Preference for Video Conferencing Features in Online Learning

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ABSTRACT

Student engagement is crucial for quality online learning, yet studies indicate that many students choose to turn off their cameras during synchronous sessions, raising questions about how they continue their learning. This study investigates undergraduate students' preferences for specific video conferencing features in synchronous online learning. Adopting a cross-sectional, quantitative survey design, data was collected from 54 Universiti Teknikal Malaysia Melaka (UTeM) undergraduates via a structured questionnaire. Findings reveal that the majority of respondents (75.9%) have engaged in synchronous online learning for 2 to 5 years. Microsoft Teams emerged as the most preferred online learning platform (61%), primarily valued for its lack of meeting time limits, built-in cloud recording, and all-in-one workspace integration. Google Meet was the second most favored (28%) due to familiarity and a straightforward interface. Recording (90.7% used, 51% preferred) and Screen Sharing (85.2% used, 24% preferred) were identified as the most frequently used and preferred video conferencing features, cited for enabling content review, note-taking, and clear visual explanations. Notably, there was an overwhelming preference among students to keep their cameras off (96.3%). Primary reasons for this included concerns about other people being seen behind them (61.1%), personal appearance (50%), and weak internet connections (48.1%). These results highlight that students prioritize features supporting content accessibility, instructional clarity, and communication efficiency. The study underscores the complex interplay of privacy, anxiety, and technical barriers in students' engagement, suggesting that educators should consider camera-optional environments and leverage non-video engagement tools to foster inclusive online learning.

Keywords: Video Conferencing, Synchronous Online Learning, Student Preferences, Camera Usage, Learning Features.

INTRODUCTION

Student engagement in synchronous online learning is a multifaceted construct encompassing behavioral, cognitive, and emotional dimensions, with video conferencing technologies serving as crucial platforms for real-time interaction, though challenges persist around technical barriers, social presence, and maintaining sustained attention in virtual environments.

The rapid shift to online education, particularly accelerated by the COVID-19 pandemic, has brought unprecedented attention to student engagement in synchronous online learning environments. Student engagement represents a critical factor in educational success, encompassing the behavioral, cognitive, and emotional investment students make in their learning experiences [1]. Student engagement in online learning is conceptualized as a multidimensional construct that extends beyond simple participation or attendance. Research identifies three primary dimensions: behavioral engagement (participation in learning activities), cognitive engagement (psychological investment in learning), and emotional engagement (positive and negative reactions to learning experiences), [2], [3]. In synchronous online environments, these dimensions manifest differently than in traditional face-to-face settings.

The theoretical foundations of online student engagement draw heavily from self-determination theory, which emphasizes the importance of autonomy, competence, and relatedness in motivating learning [4]. According to this framework, students are motivated to engage when their basic psychological needs are supported through course design and instructional practices. The Community of Inquiry framework also provides crucial theoretical grounding, identifying cognitive presence, social presence, and teaching presence as essential elements for meaningful online learning experiences[5]

Student engagement in synchronous online learning encompasses multiple indicators. Behavioral engagement includes participation in video conferences, use of interactive features like chat and polls, and completion of synchronous activities [6], [7]. Cognitive engagement involves deep processing of content, critical thinking, and meaningful interaction with course materials during live sessions [8], [9]Emotional engagement reflects students' feelings of connection, satisfaction, and motivation within the synchronous learning environment [10], [11].

Video conferencing technologies have a rich history, with their conceptualization and development tracing back to the early 20th century, notably with the first video call made in 1927[12]. Despite these early innovations, it took almost a century for video calls and video conferencing to become an integral part of daily life. The widespread adoption of these technologies, particularly for educational purposes, dramatically accelerated with the onset of the COVID-19 pandemic in early 2020, which necessitated a rapid, almost overnight, global shift from traditional face-to-face instruction to online and remote learning environments[13], [14], [15], [16], [17], [18]. This paradigm shift established synchronous online learning as a new normal in higher education, allowing students and faculty to interact in real-time despite geographical separation, primarily through platforms such as Zoom, Microsoft Teams, Google Meet, and Cisco Webex [16], [17], [19], [20], [21], [22].

The integration of video conferencing in education has brought forth numerous perceived benefits. It is widely acknowledged for its ability to humanize online learning by providing a live visual link between teachers and students, thereby fostering a sense of social presence that is crucial for effective communication and community building[17], [18], [19], [22], [23]. These platforms facilitate real-time interaction, discussions, and immediate feedback, which can significantly enhance student engagement and motivation. Furthermore, video conferencing offers increased accessibility and flexibility, enabling remote attendance, particularly beneficial for students across different time zones or those with limited access to physical campuses[18], [24]. Key features like screen sharing and breakout rooms support dynamic presentations, collaborative problem-solving, and group discussions, while recording capabilities allow students to revisit content, aiding in review, note-taking, and exam preparation[18], [19], [25].

Despite these advantages, video conferencing in educational settings presents several challenges. A prominent issue is the lack of non-verbal cues, such as eye contact, facial expressions, and body language, which can impede rapport building and make it difficult for instructors to gauge student engagement and comprehension[22], [26], [27]. Technical difficulties, including unstable internet connections, audio/video lag, and inadequate equipment, frequently disrupt sessions and impair the overall learning experience[13], [16], [19], [22], [28]. Prolonged use of video conferencing often leads to "Zoom fatigue," a sense of exhaustion and burnout attributed to continuous screen time, the cognitive load of processing numerous nonverbal cues, and heightened self-consciousness from self-view. Student reluctance to turn on cameras due to privacy concerns, self-consciousness about appearance or surroundings, and unstable internet connections is a common challenge, contributing to passive or uneven participation and creating a "void" for instructors[13], [16]. This can also blur the professional distance between teachers and students, leading to increased workload and blurred office hours for educators[29]. Furthermore, some practical work and hands-on activities are challenging to simulate effectively in a virtual environment[18], [23].

The enduring presence of online learning, particularly synchronous online learning and video conferencing, highlights their critical role in modern education. A comprehensive understanding of their full potential and limitations is essential for effective pedagogical strategies, maximizing benefits, and mitigating drawbacks. This study endeavors to determine students' preferences for video conferencing features within synchronous online learning environments. The paper commences with a literature review examining the functionalities,

perceived advantages, and challenges of video conferencing platforms in educational contexts. Subsequently, a quantitative

methodology is utilized to investigate student preferences for these features, concluding with an analysis and discussion of the derived results.

Video conferencing technologies have become an indispensable component of modern education, particularly in higher education. The COVID-19 pandemic significantly accelerated the shift from face-to-face teaching to emergency remote instruction, making video conferencing tools like Zoom, Google Meet, and Microsoft Teams essential for maintaining educational continuity. This rapid adoption has cemented their place in the higher education landscape.

The abrupt global shift from traditional face-to-face instruction to online and remote learning environments established synchronous online learning as a new norm [13], enabling real-time interaction between students and faculty despite geographical distances. These video conferencing tools had common features include video and audio control, screen sharing, chat functions (both public and private), virtual hand-raising, recording capabilities, breakout rooms for small group collaboration, whiteboards, file sharing, and polling [13], [17], [19], [30], [31]. The integration of these features in synchronous online learning has brought numerous advantages, as shown in Table 1.

TABLE 1. Benefits of Video Conferencing in Synchronous Online Learning

Key Aspect	Explanation and Advantages	Citation
Enhanced Engagement and Presence	Video conferencing fosters a sense of social presence by providing live visual and auditory interaction, which humanizes online learning. Instructors generally view real-time visual communication as beneficial for effective communication and community building.	[19], [21], [23], [32]
Accessibility and Flexibility	These platforms allow students to attend remotely, which benefits those in different time zones or with limited physical access. Recorded sessions enhance accessibility by allowing asynchronous review, aiding in note-taking, exam preparation, and self-paced learning.	[14], [18], [30]
Instructional Clarity and Interaction	Features like screen sharing provide real-time demonstrations and presentations, improving the clarity of complex concepts. Whiteboards support visual explanations and collaborative brainstorming. Polling, virtual hand-raising, and breakout rooms enable interactive learning.	[14], [33]
Communication Efficiency	The chat function serves as a non-disruptive, parallel communication channel that supports informal queries, peer interaction, and real-time feedback. It is especially useful in large classes or for students who are reluctant to speak aloud.	[17], [19]

In our study about this research, we summarizes the principal challenges associated with synchronous video conferencing, and each category warrants further elaboration. The first challenges are due to lack of non-verbal cues, such as diminished eye contact, facial expressions, and body language and this impedes rapport-building and makes it difficult for instructors to gauge student engagement, thereby constraining overall communicative effectiveness. Second, technical issues such as unstable internet connections, outdated hardware or software, and audio-video latency routinely disrupt sessions and can undermine learning continuity. Third, many participants report that video conferencing is time-consuming and fatiguing. For example, instructors expend additional time preparing online materials, meanwhile both students and lecturers experience "Zoom fatigue," a combination of mental and physical exhaustion attributable to prolonged screen exposure.

The fourth challenge is related to privacy concerns that emerge when students are reluctant to appear on camera owing to anxieties about personal appearance, household environments, or the presence of others in the background. Fifth, engagement issues persist, as maintaining active participation in a virtual setting is complicated by distractions, passive attendance, and difficulties with conversational turn-taking. Sixth, virtual platforms struggle to simulate hands-on experiences, making it challenging to reproduce laboratory or practical activities that require physical manipulation of equipment or materials. Seventh, instructor difficulty and lack of preparedness arise from limited training and the digital competencies demanded for effective online facilitation, compounded by the increased effort needed to monitor students and preserve work–life balance. Finally, the online format often fosters a lack of community and feelings of isolation, hindering the development of a cohesive learning environment and diminishing peer–instructor connection. Collectively, these challenges and limitations highlight critical areas for pedagogical innovation and institutional support in synchronous online learning.

Despite the extensive integration of video conferencing technologies into educational settings, significant gaps persist in the scholarly literature. In current study, students' reluctance to use webcams [25], [32], [34], [35], [36], [37], [38] , often due to privacy concerns and self-consciousness has been documented (Castelli & Sarvary, 2021), yet research on how non-video engagement tools for example, chat, polls, stamps can enhance inclusive participation remains limited.

In conclusion, while video conferencing has successfully bridged geographical divides in education, future research must move beyond mere adoption to focus on nuanced pedagogical approaches, comprehensive utilization of features, and addressing student and instructor well-being to truly optimize the online learning experience. Thus, it becomes our interest to investigate students' preferences for video conferencing features during synchronous online learning.

METHODOLOGY

This study employed a cross-sectional, quantitative survey design to capture a snapshot of undergraduate students' preferences for specific video-conferencing features used in synchronous online learning. Participants and Sampling: The target population comprised undergraduate students enrolled at Universiti Teknikal Malaysia Melaka (UTeM). A non-probability, voluntary response sampling strategy was utilized, as the study aimed for exploratory insights rather than population estimates. An invitation link to the survey was disseminated through course WhatsApp groups.

A total of 54 usable responses were received. The sample included 30 females (55.6%) and 24 males (44.4%), with ages ranging from 19 to 25 years. All participating students had prior experience with at least one semester of online classes utilizing commercial video-conferencing platforms.

Data Collection Instrument: Data were collected using a structured questionnaire developed and disseminated via Google Forms. The questionnaire was designed to gather both quantitative data on student preferences and perceptions, as well as qualitative insights through open-ended questions. It was organized into two main sections:

• Section 1: Basic Demographic Information

This section collected standard demographic details such as age, gender, and education level.

• Section 2: Online Learning Preferences and Experiences

Duration of Engagement: Participants were asked to indicate how long they had been using video conferencing or synchronous online learning platforms.

Camera Usage Preference: Students were asked about their preference for having their camera turned on or off during online sessions. For those who preferred to keep their camera off, a multiple-response question allowed them to select one or more reasons from a predefined list (as detailed in Table 3 of the source).

Platform Usage and Preference: Students identified the online platforms (e.g., Zoom, Microsoft Teams, Google Meet) they used most frequently. An open-ended question followed, inviting them to state their most preferred platform and to explain the underlying reasons for their choice, aiming to capture subjective perceptions of usability, stability, and integration.

Feature Usage and Preference: Students were asked to identify the video conferencing features (e.g., chat, screen sharing, breakout rooms, reactions, polls, whiteboard) they used most frequently, referencing items adopted from Doush et al. (2023). An additional open-ended question prompted respondents to indicate which of these features they preferred most and to elaborate on their reasons, providing qualitative depth to the quantitative responses.

The design of the questionnaire allowed for a comprehensive understanding of students' interaction with synchronous online learning environments, their technical considerations, and their underlying motivations for specific preferences.

This study adopted a cross-sectional, quantitative survey design to capture a snapshot of undergraduate students' preferences for specific video-conferencing features used in synchronous online learning. The data collection instrument used in this study was a structured questionnaire developed using Google Forms. The questionnaire was designed to gather quantitative data on students' preferences and perceptions regarding various video conferencing features used in synchronous online learning. It consisted of both closed-ended and open-ended questions, allowing for the collection of quantitative data as well as qualitative insights.

The first section gathered basic demographic information, including age, gender, and education level. The second section focused on students' preferences and general experiences with online learning. Participants were asked how long they had been using video conferencing or synchronous online learning platforms, and their preferences regarding online learning appearance—for instance, whether they preferred to have their camera turned on or off during online sessions. For those who indicated a preference for keeping their camera turned off, a multiple-response question allowed them to select one or more reasons.

Additionally, the questionnaire asked students to indicate which online platforms (e.g., Zoom, Microsoft Teams, Google Meet) they used most frequently. An open-ended question followed, inviting students to state which of these platforms they preferred and to explain the reasons behind their choice. This question aimed to elicit subjective perceptions about platform usability, stability, interaction features, or personal comfort.The following question focused on the video conferencing features students used during online learning, referencing the items adopted from Doush et al. (2023). Features such as chat, screen sharing, breakout rooms, reactions, polls, and whiteboard were included. Students were asked to identify the features they used most frequently. An additional open-ended question followed, asking respondents to indicate which of these features they preferred most and to explain why. This qualitative input was intended to enrich the interpretation of quantitative responses by uncovering underlying motivations or learning needs.

RESULTS & FINDINGS

This section present key findings derived from a survey conducted on preferences for video conferencing features in online learning. The target population comprised undergraduates enrolled at Universiti Teknikal

Malaysia Melaka (UTeM). A non-probability, voluntary response sampling strategy was chosen because the study sought exploratory insight rather than population estimates. An invitation link was disseminated through course WhatsApp groups. A total of 54 usable responses were received and the sample included 30 females (55.6 %) and 24 males (44.4 %), with ages ranging from 19 to 25 years. All participants had experienced at least one semester of online classes using commercial video-conferencing platforms.

The data provides insights into several aspects, including the duration of participants' engagement with video conferencing and synchronous online learning modalities, their most frequently utilized online platforms, the specific video conference features they commonly employ during online learning, their collective preferences regarding camera usage, and the underlying reasons for those preferences.

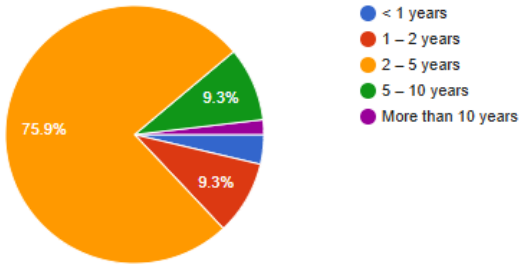

Figure 1. Duration of Video Conference / Synchronous Online Learning Usage

Figure 1 presents a demographic breakdown of how long respondents have been engaged in video conferencing or synchronous online learning. Out of 54 responses, the vast majority, 75.9%, reported using these modalities for 2 to 5 years. A smaller segment, 9.3%, indicated usage for 1 to 2 years, and another 9.3% reported usage between 5 and 10 years. The remaining, with 1.9% represent smaller proportions of respondents had used these platforms for less than 1 year and 3.7% of respondents have used more than 10 years.

Figure 2 identifies the online platforms most frequently utilized by the 54 respondents. Microsoft Teams was reported as being used by all 54 respondents, constituting 100% usage. Google Meet was also highly utilized, with 47 respondents (87%) indicating its use. Zoom was used by 21 respondents (38.9%), while Webex was used by 12 respondents (22.2%). A minimal number of respondents, only one (1.9%), reported using YouTube for this purpose.

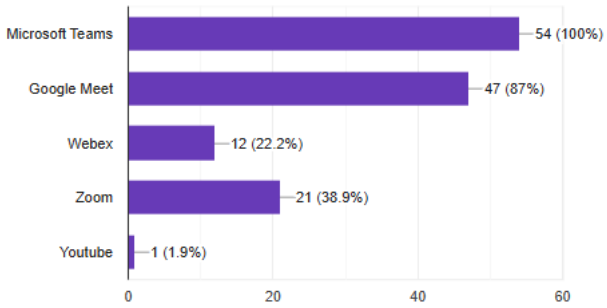

Figure 2. Online Platforms Frequently Used

Table 2 is a compact summary table that captures which platform each student said they prefer most and the main themes in their explanations. Responses that named the same product but were phrased differently were grouped together; very short or duplicate answers were merged.

The analysis reveals that Microsoft Teams is the most preferred online learning platform among the respondents, with approximately three in five students indicating its use. The dominant factors contributing to this preference include the absence of meeting time limits, seamless integration with Microsoft Office tools, and the ability to record sessions directly within the platform—features that support both learning continuity and post-session review. Google Meet emerged as the second most favored platform, primarily due to its ease of access, user-friendly interface, and strong integration with Google’s ecosystem, including Gmail and

Calendar. Many students reported selecting this platform based on familiarity and habitual use, particularly from their experiences during the pandemic or matriculation studies.

TABLE 2. Reason on Online Learning Platform

Preferred platform	Respondents (n)	% of 54	Most-cited reasons	Illustrative student quotes
Microsoft Teams	33	61 %	• No meeting time-limit • Built-in cloud recording / easy to access past videos • All-in-one workspace (chat + files + Office integration) • User-friendly / requires only one click to join	"Teams doesn't have a time limit and lets me record every session." "Everything—chat, files, meetings—is in one place, perfect for group work."
Google Meet	15	28 %	• Familiarity & habit (used since pandemic/matriculation) • Straight-forward interface, minimal steps • Seamless with Gmail & Google Calendar; no software download	"I'm used to Meet since matriculation and it's the simplest UI." "It opens right from my Gmail—no need to install anything."
Zoom	4	7 %	• Clear navigation • Name entry on join • Built-in local/cloud recording	"Zoom is easier to navigate and lets me type my name before I enter."
YouTube (self-paced videos)	1	2 %	• Learn anytime, anywhere	"YouTube—because I can learn whenever I want."
Other / mixed answers	1	2 %	—	A single respondent said they use "Team and Google" because both have an easy interface.

Additionally, platform choice appears to be significantly influenced by prior exposure and perceived convenience. Across platforms, the ability to record sessions was highlighted as a critical feature, reflecting students' desire for flexibility in revisiting lecture content at their own pace. Although only a small number of students selected asynchronous platforms such as YouTube, their responses suggest an appreciation for on-demand learning resources, which may complement synchronous instruction. Overall, these findings suggest that students value platforms that offer reliability, integration with productivity tools, and flexibility in learning engagement.

The data summarized in Table 3 indicates a clear pattern in students' utilization of video conferencing features during synchronous online learning. Recording emerged as the most frequently used feature, cited by 90.7% of respondents (n = 49). This suggests that students place high value on the ability to revisit instructional content, which supports flexible learning schedules and reinforces comprehension. Screen sharing, used by 85.2%

(n = 46), was the second most utilized function, highlighting its importance in enabling real-time demonstration, presentation, and collaborative engagement.

TABLE 3. Most Used Video Conference Features in Online Learning

Feature	Number of Respondents	% of Respondents
Recording	49	90.7%
Screen Sharing	46	85.2%
Virtually Raise Hand	33	61.1%
Chat with Attendees	30	55.6%
Video and Audio Control	26	48.1%
File Sharing	22	40.7%
Breakout Rooms	14	25.9%
Whiteboard	13	24.1%
Waiting Rooms	11	20.4%
Automatic Live Captioning	9	16.7%
Annotate Shared Content	7	13.0%

The 'Virtually Raise Hand' feature (61.1%, n = 33) was also widely used, signifying its effectiveness in facilitating structured interaction and reducing verbal interruptions during live sessions. Similarly, Chat with attendees (55.6%, n = 30) provided a parallel communication channel that allowed for informal, non-disruptive discussion, which is particularly useful in large-group settings.

Video and audio control (48.1%, n = 26) and file sharing (40.7%, n = 22) also showed moderate usage, reflecting students' need to manage their participation environment and exchange supplementary materials during class. Meanwhile, more advanced interactive features such as Breakout Rooms (25.9%, n = 14) and Whiteboard (24.1%, n = 13) were used less frequently, possibly due to inconsistent integration by instructors or lack of familiarity among students.

Less commonly used features include Waiting Rooms (20.4%, n = 11), Automatic Live Captioning (16.7%, n = 9), and Annotate Shared Content (13.0%, n = 7), suggesting that accessibility tools and advanced collaborative features are not yet mainstream in student experience. These findings highlight a preference for core, functional features that support autonomy, content access, and low-disruption participation, while also revealing opportunities for more comprehensive utilization of collaborative and inclusive technologies in online learning environments.

TABLE 4. Students' Preferred Video Conferencing Features and Justifications Based on Open-Ended Responses Learning

Preferred feature	Frequency (students)	Share of responses	Typical rationale voiced by students
Recording	23	51 %	Enables replay / revision, supports note-taking, compensates for missed or unclear portions, helpful for exam preparation and poor connectivity.

Screen Sharing	11	24 %	Provides clear, real-time visual explanation (slides, software demos), makes online class feel like a physical classroom, facilitates collaborative problem-solving.
Virtually Raise Hand	8	18 %	Allows non-intrusive questioning, attracts lecturer's attention even with faulty mics, fosters orderly interaction without disrupting the lecture flow.
Whiteboard	2	4 %	Supports real-time sketching, diagrams, and group brainstorming; mimics a traditional classroom board for complex topics.
Video & Audio Control	1	2 %	Lets students mute noise and disable video to save bandwidth, ensuring smoother sessions.

The majority of respondents expressed a strong preference for the Recording feature in video conferencing platforms. Students valued this function primarily for its flexibility, allowing them to revisit recorded sessions at their convenience. Many noted that the ability to replay lectures was particularly beneficial for reviewing complex topics, taking more accurate notes, and preparing for exams. Additionally, some students mentioned that recordings were especially helpful when they experienced unstable internet connections during live sessions or if they needed to learn at a slower pace. This preference highlights the importance of asynchronous access to synchronous content in supporting diverse learning needs and promoting academic continuity.

The second most commonly preferred feature was Screen Sharing. Students appreciated how this function enabled lecturers or presenters to display slides, demonstrate software usage, or visually explain concepts in real time. Respondents indicated that screen sharing enhanced clarity, made sessions more interactive, and resembled traditional classroom instruction, thereby improving overall understanding.

A smaller group of students preferred the Virtually Raise Hand feature, noting that it facilitated non-intrusive interaction. This function was considered useful for asking questions without interrupting the flow of the lecture and was especially valuable for those with technical limitations, such as microphone issues.

Lastly, some respondents mentioned Whiteboard as a preferred tool, citing its role in encouraging collaborative engagement and visual explanation of concepts. The interactive nature of the whiteboard feature was seen to mimic physical classroom environments, thus increasing learner engagement.

Referring to Table 4, the responses provided by students regarding their most preferred video conferencing features reveal insightful patterns about their online learning experiences. A majority of the respondents (n = 23, 51%) indicated that the recording feature was their top preference. Students emphasized that recorded sessions enabled them to revisit lessons at their own pace, review complex concepts, take comprehensive notes, and compensate for any segments missed due to technical disruptions or late arrivals. This finding aligns with existing literature that underscores the role of recorded content in enhancing knowledge retention and flexible learning (e.g., Doush et al., 2023).

The second most frequently preferred feature was screen sharing, selected by 11 students (24%). Respondents highlighted that screen sharing improved their understanding of course materials by enabling real-time visual demonstrations of lecture slides, software tools, or diagrams. This feature was perceived as crucial for replicating the clarity and structure of traditional classroom instruction in an online setting.

Eight students (18%) reported that they preferred the virtually raise hand feature. Their responses reflect the value of structured interactivity, as this tool allowed students to indicate their desire to speak or ask questions without disrupting the flow of the session. It was particularly useful for those experiencing microphone issues or preferring a less intrusive way of engaging with instructors.

The whiteboard feature was preferred by two students (4%), who noted that it offered a more interactive and visual approach to learning, similar to using physical whiteboards in face-to-face classrooms. Although less frequently mentioned, its inclusion highlights the demand for tools that support real-time sketching and collaborative brainstorming, especially for subjects requiring diagrammatic representation.

Finally, one student (2%) identified video and audio control as their preferred feature, citing its usefulness in managing background noise, saving data, and maintaining session stability when experiencing slow internet connections.

Notably, no students explicitly selected the "chat with attendees" feature as their most preferred, even though it was among the commonly used tools in the quantitative findings. This discrepancy may suggest that while chat is operationally valuable for real-time text-based communication, it is not perceived as a primary contributor to deep learning or content engagement.

In summary, students prioritized features that supported accessibility, clarity of instruction, and interactive participation, with recording capabilities emerging as the most critical for enhancing learning effectiveness in online environments.

These findings indicate that learners value features that enhance autonomy, content accessibility, and communication efficiency, aligning with established research (e.g., Doush et al., 2023) on synchronous online learning environments.

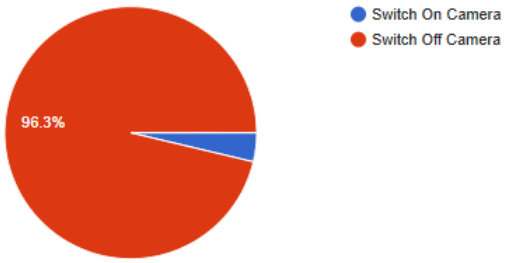

Figure 3. Preference for Online Learning Appearance (Camera Usage)

Figure 3 illustrates the overwhelming preference regarding camera usage during online learning among the 54 respondents. A significant majority, 96.3% of respondents, indicated a preference to 'Switch Off Camera'. The remaining small percentage of 3.7% preferred to 'Switch On Camera'.

TABLE 5. Reason on Online Learning Platform

No.	Reason	Percentage
1	I was concerned about other people being seen behind me	61.10%
2	I was concerned about my appearance	50.00%
3	My internet connection was weak	48.10%
4	I felt like everyone was looking at me the whole time	48.10%
5	I was concerned about my physical location being seen behind me	48.10%
6	I was concerned about distracting my classmates	35.20%
7	I didn't want to be seen walking away from my computer	35.20%
8	I didn't want to be seen doing other things on my computer	33.30%
9	I didn't want to be seen not paying attention	31.50%
10	I was concerned about distracting my lab instructor	22.20%
11	My webcam was not working	13.00%
12	My webcam is poor due to my laptop being old	1.90%
13	I'm too lazy to put on my hijab	1.90%
14	Makes some students feel more comfortable and less self-conscious, improving focus.	1.90%
15	Not Applicable - I always had my camera on	0.00%

Table 5 presents a details of reasons respondents chose to switch off their cameras. The findings indicate a strong preference among participants to keep their cameras off during online learning, with a variety of underlying reasons. The most prevalent reason, cited by 61.1% of respondents, was being concerned about other people being seen behind them. This suggests a significant privacy concern related to the background environment of the participant.

Following this, 50.0% of respondents indicated that they were concerned about their appearance. This points to self-consciousness or discomfort with how they might look on camera, which can be a common social anxiety in video conferencing settings. A substantial portion of participants (48.1%) reported that their internet connection was weak. This technical limitation can directly impact video quality and lead participants to disable their cameras to maintain audio clarity or reduce bandwidth usage. Equally significant at 48.1% were two other reasons: feeling like everyone was looking at them the whole time, and being concerned about their physical location being seen behind them. These reasons further emphasize concerns about privacy, constant scrutiny, and the blending of personal space with the learning environment.

Approximately a third of respondents (35.2%) were concerned about distracting their classmates, and another 35.2% stated they didn't want to be seen walking away from their computer. These indicate a desire to avoid disruption and maintain a certain level of unseen flexibility during sessions. Slightly fewer, 33.3%, reported they didn't want to be seen doing other things on their computer, and 31.5% stated they didn't want to be seen not paying attention. These reasons suggest for greater freedom in their personal actions during online sessions and a desire to manage perceptions of their engagement.

About one-fifth of respondents (22.2%) were concerned about distracting their lab instructor, highlighting a specific concern related to instructional settings. Technical issues also played a role for some, with 13.0% indicating their webcam was not working. A small percentage (1.9%) mentioned their webcam was poor due to their laptop being old, suggesting equipment limitations.

Finally, a few unique personal reasons were also noted by 1.9% of respondents each: being too lazy to put on a hijab, and the camera being off making some students feel more comfortable and less self-conscious, improving focus. The latter, while a reason for switching off, is framed as a positive outcome for engagement and focus for some individuals. Notably, 0% of respondents reported that the "Not Applicable - I always had my camera on" reason applied to them, reinforcing the overwhelming preference for keeping cameras off.

In general, students express a strong preference to keep their cameras off for reasons including privacy concerns, personal appearance, and weak internet connections. The overall impact of combining video with other engagement tools can also be complex, with some studies suggesting that too much simultaneous engagement can increase cognitive load and hinder learning.

CONCLUSION

The study on undergraduate students' preferences for video conferencing features in synchronous online learning revealed several key insights into optimizing online educational environments. The findings indicate that the majority of students (75.9%) have engaged in video conferencing for 2 to 5 years, highlighting the sustained presence of synchronous online learning in higher education. Microsoft Teams emerged as the most preferred online learning platform (61%), primarily due to its lack of meeting time limits, built-in cloud recording capabilities, and all-in-one workspace integration. Google Meet was the second most favored platform (28%), valued for its familiarity, straightforward interface, and seamless integration with the Google ecosystem. These preferences underscore students' value for reliability, integration with productivity tools, and flexibility in their learning engagement.

In terms of specific video conferencing features, Recording (90.7%) and Screen Sharing (85.2%) were identified as the most frequently used tools. Qualitatively, Recording was also the most preferred feature (51%), enabling students to review content, take notes, compensate for missed parts, and prepare for exams, especially when facing unstable internet connections. Screen Sharing was the second most preferred (24%), appreciated for its ability to provide clear visual explanations, real-time demonstrations, and to mimic traditional classroom instruction, thereby enhancing understanding. Other valued features included 'Virtually Raise Hand' for non-intrusive interaction (18% preferred) and 'Whiteboard' for collaborative visual explanations (4% preferred). These preferences collectively emphasize students' prioritization of features that support content accessibility, instructional clarity, and communication efficiency.

A significant finding was the overwhelming preference among students to keep their cameras off (96.3%) during online sessions. The primary reasons cited included concerns about other people being seen behind them (61.1%), personal appearance (50%), and weak internet connections (48.1%). Additional reasons included feeling scrutinized, concerns about their physical location, avoiding distraction to classmates or instructors, and desiring flexibility in their actions during sessions. This highlights the complex interplay of privacy, anxiety, and technical barriers that influence student engagement in synchronous online learning environments.

In conclusion, while video conferencing has effectively bridged geographical divides in education, the study underscores that students prioritize features enhancing content access and instructional clarity while expressing a strong reluctance towards camera usage due to privacy, self-consciousness, and technical issues. These findings suggest that educators should consider camera-optional environments and actively leverage non-video engagement tools such as chat and polls to foster more inclusive and effective online learning experiences. Future research should further investigate nuanced pedagogical approaches and comprehensive utilization of all available features to optimize student well-being and the overall online learning experience.

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