

EVALUATING THE IMPACT OF AI-ENABLED CLOUD COMMUNICATION PLATFORMS ON STUDENT ENGAGEMENT IN HIGHER EDUCATION: A CASE OF AFGHANISTAN PRIVATE UNIVERSITIES

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Abstract

The integration of artificial intelligence (AI) and cloud-based technologies is reshaping higher education globally, yet their impact in fragile contexts remains underexplored. This study evaluates the influence of AI-enabled cloud communication platforms on student engagement in ten private universities in Afghanistan, with a focus on interaction, personalisation, motivation, and collaboration. A qualitative research design was employed, using classroom and online observations, document analysis, and semi-structured interviews with faculty, students, and administrators. The findings reveal that these platforms significantly enhanced engagement by fostering real-time communication, adaptive feedback, gamification, and collaborative learning opportunities. However, effectiveness was constrained by infrastructure weaknesses, uneven institutional readiness, limited faculty training, and cultural scepticism regarding AI. The study highlights that technology alone cannot transform education without supportive ecosystems of infrastructure, pedagogy, and ethical guidelines. Its impact lies in providing evidence for policymakers, educators, and administrators seeking to strengthen student-centred learning and digital transformation in higher education. The study suggests future research should adopt mixed methods approaches to measure learning outcomes more systematically, expand to public universities, and explore long-term cultural and ethical implications of AI integration, ensuring digital innovation contributes to equitable and sustainable educational reform in Afghanistan and comparable contexts.

Keywords: Artificial Intelligence, Cloud Communication Platforms, Student Engagement, Higher Education, Afghanistan

Abstrak

Integrasi kecerdasan buatan (AI) dan teknologi berbasis cloud sedang membentuk kembali pendidikan tinggi secara global, namun dampaknya dalam konteks rentan masih kurang dieksplorasi. Penelitian ini mengevaluasi pengaruh platform komunikasi berbasis cloud yang didukung AI terhadap keterlibatan mahasiswa di sepuluh universitas swasta di Afghanistan, dengan fokus pada interaksi, personalisasi, motivasi, dan kolaborasi. Desain penelitian kualitatif digunakan dengan metode observasi kelas dan daring, analisis dokumen, serta wawancara semi-terstruktur dengan dosen, mahasiswa, dan administrator. Temuan menunjukkan bahwa platform tersebut secara signifikan meningkatkan keterlibatan melalui fasilitasi komunikasi real-time, umpan balik adaptif, gamifikasi, dan peluang pembelajaran kolaboratif. Namun, efektivitasnya terkendala oleh kelemahan infrastruktur, kesiapan institusi

yang tidak merata, pelatihan dosen yang terbatas, serta skeptisisme budaya terhadap AI. Penelitian ini menegaskan bahwa teknologi saja tidak dapat mentransformasi pendidikan tanpa ekosistem pendukung berupa infrastruktur, pedagogi, dan pedoman etis. Dampaknya terletak pada pemberian bukti bagi pembuat kebijakan, pendidik, dan administrator yang berupaya memperkuat pembelajaran berpusat pada mahasiswa serta transformasi digital dalam pendidikan tinggi. Penelitian ini menyarankan agar penelitian selanjutnya menggunakan pendekatan metode campuran untuk mengukur hasil belajar secara lebih sistematis, memperluas kajian ke universitas negeri, serta mengeksplorasi implikasi budaya dan etis jangka panjang dari integrasi AI, sehingga inovasi digital dapat berkontribusi pada reformasi pendidikan yang adil dan berkelanjutan di Afghanistan dan konteks serupa..

Kata Kunci: Kecerdasan Buatan, Platform Komunikasi Cloud, Keterlibatan Mahasiswa, Pendidikan Tinggi, Afghanistan

INTRODUCTION

The rapid expansion of digital technologies has transformed the way higher education systems function across the globe, introducing new modes of teaching, learning, and communication (Yu, 2020). Among these emerging technologies, artificial intelligence (AI) integrated with cloud communication platforms has gained significant attention for its ability to enhance interactivity, accessibility, and personalisation in the academic environment. The growing reliance on such platforms is reshaping the dynamics between instructors and students, offering opportunities for continuous engagement beyond the physical classroom (Lockee, 2021). This transformation is particularly relevant for countries like Afghanistan, where higher education is facing structural challenges but also new prospects through digital innovation. As universities attempt to recover from years of disruption, the adoption of advanced digital tools presents both an urgent necessity and a promising avenue for reform (Hemat et al., 2023).

Afghanistan's private universities have become pivotal players in expanding access to higher education. These institutions, often less constrained by government bureaucracy compared to their public counterparts, are in a unique position to implement modern technologies that can strengthen student engagement and learning outcomes (Brdesee et al., 2022). Despite these advantages, Afghan universities face persistent obstacles such as limited resources, inconsistent internet connectivity, and a shortage of highly trained faculty (Hemat et al., 2023). Student disengagement, low participation in collaborative learning, and traditional pedagogical practices compound these difficulties, leaving many institutions unable to meet the evolving demands of a digital society (Emynorane et al., 2025). The introduction of AI-enabled cloud communication platforms has the potential to address some of these gaps by supporting real-time collaboration, automated feedback, personalised learning pathways, and improved communication between faculty and students (Yu, 2020). Nevertheless, little

empirical evidence exists to assess how such technologies specifically influence student engagement in the Afghan higher education context, raising important questions for both researchers and policymakers.

The problem this study seeks to address is the lack of a comprehensive understanding of the impact of AI-enabled cloud communication platforms on student engagement within Afghanistan's private universities. Globally, studies have shown that student engagement is a multidimensional construct encompassing behavioural, emotional, and cognitive dimensions, all of which are critical predictors of learning outcomes and retention rates (Xia et al., 2024). Yet in Afghanistan, most universities continue to rely on conventional teaching strategies that do not adequately stimulate student involvement or collaborative learning. Moreover, previous attempts at integrating e-learning and digital platforms often encountered difficulties due to limited infrastructure, fragmented implementation strategies, and a lack of institutional support (Moore et al., 2025). The specific problem, therefore, is that despite the promise of AI-driven cloud platforms to enhance engagement, their actual influence on Afghan students remains underexplored (Maqbool et al., 2024). Without such insights, universities risk investing in technologies without clear evidence of effectiveness, potentially widening the digital divide and reinforcing existing challenges in higher education (Cheeti, 2021; Emynorane et al., 2025).

The primary objective of this study is to evaluate the impact of AI-enabled cloud communication platforms on student engagement in Afghan private universities. This broad objective is divided into several specific aims. First, the study seeks to analyze the extent to which AI-enhanced features, such as intelligent chatbots, predictive analytics, and adaptive feedback mechanisms, influence student participation and learning interaction. Second, the research intends to examine how cloud-based communication systems, which provide accessible, scalable, and real-time learning environments, shape collaborative practices among students. Third, it aims to identify the barriers and facilitators affecting the adoption of such technologies in the Afghan context, including infrastructure limitations, cultural perceptions, and institutional readiness. Finally, the study seeks to generate recommendations for higher education policymakers and institutional leaders on how to effectively harness these tools to improve student outcomes and long-term educational quality.

The significance of this study lies in its potential to inform both academic practice and educational policy in a country that urgently needs innovative approaches to strengthen higher education. Afghanistan has long struggled with systemic issues such as inadequate educational funding, brain drain, and socio-political instability that hinder academic development. By exploring the practical effects of AI-enabled cloud platforms on student engagement, this study can provide evidence-based insights into how technology may mitigate some of these challenges. At a broader level, the findings can contribute to global discussions about digital equity in higher education, particularly in

developing countries where infrastructure and resources are scarce. Furthermore, the study underscores the role of private universities as testing grounds for educational innovation, potentially influencing broader systemic reforms. For students, effective use of these technologies may lead to greater motivation, active learning, and improved academic performance, ultimately preparing graduates with skills that are increasingly essential in a knowledge-driven economy (Cui et al., 2023; Emynorane et al., 2024).

Previous studies in the field of technology-enhanced learning have provided important insights into the relationship between digital platforms and student engagement. Chassignol et al. (2018) emphasised that artificial intelligence has the potential to personalise educational content, support innovative teaching methods, and improve assessment practices, thus reshaping the learning landscape. Similarly, Cui et al. (2023) highlighted how big data-driven online education platforms, particularly during the COVID-19 pandemic, facilitated interactive learning and maintained academic continuity, albeit with challenges related to resource disparities and implementation strategies. These findings suggest that technological innovation can sustain and even enhance engagement when properly integrated into educational systems.

At the same time, concerns remain regarding the ethical, cultural, and practical dimensions of AI integration in education. Bouteraa et al. (2024) investigated the diffusion of generative AI tools such as ChatGPT in higher education, noting that issues of academic integrity and student trust influence acceptance and outcomes. This perspective resonates with the Afghan context, where cultural attitudes toward technology and education may shape how students and faculty respond to AI-driven communication platforms. Moreover, Maqbool et al. (2024) argue that the adoption of collaborative e-learning methods requires careful consideration of faculty perceptions and technological readiness, as resistance or lack of training can undermine student engagement even when advanced platforms are available.

Beyond higher education, studying cloud platforms for other sectors provides useful analogies. For example, Bello et al. (2025) proposed a framework for cloud-based chatbots in the construction industry, demonstrating how real-time, intelligent communication systems can streamline workflows and enhance collaboration. Jelić et al. (2025) also explored integrated cloud platforms for energy management, underscoring their effectiveness in enabling efficiency and optimisation across complex systems. These examples, although not directly focused on education, suggest that cloud-based, AI-enabled systems can improve engagement, responsiveness, and adaptability in diverse contexts. The transferability of such findings to higher education highlights the potential of cloud communication platforms to foster more interactive, responsive, and student-centred environments.

In Afghanistan, limited literature exists on the direct relationship between AI-enabled technologies and student engagement, although related studies point to both challenges and opportunities. Hemat et al. (2023) documented how

community-based interventions significantly improved healthcare outcomes in Afghan communities, suggesting that participatory and adaptive approaches can overcome structural limitations in fragile settings. Translating this insight into higher education implies that AI-enabled communication platforms, when implemented in participatory and context-sensitive ways, may similarly overcome challenges of student disengagement and limited interaction.

METHOD

Research Design

This study adopts a qualitative research design, which is best suited for exploring experiences, perceptions, and contextual influences that cannot be fully captured through numerical data. The aim is not to test predetermined hypotheses but to develop a deep understanding of how AI-enabled cloud communication platforms influence student engagement within Afghanistan's private universities. By employing a qualitative approach, the study emphasises the meaning participants assign to their interactions with these technologies, as well as the institutional and cultural dynamics that shape adoption. The design is exploratory and interpretive, enabling the researchers to capture nuanced insights through naturalistic inquiry rather than controlled experimentation. This choice is particularly appropriate given the limited existing studies in Afghanistan's higher education context, where emerging technologies intersect with unique social and infrastructure challenges.

Participants

The study population consists of faculty members, administrators, and students from ten private universities in Afghanistan, chosen because these institutions have shown interest in adopting or experimenting with digital platforms for teaching and communication. A purposive sampling strategy was employed to ensure that participants possess direct experience with cloud communication tools or AI-enhanced systems in the academic setting. The selection of ten universities provides sufficient variation to capture different institutional practices and challenges while maintaining feasibility for in-depth qualitative analysis. Within each university, participants were identified across roles, students to reflect engagement experiences, faculty to provide pedagogical perspectives, and administrators to highlight institutional strategies. This diversity of perspectives allows for a more holistic understanding of how AI-enabled platforms shape engagement at multiple levels of the academic ecosystem.

Data Collection

Three primary methods were employed to gather data: observation, document analysis, and semi-structured interviews. Observations were conducted within classroom and online learning environments to capture real-time interactions between students, faculty, and cloud-based communication tools, enabling the researchers to assess engagement practices in natural

contexts. Institutional documents, such as policy papers, technology adoption plans, and training manuals, were reviewed to provide insight into the strategic vision and formal procedures governing technology use. Semi-structured interviews were carried out with key stakeholders, students, faculty, and administrators to elicit personal experiences, perceived benefits, and challenges in using AI-enabled platforms. These interviews were designed to encourage open-ended discussion while still ensuring consistency across participants through a common guide. Combining these three methods strengthened data triangulation, allowing for a more reliable and comprehensive picture of the study problem.

Data Analysis

The study uses thematic analysis of interview transcripts, observations, and documents using an inductive approach to identify emerging patterns. NVivo software supported coding and data management, ensuring rigour and transparency. Themes were compared across universities to highlight commonalities and differences in AI-driven student engagement. Credibility was enhanced through peer debriefing and member checking, linking evidence from multiple sources to generate insights into opportunities, limitations, and contextual factors influencing technology-mediated engagement in Afghan private universities.

RESULTS

The analysis of observations, interviews, and institutional documents across ten private universities revealed several recurring themes regarding the role of AI-enabled cloud communication platforms in shaping student engagement. These themes, summarised in Table 1, highlight both the opportunities and challenges associated with the integration of such technologies, offering insights into patterns of interaction, motivation, collaboration, and institutional readiness within the Afghan higher education context.

Table 1. Impact of AI-Enabled Cloud Communication Platforms on Student Engagement

Theme	Description	Supporting Evidence	Implication
Enhanced Interaction and Communication	Students reported greater opportunities for real-time interaction with peers and faculty through AI chatbots, discussion boards, and video conferencing.	Interview excerpts indicated that students felt “more connected” and “able to ask questions anytime.” Observations showed active use of chat features in classes.	AI-enabled platforms reduce barriers to participation and improve student–faculty communication, enhancing behavioural engagement.
Personalised Learning	AI tools provided adaptive feedback,	Documentation review showed policies	Personalised learning fosters cognitive

Support	automated grading, and personalised content recommendations.	encouraging the use of adaptive learning tools.	engagement by aligning resources with students' individual needs.
Motivation and Academic Confidence	Platforms increased student motivation through gamified elements, instant feedback, and recognition features.	Several students expressed that earning “badges” or seeing progress dashboards motivated them to stay engaged.	Motivation is strengthened by immediate reinforcement, contributing to higher levels of persistence in coursework.
Collaborative Learning Opportunities	Cloud-based systems supported group projects and peer-to-peer discussions beyond the classroom.	Observations revealed more collaboration in virtual spaces compared to traditional lectures. Faculty reported that students “worked more actively in groups.”	Cloud platforms enable social engagement and teamwork, which are crucial for developing collaborative and problem-solving skills.
Institutional Readiness and Infrastructure Gaps	Universities differed in their ability to support advanced platforms due to varying levels of internet access and technical support.	Administrative interviews revealed difficulties in maintaining stable internet connections. Documentation showed gaps in IT policy.	Infrastructure limitations constrain the potential of cloud systems, risking uneven adoption and creating disparities among students.
Faculty Training and Resistance	Some instructors embraced platforms, while others resisted due to a lack of training or scepticism about AI.	Observations showed inconsistent use across departments. Faculty interviews revealed concerns about “losing control over the classroom.”	Successful integration depends on building faculty capacity and addressing cultural resistance.
Ethical and Cultural Concerns	Concerns emerged regarding academic integrity, overreliance on AI, and cultural sensitivity.	Students voiced fears that AI “might replace human teachers” or encourage plagiarism.	Ethical guidelines and culturally adapted strategies are needed to ensure responsible use of AI in Afghan higher education.
Long-Term Potential for Higher Education	Stakeholders recognised that AI-enabled platforms could modernise higher education and make it more competitive regionally.	Policy documents outlined ambitions for digital transformation. Administrators emphasised the potential for attracting more students.	When properly supported, these platforms can serve as catalysts for educational reform and global integration.

The findings revealed that AI-enabled cloud communication platforms have substantially enhanced interaction and communication between students and faculty. Students consistently reported that features such as chatbots, discussion forums, and real-time video conferencing allowed them to remain connected and seek clarification outside traditional class hours. This supports the first study objective, which aims to assess the extent to which AI-enhanced features influence participation and learning interaction. Observations further confirmed that students who might otherwise remain passive in face-to-face sessions were more likely to engage through digital communication tools. These results suggest that the integration of AI technologies not only improves behavioural engagement but also democratizes participation by providing multiple avenues for interaction.

The data also pointed to the significant role of personalisation in fostering student engagement. AI tools that delivered adaptive feedback, tracked learning progress, and recommended resources were widely recognised by participants as helpful for deepening comprehension. This finding corresponds directly to examining how cloud systems shape cognitive engagement through individualised learning support. By tailoring educational content to students' unique needs, these platforms help reduce knowledge gaps and increase confidence in mastering academic material. Such evidence underscores the value of AI-enabled personalisation in a higher education context where traditional teaching often struggles to address diverse learning abilities.

Motivation emerged as another critical dimension of student engagement strengthened by AI-enabled platforms. Students described how gamified features, progress dashboards, and instant feedback encouraged them to participate more actively in coursework. The sense of achievement gained from badges or real-time progress updates reinforced persistence and commitment. These observations align with the study objective of evaluating how cloud communication systems influence collaborative and motivational aspects of learning. In particular, motivation appears to bridge the gap between passive compliance with coursework and active, self-directed learning, which is essential for improving overall academic performance in Afghanistan's private universities.

The findings further highlighted that cloud-based systems facilitated stronger collaborative practices, enabling group projects and peer-to-peer learning beyond the boundaries of the classroom. Students and faculty alike observed an increase in teamwork, supported by shared virtual workspaces and real-time communication tools. This evidence indicates that cloud communication platforms contribute to social engagement, reinforcing the importance of collective problem-solving and mutual support. However, the study also uncovered limitations tied to institutional readiness and infrastructure. Differences in internet reliability, availability of IT support, and

faculty training created uneven experiences across the ten universities. These barriers directly relate to the study objective of identifying the challenges and facilitators affecting adoption, showing that technology alone cannot guarantee engagement without adequate institutional support.

Finally, ethical and cultural considerations emerged as important themes shaping the implementation of AI-enabled platforms. Concerns about plagiarism, overreliance on AI, and fears that technology might replace human teaching roles illustrate the complex cultural dynamics influencing acceptance. At the same time, administrators expressed optimism about the long-term potential of these platforms to modernise Afghan higher education and make private universities more regionally competitive. This duality reflects the broader significance of the study: while AI-enabled cloud platforms have clear potential to transform engagement, successful integration requires culturally sensitive implementation strategies and robust policies that balance innovation with ethical responsibility. Collectively, these findings address the study objectives by providing a nuanced understanding of both the benefits and constraints of adopting AI-enabled cloud communication systems in Afghanistan's higher education sector.

DISCUSSION

AI-enabled platforms enhance multidimensional student engagement.

The results of this study indicate that AI-enabled cloud communication platforms significantly strengthen student engagement across multiple dimensions, such as behavioural, cognitive, and emotional. On the behavioural level, students become more active participants through chat functions, real-time discussions, and collaborative tools that allow them to interact beyond the traditional classroom (Khamisy-Farah et al., 2021). Many participants reported that these features lowered barriers to asking questions and encouraged them to contribute more consistently, particularly those who had previously remained silent in face-to-face sessions. Cognitive engagement was equally supported by AI-driven personalisation, where adaptive feedback, progress tracking, and intelligent content recommendations aligned learning materials with students' needs. By tailoring information delivery and providing timely guidance, these platforms reduced knowledge gaps and supported a deeper understanding of course content (Kopcha et al., 2021). Emotional engagement was enhanced by gamification elements and instant feedback mechanisms that provided recognition for students' efforts, thereby reinforcing motivation and building academic confidence (Lei et al., 2016).

The multidimensional nature of engagement observed in this study reflects broader theoretical frameworks that identify student participation, motivation, and intellectual involvement as interdependent drivers of learning outcomes. Findings resonate with previous scholarship, suggesting that digital platforms can create inclusive and interactive learning environments, yet they

add evidence from the Afghan higher education context, where engagement challenges are acute. By combining opportunities for interaction, personalisation, and motivation in one integrated system, AI-enabled platforms foster a holistic engagement experience that traditional methods often fail to achieve. This integration is particularly valuable in Afghanistan's private universities, where resource constraints and pedagogical limitations have historically hindered student-centred learning (Kravvaris et al., 2016; Danish & Senjyu, 2023; Bahanshal & Khan, 2021). The study, therefore, underscores that AI-enabled platforms are not only technological innovations but also pedagogical catalysts capable of reshaping how students connect with knowledge, instructors, and peers.

Contextual barriers constrain effectiveness

AI-enabled cloud communication platforms showed clear potential to transform learning, yet their effectiveness in Afghan private universities was frequently diminished by infrastructure deficiencies. Unreliable internet connections repeatedly interrupted classes, limiting opportunities for sustained interaction and discouraging participation (Bahanshal & Khan, 2021). During several observations, students were disconnected from live discussions or unable to access feedback tools, creating frustration and weakening engagement. These disruptions demonstrate how fragile digital environments undermine the value of technologies designed to foster continuous and accessible learning (Baig et al., 2020).

Beyond connectivity, institutional resources played a pivotal role in determining the quality of adoption. Some universities operate with minimal IT support, outdated technological infrastructure, and an absence of comprehensive digital policies (Bouteraa et al., 2024). Faculty often depend on personal devices or informal practices rather than institution-wide systems, producing fragmented student experiences. This lack of uniformity results in stark contrasts between well-resourced institutions and those with limited capacity, thus deepening inequalities among students enrolled in different private universities (Bienkowski et al., 2012; Emynorane et al., 2025). Instead of levelling opportunities, unequal adoption risks widening existing educational divides.

Cultural and organisational dynamics also shaped how effectively these platforms were used. Faculty hesitance often stems from scepticism regarding AI's educational value or fears of diminishing their authority in the classroom (Baig et al., 2020). Students, too, voiced concerns about excessive reliance on digital systems in a context where traditional face-to-face instruction remains highly respected. These reservations, combined with resource and infrastructure gaps, slowed the integration of AI-enabled systems. Overcoming these challenges requires not only investment in technology but also deliberate institutional strategies that foster cultural acceptance, strengthen organisational capacity, and build trust in the long-term value of digital transformation (Chakraborty et al., 2021).

Faculty readiness and institutional culture are decisive.

Successful integration of AI-enabled cloud communication platforms depends greatly on the preparedness of faculty members to adopt new teaching practices. In this study, instructors who had received training or were personally motivated to explore digital tools demonstrated greater confidence in using AI-enhanced features. Their classes showed higher levels of interaction, with students actively participating in online discussions and collaborative activities. Conversely, educators lacking exposure to digital pedagogy often rely on conventional methods, leaving the potential of these platforms underutilised (Makrakis & Kostoulas-Makrakis, 2021). The findings suggest that without systematic professional development, even the most advanced technologies remain underexplored in the classroom.

Institutional culture further shaped how AI-enabled systems were perceived and applied. In universities where leadership encouraged innovation and provided structural support, faculty reported a stronger willingness to experiment with new tools (Brem et al., 2021). Access to IT support, peer mentoring, and recognition for innovative teaching practices created environments where digital adoption was normalised rather than resisted (Chassignol et al., 2018). In contrast, institutions with rigid administrative structures or unclear policies around technology integration fostered hesitation among staff, reinforcing scepticism toward AI-driven systems (Selviyanti et al., 2021; Esmati, 2024). This highlights how organisational climate, beyond individual readiness, plays a decisive role in shaping educational transformation.

Broader cultural perceptions of teaching and learning also influence adoption. In a context where authority in the classroom is traditionally associated with direct, face-to-face instruction, some educators worry that AI tools might diminish their role or reduce the value of personal teaching. Students echoed this concern, expressing a preference for blended approaches rather than full reliance on automated systems. These insights emphasise that fostering readiness requires more than technical training; it calls for a cultural shift that redefines the role of technology in complementing, rather than replacing, human instruction (Zhao & Li, 2022). By aligning institutional values with digital innovation, universities can create sustainable pathways for AI-enabled engagement.

Ethical and policy implications

Concerns over ethics emerged strongly in the findings, particularly around academic integrity and the risk of students relying too heavily on AI systems for assignments or examinations (Chaurasia et al., 2018). Participants questioned whether such platforms might encourage plagiarism or diminish the value of independent thinking. Faculty and administrators also raised issues of accountability, asking who should be responsible for errors or biases generated by AI. These concerns demonstrate that technological innovation in education must be matched with clear ethical guidelines, including transparent

policies on acceptable use, data protection, and mechanisms to safeguard academic honesty (Makrakis & Kostoulas-Makrakis, 2021). Establishing such frameworks would not only prevent misuse but also build confidence among students and staff that the technology is being employed responsibly.

From a policy perspective, the integration of AI-enabled platforms into higher education in Afghanistan requires coordinated action at both institutional and national levels. Universities need to design regulations that promote equitable access, ensure reliable infrastructure, and provide continuous staff training (Brem et al., 2021). At the same time, national policymakers must develop strategies that address broader challenges such as affordability, digital equity, and long-term sustainability. Clear policy direction can also help align institutional practices with cultural values, ensuring that technology serves as a complement to traditional pedagogy rather than a replacement (Zhao & Li, 2022). By addressing these dimensions, policymakers can foster an environment where innovation supports both quality and integrity in higher education.

Several limitations must be acknowledged in this study. The focus on ten private universities, selected through purposive sampling, limits the generalizability of findings to the wider Afghan higher education system, particularly public institutions that face distinct challenges. Participant responses may also reflect social desirability bias, as faculty and administrators may have moderated their views to present their institutions more favourably. Observations were at times constrained by poor internet connectivity, limiting consistent monitoring of digital interactions. In addition, the qualitative design prioritises depth over breadth, leaving questions about measurable outcomes such as performance gains unanswered. These limitations suggest that further research using mixed methods and broader samples is needed to validate and extend the insights presented here.

CONCLUSION

This study has shown that AI-enabled cloud communication platforms hold considerable potential for enhancing student engagement in Afghan private universities by creating more interactive, personalised, and motivating learning environments, yet their effectiveness remains closely tied to infrastructure capacity, faculty readiness, and cultural acceptance. The study found that students benefited from greater opportunities for participation and collaboration, as well as from adaptive feedback that supported deeper understanding, but these gains were limited in institutions facing unstable internet connectivity, weak institutional policies, or scepticism toward digital tools. The significance of these findings lies in demonstrating that technology alone cannot transform higher education; its impact depends on supportive ecosystems that combine reliable infrastructure, professional development, and ethical guidance. By shedding light on how fragile contexts shape digital adoption, this study contributes to both practical reforms in Afghan higher education and broader theoretical debates on technology-mediated

engagement in resource-constrained systems. Future studies should extend these insights through mixed-methods studies that measure learning outcomes more regularly, explore experiences in public universities, and examine long-term cultural and ethical implications of AI integration, ensuring that digital innovation becomes not only a tool for modernisation but also a catalyst for equitable and sustainable educational reform.

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