VOL. 10/ ISSUE. 2 JUNE 2024 Faiza Sahar et al., 2024
Pp: 420-433

Pakistan Journal of Society, Education and Language (PJSEL)
Journal Homepage: https://pjsel.jehanf.com/index.php/journal ISSN
2521-8123 (Print)
2523-1227 (Online)

Challenges and Solutions of Online Meetings Through Google Classroom at the University Level: A Qualitative Study

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Original Article

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Keywords

Online Education, Google Classroom, Technical, Communication Barriers, Accessibility, Digital Learning

Abstract

The study explores the challenges and solutions associated with online meetings through Google Classroom at universities in city Rawalpindi, Pakistan. Through qualitative interviews and thematic analysis, the study uncovers key issues faced by students and educators and proposes practical solutions to enhance the online learning experience in this specific geographical context. It highlights the increasing importance of online education and the role of Google Classroom in facilitating remote learning. The population of study was all graduates and educators using google classroom of Rawalpindi city. Through qualitative research, including semi-structured interviews with convenience sampling of 20 students and 10, the study identifies key issues such as technical problems, engagement difficulties, communication barriers, and accessibility concerns. Proposed solutions include enhancing technical support and training, incorporating interactive teaching methods, improving communication protocols, and ensuring accessibility for all students. The findings underscore the need for context-specific strategies to improve online learning experiences in Rawalpindi city.

1. Introduction

Importance of Online Education in the Contemporary Educational Landscape

The computerized period has reformed the instructive scene, offering phenomenal admittance to information through web-based schooling. This shift started to stretch out learning valuable open doors to contemporary understudies, like working experts and those in far off regions, and has since developed into a standard strategy for training. Allen and Sailor (2017) feature that internet-based instruction gives adaptability and availability, empowering students to offset their investigations with individual and expert obligations. The worldwide shift towards internet learning was decisively advanced by the Coronavirus pandemic, convincing instructive establishments overall to quickly progress to computerized stages (Dhawan, 2020). This shift not

just kept up with the coherence of schooling during the emergency yet additionally exhibited the capability of internet figuring out how to supplement customary google classroom-based guidance.

Overview of Google Classroom as a Tool for Online Meetings and Learning Management

Google classroom, a free web administration created by Google, means to smooth out the most common way of making, conveying, and reviewing tasks. It incorporates consistently with other Google administrations, for example, Google Drive, Docs, Sheets, and Slides, empowering effective work process the executives and coordinated effort (Iftakhar,2016). Shaharanee, Jamil, and Rodzi (2016) note that Google Classroom is easy to understand connection point and joining capacities have settled on it a well-known decision in advanced education. The stage upholds different academic methodologies, going from customary teaching to more intuitive, understudy focused strategies (Al-Maroof and Al-Emran, 2018). Key elements of Google Classroom, like declarations, tasks, evaluating, and criticism, help teachers in dealing with their courses. Notwithstanding its far-reaching reception, research demonstrates that its viability in cultivating understudy commitment and collaboration stays a subject of progressing examination.

Contextual Relevance of Rawalpindi City

Rawalpindi city, a significant administrative subdivision in Pakistan, is home to numerous educational institutions. The region's educational landscape is diverse, encompassing universities that cater to a large student population. The need for effective online learning solutions in Rawalpindi city has become increasingly apparent, especially in the wake of the pandemic. The region's varying levels of internet penetration and digital literacy add complexity to the adoption of online education, highlighting the importance of tailored solutions. Abbasi, Ayoob, Malik, and Memon (2020) underscore that the unique context of Pakistan, characterized by disparities in digital infrastructure and access to technology, poses significant challenges to the implementation of online learning.

Relevance of the Study

This review expects to comprehend the particular difficulties and arrangements connected with online gathering. By identifying the primary obstacles faced by students and educators and exploring effective strategies to mitigate these challenges, the research provides valuable insights that can inform policy and practice. The findings s will add to the more extensive talk on online education, especially in districts with comparative infrastructural and financial circumstances. Understanding these difficulties and creating setting explicit arrangements is essential for improving the viability of online schooling in Rawalpindi and beyond.

1.2 Objectives

The objectives of the present study were

1. To identify the challenges faced by students and educators in online meetings through Google Classroom at universities in Rawalpindi.
2. To explore the solutions that can mitigate these challenges in the specific context of Rawalpindi.

1.3 Research Questions

The research questions of the present study were

1. How user-friendly do users find Google Classroom, and what specific features do they identify as particularly helpful or challenging?
2. What issues related to accessibility or internet connectivity do users face while using Google Classroom, and how do these issues impact their learning or teaching experiences?
3. How effective is Google Classroom in facilitating communication between students and educators, and in what ways do users give or receive feedback through the platform?

2. Literature Review

2.1 Online Learning and Its Evolution

The advancement of online learning has fundamentally changed the educational landscape, offering unmatched flexibility and access to educational resources. Online education began as a way to extend learning opportunities to contemporary students, such as working professionals and those in remote areas, and has since evolved into a standard mode of education (Allen & Seaman, 2017). The global shift to online learning was accelerated by the COVID-19 pandemic, compelling educational institutions worldwide to adapt rapidly to digital platforms (Dhawan, 2020). While online education offers benefits such as flexibility, convenience, and the ability to cater to various learning paces, it also presents significant challenges, including technological barriers, student engagement, assessment integrity, and the digital divide (Hodges et al., 2020). The unique context of Pakistan, where internet penetration and digital literacy vary widely, adds another layer of complexity to the adoption of online learning (Abbasi et al., 2020).

2.2 Google Classroom: Features and Usage

Google Classroom is a free web service developed by Google for schools that aims to streamline the process of creating, distributing, and grading assignments. The primary role of Google Classroom is to simplify the process of sharing files between teachers and students (Iftakhar, 2016). Google Classroom integrates with other Google services such as Google Drive, Google Docs, Sheets, and Slides, which allows for seamless workflow management and collaboration. In higher education, Google Classroom has been widely adopted due to its user-friendly interface and integration capabilities (Shaharanee, Jamil, & Rodzi, 2016). It supports various pedagogical approaches, from traditional lecture-based teaching to more interactive, student-centered methods (Al-Maroof & Al-Emran, 2018). The platform's features, such as announcements, assignments, grading, and feedback, help educators manage their courses effectively. However, its effectiveness in fostering student engagement and interaction remains a subject of ongoing research.

2.3 Challenges in Web-based Training

In spite of the benefits of online training, various difficulties continue. Specialized issues are among the main hindrances, including questionable web associations, obsolete equipment, and programming similarity issues (Gillett-Swan, 2017). These issues are especially articulated in emerging nations like Pakistan, where framework and admittance to innovation can be conflicting (Jameel, Ali, and Majid, 2018).

Understudy commitment is another basic test. Online conditions can make it challenging to catch and keep up with understudies' consideration, prompting separation and lower investment (Banna, Lin, Stewart, and Fialkowski, 2015). Conventional homeroom elements, which incorporate eye to eye cooperation and continuous criticism, are difficult to recreate on the web. This can bring about an absence of inspiration and a feeling of detachment among understudies (Muilenburg and Berge, 2005).

Correspondence boundaries additionally present critical difficulties in web-based schooling. The shortfall of non-verbal signs, like non-verbal communication and looks, can prompt misconceptions and an absence of association among understudies and teachers (Bordia, 1997). Compelling correspondence is pivotal for cooperative exercises, yet it is often upsetting in an online meeting.

Availability and value issues are foremost in web-based schooling. The advanced separation, portrayed by variations in admittance to innovation and the web, compounds instructive disparities (Van Dijk, 2006). Understudies from lower financial foundations might battle to take part completely in online learning because of absence of assets, while those with handicaps might confront extra hindrances in the event that computerized content isn't available (Seale, 2013).

2.4 Arrangements and Best Practices

Different procedures have been proposed and executed to address these difficulties. Improving specialized help and giving sufficient preparation to the two teachers and understudies can moderate specialized issues. Colleges can lay out helpdesks and lead studios to guarantee clients are knowledgeable in the expected advancements (Van Dijk, 2020).

To help commitment, instructors can utilize intelligent showing strategies, for example, integrating mixed media components, utilizing constant tests, and encouraging conversation through discussions and breakout rooms (Dixson, 2015). Gamification, which includes involving game plan components in non-game settings, has additionally been displayed to increment understudy inspiration and support (Deterding et al., 2011).

Further developing correspondence requires clear conventions and normal criticism instruments. Laying out rules for online connections, utilizing conversation loads up for nonconcurrent correspondence, and using video conferencing apparatuses for ongoing conversations can improve correspondence and decrease misconceptions (Hrastinski, 2008). Moreover, utilizing breakout rooms can work with little gathering conversations and cooperative exercises.

Guaranteeing openness and value includes giving assets and backing to understudies who need admittance to innovation. Colleges can execute credit programs for gadgets and web access or team up with nearby organizations to offer reasonable innovation choices (Selwyn, 2020). Consistence with open norms and offering adaptable learning choices, like recorded talks and elective evaluation strategies, are additionally essential to oblige assorted understudy needs (Burgstahler, 2015).

2.5 Case Studies and Examples from Literature

A few contextual investigations show the execution of these arrangements in different settings. For example, a concentrate by Iqbal and Bhatti (2020) on the utilization of Google Homeroom in Pakistani colleges found that while understudies valued the stage's convenience, they confronted huge specialized and commitment challenges. The review suggested upgraded specialized help and intuitive showing techniques as viable arrangements.

In another review, Al-Samarraie and Saeed (2018) investigated the effect of Google Homeroom on understudy commitment in a Center Eastern college. The discoveries proposed that consolidating interactive media assets and gamification procedures essentially further developed understudy cooperation and inspiration.

A thorough survey by Bernard et al. (2004) analyzed the adequacy of distance training versus conventional homeroom guidance. The audit reasoned that distance schooling could be basically as powerful as customary strategies, offered that appropriate help frameworks and intuitive components are set up. With regards to openness, Seale (2013) featured the significance of planning comprehensive web-based learning conditions. The review stressed the requirement for institutional strategies that guarantee advanced content is available to all understudies, incorporating those with handicaps.

These models highlight the significance of setting explicit arrangements and the requirement for consistent transformation and improvement of internet learning procedures to address arising difficulties.

2.6 Commitment and Interest

Understudy commitment is a basic component for the progress of internet learning conditions. Dixson (2015) stresses that making a connection with online courses requires integrating components that work with communication, like conversation gatherings, intuitive tasks, and ongoing tests. Banna et al. (2015) additionally features the significance of connection in

advancing drew in picking up, proposing techniques like gathering activities and friend surveys to keep up with understudy interest and cooperation.

In any case, keeping up with commitment in a Google classroom setting presents special difficulties. The absence of up close and personal cooperation can prompt sensations of confinement and withdrawal among understudies. Gillett-Swan (2017) noticed that supporting and drawing in detached students is significant, suggesting the utilization of simultaneous specialized devices and standard criticism to keep understudies associated and spurred.

2.7 Communication Barriers

Powerful correspondence is imperative for the progress of internet learning. Hrastinski (2008) recognizes nonconcurrent and coordinated e-getting the hang of, taking note of that both enjoy particular benefits and inconveniences. Offbeat learning permits understudies to learn at their own speed, however it can prompt defers in correspondence and criticism. Coordinated learning, then again, offers continuous collaboration, however, may not be achievable for all understudies because of fluctuating time regions and timetables.

Bordia (1997) examines the distinctions between up close and personal and PC interceded correspondence, featuring the shortfall of non-verbal signals in web-based collaborations. This absence of non-verbal correspondence can prompt misconceptions and a feeling of separation. To relieve these issues, colleges can carry out organized correspondence conventions and give preparation on successful web-based correspondence.

2.8 Accessibility and Equity

The computerized partition remains a critical obstruction to online schooling, especially in districts with fluctuating degrees of mechanical framework. Van Dijk (2006) recognizes the computerized partition as a significant test, stressing that admittance to innovation and the web isn't equally circulated. With regards to Pakistan, Jameel, Ali, and Majid (2018) found that numerous college understudies face challenges in getting to solid web and computerized gadgets, which hampers their capacity to take part completely in Google classroom learning.

Guaranteeing availability and value in web-based schooling requires designated mediations. Burgstahler (2015) advocates for general plan standards to establish comprehensive Google classroom learning conditions. These standards incorporate giving different methods for portrayal, commitment, and articulation to oblige assorted advancing necessities.

3. Statement of Problem

The shift to online education, accelerated by the COVID-19 pandemic, has made digital platforms like Google Classroom essential. While Google Classroom offers numerous advantages, it also presents challenges, especially in regions with limited technological infrastructure and varying levels of digital literacy, such as Rawalpindi Tehsil in Pakistan.

Educational institutions in Rawalpindi city face specific obstacles in implementing online learning through Google Classroom, including unreliable internet connections, inadequate technical support, difficulties in maintaining student engagement, communication barriers, and significant disparities in accessibility and equity. These challenges disrupt learning and exacerbate educational inequalities, particularly affecting students from lower socio-economic backgrounds and those with disabilities.

Despite the widespread use of Google Classroom, there is a lack of research addressing these specific challenges in Rawalpindi city. This study aims to investigate how universities in Rawalpindi city can effectively use Google Classroom for online meetings and learning management, given the region's unique challenges. The goal is to provide insights and recommendations to enhance the effectiveness of online education in Rawalpindi city, promoting equitable and inclusive educational access.

4. Significance of Study

This study holds impressive importance for a few key reasons.

First and foremost, by focusing on the exceptional setting of universities in Rawalpindi city, it reveals insight into the difficulties looked by understudies and teachers around here, which are many times ignored in more extensive exploration on Google classroom. The discoveries give experiences into the local challenges of utilizing Google Classroom, for example, unreliable internet connections, lack of technical support, engagement issues, and accessibility disparities

Secondly, the study means to improve the execution and adequacy of Google classroom, making online education more engaging, accessible, and equitable for all students in Rawalpindi city. This examination can illuminate institutional arrangements and works on, directing colleges in creating designated techniques to help understudies and teachers in overcoming these boundaries.

Thirdly, the study promotes equity and inclusion by identifying and addressing the digital divide and other inequities in online education. This focus is particularly important for students from lower socio-economic backgrounds and those with disabilities, ensuring that all students have an equal opportunity to benefit from online learning.

Moreover, the exploration adds to the current collection of information on online education and the utilization of advanced stages like Google Classroom. By giving a point-by-point contextual analysis, it adds important information that can be referred to in later examinations and utilized for correlations with different localities facing same difficulties.

Finally, the study emphasizes on practical solutions and best practices presents significant suggestions that educational institutions can promptly carry out. These suggestions plan to directly affect the quality of online education in Rawalpindi city, ultimately benefiting the broader educational landscape in the region.

5. Methodology

5.1 Research Approach

The approach of this study is a qualitative research approach. Qualitative research seeks a comprehensive understanding of people's experiences, perceptions, and behaviors. This study employs qualitative research to gain in-depth insights into the experiences of students and educators using Google Classroom for online study at universities in Rawalpindi city.

5.2 Population and Sampling

The selection of participants is a crucial step in research design. The researcher used the technique of convenience sampling to select study participants. The population of study was all graduate students and educators of Rawalpindi universities that are using Google classroom. The researcher conveniently selected 20 students, and 10 educators based on their experiences with Google Classroom from the faculty of Education of four universities in Rawalpindi (Fatima Jinnah Women University, Riphah International University, Pir Mehr Ali Shah Arid Agriculture University and Rawalpindi Women University). Demographic details such as age, gender, and academic discipline were collected to ensure a diverse representation.

5.3 Data Collection Tool

Semi-structured interviews were conducted to gather detailed accounts of participants' experiences. The respondents' responses to open-ended questions were used to gather information on how they felt about challenges to use Google Classrooms. Interviews were recorded and transcribed for analysis, ensuring confidentiality and ethical considerations were met. The interviews were conducted privately and lasted between 15 to 20 minutes. In addition, the researcher used a semi-structured interview guide to verify that every participant was asked the same questions. The semi structure interview comprised of set of questions that comes under the following themes

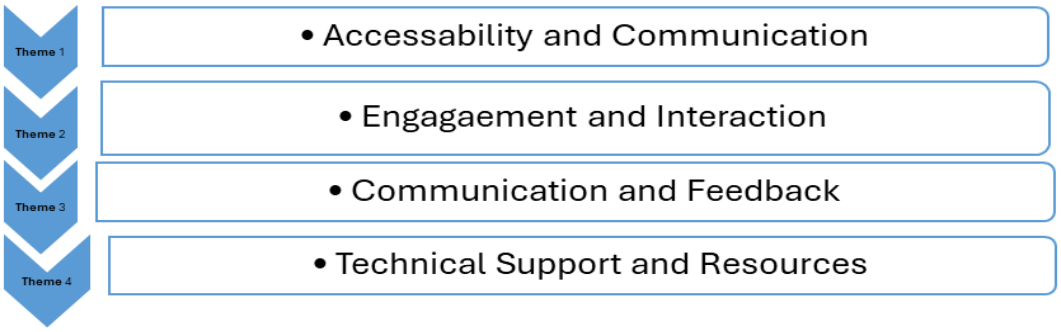

Figure 1: Themes of semi structure interview

The data collected for this study were analyzed using thematic analysis. Thematic analysis is a widely used method for analyzing qualitative data and involves identifying patterns, themes, and categories within the data. The respondents' responses to an open-ended questionnaire were used to gather information on how they felt about challenges to use Google Classrooms.

6.Data Analysis and Findings

This section presents the data analysis from the thirty interviews. The data was interpreted with respect to designed interview questions. Here are demographic details of participants.

I. Table: Demographic Details of Participants

Category	Number of Participants	Percentage (%)
Students	20	66.67
Educators	10	33.33
Gender: Male	18	60.00
Gender: Female	12	40.00
Age: 18-25 (Students)	20	66.67
Age: 26-35 (Educators)	10	33.33

The **first question** was, “Can you describe your overall experience with using Google Classroom for online meetings and classes?”

In response to the first question related to the general experience of the participants with Google Classroom, Student No. 1 stated, “*Overall, my experience with Google Classroom has been positive. It's a convenient way to access materials and submit assignments, though connectivity issues can be a problem*.”

Whereas student number 3 reported, “*I was not comfortable in Google Classroom because I was not able to interact with my instructor easily*”. The student No 12 and 14 were also not in favor of using Google Meet for taking online classes.

Student number 6 mentioned that, “*It was an exciting experience, but internet speed and connectivity disturb me a lot*”.

Educator Number 1, 2, 4, 5, 6, 7, and 10 mentioned that “experience *was good with some challenges initially but later on it was smooth and interesting*” whereas rest of the educators (03) were complaining about this experience.

Out of 30 participants (20 students and 10 educators) participant No 1,2,4 to 16,18,19,20 and 7 educators (total 18+7=25) 83% of participants agreed that with connectivity problem it is an average experience.

The **second question** was combination of two sub questions, that were,

1. “How user-friendly do you find Google Classroom?

2. Are there specific features that you find particularly helpful or challenging?”

In response to these Qs, *Student 16 stated that,* "*Google Classroom is quite user-friendly. The interface is intuitive, and I like how everything is organized*."

Student 2 reported as, "The layout is easy to navigate, but I find the notifications system a bit overwhelming sometimes."

Educator number 3,4,6,8,9,10 also feel easy to use Google Classroom: "*I find Google Classroom user-friendly. The ability to post announcements and assignments in a structured way is particularly helpful."*

While Educator 2 stated, " *Some features are very useful, like the grade book, but managing large classes can be challenging*." Similarly rest of three also encounter some problems in using Google Classroom.

Out of 30 participants (20 students and 10 educators) participant No 1,4 to 16, 18,20 and 6 educators (total 16+6=22) 73% of participants easily use the Google Classroom.

The **question number 3** also consist upon two sub questions that were

1. Have you faced any issues with accessibility or internet connectivity while using Google Classroom?

2. How have these issues impacted your learning/teaching experience?

In response to these both questions *Student 4 stated,* "*Yes, I've faced issues with internet connectivity, which sometimes makes it hard to participate in live classes*."

Student 16 stated that "*Connectivity problems have impacted my ability to submit assignments on time and attend live sessions*."

While student 3 shared his experience such that, “*Connectivity issues were not the biggest challenge for me during online learning via Google Classroom.”*

Educator 1,2,3,4,6,7,9 experienced internet connectivity problems while using Google Classroom, Educator 9 stated, "*Connectivity issues are a significant problem, especially when students are trying to join live classes from remote areas."*

Out of 30 participants (20 students and 10 educators) participant No 1,2,4 to 16,18,19,20 and 7 educators (total 18+7=25) 83% of participants faced problems with internet connectivity, which impacted their ability to participate in live classes, access materials, and meet deadlines.

For the **question no 4** sub questions were,

1. How does Google Classroom affect your level of engagement and interaction during online meetings?

2. Are there any features that enhance or hinder your ability to engage?

In response of these questions*, Student 14 stated,* "*Google Classroom helps me to stay engaged by providing a structured environment, though live interactions are sometimes hindered by*

connectivity issues." Similarly, *Student 19 responded,* "*The comments and discussion features enhance my engagement, but technical problems can be a barrier."*

While student no.15 reported that "I face a lot of issues regarding engagement and interaction of Google Classroom. There is lowest engagement level as compared to physical classroom."

Moreover, half of the educators also appreciated engagement and interaction with Google Classroom Educator 6 stated, "*The platform helps maintain student engagement through interactive features, but live sessions are often disrupted by connectivity problems."* While Educator 17 stated, "*The structured layout of Google Classroom worked poorly by facing student interaction and technical issues that can hinder real-time engagement."*

Out of 30 participants (20 students and 10 educators) participant No 1,4 to 14,18,19,20 and 5 educators (total 15+5=20) 67% of participants reported that Google Classroom helped maintain or even increase their engagement due to the accessibility of resources and the structured environment.

For the **question no 5** sub questions were,

1. How effective is Google Classroom in facilitating communication between students and educators?

2. How do you use the platform to give or receive feedback?

Google Classroom is effective in facilitating communication between students and educators, with easy access to teachers and generally timely feedback on assignments. For this sense *Student 6 responded* "*Google Classroom makes it easy to communicate with teachers and receive feedback promptly*." Similarly, *Student 15 replied* "*I use the platform to ask questions and get feedback on my assignments, which is usually quick and helpful*."

While rest of three students were not much satisfied by communication and feedback of Google Classroom.

When talk about Educators, Educator 1,2,3,5,6,8 and 10 appreciated its effective communication and instant response by meeting fellows. As Educator 6 stated "It's effective for communicating with students and providing feedback on their work. The private comments feature is very useful." Same response by *Educator 7* "*I use it to give feedback on assignments and answer student queries. The platform facilitates timely communication."*

While rest of Educators experienced delays in receiving feedback, the platform's features generally supported effective communication and feedback processes.

Out of 30 participants (20 students and 10 educators) participant No 1,2,3, 5 to 18 and 7 educators (total 17+7=24) 80% of participants could easily contact their teachers and receive feedback on assignments. While feedback was usually timely, some students experienced delays which affected their learning process.

According to **question no. 6** following questions are responded

1. What kind of technical support or resources are available to help you with Google Classroom?

2. Have you found them adequate? Why or why not?

Majority of students agreed that Google Classroom inadequate or slow, affecting their ability to resolve issues promptly. There was a clear need for more comprehensive and quicker support, as well as detailed guides and troubleshooting resources to help navigate technical problems more effectively. In this aspect *Student 1 stated* "*I think more detailed guides and faster support would be helpful. The current support is not always adequate."*

Similarly, Educator 1,3,5,6,7, and 8 also reported the inadequate support.

Educator 1 reported "*Technical support is often slow, and more comprehensive resources are needed to help with troubleshooting*."

While rest of 04 Educators were not in need of such technical support.

Out of 30 participants (20 students and 10 educators) participant No 2 to 14, 16, 18, 20 and 6 educators (total 16+6=22) 73% of participants found technical support inadequate or slow. There was a desire for more comprehensive and quicker support. Participants expressed the need for more detailed guides and troubleshooting resources to help them navigate issues more effectively.

In respect of **question 7,**

1. What recommendations would you make to improve the platform for online meetings?

To address the challenges identified, *Student 1 responded* "*I see myself continuing to use Google Classroom because it's a convenient way to manage my coursework, but I hope the connectivity issues can be resolved by improving internet infrastructure and providing offline access to materials will enhance accessibility and communication".*

Enhancing Google Classroom's real-time interaction tools and promoting discussion forums can boost engagement and interaction. Ensuring timely feedback through automated reminders and establishing regular communication channels like office hours can improve communication and feedback.

With respect to Educators, *Educator 1* stated "*I plan to keep using Google Classroom because of its organizational benefits. However, I recommend enhancing the platform's stability and support services."*

*Similarly, Educator 2 r*eported *"I will continue to use it, but I suggest adding more features to manage large classes and improving technical support."*

Lastly, offering detailed troubleshooting guides and implementing faster technical support services, such as a dedicated helpdesk or live chat, will better support users in resolving technical issues.

In the light of above data following key challenges are reported

II. Table: Key Challenges Identified

Challenges	Number of Participants Reporting	Percentage
Technical Issues	25	83.33
Engagement and Participation	20	66.66
Communication Barriers	21	70.00
Accessibility and Equity	22	73.33

Lastly, offering detailed troubleshooting guides and implementing faster technical support services and following solutions will better support users in resolving technical issues.

III. Table: Proposed Solutions

Solutions	No of Participants Endorsing	Percentage
Technical Support and Training	28	93.33
Enhancing Engagement	24	80.00
Improving Communication	20	66.67
Ensuring Accessibility	18	60.00

7. Conclusion

The thematic analysis reveals that while Google Classroom is largely seen as a beneficial tool for online learning, significant improvements are needed in areas such as technical support, user interface, and connectivity to enhance the overall user experience. By addressing these issues and implementing the recommended improvements, Google Classroom can become an even more effective platform for online education.

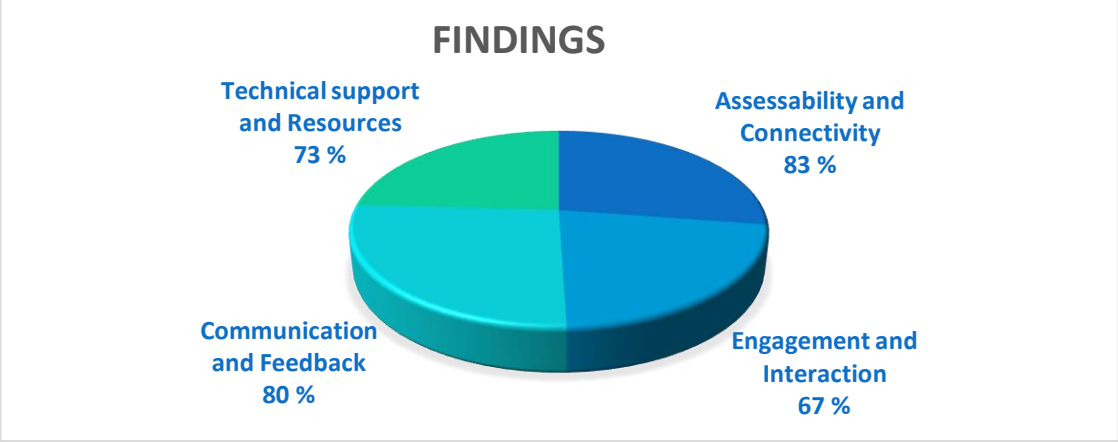

Figure 2: Representation of themes on chart

8. Discussion

The discussion of this study on the challenges and solutions of using Google Classroom in educational settings in Rawalpindi city, Pakistan, highlights several key findings and implications. The study identified significant technical issues, such as connectivity problems and software glitches, which frequently disrupted online meetings. These challenges were exacerbated by the region's limited technical infrastructure. Engagement and participation emerged as critical concerns, with both students and educators struggling to maintain interaction and attention during online sessions. Communication barriers due to the absence of non-verbal cues further complicated collaborative work and understanding. Moreover, accessibility and equity issues were prominent, particularly among students from lower socio-economic backgrounds who faced difficulties accessing necessary technology for effective online learning. The study recommends practical solutions such as enhancing technical support, implementing interactive teaching methods, establishing clear communication protocols, and ensuring accessibility through device loan programs and compliance with accessibility standards. These findings underscore the complex interplay between technology, pedagogy, and socio-economic factors in shaping effective online education experiences in diverse educational contexts.

8.1. Suggestions for Using Google Classroom

The review's discoveries have a few ramifications for practicing

1. **Technical Help and Preparing:** Colleges in Rawalpindi city ought to focus on offering specialized help and preparing for the two understudies and teachers. Laying out helpdesks and directing standard studios on utilizing Google Homeroom can relieve specialized issues.
2. **Enhancing Commitment:** Consolidating intuitive showing strategies, for example, ongoing tests, media assets, and gamification, can further develop understudy commitment. More modest breakout gatherings and companion conversations can likewise cultivate a feeling of local area and support.
3. **Improving Correspondence:** Clear correspondence conventions and standard criticism components are fundamental. Utilizing conversation sheets for offbeat correspondence and breakout spaces for little gathering associations can improve correspondence and lessen errors.
4. **Ensuring Openness:** Tending to the computerized partition requires giving assets and backing to understudies with restricted admittance to innovation. Carrying out gadget advance projects, guaranteeing consistence with openness norms, and offering adaptable learning choices can advance inclusivity and oblige assorted understudy needs.

8.2. Limitations of the Study

This study has a few restrictions. The example size is moderately little, and the discoveries may not be generalizable to all universities in Rawalpindi city or different districts. Furthermore, the review depends on self-detailed information, which might be likely to predisposition. Future research ought to consider bigger, more different examples and utilize blended strategies to locate discoveries.

9. Suggestions for Future Research

Future examination ought to investigate the drawn-out effect of the proposed arrangements on further developing web-based growth opportunities. Relative examinations between various cities and instructive settings can give a more extensive comprehension of the difficulties and viable systems for online schooling. Moreover, examining the job of institutional arrangements and backing systems in working with fruitful web-based learning can offer further experiences.

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Appendix A. **Interview Protocol**

Demographic Information

Age Gender

Academic discipline Role (student/educator)

Years of experience with Google Classroom

Main Interview Questions

1. General Experience:

Can you describe your overall experience with using Google Classroom for online meetings and classes?

2. Ease of Use:

3. How user-friendly do you find Google Classroom?
4. Are there specific features that you find particularly helpful or challenging?

3. Accessibility and Connectivity:

3. Have you faced any issues with accessibility or internet connectivity while using Google Classroom?
4. How have these issues impacted your learning/teaching experience?

4. Engagement and Interaction:

3. How does Google Classroom affect your level of engagement and interaction during online meetings?
4. Are there any features that enhance or hinder your ability to engage?

5. Communication and Feedback:

3. How effective is Google Classroom in facilitating communication between students and educators?
4. How do you use the platform to give or receive feedback?

6. Technical Support and Resources:

3. What kind of technical support or resources are available to help you with Google Classroom?
4. Have you found them adequate? Why or why not?

7. Future Use and Recommendations:

5. Do you see yourself continuing to use Google Classroom in the future? Why or why not?
6. What recommendations would you make to improve the platform for online meetings?