Teaching and Learning via Video Conferencing Platforms: Issues Across Three Asian Countries

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Abstract: Video conferencing platforms have become essential tools for facilitating remote teaching and learning, particularly in the aftermath of the COVID-19 pandemic. This global health crisis accelerated the transition from traditional face-to-face instruction to online education, making virtual classrooms widespread and enduring practices in higher education. This study investigates the key issues associated with video conferencing technologies in teaching and learning across three Asian countries: Malaysia, Thailand, and Bangladesh. Utilizing a design thinking approach, qualitative data was collected through interviews and focus group discussions with educators, students, and technical staff. A total of 106 participants were involved in the study. The empathize stage of the design thinking process allowed for a deeper understanding of user experiences, frustrations, and needs in the context of online teaching and learning. The define stage was then employed to categorize the recurring issues into common themes. The analysis revealed seven major themes encompassing a total of seventeen subthemes. These themes include: Infrastructure, with challenges related to internet connectivity and power reliability; Environment, which concerns the suitability of physical spaces for both teaching and learning; Competency, which covers ICT skills, pedagogical adaptability, assessment methods, and course design; Support, including the roles of institutional management, parental or family involvement, and community resources; Tools, which refer to problems encountered with software and hardware devices; Health, addressing the impact on mental and physical well-being; and Self-efficacy, related to users' confidence and the learning curve in adopting new technologies. The findings shed light on the multifaceted and interconnected nature of the issues and emphasize the need for solutions. The outcomes of this study are valuable not only for video conferencing platform developers aiming to improve functionality and usability but also for higher education administrators seeking to create more inclusive, supportive, and effective digital learning ecosystems.

Keywords: Design Thinking, Online Teaching and Learning, Virtual Classroom, Educators

1. Introduction

The COVID-19 pandemic prompted a swift shift to online education, establishing video conferencing platforms as essential tools for maintaining communication and instructional continuity. While these platforms are primarily used for communication across various sectors (Suduc, Bizoi & Filip, 2023), their application in education expanded significantly during and after the pandemic (Gladović, Deretić & Draskovic, 2020; Suduc, Bizoi & Filip, 2023). Features such as real-time interaction, virtual classrooms, and collaborative tools enabled educational institutions to continue delivering instruction across geographically dispersed regions (Camilleri & Camilleri, 2022; Parasian & Yuliati, 2020).

Research highlights the educational benefits of video conferencing, including enhanced collaboration, improved problem-solving, and more effective decision-making (Suduc, Bizoi & Filip, 2023). However, several limitations have also been identified, particularly in the context of teaching and learning (Cavus & Sekyere-Asiedu, 2021; Dumford & Miller, 2018; Ebert, Levett-Jones & Jones, 2019; Ling et al., 2024; Putri et al., 2020; Suduc, Bizoi & Filip, 2023).

Despite the benefits of these platforms, their adoption and effectiveness vary widely, especially in parts of Asia where challenges such as uneven digital infrastructure and limited digital literacy persist. This article explores the issues surrounding the use of video conferencing for education in three Asian countries: Bangladesh, Malaysia, and Thailand

2. Video Conferencing Platforms

Video Conferencing Platforms are digital tools or software applications that enable real-time communication through audio, video, and text over the internet (Camilleri & Camilleri, 2022; Purnell, 2019; Rop & Bett, 2012). In educational settings, these platforms facilitate remote teaching and learning by allowing live virtual classes, student-teacher interaction, screen sharing, and collaborative activities (Parasian & Yuliati, 2020). Some commonly used video conferencing platforms for education in Asia countries include Zoom, Google Meet, Microsoft Teams, and Cisco Webex. These platforms have become essential for online education, especially during and after the COVID-19 pandemic, offering a means to continue instruction despite physical distance. However, their effective use depends on technological access, user training, platform features, and internet connectivity, which vary across regions and institutions.

Video conferencing platforms have become central to remote education, but numerous challenges limit their effectiveness. A persistent issue is accurately evaluating student performance in virtual settings compared to traditional face-to-face classrooms (Dumford & Miller, 2018), compounded by classroom management difficulties (Dumford & Miller, 2018), technological skill gaps, and unequal access to devices and internet, particularly in under-resourced areas v. Security concerns, such as inconsistent data encryption, complicate safe and private participation (Cavus & Sekyere-Asiedu, 2021).

Physical and psychological concerns have also been reported. Extended screen time during video conferencing can result in postural issues and screen fatigue (Camilleri & Camilleri, 2019), while digital distractions such as social media or unrelated websites diminish the participants' focus and productivity (Camilleri & Camilleri, 2022; Putri et al., 2020). Many educators face challenges with unfamiliar digital tools due to limited technical skills, leading to feelings of insecurity when conducting online classes. This lack of confidence increases psychological stress and hinders their ability to effectively adapt teaching methods (Rio-Chillcce, Jara-Monge & Andrade-Arenas, 2021; Al-Samarraie, 2019).

Technical issues such as poor internet connectivity, audio/video disruptions, and software incompatibilities continue to disrupt learning (Ling et al., 2024; Al-Samarraie, 2019). Furthermore, background noise, overlapping conversations, and lack of non-verbal cues impair communication (Gillies, 2008; Lee, 2007; Suduc, Bizoi & Filip, 2023). Self-conscious behavior during video sessions (Maher, Moussa & Khalifa, 2020) and the inability to conduct hands-on or lab-based learning are additional limitations (Rahim et al., 2020)

From a pedagogical standpoint, the lack of curriculum alignment with video conferencing approaches has been noted (Ip, 2012; Ling et al., 2024), highlighting the need to adjust syllabi and adopt new teaching strategies tailored for online delivery. Teachers must also carefully plan sessions, set clear expectations, and select appropriate tools to support effective instruction (Adipat, 2021).

3. Design Thinking

Design Thinking is a customer-centered innovation approach that applies designers' methods to business processes, aiming to develop creative ideas and models for both products and services. It is an integrative and holistic process involving collaboration among various experts with a work environment designed to foster creativity through the principles of People, Process, Place, and Partnerships. The approach begins with deep customer understanding rather than technology or business goals, emphasizing empathy by closely observing users to align innovations with their real needs. Design Thinking also promotes rapid prototyping, encouraging early, simple, and functional representations of ideas to gather customer feedback and refine solutions efficiently Müller-Roterberg (2018, p.1).

The design thinking models by Gibbons (2016) and Mueller-Roterberg (2018) follow similar processes with slight variations. Gibbons' model includes six phases: empathize, define, ideate, prototype, test, and implement, while Mueller-Roterberg (2018) outlines six comparable phases: understanding, observe, point-of-view, ideate, prototype, and test. Both models begin with a user-centered approach, but they frame the initial stages in distinct ways. Gibbons (2016) began with the "Empathize" phase, which focuses on developing a deep understanding of users, their challenges, and their needs. Mueller-Roterberg (2018), on the other hand, divides this stage into two distinct phases: "Understanding" and "Observe." The "Understanding" phase emphasizes grasping the nature of the problem or requirement, while the "Observe" phase involves conducting detailed research and field observations to understand users in their actual environments.

The next stage is "Define" (Gibbsons, 2016) or "Point-of-View" (Mueller-Roterberg, 2018) to narrow down insights gathered from the earlier stage into a clear problem statement that focuses on a specific user or user group. This clarity forms the foundation for the next phase, "Ideate,". This stage encourages brainstorming a broad range of creative and unconventional ideas that might address the user's needs or problems. Next is "Prototype" phase, where initial concepts are translated into tangible forms. Gibbons (2016) emphasizes collaborative sketching, sharing, and building on one another's ideas during this phase. Mueller-Roterberg (2018) aligns closely with this view, highlighting the importance of experimentation and early visualization of potential solutions.

The "Test" phase comes next and is focused on evaluating prototypes through user feedback. This stage aims to determine which aspects of the solution are effective and which need improvement. It is also a point for assessing the feasibility and potential impact of the proposed ideas.

The study only focuses on the first three stages of Müller-Roterberg (2018) to identify issues of using video conferencing platforms in education across three Asian countries: Bangladesh, Malaysia, and Thailand.

4. Methodology

A design thinking approach was employed to explore the issues related to video conferencing platforms for teaching and learning in three Asian countries: Bangladesh, Malaysia, and Thailand. The study involved educators, students, and information technology (IT) staff with prior experience using video conferencing for educational purposes. Data was collected through focus group discussions and in-depth interviews. There were 33 participants from Bangladesh, 52 from Malaysia, and 21 from Thailand.

The study was carried out in three structured phases to explore the challenges associated with using video conferencing tools in teaching. Stage 1: Understanding the Problem aimed to establish the issues of using these platforms. This phase involved selecting participants and formulating relevant questions to guide the investigation. The participants included lecturers, students, and technical staff with over three years of experience using video conferencing for instructional purposes. This is to ensure their deep familiarity with the context. Data collection methods included observation, in-depth interviews, and focus group discussions.

In Stage 2: Observation, researchers conducted on-site visits to observe how participants used video conferencing tools within their teaching settings. These observations were supplemented with interviews to gain deeper insights into the challenges faced during teaching and learning practices.

Stage 3: Defining the Problem focused on synthesizing the data gathered from the earlier stages. Interview and discussion recordings were transcribed and analyzed using thematic analysis to uncover patterns and common themes. This process helped categorize the key issues users experience when using video conferencing platforms in their teaching and learning environments.

5. Findings and Discussions

The issues identified across three Asia countries, namely Bangladesh, Malaysia, and Thailand, are categorized into seven themes: infrastructure, environment, competency, support, tools, health, and self-efficacy.

5.1 Infrastructure

Under the Infrastructure theme, two categories were identified: connectivity and power supply. Malaysia, Thailand, and Bangladesh faced unstable internet connections, especially in rural areas, where slow speeds, weak Wi-Fi, and limited bandwidth disrupt live video sessions. Mobile data costs in rural Malaysia and Thailand further limit access for some students. The findings are consistent with Al-Samarraie (2019), Ebert, Levett-Jones, and Jones (2019), and Ling et al. (2024).

Additionally, power supply problems, including frequent outages and load shedding, affect the continuity of online classes. In Thailand, high costs for backup power solutions add to the challenge, while in Bangladesh, even brief outages during storms or maintenance cause repeated disruptions.

5.2 Environment

Teaching and learning categories were identified under the Environment theme. Educators and students in Malaysia, Thailand, and Bangladesh faced virtual environmental issues with online learning from home. A lack

of dedicated teaching and study spaces, especially in rural or crowded areas, leads to frequent distractions and reduced teaching and learning effectiveness. Background noise, poor lighting, and limited privacy are common issues that disrupt focus and communication during online sessions.

Students often struggle with motivation and engagement in informal home settings, while the absence of structure and study routines further weakens learning outcomes. In all three countries, unequal access to the internet and digital devices, particularly in remote areas, continues to widen the education gap.

5.3 Competency

The study found four categories under the Competency theme, namely Information and Communication Technology (ICT), pedagogy, assessment, and course design. In Malaysia, Thailand, and Bangladesh, the integration of video conferencing in education faces several issues. Lack of ICT proficiency and difficulty troubleshooting software issues hinder effective use of digital tools, while keeping up with evolving technology and features like breakout rooms is a struggle. Inadequate training and low confidence in digital teaching methods also impair educators' ability to adapt. These findings are in line with Gillies (2008), Lee (2007), and Suduc, Bizoi and Filip, (2023) findings.

Pedagogically, limited engagement, distractions, and insufficient online teaching training reduce effectiveness, especially in Bangladesh, where there's resistance to online teaching. Educators also face challenges in facilitating collaborative learning due to limited exposure to digital tools. Inconsistent online assessment practices, plagiarism concerns, and equity issues related to technology access further complicate learning environments. In terms of course design, many educators in Malaysia and Thailand struggle to adapt traditional content to online formats, resulting in disjointed learning experiences. Bangladesh lacks a standardized framework for online course creation, leading to inconsistency. Similar issues were shared by Ip (2021) and Ling et al. (2024).

5.4 Support

Under the Support theme, three key categories of issues were identified: management, parent/family, and community. In Malaysia, issues in managing online teaching included the absence of standardized guidelines, unrealistic expectations from management, and insufficient support for students with limited access to technology. Educators also faced high workloads and reduced personal time.

Thailand experienced similar issues with a lack of formalized policies, increased workload for adapting content, and limited institutional support for video conferencing tools. In Bangladesh, educators struggled with insufficient training on online tools, inconsistent IT support, and a lack of specific policies for video conferencing. Budget constraints also hindered technological support for online teaching. The issues supported the findings of Al-Samarraie (2019), Ling et al. (2024), Rio-Chillcce, Jara-Monge & Andrade-Arenas, (2021).

All three countries lack parental support, with students managing academic tasks independently while balancing household duties, which limits study time and focus. Cultural and societal factors also posed challenges. In Malaysia, the community prefers face-to-face education and lacks industry support for video conferencing tools, while Thailand faced societal resistance to online learning. The issues were outlined by Ling et al. (2024).

5.5 Tools

Issues concerning Tools were divided into two categories: hardware and software. In Malaysia, Thailand, and Bangladesh, there is a lack of adequate hardware, including outdated devices and insufficient facilities for online learning. This results in poor connectivity and disrupted learning experiences. In Thailand, frequent hardware failures and inadequate investment in technology infrastructure worsen the situation, while Bangladesh struggles with a lack of devices for both students and teachers.

Software-related issues also impede learning. Application crashes, audio problems, and unstable Learning Management Systems (LMS) disrupt lessons, making communication difficult and hindering access to materials. Inconsistent software use, often due to reliance on free trials or individual purchases, creates confusion and inefficiencies. In Bangladesh, a lack of training for educators on digital tools further complicates the situation. Additionally, compatibility issues between devices and software in Thailand and Malaysia limit engagement and participation, while the high cost of maintaining multiple software platforms puts a financial strain on institutions. The issues are also highlighted by Ling et al. (2024)

5.6 Health

Health-related issues identified in the study were mental and physical health. Students in Malaysia, Thailand, and Bangladesh have experienced a range of mental health challenges due to the shift to online learning. A key concern of the three countries is the loneliness and emotional distress caused by the lack of in-person interaction. The reduction in social interaction has negatively impacted students' overall mental well-being, especially in settings where group work and peer support play a critical role. Additionally, screen fatigue, which results from prolonged hours in front of digital devices, has decreased motivation and mental exhaustion, making it difficult for students to stay engaged with their studies. The issues were similar to the findings of Camilleri and Camilleri (2019) and Putri et al. (2020).

Physically, students have been affected by the extended use of digital devices during online classes. Common issues include digital eye strain, which causes discomfort such as blurred vision, dry eyes, and headaches. Poor posture from sitting for long periods in non-ergonomic home setups has also led to muscle pain and physical discomfort, which is also shared by Camilleri (2022). Furthermore, the sedentary lifestyle is associated with online learning. This issue, marked by minimal physical movement, has contributed to increased physical stress and potential long-term health risks such as obesity and poor cardiovascular health. These issues underline the need for balanced screen time and integrated physical activity during the learning day.

5.7 Self-efficacy

Confidence and learning curve are two categories identified under the Self-efficacy theme. Across Malaysia, Thailand, and Bangladesh, a lack of confidence and ICT skills remains a major barrier to effective online education. Educators in all three countries feel insecure using digital tools, with many lacking sufficient training, particularly in managing virtual classrooms and conducting online assessments. This results in reluctance to adopt innovative methods and low motivation. The same issues were revealed in the literature (Rio-Chillcce, Jara-Monge & Andrade-Arenas, 2021; Al-Samarraie, 2019).

The steep learning curve further complicates digital adoption. Teachers and students struggle with self-learning, technical troubleshooting, and mastering multiple platforms. Inadequate training and resistance to change, especially in Bangladesh, hinder adaptation to online formats. These issues are worsened by software limitations and connectivity issues, particularly in rural areas, which were mentioned by Ebert, Levett-Jones, and Jones (2019) and Ling et al. (2024).

6. Conclusion

Advancements in technologies have transformed the landscape of teaching and learning through the use of video conferencing platforms. While these technologies offer significant benefits such as real-time interaction, collaboration, and continuity of instruction, they also present a complex array of challenges, particularly in developing regions. This study, focusing on Malaysia, Thailand, and Bangladesh, identified seven major themes: Infrastructure, Environment, Competency, Support, Tools, Health, and Self-efficacy, that encapsulate the multifaceted issues faced by educators, students, and IT support staff. Using a design thinking approach, the research provided a deeper understanding of user experiences and needs, highlighting critical gaps in digital readiness, pedagogical adaptability, and technical infrastructure. These findings underline the importance of context-specific interventions and the need for collaborative efforts among educators, institutions, platform developers, and policymakers to enhance the effectiveness of virtual education.

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Ethics and AI Declaration

Ethical clearance was not required for the research.

AI tool was used for language editing of this paper.

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