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RESEARCH ARTICLE

Assessing Students' Acceptance and Challenges in using Google Classroom as an E-learning Platform at Shari Higher Secondary School, Paro

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Abstract: COVID-19 pandemic had affected Education system around the world. Bhutan also closed down its academic institutions for around 4 months after detection of the first COVID-19 patient. Ministry of Education rolled up the idea of using online forum as an instructional tool to ensure the continuity of education. Besides many available platform, Shari Higher Secondary School decided to use Google Classroom as an instrument for online teaching learning process. Hand-on training were given to both the teachers and students on the usage of G-suite Moodle focusing on Google Classroom. This study attempted to assess students' perception on the acceptance and challenges of using Google Classroom tool. An online survey based on 5-point Likert scale saw 219 students responding. The survey included statements of agreement on acceptance and challenges dimension. A follow up interview was also sought from few participants. SPSS was used to compute both descriptive and inferential statistics that include mean scores, one sample t-test, and correlation. It was found that students were ready to accept the Google Classroom based online teaching and learning notwithstanding the few challenges that they face.

Keywords: E-learning Platform;Higher Secondary School;children; online forum

Introduction

The world today faces a severe impact due to the ongoing COVID-19 global pandemic. Bhutan is not an exception. Among various sectors being affected by this pandemic, education sector is one of the major sector that has borne the brunt of this pandemic. With the first detection of COVID-19 on March 6, 2020, Bhutan government has announced nationwide closing of schools, colleges and universities immediately. The global crisis caused by the outbreak of the COVID-19 not only made conventional teaching and learning to be delayed, but also made teacher assignments more challenging as they needed to adapt to new norms that required the teaching and learning process to be implemented online (Hassan et. al., 2020). The only choice for ministry of Education has been to leverage on e-learning technologies and application. In line with this, Ministry of Education in collaboration with Royal education of council (REC), and Bhutan Council for School Examinations and Assessment (BCSEA) came up with Education in Emergency framework and curriculum (Adapted Curriculum and Prioritized Curriculum) to ensure student's continuity of education and learning. During this phase delivery of lessons on different key stages were done through the use of national television broadcast service and social media (REC, 2020). Thus schools across the country started with e-learning as a medium for continuation of teaching and learning process. With the advancement of technologies in education, teachers and students are exposed to different teaching and learning platforms such as social media and educational applications, yet not many teachers and students are familiar with the use of these technologies. Students need to be trained on how to use the online e-learning interfaces for their learning and teachers need to be trained in how to teach through e-learning interfaces. This pandemic has provided the opportunity for teachers and students in schools to step in the world of technology and leverage on this prospect to explore, share, learn and triumph over the e-learning challenges.

Today's generation popularly known as digital natives

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grow up with new technologies (Prensky, 2001). In 2014, Google introduced a technology based teaching and learning platform through which these young generation can be taught by using various gadgets where they usually spend most of their time. Such learning will not only interest learners but learning can take place anywhere and anytime at their own pace (Islam, 2019). Considering this matter, Bhutanese education system during this crises, decided to embrace and adopt Google Classroom (GC) as the teaching and learning platform for online education. In line with this, having officially announced by ministry of education to use GC as the e-teaching and learning platform, every teachers across the nation were introduced to GC through school based in-service program in their respective schools. Until then most of the teachers were unaware of this application. With the introduction of GC among the teachers, students were also familiarized with its usage.

GC got attention from many researchers across the world (Kumar et. al., 2020; Shaharanee et. al., 2016; Azhar & Iqbal, 2018). However, being recently introduced in Bhutanese education system, there has been a very limited studies carried out related to GC as an e-learning platform. Moreover most of the studies revealed the perception of students on the use of GC in blended learning environment. There is no studies carried out to find out the perception of GC as an e-learning interface in schools. Since teachers and students are not able to come to school, delivery of curriculum takes place through e-learning with the aid of GC. Furthermore from a baseline data collected by the teachers and school administration, it was learned that both teachers and students are struggling to use google classroom as teaching learning platform. Although there are many interface problems identified by expert reviews on e-learning platforms, user implementation and testing is the enabling factor to determine the problems that hinder the user's ability in successful completion of the task (Granic & Cukusic, 2011).

Objective

To assess and identify students' perception on acceptance and challenges on the usage of Google Classroom as an online learning platform.

Research questions:

1. What are the students' perception on the acceptance of using GC as an online learning platform?

2. What are the challenges faced by students on the usage of GC as an online learning platform?

Literature Review

Information and Communication Technology (ICT) has brought significant changes in education all over the world. Within last one and half decade, e-learning has progressed from being an add-on learning material to essential part of education, especially in higher education (Lee, et al., 2016). On the contrary, Gregory and colleagues (2015) believes that virtual online learning have been struggling to become a mainstream teaching tool and the reason cited are primarily due to institution's inability to provide funding, teaching support and technical support. Ever since the institution of ICT in Bhutanese education system in the late 1990's, it was gradually expanded till date (Lhendup, 2020). Though the up-scale of ICT in developing countries are slow, the COVID 19 pandemic period brought a paradigm shift from traditional classroom learning to e-learning in schools, colleges and institutes. It has also had bandwagon effects where some feel obligated to use and participate in the online learning programs because every other in the community is also using it (Cheng, 2014). With the increased availability of personal smart phones, accessing and exploring learning materials, and communicating with friends and teachers for educational purpose is becoming more prominent (Zahrani & Laxman, 2016). E-learning is usually defined as learning reinforced by technology that includes internet, and other interfaces to advance the quality of teaching learning (Tagoe, 2012). A broader definition of e-learning is instruction in which most of the content is delivered through networked electronic media, such as internet, or non-networked technology such as CD or DVD (Bell & Federman, 2013; Selim, 2007).

With the introduction of GC in 2014, "GC has officially become a learning platform in place of Frog virtual learning environment" (Hassan et .al, 2016). The classroom facilities such as to generate and consolidate assignments faster, offer feedback proficiently, and converse with the classes have made learning easy (Shaharanee, 2016). It help teachers to go paperless and leverage the use of other facilities such as Google Docs, Drive and other apps (Iftakhar 2016). Apart from these advantages, GC is easy to use, safes time, flexible, free, cloud based and mobile friendly that make most of the learners and teachers prefer it as e learning platform (Iftakhar 2016). According to Muslimah (2018) most of the students find it easy in using GC as a teaching learning platform. Similarly Iftakhar (2016) also found that GC is not only an effective tool in learning but also easy to use. In the study carried out

by Raju and colleagues (2018), it was found that e-learning through GC especially in keeping the tract of assignments submission that lead to authentic assessment was easier compared to the traditional method. In addition to this, since GC is an easy-to-use tool that can be accessed freely anytime by anyone, Filho and colleagues (2019) found that GC can be a prodigious instrument used in instructive practice as a backing to the teaching learning progression and also to appraise the paybacks of its usage. Further, GC was extremely found to be useful in assignments and collaborative learning (Ventayen, 2017).

In last few years, numerous studies on understanding students' and teachers' observations and outlooks concerning GC as an aid in e-learning process (Islam, 2019; Hassan, et. al., 2020; Kumar et. al., 2020; Azhar & Igbal, 2018). Most of these studies revealed teachers' and students' positive perception in the usage of GC as e-learning platform. However several factors may influence student' perception on e-learning. According to Saeed (2018), Technology Acceptance Model (TAM) created by Davis in 1989, proposes that the student's intent to use GC is ascertained perceived usefulness (PU) and perceived ease of use (PEU). PU and PEU were viewed as two key fundamentals impelling user disposition to utilize an explicit technology (Davis, 1989). In this study, PU refers to how much the users think that technology will be useful in enhancing their learning progress, and PEU refers to the users' believe that using the technology will be effortless. The TAM model has been broadly used as a theoretical model to understand the end user's approval of an e-learning system in an organization (Lee, et al., 2011). It goes on to state that the attitudes that the users form about a new technology or an innovation can be used to explain the end-users decision making process. Lee and colleagues (2011) integrates TAM model with Innovative Diffusion Theory (IDT) that stresses on other fronts like comparative advantage, intricacy, testability, and discernibility of an innovation-use of GC interface in this study.

Keller and Cernerud (2002) and Agbatogun (2013) and have used variables such as age, gender, previous knowledge on computers, academic status, motivating and discouraging factors, technology approval and specific learning methods as key factors for the prediction of technology acceptance by the students. Moreover, studies indicate that students' insight into e-learning in education may be subjective due to other variables broadly categorized as resources, skills, and attitude (Aydin & Tasci, 2005). The success of the use of technologies for academic purpose will depend on the responses and acceptance of the users involved in the e-learning (Garcia, et al., 2015).

Methodology

This study was carried out in one of the higher secondary schools in western Bhutan. This study used google form survey to collect quantitative data. Out of 414 students only 219 students responded to the survey questionnaire. An initial survey by school administration found 12 students who never accessed GC platform due to economic reasons, and depended on delivery of hard copy curriculum materials by the volunteer teachers. Thus, this study used convenience sampling method to gather the required data. The study included both quantitative and qualitative approaches. Data were collected about five months after the GC was implemented across the Nation. The survey included questions on demographic information, two dimensions with four themes each and consisted of 43 statements of agreement.

Demographic questions covered gender, age, the typical time consumed by internet access and the purpose for which the internet is being accessed. The survey questionnaire incorporated two dimensions- Acceptance and Challenges dimensions. The Acceptance dimension included four themes: PEU, PU, Communication and interaction, and Students' satisfaction. The next section was on Challenges dimension and it also comprised of four themes: Internet network, ICT knowledge, Easy to use response, and Motivation. Acceptance items were adapted from Shaharanee et.al (2016). Cronbach's alpha test was found to be 0.91. Items related to challenges were adapted from Hassan and colleagues (2020) and it has a Cronbach's alpha value of 0.93. As per Taber (2017), alpha value of greater than 0.91-0.93 is described as strong internal consistency. The 43 item survey questionnaire based on 5-point Likert scale in google form was uploaded in the GC forum.

Table 1: Survey Instrument

Section	*Themes/Aspects*	*Number of questions*
A	*Demographic data of the respondents*	*5*
B	*Acceptance based on TAM*	
	1. *Ease of use*	*5*
	2. *Perceived usefulness*	*8*
	3. *Communication and interaction*	*6*
	4 *Student's satisfaction*	*5*

C	Challenges	
	1. Using GCfor Internet Network	5
	2. Using GCfor ICT Knowledge	5
	3. Using GCfor Easy to Use Response	4
	4. Using GCfor Motivation	5

Some of the interview questions for qualitative data were adapted from Kumar et. al (2020) which was developed based on the learning management system (LMS) technology and others were based on the quantitative findings. Eight student volunteers were interviewed as a source for qualitative data. The qualitative data were mostly used to support the findings from the quantitative analysis. Quantitative data collected were analysed using descriptive (means and standard deviation) as well as inferential statistics (correlation, internal consistency test) with the help of SPSS while qualitative data collected were recorded and used as a support to findings from the quantitative survey data.

Table 2. Interpretation of mean scores

Sl. no	Mean scores	Level of agreement
	1.00-1.80	Very low
ii.	1.81-2.60	Low
iii.	2.61-3.40	Moderate
iv	3.41-4.20	High
v	4.21-5.00	Very high

The mean score interpretation table (Table 2) used by Moidunny (2009) and Hassan & colleagues (2020) has also been used to read the mean scores of the dimensions, themes, and individual statements of the questionnaires. One sample t-test was also used to find the significant difference between the mean scores of the dimensions with the neutral value-3 on the 5-point Likert scale.

Result and Discussion

Demographic Information

Of the 219 participants, 56.6 % were female and 45 .7% were male. Maximum respondents were between the ages 16- 18 as shown in Table 2.

Table 3. Demographic information of respondents

Demography	Categories	Frequency
Gender	Male	103
	Female	116
Age group	Less than15	29
	16-18	158
	greater than 19	32

Almost all the respondents (97.7%) had an easy access to internet at home. 60.7% of the respondents use internet on daily basis while only 4 respondents who also do not have internet access at home responded that they rarely accessed internet. A study for the United States teenagers by Anderson & Jiang (2018) found that 95% of teenagers' have access to internet and 45% of them are online most of the time. Table 3 shows that 57.5% of the respondents spent more time of their internet access for academic purposes whereas only 42.5% spent more time on non- academic purposes. Contrary to this, Ayub and colleagues (2014) and Jamaludin and colleagues (2018) found that students spent significantly more time on non- academic purposes. Similarly, Akar (2015) found that the adolescents ' ranked highest for socialization and least for education in the purpose of internet usage ranking.

Table 4. Internet accessibility and usage figures

Aspects	Categories	Percentage
Internet accessibility at home	Yes	98.2
	No	1.80
How often is internet accessed	Rarely	1.80
	Few times a week	37.5
	Daily	60.7
Maximum time spent on	Academic	57.5
	Non-academic	42.5

This study found a significant difference in the 'Maximum time spent' response between male and female participants with $p < .01$. 68 % of female participants spent more time on academic purposes compared to 46% of the male participants. Record maintained by school administration on the response rate of students turning up for the online GC sessions also confirms that almost all the non- responders are male students.

Respondents were made aware of the components of academic purposes: Gathering information, reading online books and articles, doing school assignments, attending online classes/ meetings; and Non- academic purposes: chatting, playing games, surfing through social media platforms like facebook, wechat, messenger, and Instagram. All the respondents were accustomed to the use of internet.

Dimension and Thematic Analysis

The Acceptance aspect has been divided into four themes as used in TAM model (Shaharanee & Jamil, 2016). All the

themes had a mean score that is greater than the neutral value of 3 as per the 5-point Likert scale as shown in Table 4. Each statement in the Acceptance perception questionnaire reflect students' acceptability, willingness, and support to the use of GC platform as a teaching learning instrument.

Table 5. Mean score of themes

	Mean	SD
A. Acceptance		
1. Ease of use	3.84	0.71
2. Perceived usefulness	3.37	0.72
3. Communication and Interaction	3.41	0.70
4. Student's satisfaction	3.06	0.80
B. Challenges		
1. Internet network	2.38	0.84
2. ICT knowledge	2.38	0.76
3. Easy to use response	2.61	0.81
4. Motivation	2.73	0.86

The next Challenges dimension also consist of four themes. The statements of agreement on 5-point Likert scale in this section reflects different challenges faced by the students when using the GC interface. Agreement with these statements means students are facing the challenges and disagreement with the statements shows their comfortable with the use of GC as online teaching learning instrument. The mean values of all themes of challenges has a mean score of less than 3, the neutral value as shown in Table 4.

The mean values of both the Acceptance and Challenges dimensions were compared with the neutral test value of 3 on the 5-point Likert scale as displayed in Table 5. All the dimensions' mean value have significant difference at $p < .01$, except for student's satisfaction with $p > .05$.

Table 6. One sample t-test comparing the mean value of each dimension with neutral value

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
A. Acceptance						
Ease of use	17.66	218	0.00	0.84	0.75	0.94
Perceived usefulness	7.72	218	0.00	0.37	0.28	0.47
Communication and Interaction	8.79	218	0.00	0.41	0.32	0.51
Student's satisfaction	1.12	218	0.26	0.06	-0.46	0.17
B. Challenges						
Internet network	-10.89	218	0.00	-0.62	-0. 73	-0.51
ICT knowledge	-12.11	218	0.00	-0.62	-0. 72	-0.52
Easy to use response	- 7.12	218	0.00	-0.39	-0.50	-0.28
Motivation	-4.62	218	0.00	-0.27	-0.38	-0.15

Amongst the themes of Acceptance dimension, 'Ease of use' have the highest mean value of 3.84, (SD = 0.71). In an analysis of the TAM model, Park (2009) and Tsai (2015) also got the highest mean score in the 'Ease of use' theme. The statement "Signing in to GC is not a problem" garnered the highest mean value of 4.18 (SD = 0.91) out of the 5 'Ease of use' statements as shown in Table 6. All the mean scores for 'Ease of use' components presented in Table 7 indicates a 'high' level of agreement (Table 2). It elucidates that the students are comfortable in accessing the GC platform. In the interview that required expressing their experience on GC, a student stated "GC is really new to us and to be honest, we have no idea about it at the beginning. Later some teacher taught us how to use GC which benefitted us a lot. We also learnt how to use google drive and g-mail services. Now we are more equipped to handle GC." As stated, teachers well versed in G-Suite interface called students in batches and provided user training on GC. Another possible reason expressed by an interviewee is the availability of GC mobile application which is very user friendly

Table 7. Mean scores of individual statements for Acceptance dimension

Ease of Use	Mean	SD
Signing on to the Google Classroom (GC) is not a problem.	4.18	0.91

I can easily access any kind of course materials	3.68	0.95
Sending and receiving assignment is not a problem.	3.98	0.92
I can easily submit assignments	3.95	0.96
Easy to understand the system	3.42	1.00
Perceived Usefulness	Mean	SD
The quality of learning activity is outstanding	3.04	1.06
GC is an exceptional meansfor social interaction	3.07	1.08
GC helps me to submit my works on time	3.59	1.06
The course works helped me to observe issues, to assess new ideas, and to apply what I have learned	3.29	0.96
The comments given by teachers are useful	3.83	0.97
The rating structure in GC help in observing my progression and comprehending the discussion of topic in hand.	3.46	1.01
The subject goal, evaluation and content were consistent with the aid of GC.	3.36	0.85
Utilizing GC improve students retention of subject matter.	3.23	0.87
Communication and Interaction	Mean	SD
Ifeel comfortable conversing through this medium in teaching learning processes.	3.26	1.03
Teachers help to keep students involved and contributing infruitful discussion.	3.70	0.92
Ifeel at ease interacting with other students through GC.	3.40	1.01
My views are acknowledged during the discussion.	3.31	0.87
Teachers are passionate in teaching via the GC.	3.22	0.86
Teachers are welcoming and could befreely contacted.	3.61	1.00
Student's satisfaction	Mean	SD
The subject met my objectives through GC interface.	3.13	0.87
I would endorse using this learning strategy to be used by other applicable subjects.	3.18	1.02
I can learn easily withoutfacing any difficulty in thisforum.	2.78	1.10
GC is my preferred option in active learning compared to other strategies.	3.10	1.14
I like the GC as a learning resource and motivationfactor.	3.12	0.97

The dim ensions of ' Perc eived use fulness ' and 'Communication and interaction' had a mix of moderate (2.61-3 .40) and high (3 .41-4 .20) mean scores for the constituent statements as per the mean score interpretation table. 'Students satisfaction' has all its component statements with a moderate mean score (2.61-3.40). It has the lowest mean score of 3.06 (SD = 0.80) among all the other Acceptance dimension. Over 8 academic terms of studying students' satisfaction with online learning, Cole and colleagues (2014) found that the students consistently rated "moderately satisfactory' for the online instruction. Further they noted that inconveniences in interaction with teachers and friends drives dissatisfaction with online learning. Students are the most important stakeholder in this online learning programme and the success, therefore, is dependent on how the concerns and needs of the students are addressed (Wagner, et al., 2008).

All the statements in Challenges dimension describes negative desirability in the use of GC interface.

Table 8. Mean scores of individual statements for Challenges dimension

Internet network	Mean	SD
Ifind it difficult to access internet at home	2.39	1.02
I can't meet the expensefor internet	2.44	1.03
Network at my place does not back access to information in GC.	2.26	0.94

The internet access area at my house is in poor condition.	*2.38*	*1.05*
Uploading/downloading materials at my place is really very slow.	*2.43*	*1.04*
ICT Knowledge	*Mean*	*SD*
I have no skills in using GC	*2.07*	*0.91*
I alwaysface obstacles using GC due to lack of knowledge on GC	*2.31*	*0.93*
I am not confident in using GC	*2.52*	*1.09*
I rarely use GC	*2.50*	*1.11*
I'm not prepared toface the challenges of using GC.	*2.50*	*1.07*
Easy to use response	*Mean*	*SD*
I'm having trouble using GC due to internet limitations	*2.29*	*0.97*
Ifind GCfairly difficult to use.	*2.25*	*0.92*
Iface difficulty in clearing my doubts with a teacher through GC.	*2.95*	*1.13*
I have problems using GC while doing group work	*2.96*	*1.19*
Motivation and Drive	*Mean*	*SD*
Ifind learning through GC very challenging	*2.88*	*1.16*
I have no passionfor GC	*2.60*	*1.07*
I cannot concentrate on GC while at home	*3.28*	*1.83*
I lack the confidence to go to GC	*2.28*	*0.99*
I need someone to guide me through GC	*2.60*	*1.17*

Majority of the statements have low level of agreement (1.80-2.60) with the challenges expressed by each statement. However, there are also few statements that has moderate level of agreement (2 .61-3 .40) . These statements include: 'I face difficulty in clearing my doubts with a teacher through GC' with a mean score of = 2.95' (SD = 1. 13); 'I have problems using GC while doing group work' with a mean score of 2.96 (SD = 1. 19); 'I find learning through GC very challenging' with a mean score of 2.88 (SD =1. 16) and the statement 'I cannot concentrate on GC while at home' with a mean score of 3.28 (SD = 1 .83) . All these statements are from the 'Easy to use response' and 'Motivation' dimension. Distraction is a major issue with the use of internet. Winter and Colleagues (2009) expressed that students try to employ range of boundaries to minimize distraction when on online academic assignment, and yet they find themselves switching to non- learning activities frequently . Using internet for non- academic disrupts their attention and is causing more classroom learning distraction (McCoy, 2013).

The overall mean of the 'Acceptance' and 'Challenges' dimensions are as presented in Table 9 . The Acceptance dimension has a high level of agreement, whereas the challenges dimension has low level of agreement. For the same set of questionnaire and rating, Hassan and colleagues (2020) obtained a high agreement front with a mean score of 3.46. The two dimensions are negatively correlated with r = -0.45 and is highly significant at p < .01.

Table 9. Overall mean and correlation between Acceptance and Challenges dimension

	Mean	*SD*	*Pearson correlation*	*Sig. (2-tailed)*
Acceptance mean	*3.42*	*0.62*	*-0.45*	*.000*
Challenges mean	*2.52*	*0.66*		

There is not one theme with either 'very high' or 'very low' level of agreement. The follow-up interview revealed that, since the online learning system is fairly a new intervention, students are not explicitly confident about their acceptance and challenges level. They felt that they do not have the real conviction on their ability to comprehend the usability and challenges of online learning platform- google classroom in this study's case.

Conclusion

GC has been a vital online learning management system.

Its application systems are easily accessible and user friendly. During the time of pandemic, schools in Bhutan resorted to using different online platforms of which GC is one of the main platforms. This study found that the students have high level of agreement in the acceptance dimension of using GC as an online teaching learning platform . The high level of acceptance is supported by the low scores accorded to the challenges dimension. Accessing and using the GC platform as a teaching learning platform is found to be reasonably easy for the students. However they also accept that they face difficulty in fulfilling their learning objectives through the use of GC. The main challenges that they face are getting distracted while using the GC to perform academic tasks, difficulty in clearing their doubts with the teachers, and engaging in group works and discussion. Overall, with higher level of agreement with the acceptance dimension and reversely lower level of agreement with the challenges dimension, students are ready to accept the use of GC as an online teaching learning medium. This study is expected to shed some insights onto students' expectations, acceptance, readiness, and hitches and serve as a reference for the educators in developing 'Education in Emergency' plans. With the resumption of regular classes, educators and students are encouraged to continue with the use of GC. This will strengthen the system of blended classroom and can be an avenue for further study

Conflict of Interest

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

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