Navigating Artificial Intelligence and Digital Equity in Online Learning: A Self-Efficacy Perspective

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Abstract

This paper explores how students at a Caribbean higher education institution engage with digital technologies and artificial intelligence (AI) tools in online learning environments, and how these experiences shape their academic self-efficacy. As AI tools such as ChatGPT, Grammarly, and Microsoft Copilot become embedded in everyday academic practices, questions of digital equity extend beyond access to devices and connectivity to include skills, confidence, and institutional guidance. Using a convergent mixed-methods design, the study draws on survey data from 141 students and in-depth interviews with nine participants. Findings indicate that students' confidence in online learning is closely connected to their digital competence and their ability to navigate technological challenges. AI tools were often used to support writing, idea generation, and academic organisation, and many students described these tools as helping them feel more capable and independent in their studies. At the same time, AI engagement was uneven. Some students limited or avoided AI use due to concerns about academic integrity, unclear institutional policies, or uncertainty about how to use the tools responsibly and effectively. The study interprets these patterns through Bandura's Self-Efficacy Theory, showing how confidence develops through successful digital experiences but can be constrained by structural barriers and ambiguous expectations. While AI has potential to support learning, its benefits are shaped by access, literacy, and clarity of guidance. The paper argues that equitable AI integration in higher education requires not only access to technology but also the development of critical AI literacy and supportive learning environments that build students' confidence and ability to work independently.

Keywords: artificial intelligence in education, digital equity, self-efficacy, online learning, AI literacy, higher education

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Introduction

The growth of online learning in higher education has intensified long-standing concerns about digital equity, particularly in developing and small-island contexts. Although online education is often presented as flexible and inclusive, students' participation and success continue to be shaped by uneven access to devices, connectivity, digital skills, and institutional support. These patterns became especially visible during and after the COVID-19 transition to online and blended learning.

The integration of tools such as ChatGPT, Grammarly, and Microsoft Copilot introduces a further dimension of digital equity. While these technologies can assist with writing, idea development, and academic organisation, their benefits depend on reliable access, literacy related to their use, and clear guidance regarding acceptable practices. Where these conditions are uneven, such tools may reinforce existing disparities by magnifying the advantages of students with stronger digital competence and confidence. How students develop confidence in using AI tools when access is uneven and institutional expectations remain unclear is not yet fully understood.

This study examines how students at a Caribbean higher education institution navigate digital technologies and AI-enabled tools in online learning, with a focus on the role of self-efficacy. Using a convergent mixed-methods design, it investigates how digital competence, tool use, and perceptions of institutional clarity shape students' confidence and academic outcomes. The analysis draws on Bandura's Self-Efficacy Theory and Van Dijk's Digital Divide framework to interpret how emerging practices interact with digital inequities in contemporary higher education.

Literature Review

Digital Equity, the Digital Divide, and the Rise of Artificial Intelligence in Online Learning

Digital equity in online learning tends to be examined through the concept of the digital divide. Early scholarship conceptualised the divide primarily as unequal physical access to information and communication technologies (ICTs), including computers and internet connectivity (Servon, 2002; OECD, 2001). As digital technologies became more widespread, researchers demonstrated that access alone was insufficient to ensure meaningful participation or equitable outcomes. The digital divide is now understood as a multidimensional phenomenon encompassing access, skills, patterns of use, and outcomes (UNESCO, 2019; Van Dijk, 2005).

Contemporary frameworks distinguish three interrelated levels. The first level refers to material access, including reliable internet connectivity and appropriate digital devices. The second level concerns digital skills and competence, including the ability to navigate digital platforms and use technologies effectively. The third level focuses on outcomes, that is, the extent to which digital engagement results in educational, economic, or social benefits (Ragnedda, 2017; Van Deursen & Van Dijk, 2015). These levels are sequential and mutually reinforcing, such that inequalities in access and skills often translate into unequal outcomes.

In online learning environments, these dynamics are particularly pronounced. Although higher education institutions may provide learning management systems and digital course materials, students' ability to engage meaningfully depends on stable access, sufficient skills, and

confidence in using digital tools. Where these conditions are uneven, online learning can reproduce or intensify existing educational inequalities rather than mitigate them (Selwyn, 2016). These patterns are especially visible in developing and resource-constrained contexts, where infrastructural instability, affordability challenges, and reliance on mobile data remain persistent barriers to equitable participation (ECLAC, 2024; ITU, 2023). As higher education becomes increasingly mediated by intelligent systems, AI is emerging as a new frontier of digital inequality. AI tools introduce additional layers of access requirements, skill demands, and outcome differentials, expanding the scope of digital equity beyond traditional ICT use (Holmes et al., 2019; UNESCO, 2023).

Artificial Intelligence as a New Layer of Digital Inequality

Student-facing AI tools, including generative chatbots and automated writing support systems, are increasingly used to assist with drafting, editing, summarising, and organising academic work (Kasneci et al., 2023; Mollick, 2024). These technologies hold potential to enhance efficiency, provide feedback, and support personalised learning pathways. However, their benefits are not evenly distributed, and their use is shaped by the same structural and social conditions that underpin earlier forms of digital inequality.

At the first level of the digital divide, AI use depends on reliable connectivity, compatible devices, and sustained access to online platforms. Students who rely on unstable mobile data or shared devices may face practical constraints that limit meaningful AI engagement. Thus, AI participation remains contingent on material access conditions.

At the second level, AI introduces new forms of digital literacy. Effective engagement requires not only technical competence but also the ability to formulate prompts, critically evaluate AI-generated outputs, and integrate these outputs responsibly into academic work. This form of AI literacy extends traditional digital skills to include judgement, adaptability, and ethical awareness (Long & Magerko, 2020; Ng et al., 2021). Students who lack opportunities to develop these competencies may use AI superficially, misunderstand its limitations, or avoid it altogether.

At the third level, disparities in AI literacy and access may translate into unequal academic outcomes. Students who are able to use AI strategically may gain advantages in writing clarity, time management, and conceptual understanding, while others may not experience similar benefits. Scholars have warned that without equitable support, AI in education may reproduce or intensify existing educational inequalities (Holmes et al., 2019; UNESCO, 2023).

Research has also highlighted concerns surrounding academic integrity, ethical use, and policy ambiguity as factors shaping students' engagement with AI (Cotton et al., 2023; Perkins, 2023). In the absence of clear institutional policies, students may perceive AI use as risky, which can discourage experimentation and limit potential learning benefits. AI therefore represents an emerging dimension of the digital divide, where disparities in competence, confidence, and institutional support influence who can appropriate these technologies effectively.

Self-Efficacy in Digital and AI-Mediated Learning

To understand how students navigate digital and AI-mediated learning environments, scholars have increasingly drawn on Bandura's self-efficacy theory. Self-efficacy refers to individuals' beliefs in their capability to organise and execute actions required to achieve desired outcomes

(Bandura, 1997, 2004). In educational contexts, self-efficacy influences motivation, persistence, effort, and coping when learners encounter challenges.

In online learning environments, self-efficacy plays a central role in shaping students' engagement with technology. Students with higher levels of technology-related self-efficacy are more likely to explore digital tools, persist when technical difficulties arise, and adopt adaptive learning strategies (Kukafka et al., 2003; Thatcher & Ndabeni, 2011). Conversely, students with lower self-efficacy may avoid unfamiliar technologies, disengage when difficulties occur, or experience heightened anxiety, even when access is available.

With the integration of AI into academic work, students must now develop AI-related self-efficacy: confidence in their ability to use AI tools effectively, critically, and ethically. Early discussions in AI-in-education research suggest that learners' perceptions of competence and control influence how they experiment with and benefit from AI systems (Holmes & Tuomi, 2022; Kasneci et al., 2023). Students who lack such confidence may avoid AI use or experience uncertainty, even when they have technical access.

Linking Digital Equity, AI, and Self-Efficacy

Research at the intersection of the digital divide and self-efficacy highlights the importance of psychological factors in understanding digital inequality. Individuals who lack consistent access to ICTs or opportunities to practice digital skills are less likely to develop confidence in their ability to use technology effectively (Chinn & Fairlie, 2004; Van Deursen & Van Dijk, 2014). This diminished confidence can reduce motivation to engage with digital tools, creating a cycle in which limited access and low self-efficacy reinforce one another.

In AI-mediated learning environments, similar dynamics apply. Students who have limited opportunities to develop AI literacy or who perceive AI use as risky may experience lower AI-related self-efficacy. This can limit their willingness to engage with AI tools, even when those tools could support their learning. Conversely, successful AI use may provide mastery experiences that strengthen students' confidence in managing digital academic tasks (Bandura, 1997).

Resources and Appropriation Theory and AI Use

Van Dijk's Resources and Appropriation Theory provides a complementary framework for analysing how digital inequalities persist across stages of technology engagement. The theory conceptualises access as a process comprising motivation, material access, skills acquisition, and usage (Van Dijk, 2005, 2013). Inequalities arise when individuals are unable to progress through these stages effectively. This multi-level perspective is particularly useful for examining AI use in online learning. Students may be motivated to use AI tools but lack reliable access, AI-related skills, or refrain from use due to ethical uncertainty or institutional ambiguity. Even when access and skills are present, patterns of usage and perceived legitimacy determine whether AI contributes to positive educational outcomes. Research in AI and education similarly emphasises that the educational value of AI depends on how learners appropriate these tools within supportive pedagogical and institutional contexts (Holmes & Tuomi, 2022; Mollick, 2024).

Student Support, Institutional Context, and AI-Related Self-Efficacy

The online learning literature consistently identifies student support systems as critical to equitable engagement. Instructor feedback, academic advising, and peer support influence students' confidence and persistence, particularly in digitally mediated environments (Borup et al., 2010; Roddy et al., 2017). Supportive interactions can strengthen self-efficacy through social persuasion and vicarious experience, while weak or inconsistent support may undermine confidence. In the context of AI, institutional support becomes especially important. Clear guidance on acceptable AI use, transparent assessment policies, and opportunities to develop AI literacy can reduce uncertainty and foster confident, ethical engagement (Cotton et al., 2023; UNESCO, 2023). Without such support, AI may exacerbate digital inequities by benefiting students who already possess higher confidence and digital competence.

It is evident from literature that digital equity in online learning extends beyond access to encompass skills, confidence, and outcomes. AI introduces a new layer of digital inequality, where disparities in access, literacy, and institutional support shape who benefits from emerging technologies. Self-efficacy provides a critical lens for understanding how students interpret and navigate these conditions, while Resources and Appropriation Theory situates AI use within broader processes of digital inequality. Together, these perspectives provide a coherent framework for examining how AI, digital equity, and self-efficacy intersect in online higher education.

Conceptual Framework

This study is guided by a conceptual framework that integrates Bandura's Self-Efficacy Theory (1997) with a digital equity perspective to examine how students engage with AI in online learning. The framework positions students' confidence in their ability to use digital and AI tools as a central mechanism shaping engagement, while recognising that this confidence develops within broader structural and institutional conditions. At the core the theory explains how beliefs about personal capability influence motivation, persistence, and responses to challenges. In online learning environments, self-efficacy shapes how students approach digital tasks, cope with technical difficulties, and sustain engagement. As AI tools become embedded in academic work, students must develop AI-related academic self-efficacy and confidence in their ability for usage effectively, critically, and ethically. This domain-specific confidence influences whether students experiment with AI, how they integrate it into learning practices, and how they interpret its role in their academic success.

To situate these psychological processes within their broader context, the framework incorporates Van Dijk's (2005) digital divide perspective, which conceptualises digital inequality across interrelated dimensions of material access, digital skills, and patterns of technology use. This perspective highlights that students' opportunities to develop AI-related confidence are shaped by structural conditions such as reliable internet access, appropriate devices, and opportunities to build digital and AI literacy. AI is therefore understood not as a neutral tool, but as a technology, of which its educational value depends on how it is accessed, understood, and supported within institutional environments.

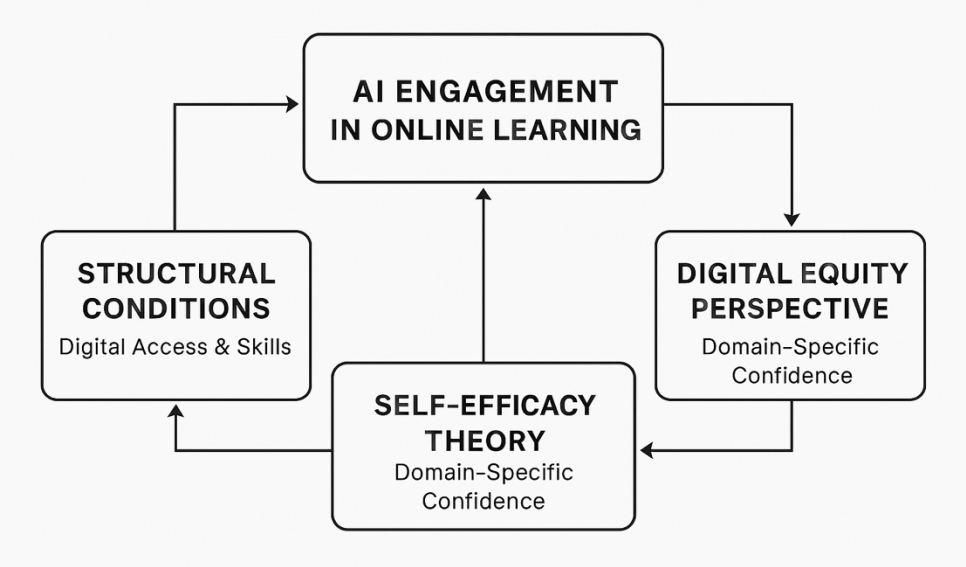
Together, these perspectives conceptualise AI engagement in online learning as the result of an interaction between structural conditions and psychological beliefs. Digital access and skills shape the conditions under which AI can be used, while self-efficacy influences how students respond to those conditions, whether they persist in using AI, and how they translate its usage

into academic outcomes. This integrated framework helps explain why students with similar technological exposure may experience different levels of confidence and benefit.

Methodologically, this framework informs the study's convergent mixed-methods design. The quantitative strand measures patterns of digital access, AI use, coping behaviours, and self-efficacy, while the qualitative strand explores how students interpret these conditions in their lived experiences. Integration of the two strands allows the study to connect measurable structural conditions with students' subjective experiences, consistent with the framework's emphasis on the interaction between context and belief. Figure 1 illustrates how digital equity conditions (access, skills, and institutional support) shape the development of AI-related academic self-efficacy, which in turn influences AI engagement and its contribution to academic outcomes and persistence.

Figure 1

Conceptual Framework Integrating Digital Equity and Self-Efficacy in AI-Mediated Online Learning



Methodology

This study adopted a pragmatic research paradigm, which prioritises research questions and practical outcomes and supports the integration of quantitative and qualitative methods when investigating complex educational issues (Creswell & Plano Clark, 2018; Morgan, 2014). This orientation was appropriate for examining digital equity and AI in online learning, where both structural conditions and students' subjective experiences shape engagement.

Research Design

A convergent parallel mixed-methods design (Creswell, 2014) was used where quantitative and qualitative data were collected during the same phase, analysed separately, and then integrated during interpretation. This approach captured both the structural dimensions of digital inequities and the lived experiences through which students navigated these conditions. The design was theoretically informed by Bandura's Self-Efficacy Theory (1997), which explains how beliefs in personal capability influence engagement, persistence, and coping in technology-mediated learning. Van Dijk's Resources and Appropriation Theory (2005) provided a complementary structural lens, situating students' experiences within broader

patterns of unequal access, digital skills, and technology use. Quantitative data allowed for the measurement of digital access, skills, AI usage, and self-efficacy, while qualitative data illuminated how students interpreted these conditions and how they influenced their confidence and learning practices.

Quantitative Component

Design and Instrument

The quantitative strand employed a descriptive correlational survey design (Babbie, 2010) to examine relationships among digital access, AI use, coping behaviours, and self-efficacy in online learning. A structured questionnaire was developed in Qualtrics and organised into four domains: (1) demographics, (2) access to and use of ICTs, (3) ICT competencies and coping strategies, and (4) academic and digital self-efficacy.

Consistent with the study's theoretical framework, measures of academic self-efficacy were adapted from Bandura's (2006) guide for constructing self-efficacy scales and focused on students' perceived capability to manage academic tasks in online environments. ICT self-efficacy items were informed by the computer self-efficacy framework developed by Compeau and Higgins (1995), capturing confidence in performing technology-related tasks. Items measuring digital access and skills were informed by Van Dijk's (2005) digital divide framework, which conceptualises inequality across material access, digital competence, and patterns of technology use. All items were measured using five-point Likert scales.

Pilot Testing and Reliability

A pilot survey with 96 students was conducted to assess clarity, structure, and reliability. Cronbach's alpha coefficients ranged from .71 to .94 across the major constructs, indicating acceptable to excellent internal consistency (Nunnally & Bernstein, 1994; Tavakol & Dennick, 2011). Items with inconsistent scaling or ambiguous wording were revised prior to full deployment.

Sampling and Data Collection

The study targeted students at The University of the West Indies, Mona Campus. Although stratified random sampling was initially planned, institutional procedures required the use of a polling approach, resulting in a voluntary, non-probability sample. The survey was distributed campus-wide through official communication channels, yielding 141 valid responses for analysis. While this approach limits statistical generalisability, it aligns with pragmatic research in institutional contexts and supports analytic rather than population-level inference (Morgan, 2014).

Data Analysis

Quantitative data were analysed using SPSS. Normality testing indicated non-normal distributions; therefore, Spearman's rank-order correlations were used to examine relationships among variables (Field, 2018). Effect sizes were interpreted using Cohen's (1988) guidelines. A multiple regression model was also conducted to assess the predictive influence of coping strategies and digital barriers on students' confidence to continue online learning. Regression diagnostics indicated no problematic multicollinearity among predictors.

Qualitative Component

Approach, Participants, and Data Collection

The qualitative strand employed a descriptive phenomenological informed approach (Moustakas, 1994; van Manen, 1990) to explore students' lived experiences of online learning and digital inequality. This approach was appropriate for examining how students interpreted technological barriers, institutional guidance, AI use, and their own sense of academic confidence.

Nine students were selected through purposive sampling based on their experience with online learning. Interviews lasted 45–60 minutes and were conducted both face-to-face and via Zoom. All interviews were recorded with participants' consent and transcribed for analysis.

Data Analysis

Qualitative data were analysed using thematic analysis following Braun and Clarke's (2006) six-phase framework. A hybrid inductive–deductive strategy was employed (Fereday & Muir-Cochrane, 2006), allowing themes to emerge from participants' narratives while also being interpreted through the lenses of self-efficacy theory and digital inequality models. Manual coding supported close engagement with the data and ensured interpretive depth.

Integration of Quantitative and Qualitative Data

Integration occurred during interpretation and was achieved through systematic comparison of quantitative results and qualitative themes. Areas of convergence strengthened explanatory claims, while divergences highlighted the complexity and variability of students' experiences (Tashakkori & Teddlie, 2010). This process enabled the study to connect measurable digital conditions with students' perceptions, coping behaviours, AI engagement, and confidence in continuing their studies, providing a more comprehensive understanding of how digital equity and self-efficacy interact in AI-mediated online learning.

Ethical Considerations

The study followed key ethical principles, including informed consent, confidentiality, voluntary participation, and secure data handling. Ethical approval was granted by the Mona Campus Research Ethics Committee. Participants were fully informed about the study and their rights, including the freedom to withdraw without penalty, and all data were anonymized and securely stored with restricted access. The research posed minimal risk, avoided sensitive topics, and offered both digital and paper-based participation options to ensure accessibility. Visually impaired participants were assumed capable of understanding the consent materials given their status as tertiary students. The researcher maintained transparency, accuracy, and proper academic integrity throughout, using all data solely for the approved research purposes and ensuring the study's ethical rigor.

Findings

The findings show that AI, digital access, and self-efficacy are closely interwoven in shaping students' online learning experiences. Rather than operating as a simple technological add-on, AI functioned as a new layer of digital inequality that influenced how students engaged with

coursework, coped with academic challenges, and evaluated their own capability as online learners. Three central patterns emerged: access to digital infrastructure shaped students' ability to participate in AI-supported learning; AI-related skills influenced confidence and academic engagement; and AI produced both positive and problematic effects on students' sense of efficacy.

Digital access formed the bedrock of meaningful AI participation. Quantitative data showed strong correlations among lack of devices, unstable internet, and difficulty using digital platforms, indicating that digital barriers clustered rather than appearing independently ($\rho = .596–.637$, $p < .001$). Students with reliable internet and personal computers described AI as easily incorporated into their study routines. Those reliant on mobile phones or inconsistent connectivity experienced fragmented, interrupted interactions with AI tools. Although comfort with handheld devices was linked to perceived grade improvement ($\rho = .302$, $p = .005$), interview accounts revealed that mobile use often required compromises such as frequent app switching, limited document editing, and coping with dropped connections. These constraints reduced opportunities for sustained engagement, demonstrating that AI use reflected the first level of the digital divide: students with stronger infrastructure could integrate AI more effectively, while those with weaker access encountered practical limits that reduced its potential benefit.

Differences also appeared at the level of digital and AI literacy. Improvement in digital skills was moderately associated with increased confidence in continuing online learning ($\rho = .363$, $p = .002$). AI use correlated positively with grades ($\rho = .268$, $p = .013$) and with organised academic behaviours such as structured scheduling ($\rho = .276$, $p = .015$) and deliberate skill building ($\rho = .325$, $p = .004$). Interviews clarified that these patterns stemmed not from simple access but from proficiency in using AI. Students who knew how to craft prompts, evaluate AI output, and apply suggestions appropriately described AI as helping them refine writing, generate ideas, and understand difficult concepts. Others, however, were unsure how to use AI critically, feared producing inaccurate work, or avoided AI entirely due to concerns about academic integrity. These disparities reflect the second level of the digital divide, in which differences in competence shape students' capacity to appropriate technology meaningfully. For many, AI literacy functioned like a form of academic capital that enhanced coping and strengthened confidence.

AI also appeared to produce an emerging outcome divide. While many students credited AI with improving organisation, clarity, and efficiency, those lacking digital confidence or institutional guidance did not experience similar gains. Students with stronger skills and clearer expectations from instructors were able to convert AI access into academic benefit, whereas others struggled to do so. This suggests a third-level divide in which differences in AI competence translate into unequal outcomes; rather than levelling inequalities, AI risked magnifying them.

From a self-efficacy perspective, AI contributed to both strengthened and diminished academic confidence. For many students, AI served as a scaffold: successfully using it to organise ideas, improve grammar, or clarify complex material provided mastery experiences that reinforced their sense of capability. This aligns with quantitative associations between skill-building, coping behaviours, and confidence. Students who engaged in deliberate digital skill development and integrated AI into structured routines tended to express higher confidence in managing online learning demands.

However, AI also introduced new forms of uncertainty. Some students were hesitant to use AI because of unclear institutional policies, inconsistent instructor expectations, or concerns about the risk of academic misconduct. These ambiguities weakened students' sense of control and contributed to reduced willingness to engage with AI, even when they believed it could help them. In self-efficacy terms, these environmental constraints limited students' confidence not because of personal skill deficits but because the learning context felt unpredictable.

Digital barriers continued to depress confidence more broadly. Students with unreliable connectivity or limited device functionality described frustration, disrupted study routines, and reduced engagement ($\rho = -.471$, $p < .001$). At the same time, coping strategies such as scheduling, help-seeking, and intentional skill improvement were positively associated with both confidence and AI use, suggesting that adaptive behaviours mitigated some structural disadvantages. Several students described using AI as part of these coping strategies, noting that it helped them manage time, fill knowledge gaps, or stay organised, thereby increasing their sense of academic control.

Overall, the findings position AI as a structural component of digital equity rather than a neutral educational tool. Participation in AI-supported learning depended on access to devices and connectivity, proficiency in digital and AI literacy, and the clarity of institutional guidance. These factors shaped academic outcomes and influenced students' beliefs in their ability to succeed online. Across all three levels of the digital divide, AI interacted with students' self-efficacy, functioning as both a confidence-building resource and a source of uncertainty. The integration of AI into higher education therefore carries significant equity implications, affecting not only what technologies students can use but also how they perceive their academic capability and persistence in digital learning environments.

Discussion

This study examined how AI interacts with digital equity and students' self-efficacy in online learning. The findings show that AI is not experienced as a neutral tool but as an emerging domain in which existing inequalities are reproduced. Interpreted through Self-Efficacy Theory (Bandura, 1997) and Van Dijk's Digital Divide framework (2005), the results illustrate how structural access conditions and psychological beliefs jointly shape students' engagement with AI.

AI as a New Layer of the Digital Divide

Patterns of inequality were visible across access, skills, and outcomes. At the material level, limitations in device quality and unstable internet constrained sustained AI use. Although mobile phones enabled participation, students described difficulties completing extended tasks, reflecting earlier findings that infrastructural barriers remain foundational in digitally mediated education (ECLAC, 2024; Selwyn, 2016).

At the skills level, effective AI use required competencies beyond general digital literacy. Students who could generate prompts, evaluate responses, and apply AI outputs responsibly reported clearer academic benefits. This supports emerging work identifying critical evaluation and ethical judgement as central components of AI literacy (Long & Magerko, 2020; Ng et al., 2021). Students without these skills tended to avoid AI or rely on it superficially, reflecting second-level divide dynamics in which competence shapes meaningful use (Van Deursen & Van Dijk, 2015).

Differences in access and skills produced unequal academic outcomes. Students with stronger digital foundations described improvements in clarity, organisation, and efficiency, while others reported minimal gains or uncertainty. These findings align with concerns that AI may magnify the advantages of those already positioned to use it effectively (Holmes et al., 2019; UNESCO, 2023).

AI Use and the Development of Self-Efficacy

Self-efficacy provided insight into students' varied experiences. Successful AI use often generated mastery experiences that strengthened confidence, particularly when AI helped refine ideas or clarify complex material (Bandura, 1997). Students frequently described AI as a form of academic support that complemented their learning processes.

However, AI also introduced uncertainty. Concerns about unclear institutional policies, academic integrity, and appropriate use discouraged some students from experimenting with AI even when they believed it could help them. Such ambiguity reduced feelings of control, limiting efficacy beliefs. These findings support research showing that policy uncertainty influences students' willingness to use emerging technologies (Cotton et al., 2023; Perkins, 2023). AI-related self-efficacy appears to be emerging as a specific domain shaped by academic ability, digital skills, and confidence in using AI responsibly.

Coping Strategies and Institutional Context

Coping behaviours linked structural conditions to self-efficacy. Students who maintained organised study routines, sought assistance, or engaged in deliberate skill development were more likely to use AI productively and report confidence in continuing their studies. These patterns reflect adaptive responses consistent with Self-Efficacy Theory; however, opportunities to develop such strategies differed. Students with reliable access and stronger digital skills described greater freedom to practise, seek help, and experiment with AI. Institutional clarity also mattered. When expectations were unclear, students reported hesitation and reduced confidence. This supports calls for clearer guidance to promote equitable and responsible engagement (UNESCO, 2023). Overall, AI functioned as both a technological and social phenomenon shaped by access, confidence, and institutional culture.

Implications for Practice

Integrate AI Literacy Within Digital Equity Initiatives

Access alone may be insufficient for equitable participation. Institutions may benefit from embedding AI literacy into digital skills programmes, with an emphasis on critical evaluation, ethical considerations, and discipline-specific application. Structured opportunities to practise using AI can contribute to building confidence through mastery experiences.

Provide Clear and Consistent Policies

Uncertainty about acceptable AI uses appeared to limit students' willingness to engage. Establishing clear guidelines, aligning assessment practices, and facilitating ongoing dialogue may help reduce anxiety and support responsible use.

Support Educators in AI-Inclusive Pedagogy

Instructors' confidence can influence students' confidence. Professional development could better equip educators to model responsible AI use and integrate it as a learning scaffold. Collaborative learning opportunities may provide vicarious experiences that strengthen students' self-efficacy.

Address Infrastructural Constraints

AI-supported learning presupposes stable internet and suitable devices. Continued attention to first-level digital divide challenges remains important, particularly in resource-constrained regions.

Recognise AI Integration as a Confidence-Building Process

AI adoption may be understood not only as a technical shift but also a psychological one. Supportive learning environments that encourage exploration and help-seeking can promote AI-related self-efficacy and more inclusive participation.

Conclusion

This study examined how students interpret and engage with AI within the realities of online learning. The findings suggest that AI is experienced within a broader landscape shaped by access, confidence, institutional guidance, and personal values. Some students perceived AI as a supportive resource that enhanced their independence, while others approached it cautiously due to limited access, uneven skills, or concerns about academic integrity. In this way, AI becomes embedded within existing digital inequalities rather than standing apart from them.

Drawing on Self-Efficacy Theory and digital divide scholarship, the study highlights that digital equity involves human and institutional factors as much as technological ones. Students' beliefs in their ability to use AI effectively influenced how they navigated online learning and their confidence in persisting academically. For higher education in resource-constrained and postcolonial contexts, these findings underscore the need to approach AI integration as both a pedagogical and ethical process. Institutions must cultivate critical literacy, provide clear guidance, and build supportive environments that allow students to question, practise, and reflect.

When framed in this way, AI becomes part of an evolving educational culture. Its contribution to higher education will depend on how institutions and educators shape its use toward inclusion, critical engagement, and student confidence. Thoughtful integration can support more equitable digital learning; without such attention, AI risks reinforcing existing divides.

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