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Original article

Exploring Students' Perceptions of Google Classroom in Blended Learning: A Case Study of the Higher Institute of Science and Technology, Ghadames

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Abstract
The rapid transition toward blended learning in higher education has increased dependence on learning management systems (LMS) to support both teaching and learning processes. This study investigates students' impressions of using Google Classroom in a blended learning environment at the Higher Institute of Science and Technology in Ghadames (HISTG), Libya. A survey was conducted using a questionnaire distributed to 100 students and graduates during the 2022–2024 academic years. The main results indicate that Google Classroom is primarily used for communication with instructors and accessing course materials. Students expressed high levels of satisfaction with the platform's accessibility, ease of use, and navigation, as well as its benefits in enhancing interaction, motivation, and time management. However, a lack of infrastructure and technical support was reported as a key challenge. Overall, the results suggest that Google Classroom is an effective tool for supporting blended learning, provided that adequate infrastructure and technical support are guaranteed.
Keywords. E-learning, Learning Management System (LMS), Google Classroom, Blended Learning.

Introduction

In recent years, higher education has experienced a rapid transition to blended learning, integrating traditional face-to-face instruction with e-learning to enhance interaction and improve learning quality. Learning management systems (LMS) are key tools in this transformation, as they provide a digital environment for organizing content, monitoring student progress, and facilitating communication between students and teachers [1,2]. Among the commonly used LMS platforms, Google Classroom has emerged as a versatile and user-friendly educational tool that assists educators in managing assignments, delivering feedback, and fostering student engagement. A significant number of studies have shown that using Google Classroom and similar platforms contributes to improving the learning experience, increasing motivation, and enhancing interaction and participation between students and teachers [3-5].

In the Libyan context, certain studies have examined the experience of blended learning and the utilization of digital learning platforms at institutions, emphasizing the significance of technical assistance and continuous training to facilitate the efficient implementation of these systems [6,7]. However, there is still a need to study students' perceptions directly, especially those of current students and graduates during the 2022-2024 academic year at the Higher Institute of Science and Technology in Ghadames (HISTG), to determine their satisfaction with using Google Classroom, identify the difficulties they face, and measure the impact of factors such as usage and accessibility, interaction and participation, motivation and achievement, and integration in blended learning.

A considerable number of studies have examined the significance of e-learning and its contribution to enhancing educational possibilities and attaining equity in education. Black et al. [1] affirmed that online education has contributed to reducing the educational gap among learners by providing flexible learning and easy content sharing, which aligns with the blended learning approach of providing interactive and accessible learning opportunities for all. Research on LMS has concentrated on its implementation and efficacy in enhancing educational quality. Aldiab et al. [2] and Al-Sharhan et al. [8] demonstrated that the success of an LMS among students depends on ease of use, technical support, and interaction within the system. These findings highlight the importance of providing ongoing training and support, a point also emphasized in the study by Yakubu and Dasuki [9], which concluded that the quality of information and technical support enhances the use of educational platforms. In comparing platforms, studies such as Grossi et al. [10] and Mpungose and Khoza [4] have shown that systems like Moodle and Canvas offer high-quality learning capabilities and support interaction, but the level of satisfaction depends on accessibility and interface simplicity, which aligns with Google Classroom's ease of use and organization. Özkurkudis's study [11] also examined students' perceptions of task completion via LMS and confirmed that the platforms promote organization and interaction but require ongoing technical support.

Regarding studies specifically related to Google Classroom, Ilma et al. [5] demonstrated that using Google Classroom in blended learning enhances continuous learning assessment and student engagement. Nguyen's study [12] also showed that user satisfaction is directly related to ease of use and resource availability, findings that support the system's crucial role in improving the learning experience. In the Libyan context, a study by Maher and Nuseir [6] demonstrated that integrating the Canvas system into

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higher education institutions requires training and robust infrastructure, which represents a significant point of comparison with Google Classroom in the Libyan environment.
A review of prior research indicates that blended learning, particularly via the Google Classroom platform, is an effective method for facilitating the educational process and improving student engagement and achievement. These studies also underscored disparities in access and usage, alongside technical and organizational challenges encountered by certain groups. The literature suggests that the efficacy of blended learning is contingent upon various factors, including digital competencies, pedagogical approaches, and learner motivation. Consequently, these studies offer a significant scientific basis for assessing the perceptions of students at HISTG. This study seeks to validate its findings against previous research and identify areas necessitating further development and support.

Methods

This research is a cross-sectional survey design, which was used to answer the research questions of the study. The study survey was conducted at HISTG in Libya. To investigate research questions, the research variables were measured. These variables were measured using a five-point Likert scale, ranging from 1 “strongly disagree” to 5 “strongly agree”. The questionnaire instruments were reviewed and validated by experts in the field of computer science. Furthermore, Cronbach’s alpha was calculated using the SPSS software; the alpha coefficient for the questionnaire was 0.864”, indicating acceptable reliability.
The target population for this research consisted of students and graduates from the 2022-2024 academic years at HISTG. An electronic questionnaire was distributed to participants representing the various specializations offered at the institute via email and social media groups. A total of 100 responses were returned and analyzed using SPSS version 25.0. Descriptive statistics (frequencies and percentages) for categorical variables were used in the statistical analysis of the data. The percentage of cases for multiple-choice questions was computed, and as participants could choose more than one option, totals might be higher than 100%. Participation was voluntary, and students provided electronic informed consent before starting the survey. Confidentiality and anonymity were maintained throughout the study. The study protocol was reviewed and approved by the institute's research ethics committee.
The questionnaire consists of seven main parts. Part one focuses on participants’ demographic information that including gender, age, and specialization .A filter question was used to determine whether participants had previously used Google Classroom; Those who answered “No” were instructed to skip the remaining sections. While who answered “Yes” continued to answer questions about their experiences and perceptions of Google Classroom. Although the total number of participants was 100, the analyses presented in Tables (4 -16) are based on valid responses for each item. The variation in N reflects item non-response and the filter question applied at the beginning of the questionnaire. Part two of questionnaire examines participants’ activities in Google Classroom using multiple response question, and part three examines the difficulties encountered in using Google Classroom by using multiple response question. Part four measures the impact of four factors: usage and accessibility, interaction and participation, motivation and achievement, and integration in blended learning.

Results

Demographic Characteristics

The section has dealt with the demographic characteristics of the research sample, which are age, gender, specialization, and filter question. According to the results, the majority of responders (72.0%) were between the ages of 18 and 22. Moreover, the bulk of responders (70.0%) were female. The sample consisted of (41.0%) from the computer department, (12.0%) from the business management department, (18.0%) from the accounting department, (20.0%) from the engineering department, (3.0%) from the nursing department, and (6.0%) from the tourism department.
In addition, the results in (Table 1), which refer to the filter question, indicate a significant variation in Google Classroom usage across disciplines at HISTG. Computer Science students demonstrated the highest usage (40) of Classroom users, reflecting the nature of the discipline and its heavy reliance on digital tools. Despite Google Classroom workshops being held for all departments at HISTG, engineering students demonstrated a low number of classroom users (6) compared to non-users (14), showing a noticeable gap in system adoption within this department. With (11) users as opposed to (7) non-users, the accounting department likewise showed a lower level of platform adoption. The tourism specialization showed good but limited acceptability, with four users compared to two non-users. This filter question shows the total number of students who reported using Google Classroom (74) out of the total sample (100). Only (74) participants will answer the questions in the following sections.

Activities used in Google Classroom

The results in (Table 2) show an answer to a multiple-response question; therefore, the overall case percentage exceeds 100%. It indicates that the most common activity among students on the Google Classroom platform is communicating with instructors (26.3%), demonstrating a significant dependence on

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the platform for academic interaction. Completing assignments and downloading course materials ranked second (22.1%), highlighting the platform's function in both content provision and assignment management. Only (11.1%) of participants reported attending lectures and taking quizzes, which is less common than interactive activities. On the other hand, participation in discussions was the least common (7.4%), indicating a restricted usage of the platform for collaborative learning.

Table 1. Crosstabs - Using Google Classroom & Specialization.

Specialization	**Have You Ever Used Google Classroom During Your Studies At Histg**	
	Yes	**No**
Computer	40	1
Business management	10	2
Accounting	11	7
Engineering	6	14
Nursing	3	0
Tourism	4	2
Total	74	26

Table 2. Most used Classroom Activities (where N represents the number of corresponding students).

Activities you are doing in Google Classroom[a]	**Responses**		**Percent of Cases**
	N	Percent	
Attending lectures	21	11.1%	30.4%
Tests	21	11.1%	30.4%
download study materials	42	22.1%	60.9%
communicate with the lecturer	50	26.3%	72.5%
tasks or duties	42	22.1%	60.9%
participate in a discussion	14	7.4%	20.3%
Total	190	100.0%	275.4%
a. Dichotomy group tabulated at value 1.			
Note: The N of responders (69)			

Difficulties encountered in using Google Classroom

(Table 3) shows that the most significant difficulties students face when using Google Classroom are technical issues and poor connectivity (37.9%), reflecting the impact of digital infrastructure on the effectiveness of blended learning. Additionally, (25.2%) of students said they were unable to get technical support when they needed it, which hindered their ability to use the platform effectively. (15.5%). Some students brought up the issue of disorganized content, which can be connected to the way teachers upload or organize information. Furthermore, (14.6%) of respondents reported difficulty participating in group activities, suggesting that the platform's collaborative interaction was lacking. The least frequent issue (6.8%) was navigating between parts, indicating that the majority of users are reasonably familiar with the platform. Note: This question allows multiple-responses; therefore, the total percentage of cases exceeds 100%.

Table 3. Difficulties you face using Google Classroom Frequencies.

Difficulties Do You Face When Using It [a]	**Responses**		**Percent Of Cases**
	N	Percent	
Technical Sharing (Weak Connection)	39	37.9%	57.4%
Difficulty Moving B/T Section	7	6.8%	10.3%
Lack Of Technical Support When Needed	26	25.2%	38.2%
Difficulty Participating In Group Activities	15	14.6%	22.1%
Content Is Not Well Organized	16	15.5%	23.5%
Total	103	100.0%	151.5%
a. Dichotomy Group Tabulated At Value 1.			
Note: The N of responders (68)			

Usage and Accessibility

This section explores how students interact with Google Classroom and its accessibility. It focuses on the accessibility of educational content, the ease of reviewing course materials, the platform's user-friendliness, and its navigation. Furthermore, this section discusses students' preferences for taking tests online and

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their thoughts on using Google Classroom in times of emergency, such as pandemics. The following tables and statistics provide pertinent survey questions along with a brief explanation.

(Figure 1) shows that most participants confirmed the ease of access to educational content via the Google Classroom platform. (60.87%) of respondents agreed, and (26.09%) strongly agreed, indicating a high degree of satisfaction with accessibility. Conversely, the neutral and disagree categories had low percentages of (5.80%) and (7.25%), respectively, suggesting that only a small minority of students have access issues. These findings imply that the majority of students can use the platform with ease of accessing instructional content.

(Table 4) shows that most students agree that the platform facilitates reviewing course materials; (62.0%) agreed and (25.4%) strongly agreed, totaling (87.4%) of respondents. Conversely, just (7.0%) of participants (disagreed and strongly disagreed), and (5.6%) of participants were neutral, suggesting that Google Classroom facilitates participants' review of study materials.

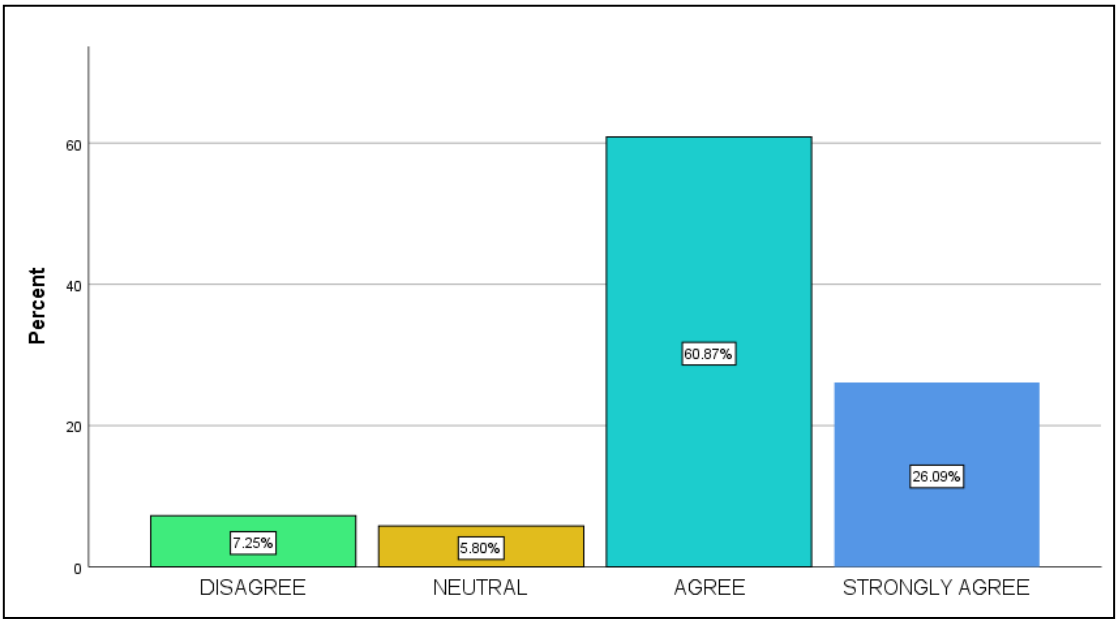

Figure 1. I can easily access the educational content in Google Classroom.

Table 4. It makes it easier for you to review study materials.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.4	1.4
	Disagree	4	4.0	5.6	7.0
	Neutral	4	4.0	5.6	12.7
	Agree	44	44.0	62.0	74.6
	Strongly Agree	18	18.0	25.4	100.0
	Total Valid	71	71.0	100.0	-
Missing	System	29	29.0	-	-
Total		100	100.0	-	-
Note: The N of responders (71)					

(Table 5) clearly indicates that the majority of students perceive the interface as user-friendly, with (48.6%) agreeing and (40.0%) strongly agreeing, resulting in a total of (88.6%) of respondents. In contrast, the percentage of those who disagreed was very low (4.3%), and the percentage of those who were neutral was (7.1%), indicating strong acceptance and clear ease of use of the platform.

The following analysis in (Table 6) aims to determine the ease and satisfaction levels of navigating the platform by calculating frequencies and percentages. The results in (Table 6) indicate that most students find navigating the classroom comfortable; (47.9%) agreed, and (32.4%) strongly agreed, totaling (80.3%) of respondents. The percentage of disagreement was low (7.0%), while the percentage of neutrality was (12.7%), indicating a largely positive user experience.

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Table 5. Google Classroom's interface is easy to use.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.4	1.4
	Disagree	2	2.0	2.9	4.3
	Neutral	5	5.0	7.1	11.4
	Agree	34	34.0	48.6	60.0
	Strongly Agree	28	28.0	40.0	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

Table 6. Navigating within the platform is easy.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	5.0	7.0	7.0
	Neutral	9	9.0	12.7	19.7
	Agree	34	34.0	47.9	67.6
	Strongly Agree	23	23.0	32.4	100.0
	Total Valid	71	71.0	100.0	-
Missing	System	29	29.0	-	-
Total		100	100.0	-	-
Note: The N of responders (71)					

The data shown in (Table 7) indicate that a significant majority of students regard Google Classroom as an exceptional choice during pandemics and crises, with (48.6%) agreeing and (47.1%) strongly agreeing, culminating in a total of (95.7%) of respondents. While only (4.3%) were neutral, and no dissent was recorded, reflecting high satisfaction and strong confidence in the Google Classroom platform as a suitable alternative in exceptional circumstances.

Table 7. Using Google classrooms is an excellent option considering pandemics and crises.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	3	3.0	4.3	4.3
	Agree	34	34.0	48.6	52.9
	Strongly Agree	33	33.0	47.1	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

(Table 8) reveals a variation in student perspectives; however, the prevailing tendency favors electronic exams over paper-based alternatives. (27.1%) agreed and (28.6%) strongly agreed, meaning that a total of (55.7%) of students prefer taking exams via Google Classroom. Conversely, (25.7%) rejected this method (ranging from outright disagree to strongly disagree), while (18.6%) chose neutrality. This suggests that most students have a positive attitude towards electronic exams, although a significant percentage remains hesitant or not entirely convinced.

Table 8. It is preferable to conduct exams using Google Classroom instead of paper-based exams.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	6.0	8.6	8.6
	Disagree	12	12.0	17.1	25.7
	Neutral	13	13.0	18.6	44.3
	Agree	19	19.0	27.1	71.4
	Strongly Agree	20	20.0	28.6	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

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Interaction and participation

This section examines how Google Classroom supports student engagement and encourages active participation. It focuses on how students participate in educational activities, how the platform promotes peer cooperation, and how students and teachers communicate. The survey questions and their brief explanations are included in the following tables and figure.

(Table 9) illustrates student attitudes toward participating in educational activities through Google Classroom and aims to measure its effectiveness in enhancing interaction within the online learning environment. According to the findings, most students think that Google Classroom helps them participate more in their education; (41.7%) agreed and (20.8%) strongly agreed, for a total of (62.5%) positive opinions. On the other hand, (19.4%) were neutral and (16.7%) disagreed. Therefore, it can be concluded that Google Classroom is viewed as a supportive platform for student participation in educational activities, even though some students remain unconvinced or neutral in this regard.

Table 9. Students can participate in educational activities better through Google Classroom.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.4	1.4
	Disagree	12	12.0	16.7	18.1
	Neutral	14	14.0	19.4	37.5
	Agree	30	30.0	41.7	79.2
	Strongly Agree	15	15.0	20.8	100.0
	Total Valid	72	72.0	100.0	-
Missing	System	28	28.0	-	-
Total		100	100.0	-	-
Note: The N of responders (72)					

According to the results in (Table 10), most participants think that using Google Classroom improves student collaboration. Approximately (74%) of the sample had a favorable opinion of the platform's ability to promote interaction and collaboration, with (53.4%) of students agreeing with this perspective and (20.5%) strongly agreeing. On the other hand, only about (18%) disagreed, which may reflect differences in experience or usage patterns among students. Overall, these findings demonstrate the role of Google Classroom in supporting a collaborative learning environment.

Table 10. Google Classroom fosters a spirit of cooperation among students.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.0	2.7	2.7
	Disagree	11	11.0	15.1	17.8
	Neutral	6	6.0	8.2	26.0
	Agree	39	39.0	53.4	79.5
	Strongly Agree	15	15.0	20.5	100.0
	Total Valid	73	73.0	100.0	-
Missing	System	27	27.0	-	-
Total		100	100.0	-	-
Note: The N of responders (73)					

(Figure 2) results indicate that most students have a positive perception of Google Classroom's role in enhancing interaction between students and lecturers, with (28.38%) strongly agreeing and (55.41%) agreeing, representing approximately (84%) of all participants. On the other hand, about (9.5%) of students (8.11% disagreeing and 1.35% strongly disagreeing) had an unfavorable impression of this statement, while (6.76%) of students were neutral. These findings demonstrate that the platform plays a pivotal role in improving academic communication, which is consistent with blended learning objectives to increase engagement between all parties involved in the learning process.

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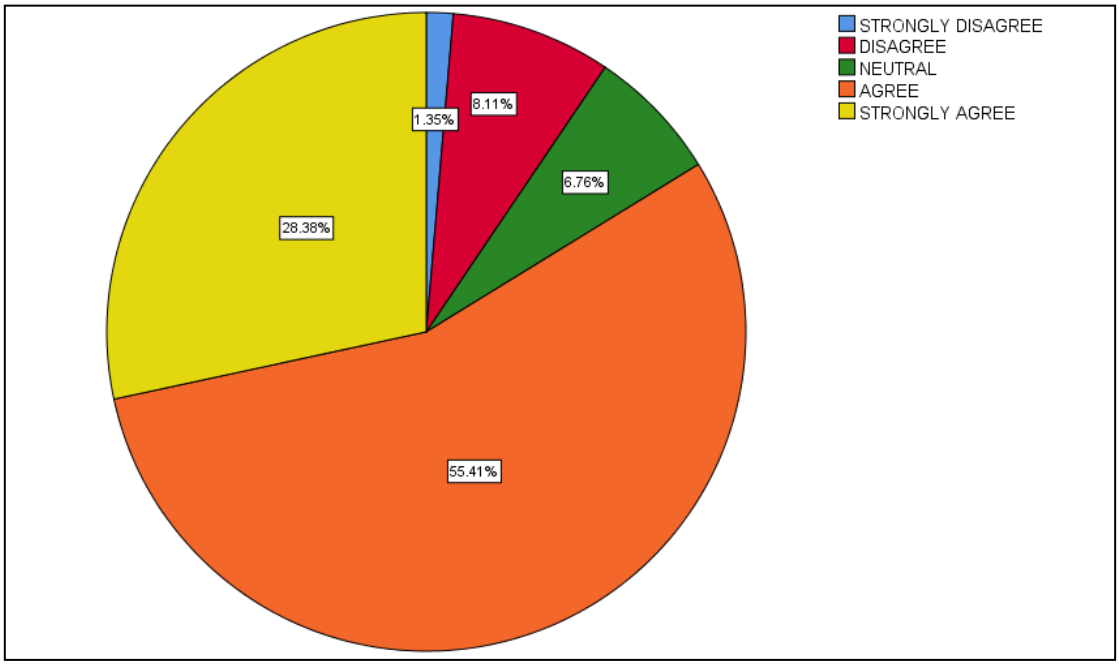

Figure 2. Classrooms encourage interaction between students and lecturers.

Motivation and Achievement

This section explores how Google Classroom influences students' motivation and academic performance. It examines whether the platform supports efficient time management, improves academic performance, and motivates students to study more actively. The survey questions and a brief description are included in each table below.

According to (Table 11) statistics, most participants think that utilizing Google Classroom increases their motivation compared to traditional paper-based learning. (48.6%) of students agreed with this statement, while (16.7%) strongly agreed, representing a total of (65.3%) with a positive attitude. However, (19.5%) had a negative opinion (either disagreeing or strongly disagreeing), while (15.3%) took a neutral position. These results demonstrate that the use of the platform provides a higher degree of encouragement and motivation for most students, thus enhancing the effectiveness of blended learning compared to traditional methods.

Table 11. Using Google Classroom increases motivation to study compared to paper-based education alone.

Answers		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	3	3.0	4.2	4.2
	Disagree	11	11.0	15.3	19.4
	Neutral	11	11.0	15.3	34.7
	Agree	35	35.0	48.6	83.3
	Strongly Agree	12	12.0	16.7	100.0
	Total Valid	72	72.0	100.0	-
Missing	System	28	28.0	-	-
Total		100	100.0	-	-
Note: The N of responders (72)					

The results in (Table 12) indicate that a significant percentage of students perceive an improvement in their academic performance when using Google Classroom. There was an overall positive opinion of improvement of (46.5%), with (35.2%) agreeing and (11.3%) strongly agreeing. Furthermore, (33.8%) of respondents had a neutral assessment, indicating that they were not very certain that their performance had changed. (19.7%) Some students disagreed or strongly disagreed, indicating that they did not see any improvement. These findings show that about half of the students' academic performance has improved because of the platform, but about one-third of the participants are still unsure.

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Table 12. There is an improvement in my academic performance when using it.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.0	2.8	2.8
	Disagree	12	12.0	16.9	19.7
	Neutral	24	24.0	33.8	53.5
	Agree	25	25.0	35.2	88.7
	Strongly Agree	8	8.0	11.3	100.0
	Total Valid	71	71.0	100.0	-
Missing	System	29	29.0	-	-
Total		100	100.0	-	-
Note: The N of responders (71)					

(Table 13) indicates that nearly half of the participants (49.3%) perceive that utilizing Google Classroom enhanced their study time management, highlighting the platform's contribution to time management and task scheduling abilities. Meanwhile, (26.8%) of students expressed a neutral stance, which may reflect varying levels of benefit or differences in how individuals use the platform. In contrast, (23.9%) of the sample believe the platform does not contribute to improved time management. Overall, the results indicate that Google Classroom has good potential for enhancing study time management for most students, although some specific groups face challenges.

Table 13. Google Classroom helps me organize my study time better.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.0	5.6	5.6
	Disagree	13	13.0	18.3	23.9
	Neutral	19	19.0	26.8	50.7
	Agree	24	24.0	33.8	84.5
	Strongly Agree	11	11.0	15.5	100.0
	Total Valid	71	71.0	100.0	-
Missing	System	29	29.0	-	-
Total		100	100.0	-	-
Note: The N of responders (71)					

Integration in Blended Learning

Integration in blended learning refers to the amalgamation of conventional teaching methods, such as in-person classes, with e-learning, creating a synergistic relationship that enhances educational outcomes for students. The effectiveness of this approach is reflected in students' perceptions, as shown in (Table 14). Most students believe that Google Classroom enhances traditional paper-based learning, with (55.7%) of respondents agreeing (AGREE + STRONGLY AGREE). (30.0%) Some of the students took a neutral stance, while a minority (14.3%) held a negative opinion.

Google Classroom seems to be an adjunct and efficient instrument for conventional education, with positive acceptance from the majority of students. Nevertheless, it needs support and clarification for the neutral group to further enhance their positive experience.

Table 14. Google Classroom enhances the effectiveness of paper-based education very well.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.0	2.9	2.9
	Disagree	8	8.0	11.4	14.3
	Neutral	21	21.0	30.0	44.3
	Agree	28	28.0	40.0	84.3
	Strongly Agree	11	11.0	15.7	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

According to (Table 15), many students believe that the material offered by Google Classroom complements what they learnt in class; (72.9%) of them indicate agreement (Agree + Strongly Agree), demonstrating the platform's efficacy in augmenting traditional learning. (17.1%) adopted a neutral position, and (10.0%) voiced

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an unfavorable opinion, indicating that the benefit is recognized by the majority, with a small percentage potentially needing further guidance or interaction with the digital content.

Table 15. The information provided by Google Classroom supports what was taught in class.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.4	1.4
	Disagree	6	6.0	8.6	10.0
	Neutral	12	12.0	17.1	27.1
	Agree	31	31.0	44.3	71.4
	Strongly Agree	20	20.0	28.6	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

According to (Table 16), most students think Google Classroom lowers the cost of buying printed materials. Approximately (77%) of students agree (Agree + Strongly Agree) with this benefit, while (14.3%) are neutral, and only (8.6%) disagree. This indicates that utilizing the platform provides a practical solution for reducing the costs of printed materials and paper resources.

Table 16. Classroom helps save money associated with purchasing printed materials.

Answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.0	2.9	2.9
	Disagree	4	4.0	5.7	8.6
	Neutral	10	10.0	14.3	22.9
	Agree	26	26.0	37.1	60.0
	Strongly Agree	28	28.0	40.0	100.0
	Total Valid	70	70.0	100.0	-
Missing	System	30	30.0	-	-
Total		100	100.0	-	-
Note: The N of responders (70)					

Discussion

As shown in (Table 3), weak Internet connectivity was the most frequently reported difficulty (37.9%), while (25.2%) of students reported lack of technical support when needed. These findings indicate that the most significant difficulties students encountered in blended learning stem primarily from technical issues and poor Internet access. Limitations in digital infrastructure and support services in Ghadames may have negatively affected students' ability to use Google Classroom effectively, as the platform relies on a stable Internet connection, especially in educational institutions that lack strong campus networks or advanced technical support. In addition, the limited number of specialized staff capable of providing technical assistance when needed may have further contributed to these challenges. Thus, the technical challenges and the need for stronger support services in the Libyan context highlight the importance of improving infrastructure and training, as also emphasized by Maher and Nuseir [6].

Although Google Classroom workshops were arranged lecturers, the continued problems with content organization indicate that these workshops concentrated more on fundamental technological issues than on the platform's useful pedagogical use. Despite the platform's simple interface, students find it difficult to follow along when lessons and assignments are not clearly categorized or presented in a logical sequence. Additionally, some lecturers prefer conventional teaching techniques and remain unenthusiastic about digital transformation, as highlighted by Al-Sharhan et al. [8].

Participating in group activities is also challenging, which is indicative of teachers' and students' lack of real-world use of digital collaborative learning. This is because Google Classroom places more of an emphasis on assignment distribution and classroom administration than it does on direct, interactive features. On the other hand, the limited issues with navigating the platform confirm its user-friendly interface, and the technological, organizational, and human aspects of adopting blended learning in Libyan institutions are the true obstacles rather than the platform's architecture, as emphasized by Aldiab et al. [2].

In terms of usability and accessibility, Google Classroom makes it simple for students to access educational content at any time and from any location. This ease of access is reflected in their high levels of satisfaction. This is especially crucial when attendance at the institute may be disrupted by security, health, or infrastructure challenges. Additionally, students prefer online exams over paper-based ones due to their flexibility, efficient time management, and reduced logistical burden. The platform's constant availability of lectures, assignments, and feedback makes it easier for students to review course material and revisit the

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content repeatedly, aligning with the finding of Black et al. [1] and Yakubu & Dasuki [9].
Google Classroom provides an interactive learning environment that transcends the boundaries of the traditional classroom, increasing student participation and interaction through online assignments, comments, and group activities. In addition to strengthening direct lines of communication with teachers and students outside of the classroom. This interaction has significantly impacts on students' motivation, it helps students perform better academically and manage their time more efficiently. Because the platform doesn't take the place of traditional in-person lessons but rather supports them by offering extra content, explanations, and reviews that help reinforce what has been learned in class, students accept it as a supplemental tool to traditional classroom learning, consistent with the findings of Ilma et al. [5] and Nguyen [12].
To conclude, the results of the study show that Google Classroom has effectively contributed to supporting blended learning by providing easily accessible content, motivating students to learn, and enhancing interaction. It has also proven its ability to ensure the continuity of the educational process during crises. On the other hand, the findings revealed some challenges, the most prominent of which are the heavy reliance on Internet availability, limited technical support, and the weak pedagogical use of the platform by some lecturers, as also reported by Mpungose & Khoza [4], Grossi et al. [10], and Özkurkudis [11]. Despite these challenges, the platform is a complementary and effective tool for traditional education, rather than a complete replacement. Therefore, improving practical training for teachers and improving digital infrastructure are essential to take advantage of Google Classroom and enhance the quality of blended learning.

Conclusion

The research indicates that the implementation of Google Classroom in blended learning at HISTG significantly improves student participation, collaboration, and academic achievement. Additionally, it lowers the cost of printed materials, increases student motivation, facilitates easier access to instructional content, and improves time management. To ensure the best possible usage of the platform, several obstacles must be overcome, such as technological problems and a lack of technical assistance.

Conflict of interest. Nil

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