Students' Usage of Google Classroom as LMS during Covid-19

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Abstract

Both developed and developing nations have adopted online education in response to the difficulties posed by the Covid-19 pandemic. Learning Management Systems (LMS) have gained rapid popularity as a widely utilized method for teaching and learning in the blended learning environment of universities. In the context of Open and Distance Learning (ODL), Google Classroom has often been used as a substitute for LMS, either due to the constraints of traditional LMSs or the absence of any existing LMSs. This study investigates the students' reactions to the utilization of Google Classroom as a LMS during the Covid-19 pandemic, when traditional in-person instruction was suspended in universities in Bangladesh. The study employed various techniques to gather responses from the students. A mixed-methods approach was employed, incorporating both survey questionnaires and in-depth interviews to gather quantitative and qualitative data. A total of 152 pupils completed the survey, and five learners participated in interviews. The findings of the study revealed that majority of the students responded positively on the usage of Google Classroom as LMS. However, several problems were observed such as the need for formalization and concerns over privacy and safety. The study recommends that the respective university authority should provide constant monitoring, timely feedback, and regular updates. Moreover, having clear policy guidelines, online surveillance measures, and active facilitation role of teachers are essential for the effective use of Google Classroom in ODL settings.

Keywords: *Covid-19, Blended Learning, Google Classroom, LMS, ODL*

Introduction

The swift advancement of Learning Management Systems (LMS) has significantly influenced the methods of teaching and learning in universities (Coates et al., 2005). LMSs are digital platforms that allow educators to upload digital materials, organize instructional resources, support interactive discussions, and share information (Meishar et al., 2012). Furthermore, educators possess the capacity to assess students' proficiency in the LMS through their behaviors, tasks, and assignments.

A commonly used LMS is Moodle, a widely adopted digital platform for remote

education that enables knowledge exchange through assignments, forums, and chats (Martin-Blas & Serrano-Fernandez, 2009). Steel (2009) found that most universities utilize LMS as a comprehensive technological solution for online education and instruction. Nevertheless, university instructors are reluctant to employ this platform for pedagogical purposes. Effective use of LMS in a blended learning environment requires collaboration, interaction, and commitment from all stakeholders (Dias et al., 2014). Educational institutions tries to introduce LMS which offers a digital learning environment for students on campus and has the capacity to create entirely virtual online colleges. The e-learning tools utilized within the LMS not also disseminate knowledge but also foster community development. These tools facilitate the enhancement of critical thinking and higher-order thinking skills in learners through the use of debate and cooperation (Zanjani et al., 2016). Despite some resistance to technology, numerous universities opt to adopt LMS to enhance education quality and increase access to of higher education (Macharia & Nyakwende, 2010). Student's participation is an essential element in the effectiveness of LMS. Studies have demonstrated a direct relationship between learner involvement and the magnitude of advantages gained from the LMS (Klobas & McGill, 2010).

The COVID-19 pandemic caused unprecedented disturbances in everyday life, compelling sectors to shift to online and facilitate social distancing protocols. Educational institutions were no exception, suspending face-to-face instruction and rapidly transitioning to flexible learning modalities (Reimers & Schleicher, 2020). Consequently, higher education institutions globally employ LMS to administer online education (Siang et al., 2024), with students embracing LMS online distance learning (ODL) amid a crisis-driven transition (Alontaga et al., 2024). In March 2020, the Bangladeshi government implemented the closure of in-person classes across all educational institutions. Bangladesh has 108 private universities and 50 public universities (Bhuiyan, 2024). During the Covid-19 pandemic, many private as well as several public universities in Bangladesh implemented online education to ensure the continuation of tertiary education during the lockdown time (Shama & Ikbal, 2020).

Google Classroom emerged as a widely used LMS alternative for online education, alongside platforms like as Facebook and Zoom (Fami, 2020). Google Classroom was widely utilized in online education due to its availability as a free LMS (Philipose & Rajagopal, 2019). Together with Google Suite for Education, Google Classroom offers a range of tools, including Drives, Gmail, Docs, Forms, Sheets, and Slides that enhance digital collaboration (Bhat et al., 2018). Furthermore, as an LMS, Google Classroom enables paperless interaction and real-time feedback, making it an attractive option among teachers and students. Despite its numerous benefits, Google Classroom also presents some challenges. Students may struggle navigating the online classroom, with its non-personalized user interface, privacy concerns regarding submitted assignments, limited peer interaction, and unreliable internet facilities at home (Susanti et al.,2021). Consequently, it is a matter of experimentation to find out students' perceptions and experiences with Google Classroom as an LMS during the COVID-19 pandemic in Bangladeshi universities, when in-person education was suspended.

Objectives

This study aims to address the following objectives:

1. To find out students' feedback on the utilization of Google Classroom as a Learning Management System (LMS) during the COVID-19 pandemic; and
2. To evaluate the difficulties and potential of utilizing Google Classroom as a Learning Management System (LMS) in Bangladesh.

Research Questions

The study aims to investigate the following research questions:

1. How do students respond to the usage of Google Classroom as a LMS during Covid-19?
2. What are the challenges and possibilities of Google Classroom as a LMS in Bangladesh after COVID-19?

Relevant Studies

Effectively designed LMSs have been shown to facilitate dynamic student engagement and facilitate meaningful interaction between students and teachers (Lonn & Teasley, 2009). However, currently available or free LMSs have restrictions in terms of their ability to fully support teaching and learning (Sanchez-Franco, 2010). Academics generally agree that LMS promote self-directed learning (Vrasidas, 2004) and provide a platform for collaborative and productive interactions (Dillenbourg et al., 2002). Nevertheless, it has been noted that the practical effectiveness of LMSs in higher education is restricted in its extent (Meishar et al., 2012). In addition, the implementation and maintenance of LMSs necessitate proficient technical teams, leading to substantial financial and logistical burdens for educational institutions (Sanchez-Franco, 2010).

LMSs have traditionally relied on simplistic self-evaluation models, making it difficult to incorporate alternative assessment components (Coats et al., 2005). Meishar et al. (2012) argue that students lack autonomy in LMS use, impeding their capacity for self-paced learning. The centralized and hierarchical design of LMSs is another issue, as it deters educational institutions from using them (Sclater, 2008). According to usage patterns, many LMSs are more suited for administrative management than enhancing learning and teaching activities (Mott, 2010). Furthermore, LMSs impede student-centered learning as instructors are typically the ones creating courses, uploading academic resources, launching discussions, and managing groups. Nachmias and Ram (2009) argue that the restricted use of LMSs by teachers prevents the development of innovative approaches to learning and teaching. Many colleges choose to delete course contents after the term ends to conserve storage space, which limit students' ability to retrieve course materials. This is a widely acknowledged disadvantage of LMSs (Meishar et al., 2012).

Google Classroom was employed to manage the classroom. The Google Classroom interface was used to communicate classroom instructions, reminders, internal chores, and assessment feedback between students and teachers. Initially, the teacher had to encourage the students to examine their phones for any notifications. Afterwards, the pupils developed the capacity to autonomously carry out this activity and, in fact, even aided their classmates who were unable of independently reviewing and responding to the notifications. Developing expertise in using the blended classroom technology and teaching others how to do the same created a community of people actively seeking knowledge, going beyond just learning a language. Students were granted permission to post on Classroom, and a substantial proportion of them utilized this technological capability to communicate information and questions pertaining to the classroom and the course (Philipose & Rajagopal, 2019).

In today's blended learning environment, LMSs have been used as a prevalent method for delivering higher education. In a LMS, both educators and students engage, exchange, observe, track, and evaluate activities, tasks, and assignments (Bhuiyan, 2023). The introduction of Google Classroom in 2014 as a Learning Management System (LMS) has offered a fundamental and user-friendly platform (Das, 2019). Numerous studies globally examined its effectiveness (Bhat et al., 2018; Fami, 2020; Philipose & Rajagopal, 2019), with focus on its role as an LMS (Abazi-Bexheti et al., 2018; Das, 2019; Kassim, 2024). However, in Bangladesh, limited research has been conducted on the utilization of Google Classroom as an LMS (Rabbi et al., 2018; Rahman & Sanjana, 2021). No existing studies have been undertaken on students' responses to the utilization of Google Classroom in this context. This study will address the gap in the current literature regarding the utilization of Google Classroom as a Learning Management System. The findings aim to contribute to the growing body of literature on digital learning tools and provide information to enhance the effectiveness of higher education in Bangladesh in facilitating student learning.

Methodology

A mixed methods research design was utilized in this study. This approach offers a more holistic and interconnected response to the research questions, bridging the gap between theory and practice (Creswell & Clark, 2017).

The participants of this study were students from both private and government universities in Bangladesh. Specifically, the study examined student responses to the use of Google Classroom as a Learning Management System (LMS) during the COVID-19 pandemic. The research included students from a population comprising of 50 public institutions and 108 private universities.

The representative sample for the research has been selected from the study conducted by Kanyenji et al. (2020) utilizing Cochran's (1963) formula, which is articulated as follows:

$$n_0 = \frac{z^2 \times p(q)}{e^2} \text{..... (1)}$$

Where:
n = (1.645)2*.5*.5/ (.07)2 =138
n_0 = estimated sample size
Z^2 = selected critical value of desired level of confidence or risk
For instance, at 90% confidence interval, the sample size was calculated.
p = estimated proportion of an attribute that is present in the population or maximum variability of the population
$q = 1 - p$
e = error margin

A total of 152 respondents completed the survey which is higher than the minimum sample size calculated by using the formula. Additionally, five students from different universities, were chosen for comprehensive interviews. The survey questionnaires utilized simple random sampling, whereas interviews employed convenience sampling to acquire qualitative data.

The questionnaire for this study is comprised of three sections: (1) demographic information of research participants, (2) utilization of Google Classroom as an LMS, and (3) perceived problems and opportunities associated with the platform. The second section used a 5-point Likert scale ranging from Strongly Agree (5), Agree (4), Neither Agree nor Disagree (3), Disagree (2), and Strongly Disagree (1). One open-ended question was also included. The questionnaire was prepared using Google Forms, and the survey link was disseminated over many websites. On average, the survey took 9 to 10 minutes to complete.

Semi-structured interviews were conducted online via Google Meet to collect qualitative data from students. Each interview lasted around 40 to 50 minutes and was held in 2023. Interviews were documented with the participants' consent for transcription and analysis. A total of five participants were selected through convenience sampling, with one student representing a different university.

Cronbach's alpha was employed to assess the reliability of the quantitative instrument. This study reported a Cronbach's alpha value of 0.855, exceeding the minimum requirement of 0.70 (Mohajan, 2017), indicating a high level of internal consistency for the scale in this sample. Moreover, the member checking technique was utilized to authenticate the information from the qualitative data. Triangulation of data from both survey and interviews enhanced the overall reliability and validity of the study.

Microsoft Excel was employed to tabulate and analyze each item of the questionnaire. Descriptive statistical methods were applied to the quantitative data. For the qualitative data, each interview was transcribed, coded, and organized into themes and sub-themes based on the study questions. The thematic findings were presented in descriptive form.

To mitigate potential risk factors, no identifiable information were gathered, and

the confidentiality and anonymity of respondents were prioritized. An information sheet and an ethical consent form for interviews detailing project requirements, expectations, potential dangers, and other pertinent problems, were sent to the research participants. All research data were securely stored on a password-protected computer to safeguard the privacy, confidentiality, and anonymity of the participants. At every stage of the research, participants have retained the freedom to withdraw or modify their responses.

Results and Discussion

Table 1 presents the demographic information of the participants. Among the152 participants, 84 were male and 68 were female. Of the total, 106 students were enrolled in a Bachelor's program and 46 were enrolled in a Master's program.

Table 1

Demographic Information of the Participants (n=152)

Indicators	Description	No. of participants
Gender	Male	84
	Female	68
		Total=152
Program Name	Bachelor	106
	Masters	46
		Total=152

Research Question 1: How do students respond to the usage of Google Classroom as an LMS during Covid-19?

Table 2

Student Responses on the Usage of Google Classroom as LMS (n=152)

Responses on the usage of Google Classroom as a LMS	Mean	Median	Standard Deviation
1. Google Classroom is very easy to navigate.	3.88	3	0.65
2. Google Classroom is convenient and user-friendly.	3.89	3	0.52
3. Videos and study materials shared in Google Classroom are helpful.	3.99	3	0.72
4. It was convenient to answer quizzes and submit assignments, projects, and homework in Google Classroom.	3.76	3	0.59

Responses on the usage of Google Classroom as a LMS	Mean	Median	Standard Deviation
5. Google Classroom allows for quick feedback, and interaction is possible.	3.88	3	0.59
Total Mean	**3.88**		

Descriptive statistics (Table 2) reveal that most of the students responded positively on the usage of Google Classroom as an LMS during Covid-19. Finding indicated moderate to positive student reactions about the utilization of Google Classroom as a Learning Management System. The highest rated item was the usefulness of videos and study materials shared on the platform (M = 3.99, SD = 0.72), followed by convenience and user-friendliness (M = 3.89, SD = 0.52). These correspond with Kassim (2024), who reported students' favourable reactions to the utilisation of Google Classroom as a learning management system. A lower but still favorable level of agreement(higher than median) was seen about the submission of quizzes, assignments, projects, and homework (M = 3.76, SD = 0.59). Students also expressed positive views regarding the platforrm's ease of navigation (M=3.88, SD=0.65), and its capacity for quick feedback and interaction (M = 3.88, SD = 0.59), aligning with Moonma (2021) who indicated that students had a positive perception of Google Classroom for its features that support timely updates and assignment submission. The findings support educators in planning Google Classroom activities like live online tutoring and discussions to increase student engagement or in implementing blended learning, which combines online and in-person instruction.

During the in-depth interview session, most students expressed their satisfaction with Google Classroom and reported no notable distinction between face-to-face classes and Google Classroom. One of the participants stated:

> As a 21st century learners we need to adopt web 2.0 technologies, virtual realities, and software applications in our daily life and education. I personally enjoyed Google Classroom. I participated in Google Classroom according to my own willingness. (Participant 4)

One attendee expressed dissent towards Google Classroom, stating:

> Google Classroom is not comparable to a traditional face-to-face classroom. I joined Google Classroom in response to the university's directives. I lack any interest in Google Classroom. (Participant 3)

Meanwhile, one of the participants emphasized the emotional and social value of Google Classroom during the crisis:

> Amidst the COVID-19 pandemic, Google Classroom is the sole option available to sustain our academic endeavors. We were all

> at risk of death. Google Classroom facilitates the sharing of our emotions and thoughts. Engaging in social interactions with our friends and professors can effectively alleviate our psychological strain... (Participant 1)

Research Question 2: What are the challenges and possibilities of Google Classroom as an LMS in Bangladesh after COVID-19?

Challenges of Google Classroom

This study explored students' post-pandemic experiences with Google Classroom, focusing on three key challenges: concentration, learning environment, and interaction.

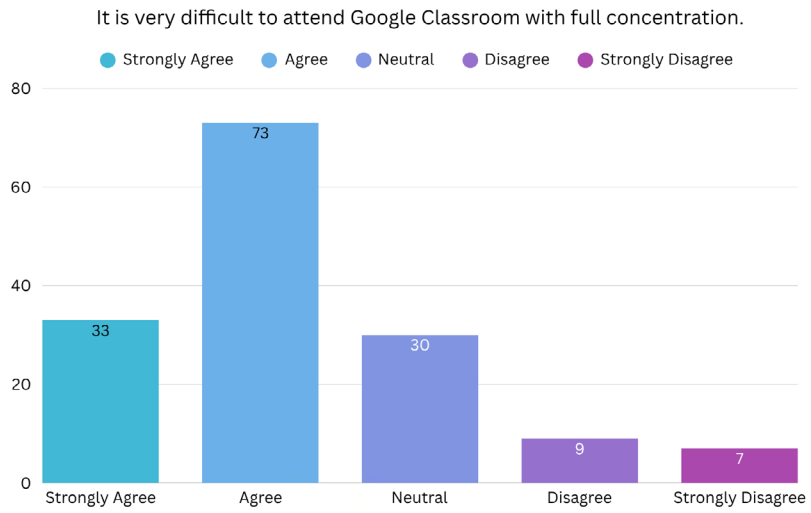
Out of 152 respondents, 73 agreed and 33 strongly agreed that they found it challenging to maintain complete concentration while attending Google Classroom. (Figure 1). These data suggest that there are difficulties in maintaining a high degree of focus. Although most of the organization tries to allocate resources and welfare in online education, students fail to retain their concentration.

Akter and Bhuiyan (2022) similarly found that due to lack of technical support, inappropriate learning environment and limited pedagogical skills of faculty members are the factors which distract students' concentration in online class. These were emphasized in an interview response:

> During Covid-19, university instructed to join online classes and Google Classroom as an alternative to traditional face-to-face classroom. I joined Google Classroom in response to the university's directives but I did not find motivation in Google Classroom. I was unable to communicate and make friends. Due to motivation, less interaction of teachers and having no friends I find it difficult to retain my concentration. (Participant 3)

Figure 1

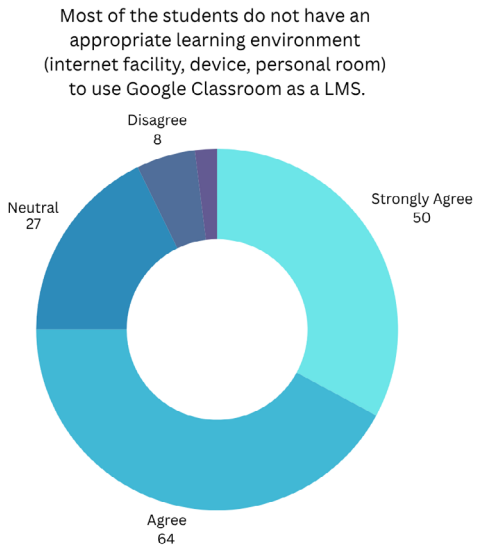
Student Difficulties in Concentrating during Google Classroom Sessions



As shown in Figure 2, out of 152 students, 114 do not have appropriate learning environment and face difficulty in internet access, digital devices, and a dedicated learning space. The remaining students do not face any obstacles in their online learning environment.

Figure 2

Perceived Learning Environment in Google Classroom



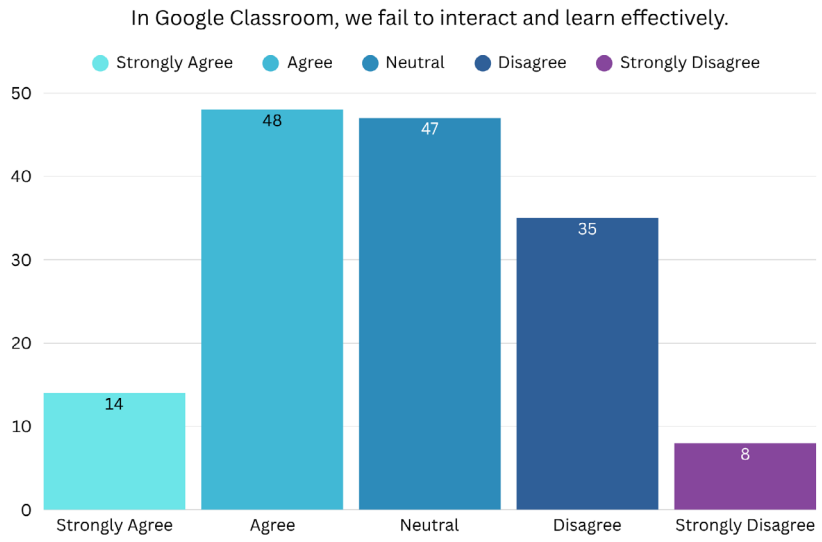
Issues of interactivity and efficacy of Google Classroom often emerge in most circumstances. Figure 3 illustrates that 14 students strongly agreed and 48 students agreed that they experience a lack of learning and interaction in Google Classroom compared to face-to-face sessions. Meanwhile, 47 students neither agreed nor disagreed while 35 students disagreed with this notion.

This finding is consistent with Kumar et al. (2020), who noted that instructors faced difficulties with accessing Google Classroom's learning analytics and managing privacy, peer interaction, and interface design. These were similar challenges expressed by students during the in-depth interview sessions, where half of the students listed limited interaction, difficulty navigating the platform, and concerns about connectivity and engagement in the Google Classroom. One of the interview participants recounted:

> Google Classroom requires a reliable internet connection, a digital device, and a private space for participation, which many of us do not have access to. The pupils found it more challenging to maintain their focus during the classes. The level of contact between students and teachers in online classes differs from that in traditional face-to-face classes. (Participant 5)

Figure 3

Student Interaction and Perceived Effectiveness of Google Classroom



Possibilities of Google Classroom as a LMS

Despite its limitations, students also acknowledged the potential of Google Classroom as an LMS, as reflected in their responses to three related survey items. One of these items asked whether faculty members conducted their classes in a more organized manner using Google Classroom or not. As shown in Figure 4, a majority of students expressed agreement where 15 strongly agreed and 106 agreed. This indicates a broadly positive perception of instructional organization on the platform.

Figure 4

Class Organization by Faculty in Google Classroom

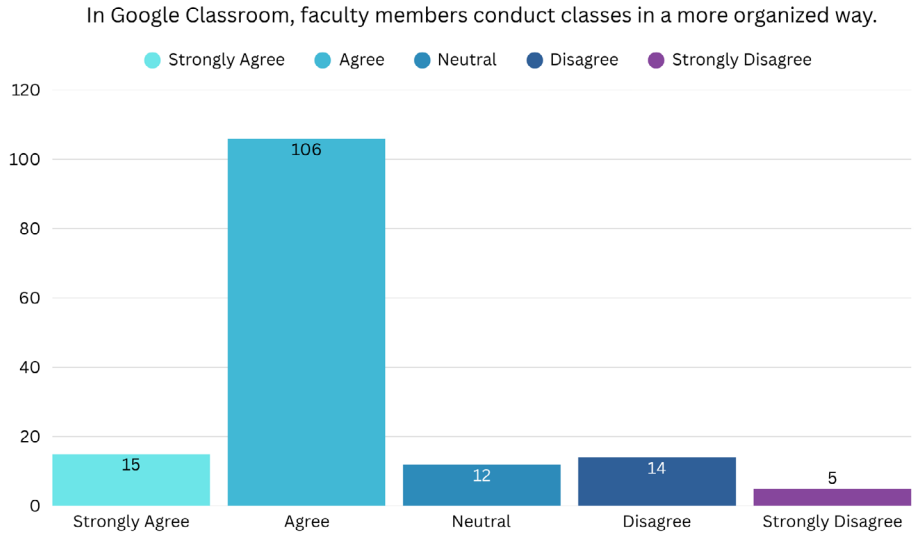
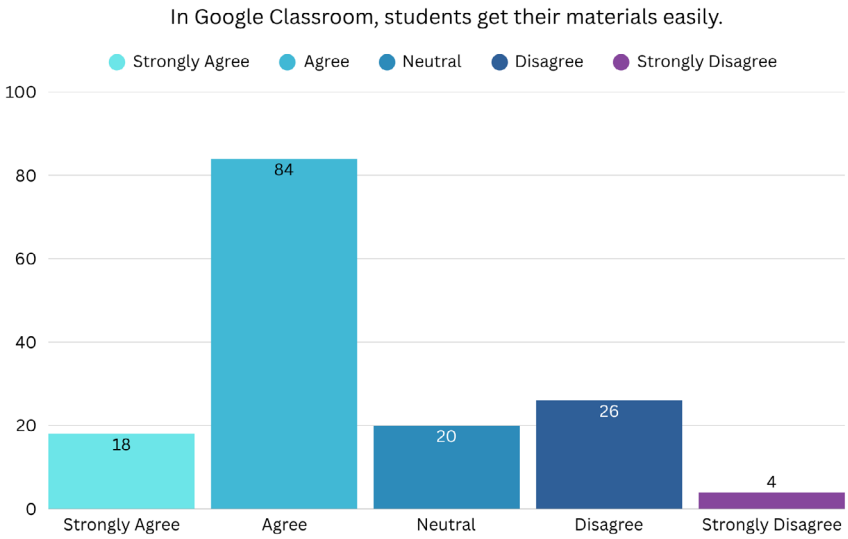


Figure 5 illustrates that a significant majority of the students (102) agreed that they could quickly access their learning resources on Google Classroom. This proves the platform's efficiency in content delivery, despite 20 students neither agreed nor disagreed and 30 students who disagreed.

Figure 5

Ease of Access of Learning Materials in Google Classroom



As presented in Figure 6, the majority of students, 108 out of 152, expressed support for continuing to use Google Classroom as part of their educational experience alongside traditional instruction, even after the COVID-19 pandemic.

This is aligned with Sibuea (2018), who found that Google Classroom's usability,

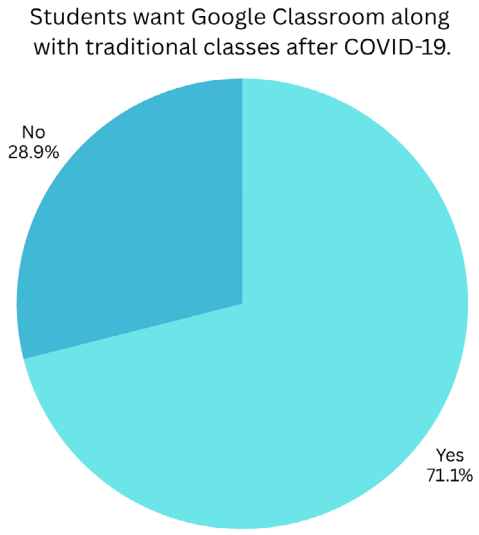
and and other features, made it suitable LMS for blended learning.

The majority of students in Bangladesh concur that Google Classroom has significant potential to continue serving as an effective LMS following the Covid-19 pandemic. One of the interview participants described the potential of Google Classroom:

> İf proper guidelines and online surveillance have been developed in Google Classroom then Google Classroom will be a fantastic LMS. As a 21st century learners we need to adopt Google Classroom. After COVID-19, I have a particular preference for a mixed learning method. (Participant 1)

Figure 6

Students' Preference for Using Google Classroom in Post-COVID-19 Period



Conclusions and Recommendations

This study reveals that students' views on the utilization of Google Classroom as a Learning Management System during the Covid-19 pandemic were markedly different from their pre-pandemic experiences. During the Covid-19 pandemic, Google Classroom was utilized to sustain academic sessions and serve as an alternative to typical in-person classes in most universities. In response to the COVID-19 pandemic, many private institutions in Bangladesh, as well as certain public universities, have adopted Google Classroom as a Learning Management System (LMS) to facilitate their academic activities (Shama & Ikbal, 2020). The primary aim of this study was to examine the reactions of learners about the utilization of Google Classroom as an LMS during the COVID-19 pandemic, taking into account both its constraints and potential within the Bangladeshi higher education context.

While Google Classroom has numerous benefits as an LMS, its use in teaching

and learning poses challenges for both students and faculty members. The design and implementation of Google Classroom in Bangladeshi universities should be supported by clear policy guidelines, online surveillance measures, and active engagement of teachers to maximize its potential as an LMS.

The study was limited by its relatively small and homogenous sample of 152 university students. The inclusion of additional participants may reveal different patterns of usage and perceptions regarding the utilization of Google Classroom as an LMS. Additionally, the participants selected for the interview by convenience sampling may exhibit bias issues. Further research that include the perspectives of other stakeholders, such as faculty members and university authorities, may lead to a more comprehensive understanding of Google Classroom's role in post-pandemic education.

To enhance the effectiveness of Google Classroom as a Learning Management System in Bangladeshi universities, several key strategies should be considered. First, university authorities should provide constant monitoring, timely feedback, and regular updates. Moreover, university authorities should also introduce policy guidelines, online surveillance measures, and the active facilitation role of teachers.

As educational institutions transition into a post-pandemic hybrid model, the role of Google Classroom should be integrated alongside face-to-face teaching. This integration should feature options to submit assignments, quizzes, and projects, and share other learning materials in Google Classroom. Faculty members and students should arrange online discussions and feedback systems to enhance the effectiveness of Google classroom.

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