opportunities of ımplementing Google Classroom

Students highlighted some of the features they like about the Google Classroom. It is evident from their statement that GC is effective for online collaboration where students can interact with their friends, share files, and intimate with their teachers for academic support. Indeed, it's an effective platform for those students who seldom participate in traditional offline classes to participate actively in online learning. Moreover, it is effective for the submission of homework, assignments, assessments and learning at their own pace. For instance, STD 1 expressed that, "I feel comfortable asking questions to my teacher via GC. In the traditional in-person class, I felt shy about asking my teachers when I did not understand the concepts". Further, STD 2 articulated that, "Like on social networking sites, GC has the facility to interact with my friends, ask questions, and discuss the concept". STD 3, on the other hand, stated that, "It is convenient for us to upload the assignments and home work. Moreover, it is convenient for teachers to do assessments in the GC". As a last example, STD 4 expressed that, "Unlike traditional in-person classes, we can learn the concepts at our own convenience. If we do not understand the concept, we can relearn it at our own pace".

In a nutshell, embracing GC as an online learning platform helps some introverted types of students who are unable to participate actively in the in-person class. Students expressed that the use of GC as a learning platform supported them to learn at their own pace.

4. Discussion

This section begins by drawing some final discussion of the finding. The analysis of the quantitative data revealed that Google Classroom was perceived useful for online teaching and learning. Respondents agreed that Google Classroom is an effective online learning management system in contrast to traditional mode of instructions. This is consistent with finding of Iftakhar (2016) which suggest that the virtual classroom, a synchronous form of e-learning embraced by schools to an attempt to replace conventional mode of instruction delivery was perceived useful by the respondents. This result also supported the claims made in the literature that usefulness and perceived ease of use are two main factors that influenced the use of a system (Cigdem & Ozturk, 2016).This finding is also congruent with findings of Gupta and Pathania (2020) and Sathish etal (2020). Their findings revealed that 80% of students favour the use of Google Classroom step up compared to conventional face to face teaching and learning. Students felt they received individual attention and their presence were accounted in virtual classroom setup.

The Google classroom has many distinctive features which deemed to be effective for both asynchronous and synchronous for of learning. The similar pattern of results was observed in the study of Ventayen et al. (2018) which revealed that most of the respondents agreed Google Classroom is extremely useful in submission of assignments and collaborative learning with a weighted mean of 4.31 and 4.24 respectively. The finding of the study was also strikingly similar to the finding of Gupta and Panthania (2021). He posited that the Google Classroom enhances the collaborations between friends and autonomy to facilitate individualized learning environment.

The lowest weighted mean and highest standard deviation is for the factor Hedonic motivation. Respondents agreed that they lack intrinsic motivation to accept Google classroom as e-learning platform. The close agreements of the results with the literature suggest when a learners were novice in field of digital based teaching and learning it will be apparently difficult to get tailored with e-learning platforms (Rosstyawati, 2018).For Bhutanese students, the journey of the integration of Google classroom in teaching and learning had started in the wake of COVID-19 as an attempt to replace the traditional style of teaching and learning. Thus, it was challenging for most of the Bhutanese students to adapt to the new normal that required the powerful digital tools to process the teaching and learning.

Regarding the Challenges, embracing Google classroom as an alternative to traditional style of instruction may create disparity among the learners as learners were digitally divided due to social division, reaching the unreached learners via Google Classroom is still challenging issues in our context. Majority of students do not have smart phones, and the internet connectivity are not stable at home. This claim is supported by the study conducted by Sepyanda (2018), he asserted that most of the students will not have smart gadget and network accessibility at home for e-learning. Therefore, June et al. (2020) suggest that relevant stakeholders need to ensure the availability of smart gadgets and network connectivity at their disposal for effective teaching and learning via Google Classroom.

5. Conclusion

The closing of all the educational institutes in 18th march to contain the spread of COVID-19 in Bhutan resulted in dramatic paradigm shift in education system with distinctive rise of adopting e-learning, where teaching and learning is undertaken remotely and on digital platforms. Among many powerful web 2.0 tools for teaching and learning, we adopted Google Classroom as Online teaching and learning tools. The adoption of Google Classroom as medium of teaching and learning is challenging, yet we had transformed the challenges into opportunities. The highest mean for students' perceptions were perceived usefulness and perceived ease of use. As per the study, students perceived GC as a useful online learning tool. The study looked at the effectiveness of GC for assignment and homework submission; however, they preferred other social learning platforms for teaching and learning over GC.

Apart from technical and monetary issues students also reported a few other difficulties like network connectivity issues. Moreover, the findings showed that studying online gives introverted students more freedom to engage in the classroom setting. Despite the fact that social connection on campus is lacking, this study's findings showed that students communicate with one another virtually. Additionally, study revealed that students may learn at their own pace and in the comfort of their own homes with the use of GC platforms that enable online learning.

As a result, the use of GC as an online learning tool in the post-Covid-19 period is recommended because it creates individualized learner environments in which students actively construct their knowledge with the support of the teacher. It is crucial for stakeholders to prepare students to use this platform both during the pandemic and post-pandemic as it offers a real platform for educators and students to engage with digital technological tools. However, due to widening socio-economic inequality, the digital divide could be further exacerbated if access to education is governed by access to the latest emerging technologies.

6. Limitations

The major drawbacks of this research study were the small sample size and non-random selection. The capacity to generalize the results is constrained by the non-random selection. Future studies should either employ random selection methods or a larger sample size. The results are only based on students' perspectives. The inclusion of teachers' opinions in future studies might help in stating the issues faced by teachers regarding the use of GC as an online learning tool. The conclusions of the study are mainly based on the opinions of one of the higher secondary schools in western Bhutan. Analyzing the opinions of central, southern, and eastern Bhutan's schools might produce more critical results.

Acknowledgements: We would like to express our immeasurable gratitude and contentment to our Chief Dzongkhag Education Officer of Haa district and Principal of Gongzim Ugyen Dorji Central School for granting permission to conduct the study. We also thanks all the students of Gongzim Ugyen Dorji Central School for their support and warm welcoming to make this study possible.

Author contributions: All authors have sufficiently contributed to the study, and agreed with the results and conclusions.

Funding: No funding source is reported for this study.

Data Availability: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

Declaration of interest: No conflict of interest is declared by authors.

References

Ahmed, V., & Opoku, A. (2021). Technology supported learning and pedagogy in times of crisis: The case of COVID-19 pandemic. *Education and Information Technologies*, *27*(1), 365-405. https://doi.org/10.1007/s10639-021-10706-w

Al Yakin, A., Obaid, A. J., Mahdawi, H. A. K., & Al-Barzinji, S. M. (2022). Bringing technology into the classroom amid covid 19, challenge and opportunity. *Journal of Positive School Psychology*, *6*(2), 1043-1052.

Alim, N., Linda, W., Gunawan, F., & Saad, M. S. (2019). The Effectiveness of Google Classroom as an Instructional Media: A Case of State Islamic Institute of Kendari, Indonesia. *Humanities & Social Sciences Reviews*, *7*(2), 240–246. https://doi.org/10.18510/hssr.2019.7227

Astuti, W., & Indriani, Y. (2020). Online learning during the COVID-19 pandemic: A case study in Indonesia. *Journal of Educational, Health and Community Psychology*, *9*(2), 117-125.

Azhar, K. A., & Iqbal, N. (2018). Effectiveness of Google Classroom: Teachers' perceptions effectiveness of Google Classroom: Teachers' perceptions. *Prizren Social Science Journal, 2*(2), 52–66.

Bhat, S., Raju, R., Bikramjit, A., & D'souza, R. (2018). Leveraging e-learning through Google classroom: A usability study. *Journal of Engineering Education Transformations*, *31*(3), 129–135. https://doi.org/10.16920/jeet/2018/v31i3/120781

Bhutan Council of School Examination and Assessment [BCSEA]. (2019). *Education in Bhutan, Finding from Bhutan's Experience in PISA for Development.* Author.

Cigdem, H., & Ozturk, M. (2016). Factors affecting students' behavioral intention to use LMS at a Turkish post-secondary vocational school. *International Review of Research in Open and Distance Learning*, *17*(3), 276–295. https://doi.org/10.19173/irrodl.v17i3.2253

Creswell, J. R. (2013). *Research design, quantative, qualitative and mixed method approaches.* Sage Publication Limited.

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

ElSaheli-Elhage, R. (2021). Investigating students' perceptions and experiences of online learning during the COVID-19 pandemic. *Education Sciences*, *11*(4), 193. https://doi.org/10.3390/educsci11040193

Gupta, A., & Pathania, P. (2021). To study the impact of Google Classroom as a platform of learning and collaboration at the teacher education level. *Education and Information Technologies, 26*(1), 843-857. https://doi.org/10.1007/s10639-020-10294-1

Iftakhar, S. (2016). Google Classroom: What Works and How? *Journal of Education and Social Sciences*, *3*, 12–18.

Kado, K., Dem, N., & Yonten S. (2020). Effectiveness of Google classroom as an online learning management system in the wake of COVID-19 in Bhutan: Students' perceptions. In I. Sahin & M. Shelley (Eds.), *Educational practices during the COVID-19 viral outbreak: International perspectives* (pp. 121–142). ISTES Organization.

Khalil, Z. M., Abdelrahman, S., Basher, O., & Chauhan, S. (2017). The impact of Google classroom application on the teaching efficiency of pre-teachers. *International Journal of Social Sciences and Education*, *2*(2), 33–48.

Kokoç, M., & Zainuddin, Z. (2020). Preface to the special issue on the "COVID-19 and Education". *Journal of Pedagogical Research, 4*(4), 442-443. http://doi.org/10.33902/JPR.2020466337

Kumar, J. A., Bervell, B., & Osman, S. (2020). Google classroom: insights from Malaysian higher education students' and instructors' experiences. *Education and Information Technologies, 25,* 4175–4195. https://doi.org/10.1007/s10639-020-10163-x

Mafa, K. R. (2018). Capabilities of Google Classroom as a teaching and learning tool in higher education. *International Journal of Science Technology and Engineering, 5*(5), 30-34.

Mertens, D. M. (2010). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Sage.

Minsitry of Education [MOE]. (2019). *iSherig-2 Education ICT Master Plan 2019-2023.* Author.

Minsitry of Education [MOE]. (2014). *Bhutan Education Blueprint 2014-2024: Rethinking Education.* Author.

Rahmad, A., Kurniawan, E., Sari, P. I., & Hendrawati, S. (2019). The impact of student characteristics and e-learning systems characteristics on e-learning outcomes. *Journal of Physics: Conference Series*, *1157*(4), 042047.

Rossytawati, R. (2018). *A survey study of students perception in Using Google Classroom in English language education department of Islamic University of Indonesia* [Unpublished master's thesis]. Islamic University of Indonesia, Yogyakarta.

Sathish, M. T., Sornaganesh, V., Sudha, G., & Chellama, A. V. (2020). A study on shift of traditional classroom methods to online teaching methods in higher education scenario during lockdown. *International Journal of Multidisciplinary Research and Development*, *7*(7), 96–100.

Sepyanda, M., Universitas, D., Muhammad, M., & Solok, Y. (2018). Using Google classroom as an effective way to collect students' assignments. *Jurnal Akrab Juara, 3*(1), 142-149.

Serhan, D. (2020). Transitioning from face-to-face to remote learning: Students' attitudes and perceptions of using Zoom during COVID-19 pandemic. *International Journal of Technology in Education and Science*, *4*(4), 335-342. https://doi.org/10.46328/ijtes.v4i4.148

Shaharanee, I. N. M., Jamil, J. M., &Rodzi, S. S. M. (2016a). The application of Google Classroom as a tool for teaching and learning. *Journal of Telecommunication, Electronic and Computer Engineering (JTEC), 8*(10), 5-8. https://doi.org/10.1063/1.4960909

UNICEF. (2020). COVID-19: At least a third of the world's schoolchildren unable to access remote learning during school closures, new report says. https://www.unicef.org/pressreleases/COVID-19-least-third-worlds-schoolchildren-unable-access-remote-learningduring

World Economic Forum [WEF]. (2020). *The COVID-19 pandemic has changed education forever. This is how*. Retrieved December 1, 2022 from https://www.weforum.org/agenda/2020/04/coronavirus-education-global-COVID19-online-digital-learning/

Ventayen, R. J. M., Estira, K. L., De Guzman, M. J., Cabaluna, C. M., & Espinosa, N. N. (2018). Usability evaluation of Google Classroom: basis for the adaptation of GSuite e-learning platform. *Asia Pacific Journal of Education, Arts and Sciences*, *5*(1), 47–51.