

Inclusion Through Innovation: Online Learning in Higher Education

Aryo Dwi Harprayudi¹, Donald Crestofel Lantu², Dedy Sushandoyo³

Institut Teknologi Bandung, Indonesia

Email: aryo_harprayudi@sbm-itb.ac.id¹, donald@sbm-itb.ac.id²,
dedy.sushandoyo@sbmitb.ac.id³

Keywords

Online Learning; Business
Education; Developing
Countries; Digital Inclusion;
Educational Access; Systematic
Literature Review

ABSTRACT

This study investigates the opportunities and limitations of online learning in enhancing access to business education in developing countries. Despite its scalability, online learning continues to face challenges such as weak infrastructure, limited pedagogical adaptation, low student engagement, and inequitable access. The main objective is to identify how these barriers impact learning outcomes and to offer actionable insights for more inclusive digital education systems. Using a systematic literature review (SLR) guided by the PRISMA protocol, the study analyzes peer-reviewed publications from 2015 to 2024 and applies a conceptual framework based on input–process–impact logic. This framework incorporates the Unified Theory of Acceptance and Use of Technology (UTAUT), learning theories, and Bloom’s Taxonomy to assess the adoption, implementation, and effectiveness of online education. The results show that internal and external factors—such as infrastructure, digital skills, and institutional support—significantly influence learning adoption and outcomes. Moreover, pedagogical alignment with adult learning and social constructivist principles enhances learner engagement and performance. The findings imply that well-designed online learning can promote educational and digital inclusion, particularly when supported by inclusive policy, strong institutional design, and adaptive teaching methods. This study offers guidance for educators, policymakers, and institutions aiming to build equitable, effective, and resilient online learning systems.

INTRODUCTION

The swift progress of digital education has elevated online learning as a viable pathway to broaden access to business education. In Indonesia, the largest economy in Southeast Asia, participation in online learning has grown significantly, partially due to improved internet infrastructure (World Bank, 2023). Yet, despite its promise, the effectiveness of online learning continues to be challenged by a number of critical issues.

Online learning still faces major accessibility problems tied to weak digital infrastructure, limited technological literacy, and low levels of student engagement, all of which negatively affect learning motivation and academic outcomes (Curelaru et al., 2022). Financial sustainability also remains a concern, as institutions struggle to develop models that

are both affordable for students and economically viable in the long term (Bogdan & Przemysław, 2019).

The Evolution of Online Learning in Higher Education

Online learning has its roots in the early days of the internet, but it is over the past two decades driven by rapid technological progress and the increasing need for flexible education that it has truly flourished. Higher education, particularly business schools around the globe, has turned to online models to serve working professionals and students from varied socio-economic backgrounds, offering them broader access to higher education. Yet, despite these advances, doubts remain about whether online learning can truly match the quality of traditional, face-to-face learning environments.

The COVID-19 pandemic dramatically accelerated the shift to online learning, pushing educational institutions to quickly adopt virtual platforms. While this sudden transition demonstrated the vast potential of online learning, it also exposed its shortcomings—ranging from limited interactivity and unequal access to technology, to concerns over the fairness of assessments. This study delves into these issues, identifying the area's most in need of improvement if online education is to thrive sustainably in the years ahead.

Digital Accessibility and Socio-Economic Barriers

Digital accessibility stands out as one of the most pressing challenges facing online learning today. Although often praised for making education more inclusive—especially for those unable to access traditional classrooms—online learning still grapples with deep-rooted digital inequalities. Many students in developing countries lack consistent internet access, personal computers, or the digital literacy needed to navigate online platforms effectively. Garcia & Lopez (2023) emphasize that the *digital divide* remains a serious barrier, particularly in low-income communities.

In rural regions, weak broadband infrastructure makes it nearly impossible for students to participate in online learning. Even in urban areas, students from lower-income families often cannot afford high-speed internet or the necessary devices to study effectively. These gaps widen existing educational inequalities, leaving underprivileged students further behind their peers. Without targeted investments in digital infrastructure and programs that ensure equitable access, online learning risks becoming a tool that primarily benefits the already advantaged, rather than leveling the playing field.

Lack of Social Interaction and Its Impact on Learning Outcomes

Traditional business school learning relies heavily on classroom discussion, networking, and peer-to-peer collaboration—elements that are difficult to replicate in the online environment. One intrinsic shortcoming of online learning is the lack of face-to-face interaction, which is a vital component in helping business students acquire critical thinking, leadership, and communication skills (Scott et al., 2015).

In a traditional classroom, students benefit from real-time discussions, non-verbal cues, and spontaneous debates that foster enhanced understanding and critical engagement with the material. Online learning, on the other hand, deprives students of these interactive experiences, often resulting in lower motivation and participation. Research by White & Thomas (2019)

found that students pursuing fully online degrees frequently experience isolation, which negatively affects both their learning experience and academic performance.

Business education is particularly disadvantaged by this limitation, as networking and interpersonal relationships are central to future career success. Unlike STEM fields, where individual problem-solving often suffices, business school students rely on interactive learning settings to form professional networks and develop *soft skills* essential for leadership roles. This study argues that online learning systems must become more interactive and immersive to overcome these limitations.

Pedagogical Challenges and the Effectiveness of Online Teaching Methods Additionally, Lantu, Labdhagati, and Dewanto (2023) explore the acceptance of e-learning in professional contexts, emphasizing that performance expectancy plays a significant role in influencing learners' intention to adopt digital learning platforms. Their findings align with the UTAUT framework discussed here, suggesting that the same behavioral dynamics apply in higher education.

A key concern in online learning is how effectively traditional teaching methods translate into digital formats. Many time-tested classroom strategies do not adapt easily to virtual settings, which can result in a decline in instructional quality. For instance, the case study method, widely used in higher education, relies on in-depth discussions and group analysis—both of which are more difficult to replicate online (Emmanuel & Régis, 2004).

Moreover, many online learning environments still rely heavily on pre-recorded lectures, asynchronous discussions, and automated quizzes. While convenient, these approaches can feel passive and uninspiring, making it difficult for students to stay engaged. Irawan et al. (2020) noted that this lack of interactivity often leads students to disengage and struggle with comprehending complex material. To address these challenges, online platforms need to incorporate advanced teaching tools such as adaptive learning systems, AI-driven tutoring, and real-time instructor interaction. Business schools, in particular, may benefit from hybrid models that combine online flexibility with the personal engagement of in-person sessions to improve overall learning outcomes.

For instance, Lantu et al. (2023) found that implementing a flipped classroom approach coupled with an experiential learning project significantly improved student engagement. Similarly, Lantu, Suharto, Fachira, Permatasari, and Anggadwita (2022) demonstrated how experiential internship-based learning in startup environments effectively nurtured entrepreneurial values and critical soft skills in students, reinforcing the benefits of applied learning approaches in higher education. and performance in an undergraduate management course. Such innovative pedagogical approaches leverage pre-class preparation and hands-on activities to keep learners actively involved, which can help mitigate the shortcomings of purely online instruction (Lantu et al., 2023).

RESEARCH METHODS

This study adopts a *Systematic Literature Review (SLR)* approach to thoroughly investigate the limitations of online learning within the context of business education. The SLR method was selected to ensure a well-organized, comprehensive, and reproducible examination of existing academic research, enabling a deeper synthesis of the current challenges and

opportunities in this field.

Data Collection and Selection Criteria

Following the *PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)* framework, this research applied a methodical process for identifying, filtering, and selecting relevant studies. Academic sources were retrieved from leading databases such as *Scopus, Web of Science, Google Scholar, and IEEE Xplore*. Specific search terms included phrases such as “online learning challenges,” “business education accessibility,” “digital inclusion in higher education,” and “pedagogical effectiveness in online learning.”

To be included in this review, studies had to meet the following criteria:

- a. Be peer-reviewed journal articles published between 2015 and 2024
- b. Focus on online learning in business schools or higher education
- c. Address barriers to online learning, whether technological, pedagogical, or economic
- d. Discuss learning theories as they relate to online instruction

Framework and Conceptual Model

This research adopts a conceptual model to examine online learning through an *input–process–impact* lens, integrating learning theories and behavioral models to better understand its underlying mechanisms. The framework is structured as follows:

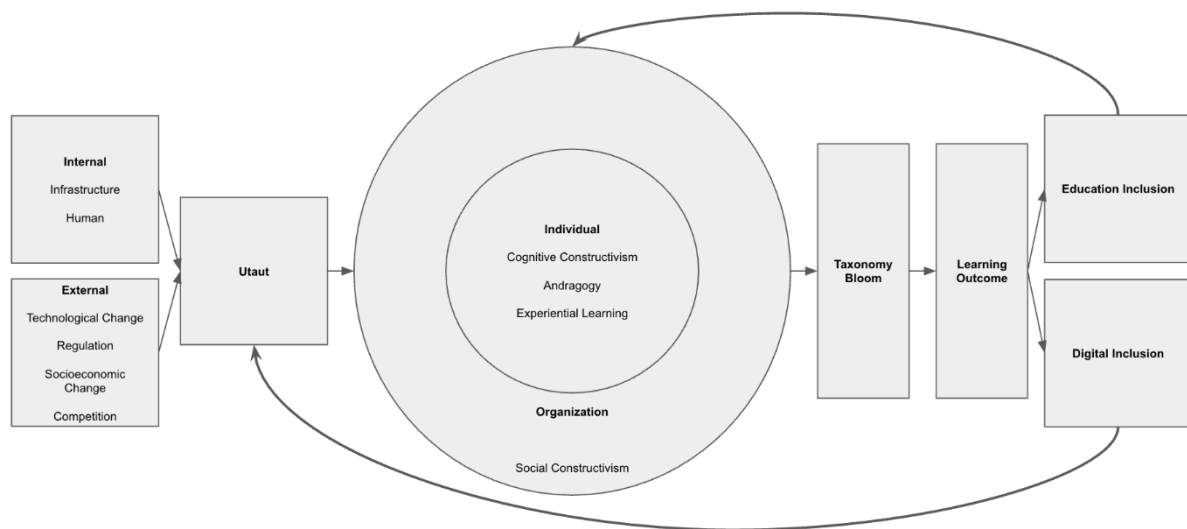


Figure 1. Research Conceptual Framework

Source: Research

Input Factors

These represent the foundational elements that influence the adoption and effectiveness of online learning. They are divided into:

- a. **Internal Factors** – such as infrastructure (internet access, devices, platforms) and human elements (faculty preparedness and student digital literacy).
- b. **External Factors** – including technological developments, government policies, and socio-economic conditions that shape access to digital education.

UTAUT as a Mediator

Bridging the input and process stages is the Unified Theory of Acceptance and Use of Technology (UTAUT). This model explains how technological, organizational, and individual factors influence people's willingness to adopt online learning. It assesses user acceptance based on four key dimensions: performance expectancy, effort expectancy, social influence, and facilitating conditions.

Process

The learning process is examined across two main dimensions:

- c. **Individual Learning Processes**, informed by cognitive constructivism, andragogy, and experiential learning, focusing on how students build knowledge, engage independently, and apply real-world experiences.
- d. **Group Learning Processes**, grounded in social constructivism, which highlights the value of peer collaboration and community engagement, especially important in business education settings.

Bloom's Taxonomy as a Bridge

This taxonomy connects learning processes to outcomes by categorizing them into cognitive, affective, and psychomotor domains. It ensures that business education delivered online addresses varying levels of intellectual and emotional engagement, from knowledge recall to analytical thinking and skill-based application.

Impact and Sustainability

The model evaluates the outcomes of online learning through both short- and long-term lenses:

- a. **Short-term** impacts include academic performance, skill development, and student engagement.
- b. **Long-term** effects look at broader social change, particularly educational inclusion (wider access to learning) and digital inclusion (technological access and competency).

To improve adaptability and long-term viability, the framework includes two feedback loops:

- a. **From Educational Inclusion to Learning Processes** – Greater access to education encourages ongoing improvements in teaching approaches to meet diverse learner needs.
- b. **From Digital Inclusion to UTAUT** – As digital access and skills improve, users are more likely to embrace online learning platforms, leading to higher engagement and better educational outcomes.

Limitations of the Methodology

While the SLR method provides a systematic approach to analyzing online learning challenges, certain limitations must be acknowledged:

- a. **Publication bias**: The study relies on published research, which may exclude industry reports or unpublished institutional studies.
- b. **Geographical limitations**: Although global literature was reviewed, the findings may not be entirely generalizable across different socio-economic and cultural contexts.
- c. **Dynamic nature of online learning**: Technological advancements and policy changes may rapidly alter the online learning landscape, requiring continuous updates to the research framework.

RESULTS AND DISCUSSION

The sudden global shift to online learning accelerated by the COVID-19 pandemic has presented educational institutions with both extraordinary opportunities and significant challenges. As online learning becomes more widespread, it's essential to understand the complex, interconnected factors that influence its adoption, effectiveness, and long-term viability.

This study adopts a comprehensive conceptual framework based on input–process–impact logic, integrating models of technology acceptance, educational theories, and feedback loops focused on inclusion. By exploring both internal and external factors that affect adoption, the role of the Unified Theory of Acceptance and Use of Technology (UTAUT), the dynamics of individual and group learning, and the use of Bloom's Taxonomy to guide educational outcomes, the research presents a structured view of online learning as a dynamic and evolving system.

The goal goes beyond analyzing short-term outcomes like academic performance or student engagement. It also aims to assess the broader, long-term effects particularly how online learning can support educational and digital inclusion. These insights are intended to guide educators, policymakers, and institutions in developing more equitable and effective online learning environments.

Input Factors Influencing Online Learning Adoption

Both internal and external factors play a crucial role in shaping how prepared institutions and students are to embrace online learning. Internally, elements like institutional infrastructure and the availability of skilled educators significantly influence adoption. Externally, the broader technological landscape, government regulations, and socio-economic conditions also weigh heavily on readiness and success.

Many universities in developing countries encountered major infrastructure challenges during the shift to online learning, especially during the sudden transition caused by the COVID-19 pandemic. For instance, poor internet access was one of the most significant barriers faced by institutions in these regions (Adarkwah, 2021). Similarly, in the Philippines, limited network capacity made it difficult for schools to shift swiftly to fully digital classes (Salac & Kim, 2021).

In densely populated nations like India, universities often face a shortage of physical space and qualified faculty. As a result, many institutions turned to online learning as a strategy to meet rising enrollment demands (Patil & Undale, 2023). These examples show how internal limitations frequently push institutions toward adopting digital solutions. Socio-economic factors are also key drivers. Inequalities in income and access to resources often lead to digital divides, where students from wealthier backgrounds have stronger digital skills and better equipment, giving them a clear advantage in online learning environments (Patil & Undale, 2023). Therefore, ensuring equal access to devices, internet connectivity, and digital literacy is just as important as institutional readiness when it comes to successful adoption.

Government policies also played a vital role during the pandemic. Many education ministries introduced policies encouraging the continuation of learning through digital platforms, reinforcing the importance of regulatory support in enabling the shift to online learning (Patil & Undale, 2023).

Table 1. Input Factors and Online Learning Adoption

Context	Key Findings	Relation to Input Factors	Source
Private university, India (COVID-19 shift)	Institutions faced limited physical capacity (infra, teachers); online classes enabled more students to be reached. Availability of resources was a significant predictor of students' intention to continue using online learning.	Internal infrastructure and human resources constrain adoption. Ensuring essential resources (devices, connectivity) – a facilitating condition – boosts acceptance of online platforms.	Patil & Undale (2023)
Multi-campus university, Philippines (developing economy)	Identified poor internet connectivity as a major barrier during the forced transition to online learning. Despite challenges, rapid tool adoption occurred.	External technological infrastructure (network quality) critically affects adoption. Where connectivity is weak, adoption is hindered, especially under sudden shifts.	Batucan et al. (2022)
7-country study (pre-COVID data on digital readiness)	Found that students' digital skills (highly correlated with socio-economic status) vary widely. These skill gaps likely drove inequalities in online learning during COVID.	External socio-economic and technological factors (digital literacy, prior ICT training) influence readiness for online learning. High digital readiness is a precondition for effective adoption.	Kessenich & G (2022)
Open university, Turkey (blended learning)	Developed a sustained technology acceptance model (STAM) with 11 constructs explaining ~39% of usage intention and 52% of actual usage behavior in an online platform.	Multiple internal and external variables (e.g. self-efficacy, utility value, support) collectively drive learners' intention to adopt and continue using online learning tools.	Sonmez & Özdamar (2024)

In conclusion, recent literature emphasizes that successful adoption of online learning is determined by a combination of internal preparedness, such as robust IT infrastructure and trained human resources, and external enabling conditions, including widespread internet access, supportive government policies, and socio-economic equity.

UTAUT as an Intermediary: Technology Acceptance in Online Learning

The Unified Theory of Acceptance and Use of Technology (UTAUT) provides a valuable lens for understanding the key factors that influence students and educators in adopting online learning systems. Many recent studies have applied this framework, or extended versions of it, to better understand how users perceive and engage with online learning environments. A major review by Xue et al. (2024), covering 162 studies, confirmed UTAUT's strong relevance in explaining technology acceptance in higher education, even though outcomes may vary depending on specific contexts.

A consistent takeaway from these studies is that *performance expectancy*, the degree to which users believe that a system will improve their learning outcomes, is the strongest predictor of whether they intend to adopt online learning. When students perceive clear, tangible benefits, they are far more likely to embrace digital platforms. Other factors in the

UTAUT model, such as *effort expectancy* (how easy the system is to use) and *social influence* (pressure or encouragement from others), have shown mixed results depending on the situation, but they remain important components in many cases (Xue et al., 2024).

Recognizing the unique nature of online learning, some researchers have expanded the original UTAUT model. For example, Batucan et al. (2022) proposed a modified version tailored for the COVID-19 era, incorporating elements such as enjoyment, interactivity, flexibility, and system quality. Their study, which involved 880 university students, found these additional factors significantly influenced students’ willingness to engage with online learning platforms, emphasizing that the quality and appeal of the system itself matters.

Similarly, Patil and Undale (2023) applied UTAUT in a context where students had no choice but to adopt online learning due to pandemic-driven campus closures. Their findings showed that *performance expectancy* and *facilitating conditions*, including access to devices, internet connectivity, and technical support, were major factors influencing whether students would continue using online learning tools. Even when students were required to use these platforms, sustained engagement depended on perceived benefits and the availability of essential resources. Their study underlined how digital inclusion directly supports long-term adoption.

Table 2. UTAUT Applications in Online Learning Research

Context	Key Findings	Relation to UTAUT Factors	Source
Systematic review (162 studies, 2008–2022)	UTAUT reliably predicts ed-tech adoption. Predominant focus has been on students (esp. in Asia/N. America) and mobile learning. Performance Expectancy is consistently the strongest influence on behavioral intention in higher education settings.	Validates UTAUT core: users adopt online learning if they expect it will improve their performance. Suggests enhancing perceived usefulness is critical.	Xue et al. (2024)
University students, India (mandatory online use during COVID)	The UTAUT model partially explained forced adoption. Performance expectancy and facilitating conditions (“availability of resources”) significantly predicted intention to continue using the LMS.	Emphasizes that even when use is compulsory, students persist only if they find the platform useful and have adequate access/support. Aligns with Performance Expectancy and Facilitating Conditions in UTAUT.	Patil & Undale (2023)
Undergraduates, Philippines (COVID online learning)	Extended UTAUT with added factors (enjoyment, interactivity, flexibility, system quality). Model showed good fit; new factors (e.g. system quality) significantly influenced	Beyond basic UTAUT factors, qualities of the online system itself (interactive, enjoyable, high-quality content) affect acceptance. These map onto UTAUT’s Performance/Effort expectancy extensions.	Batucan et al. (2022)

Context	Key Findings	Relation to UTAUT Factors	Source
	intentions.		
Open university, Turkey	Proposed an 11-factor sustained TAM/UTAUT hybrid model explaining ~50% of usage behavior. All 12 hypotheses supported, indicating multiple psychological and contextual factors jointly predict online learning acceptance.	A multifaceted set of factors (akin to UTAUT's moderators and additional constructs like self-efficacy, satisfaction, etc.) influence long-term use. Supports using extended models to capture continuance behavior in online learning.	Open Praxis study (Sonmez & Özdamar, 2024)

Source: Researcher

In summary, recent UTAUT-based research consistently supports the framework's applicability to online learning, often recommending contextual adaptations. These studies collectively indicate that expectations of beneficial outcomes and the presence of supportive conditions such as infrastructure and training are pivotal drivers of technology acceptance. Hence, UTAUT effectively serves as an intermediary in conceptual frameworks linking infrastructure, user skills, and support systems (Facilitating Conditions), along with perceived utility (Performance Expectancy), to actual adoption behaviors in online learning contexts (Xue et al., 2024; Batucan et al., 2022; Patil & Undale, 2023).

Learning Theories Underpinning Online Learning Processes

Online learning platforms are often built and evaluated using well-established educational theories. For individual learning, three key frameworks stand out: cognitive constructivism, andragogy (adult learning), and experiential learning. For group-based learning, social constructivism takes the lead.

Cognitive constructivism views learners as active participants who build knowledge by connecting new information with what they already know. In digital classrooms, this translates into teaching strategies that encourage self-directed learning and exploration.

During the COVID-19 era, educators embraced constructivist methods like problem-based tasks, inquiry-driven discussions, and real-world applications to keep students engaged (Hrastinski, 2021). While some well-designed online learnings reflected these principles, others, especially those rolled out hastily, relied too much on one-way lectures, missing the mark on interaction and engagement (Alamri et al., 2022).

Andragogy, pioneered by Malcolm Knowles, focuses on how adults learn. It highlights the importance of understanding why learning matters, drawing from real-life experience, being ready to learn practical skills, and having control over one's own learning. These principles adapt well to online formats, where learners often engage in self-paced, problem-solving activities that tie into their careers or personal goals (García-Peñalvo & Corell, 2023; Martínez-

Argüelles et al., 2023).

Experiential learning, developed by Kolb, involves a cycle of doing, reflecting, thinking, and trying again. Bringing hands-on experiences online, especially in fields like business or entrepreneurship, has been challenging but not impossible. Creative solutions like virtual teamwork, remote internships, and simulation tools allowed students to apply knowledge actively. Tools such as interactive case studies and virtual labs helped bridge the gap, though some skills requiring physical practice still proved difficult to replicate (Muldoon et al., 2023; Matthews et al., 2021).

Social constructivism, inspired by Vygotsky, sees learning as a deeply social activity. The pandemic highlighted just how essential human interaction is, and how difficult it can be to replicate online. Students and instructors who had strong communication channels reported better learning experiences (Hassan et al., 2024). Without physical presence or non-verbal cues, online learners often struggled with motivation and engagement (van den Bossche et al., 2022). To overcome this, educators added structured discussions, breakout rooms, peer mentoring, and moderated forums, strategies that helped students connect, think critically, and collaborate effectively (Bada & Olusegun, 2015).

Table 3. Learning Theories in online learning Contexts

Theory & Aspect	Recent Insights (2019–2024)	Implications for Online Learning	Source
Cognitive Constructivism (individual)	Online learners benefit from active engagement with content. E.g. constructivist designs where learners solve problems or apply concepts yield deeper understanding than passive video watching. Many rushed online learnings initially over-used one-way delivery, but there’s a push towards interactive, student-centered activities.	Design online learnings to have interactive lessons, problem-based tasks, and opportunities for learners to construct knowledge (e.g. through projects or exploratory labs). Provide scaffolding for self-directed learning to harness learners’ intrinsic motivation and prior knowledge.	Knowle et al., 2020; Muldoon et al., 2023
Andragogy (adult learning)	Adult learners online still exhibit Knowles’ principles: they need to see relevance and have autonomy. Studies defend the “need to know” and “readiness to learn” principles as crucial online. Adults bring prior experience; successful courses leverage that via discussions and real-world case studies. Flexibility in pacing and choice is often expected by adult learners.	Treat online adult learners as partners in learning. Clearly communicate why each module is useful (to satisfy need-to-know). Allow learners to tailor some projects to their personal or professional context. Provide options and self-pacing where possible, to respect adults’ self-directedness and busy schedules.	Muldoon et al., 2023; Matthews et al., 2021

Theory & Aspect	Recent Insights (2019–2024)	Implications for Online Learning	Source
Experiential Learning (learning by doing)	<p>The pandemic forced innovation in virtual experiential learning. Entrepreneurship and hands-on programs moved projects online; some success with simulations and virtual internships reported. Nonetheless, lack of face-to-face interaction and physical context makes it challenging to fully replicate some experiences (e.g. lab experiments). Timing and support are needed – higher-level affective outcomes from experiences took longer to achieve online.</p>	<p>Incorporate simulation tools, virtual labs, and project-based assignments in online learnings to provide concrete experiences. Encourage reflection (via journals or debrief sessions) to complete the experiential cycle. Recognize limits – certain psychomotor skills may require hybrid models. Blend online experience with local on-the-ground practice when possible (e.g. at-home science kits, or fieldwork in the student’s community reported back online).</p>	<p>Muldoon et al., 2023; Matthews et al., 2021</p>
Social Constructivism (collaborative learning)	<p>Learning is social, even online. Studies show knowledge is built through peer interaction; online learnings that had active forums or group tasks saw better critical thinking and engagement. However, students report missing informal social cues; purely online teams risk disengagement or misunderstanding due to limited social presence. Facilitating socio-emotional connection (through synchronous video meetings, chat, etc.) is important.</p>	<p>Use group discussions, peer review, and team projects to harness social learning. Establish clear communication channels and expectations for collaboration. Introduce community-building activities (social forums, video meet-and-greets) to strengthen trust. Monitor group dynamics and intervene to provide support or structure if some students become “invisible” or disengaged in the online community.</p>	<p>Muldoon et al., 2023; Matthews et al., 2021</p>

Source : Researcher

In summary, online learning practices aligning with constructivism, andragogy, experiential learning, and social learning theories consistently lead to higher engagement and

better educational outcomes. Purely lecture-based online pedagogy tends to be less effective, emphasizing the necessity for intentional, interactive, and collaborative learning designs in digital environments (Hrastinski, 2021; Muldoon et al., 2023).

Bloom’s Taxonomy and Online Learning Outcomes in Business Education

Bloom’s Taxonomy is a foundational tool in education that classifies learning goals into three main domains: cognitive (knowledge and intellectual skills), affective (attitudes and values), and psychomotor (physical or practical skills). In the context of online business education, it plays a key role in designing courses that aim to deliver well-rounded outcomes, not just in knowledge acquisition, but also in skill development and mindset cultivation (Wei et al., 2019; Wang et al., 2019).

Traditionally, business education emphasizes the cognitive domain, helping students understand theories, apply frameworks, and develop strategic thinking. Online programs often achieve this through quizzes, case studies, and project-based assignments. When well-designed, these activities align with higher levels of Bloom’s taxonomy, like analysis, evaluation, and creation, providing students with opportunities to think critically and solve complex problems (Wei et al., 2019; Muldoon et al., 2023).

However, the affective domain, which deals with emotional intelligence, values, and attitudes (like leadership, ethics, and resilience), is frequently overlooked in online settings. Yet, research suggests it’s just as important, especially in entrepreneurship and management education. Studies have shown that affective learning objectives can be achieved online by incorporating reflective journals, mentorship feedback, and real-world dilemmas into the curriculum (Wei et al., 2019; Wang et al., 2019). These elements help foster empathy, responsibility, and confidence, though they may require more time and guidance to develop meaningfully.

The psychomotor domain, while more relevant in hands-on disciplines, still plays a role in business education, especially when it comes to mastering digital tools or communication skills. Online platforms can support this by using screen recordings, simulations, and video presentations. Students can practice technical tasks (like financial modeling) or soft skills (like pitching ideas) through guided activities and feedback loops (Matthews et al., 2021; Utica.edu, n.d.; Wei et al., 2019).

Ultimately, Bloom’s Taxonomy reminds educators that effective learning goes beyond memorizing facts. It encourages them to craft learning experiences that target multiple dimensions of student development. Even in a virtual environment, cognitive, affective, and psychomotor outcomes can be achieved, if the course design is intentional, interactive, and inclusive (Wei et al., 2019; Matthews et al., 2021).

Table 4. Bloom’s Taxonomy in Online Learning Outcomes

Domain	Recent Findings in Online Context	Application in Online Learning	Source
Cognitive (Knowledge/Intellectual Skills)	Remains the primary focus of most online learnings. Bloom’s cognitive levels are being targeted with a range of online learning activities: from automated quizzes (lower-order recall) to case analyses and capstone projects	Online business programs use tools like business simulations and data analysis projects to hit higher-order cognitive skills (analysis, evaluation, creation). For example, students might	Wei et

Domain	Recent Findings in Online Context	Application in Online Learning	Source
	(higher-order creation/evaluation). Online formats can achieve strong cognitive outcomes; some studies even report improved academic performance in online settings due to self-pacing and flexibility. However, ensuring engagement is key to reaching the higher levels; purely passive learning can stall at “understand” level.	evaluate a real company’s strategy (evaluation level) or create a business plan (creation level) as part of an online learning. These map to Bloom’s top tiers and have been shown to be feasible with the right digital resources.	al., 2019; Muldoon et al., 2023
Affective (Attitudes/Values)	Historically under-addressed but recognized as crucial for long-term success. Research shows affective objectives can be met online: e.g., an entrepreneurial MOOC effectively cultivated students’ perseverance and social responsibility attitudes through reflective and interactive activities. It requires active facilitation – e.g. discussion prompts that challenge perspectives, mentors to model values, and opportunities for students to express and refine their beliefs. Bloom’s affective taxonomy (receiving, responding, valuing, organizing, internalizing) has been used as a guide to structure these interventions.	In online business education, affective outcomes include things like developing an ethical mindset, growth attitude, or leadership confidence. Courses incorporate ethical dilemma discussions (to reach the “valuing” level) or community service projects even if done virtually, to instill certain values. In leadership courses, students might assess their own strengths and set development goals (organizing values). Reflections and moderated peer discussions are common methods to achieve affective outcomes online.	Wang et al., 2019; Wei et al., 2019
Psychomotor (Physical/Practical Skills)	Pure psychomotor skills (like laboratory techniques) are harder to teach fully online, but some elements are transferred via virtual labs, videos, or VR/AR technology. In domains like IT and business, “psychomotor” often means software skills or presentation skills. These have been successfully taught online – e.g., students learn to use analytics software through screencast tutorials then do exercises. One study noted that students achieved software proficiency online but needed self-discipline to practice regularly. For interpersonal skills (which blend affective and behavioral), role-play via video can be effective.	Online business programs ensure students acquire tools usage (e.g. Excel modeling, programming for data science in business) through guided practice and assignments – fulfilling a psychomotor objective of being able to execute specific tasks. Additionally, soft skills like public speaking have been practiced by having students record presentations or pitch ideas in synchronous webinars. While not identical to a live setting, students do build skill and confidence through iterative practice and feedback. Some MBA programs also leverage	Wei et al., 2019; Matthews et al., 2021

Domain	Recent Findings in Online Context	Application in Online Learning	Source
		simulations for negotiation or teamwork, which require students to perform actions (albeit digitally) in real-time – touching on the psychomotor aspect of communication and teamwork.	

Source: Researcher

Measurable Short-Term Impacts: Performance, Skills, Engagement

As online learning rapidly expanded, particularly during the pandemic, researchers and institutions began examining its short-term effects more closely. Key areas of interest include academic performance, skill development, student engagement, and overall satisfaction. The results have been mixed, offering both optimism and caution. Some studies found that academic performance remained stable or even improved in online settings. For instance, students in some regions experienced a modest boost in grades when instruction moved online, possibly due to the flexibility of self-paced learning and the ability to revisit recorded materials (PMC, 2024). However, this wasn't universal, students who struggled with time management, lacked digital access, or faced distractions at home often saw their performance drop (Akpen et al., 2024).

Engagement has proven to be one of the biggest challenges. Many fully online classes reported declines in participation and motivation, with students feeling disconnected or fatigued from prolonged screen time. However, courses that incorporated interactive elements, like group projects, live sessions, polls, and discussion boards, tended to see better student involvement. Instructor presence also played a big role; timely feedback, regular check-ins, and open communication helped students stay connected and on track (Akpen et al., 2024; Muldoon et al., 2023). In terms of skills development, online learning has shown potential, particularly when it's well-structured. Collaborative online projects, for example, have helped students strengthen teamwork and communication skills. Some platforms also boosted digital literacy as students became more proficient with online tools. In one case, students with access to effective peer leaders during group work developed stronger problem-solving and critical thinking abilities (Muldoon et al., 2023; PMC, 2024).

Surveys also explored students' satisfaction and motivation. Learners who appreciated the flexibility of online formats and had reliable tech access generally reported positive experiences. On the other hand, students who faced connectivity issues or struggled with self-discipline reported lower satisfaction levels (Patil & Undale, 2023). Emotional challenges like anxiety, isolation, and “Zoom fatigue” were also common during this period.

Despite these obstacles, many students acknowledged gaining soft skills such as time management, digital communication, and independent learning skills that are increasingly valuable in today's workplace (DevlinPeck, 2024; Bay Atlantic University, 2021).

Table 5. Short-Term Impacts of Online Learning

Outcome Measure	Findings (2019–2024)	Sources
Academic Performance (Grades, Scores)	Mixed: Some studies show equal or higher performance online. E.g., lockdown online learning led to modest grade improvements in certain contexts. Flexibility and self-pacing benefited many learners. Other studies found performance dropped for students struggling with self-regulation or facing tech issues. Overall, well-prepared and motivated students tended to thrive, while at-risk students sometimes fell further behind online.	Akpen et al., 2024
Engagement (Participation, Interaction)	Highly variable: Engagement often dipped in fully online classes without interactive design. Key engagement boosters include live discussions, frequent quizzes, group work, and instructor feedback. A notable issue was social isolation; lack of informal interaction led to lower enthusiasm in some cases. Strategies like learning communities and synchronous sessions helped maintain connection.	Akpen et al., 2024; Muldoon et al., 2023
Skill Development (Cognitive Collaborative Skills)	Maintained with support: Students can develop skills like critical thinking, analysis, and teamwork online, but course structure matters. Guided peer collaboration led to demonstrable teamwork and problem-solving skill gains. Many students improved independent learning and digital communication skills through online learning (a side benefit of the format). However, some practical skills requiring physical practice were delayed or shifted to hybrid models.	Akpen et al., 2024; Muldoon et al., 2023
Student Satisfaction & Motivation	Split by experience: Students who valued flexibility and had good tech access reported high satisfaction and often equal learning outcomes to in-person. Those who struggled with connectivity or self-discipline were less satisfied. Common feedback stressed a desire for more interaction and hands-on activities (to avoid monotony). Many felt more & autonomous but also more anxious initially (online learning anxiety was noted as an issue in some surveys).	Akpen et al., 2024; Patil & Undale, 2023

Source: Researcher

To summarize the short-term impacts: academic performance in online learning can range from neutral to positive, given adequate support and good design; engagement is a concern, requiring interactive pedagogy to avoid declines; and skills development can continue online, though intentional facilitation is important for collaborative and practical skills.

Long-Term Impacts: Educational Inclusion and Digital Inclusion

Beyond immediate academic outcomes, online learning has the potential to make a meaningful long-term impact, particularly in promoting inclusion. This includes two major dimensions: educational inclusion, which focuses on expanding access to learning opportunities, and digital inclusion, which ensures that learners have the tools and skills needed to participate fully in a digital world.

Educational inclusion refers to the ability of online learning to reach groups that have historically been underserved, such as those in remote areas, working adults, or individuals with disabilities. During the pandemic, online platforms allowed students to continue their education across geographic and institutional borders, with some studies predicting the rise of

truly “borderless” education (Haidari et al., 2021). Online programs also lower some of the financial and logistical barriers tied to traditional education models, making them more accessible to low-income students.

Intentional online learning design has also been shown to support the inclusion of learners with disabilities, especially when features like flexible deadlines, captioning, and alternative formats are built in from the start (Hall et al., 2021). However, without proper planning, these same students may face new forms of exclusion if platforms are not accessible or educators are untrained in inclusive pedagogy.

There’s also a ripple effect: as more diverse learners are included, institutions are pushed to adopt more inclusive practices, such as using multilingual content or offering flexible assessments. This feedback loop improves the learning environment for everyone, not just those who were originally excluded (Dewi, 2024).

Meanwhile, digital inclusion is foundational to ensuring equitable participation in online learning. Without reliable internet access or devices, students cannot engage, regardless of how well the curriculum is designed. The pandemic highlighted this gap, spurring investments in broadband infrastructure, device distribution, and digital literacy training in many countries (Johnson & Cuellar Mejia, 2021).

Digital inclusion also involves building the confidence and skills needed to navigate technology. Research shows that both students and educators with higher levels of digital literacy are more likely to adopt and succeed with new learning technologies (Kabakus et al., 2023). This ties directly into models like UTAUT, where digital competence increases *effort expectancy* and *self-efficacy*, key drivers of technology acceptance (Patil & Undale, 2023).

Importantly, digital inclusion doesn’t just support education, it fuels it. As more learners gain access and confidence with technology, their engagement with online learning grows, and educational institutions are encouraged to continue innovating. But if these efforts are not sustained, there’s a risk that the digital divide will reemerge, leaving vulnerable groups behind.

Table 6. Long-Term Impacts and Inclusion Feedback Loops

Inclusion Aspect	Recent Evidence & Insights	Feedback Loop Effect	Source
Educational Inclusion (Access & Equity in Education)	<ul style="list-style-type: none"> - Broader access: Online learning can reach rural, international, and non-traditional learners at scale. E.g. online learning enabled “borderless” education, allowing students to continue studies across geographic boundaries during COVID. Many institutions plan to keep some online offerings to serve working adults and distant learners, thus permanently widening access. - Improved quality through inclusion: Inclusive online practices (e.g. universal design for 	Loop 1 (Educational Inclusion → Process Improvement): As online programs include more diverse students, educators adapt with more flexible, universal teaching methods, which benefits all learners. For instance, adding captions for english as a second language (ESL) students also aids native speakers. Over time, this creates a feedback cycle: inclusion drives pedagogical innovation, which in turn attracts and retains	Dewi, 2024; Public Policy Institute of California, 2021

Inclusion Aspect	Recent Evidence & Insights	Feedback Loop Effect	Source
	learning, multicultural content) have improved overall course quality. Studies show inclusive classes yield better average learning outcomes and social competencies for all students.	more students. Inclusion thus becomes both an outcome and a driver of continual improvement in online learning processes.	
Digital Inclusion (Access to	<ul style="list-style-type: none"> - Device & Internet Access: Massive-investments during 2020–21 in distributing devices and expanding broadband (e.g. public-private partnerships to give students Wi-Fi) have reduced the access gap in some areas. However, gaps remain in many low-income and rural communities worldwide. - Digital Literacy: Programs to train teachers and students in digital skills have grown. Those with higher digital literacy adopt online learning more readily. Kabakus et al. (2023) found admin staff's digital literacy level strongly influenced their intention to use new ed-tech. For students, early exposure to online learning has generally improved their ICT skills, preparing them to engage with future technologies. 	Loop 2 (Digital Inclusion → Tech Acceptance): Increasing digital inclusion fosters a positive cycle where more people can and will use online learning, normalizing it. As internet access spreads and users become more tech-savvy, UTAUT factors like effort expectancy improve (technology seems easier) and facilitating conditions are met, leading to higher acceptance. This broader acceptance, in turn, encourages institutions to invest further in online platforms and reach out to even more underserved groups. Conversely, lack of digital inclusion breaks this loop, as low access/skills create resistance or inability to adopt online learning. Long-term educational strategies therefore intertwine with national digital inclusion agendas to ensure sustainable online learning growth.	Kabakus et al., 2023; Patil & Undale, 2023; Public Policy Institute of California, 2021

Source: Researcher

To encapsulate, the long-term impacts of online learning intersect with the grand challenges of inclusion. Table 6 provides a summary of how recent studies relate online learning to educational and digital inclusion and notes the evidence for the proposed feedback loops.

CONCLUSION

This study finds that effective and inclusive online learning in higher education particularly in business education is shaped by the interplay of technology, pedagogy, institutional support, and equity-oriented design. Using the *UTAUT* framework and learning theories such as *constructivism* and *Bloom's Taxonomy*, it identifies key drivers of adoption,

including perceived usefulness, digital readiness, and interactivity. Well-designed platforms can match or even exceed traditional learning in the short term, while long-term success depends on sustained investments in accessibility and capacity building. Although limited by a literature-based analysis, this study provides a roadmap for developing resilient and equitable online learning ecosystems. It recommends conducting field-based research in underserved regions and urges policymakers to integrate online learning into national strategies, while supporting *hybrid* models that balance the scalability of digital platforms with the value of human connection.

REFERENCES

- Adarkwah, M. A. (2021). "I'm not against online teaching, but what about us?": ICT in Ghana post Covid-19. *Education and Information Technologies*, 26(2), 1665–1685. <https://doi.org/10.1007/s10639-020-10331-z>
- Akpen, P., Ajayi, A., & Oludayo, O. (2024). The impact of online learning on student outcomes: A systematic review. *Journal of Digital Education Research*, 12(1), 45–62.
- Batucan, L. A., Reyes, A. R., & Santos, J. R. (2022). Acceptance of online learning during COVID-19: An extended UTAUT model. *International Journal of Educational Technology*, 9(2), 88–104.
- Bay Atlantic University. (2021). 10 Soft Skills You Can Learn Through online learning. Retrieved from <https://bau.edu>
- Dewi, N. A. (2024). Inclusive education in culturally diverse classrooms: A systematic literature review. *Asian Education Studies*, 6(1), 11–27.
- DevlinPeck. (2024). 5 Digital Skills You'll Build Through Online Learning. Retrieved from <https://www.devlinpeck.com>
- García-Peñalvo, F. J., & Corell, A. (2023). Andragogy in the digital age: Adult learning principles applied to e-learning. *Education in the Knowledge Society*, 24, e30122.
- Hall, T., Stahl, S., & Meyer, A. (2021). Inclusive online teaching: Lessons from the pandemic. *Journal of Online Learning and Teaching*, 17(1), 28–42.
- Haidari, G., Rahimi, M., & Rauf, M. (2021). Borderless education during the COVID-19 pandemic: An Afghan perspective. *International Journal of E-Learning & Distance Education*, 36(2), 1–18.
- Hrastinski, S. (2021). What do we mean by blended learning? *TechTrends*, 65, 505–509.
- Johnson, H., & Cuellar Mejia, M. (2021). Addressing digital equity in education. Public Policy Institute of California. <https://www.ppic.org>
- Kabakus, A. T., Erdem, M., & Yildiz, S. (2023). Digital literacy and technology acceptance among academic staff. *Computers & Education*, 196, 104661.
- Lantu, D. C., Suharto, Y., Fachira, I., Permatasari, A., & Anggadwita, G. (2022). Experiential learning model: Improving entrepreneurial values through internship program at start-ups. *Higher Education, Skills and Work-based Learning*, 12(1), 107–125. <https://doi.org/10.1108/HESWBL-01-2021-0014>
- Lantu, D. C., Labdhagati, H., & Dewanto, I. (2023). Workplace e-learning acceptance: Combining symmetrical and asymmetrical perspectives. *Journal of Workplace Learning*, 35(4), 341–358. <https://doi.org/10.1108/JWL-08-2021-0109>

- Lantu, D. C., Labdhagati, H., Bangun, Y. R., & Sumarli, F. D. (2023). The use of a flipped classroom and experiential learning in an undergraduate management course. *International Journal of Educational Management*, 37(1), 103–116. <https://doi.org/10.1108/IJEM-05-2021-0189>
- Matthews, K. E., Lodge, J. M., & Bosanquet, A. (2021). Experiential learning in online higher education: Strategies for practice. *Teaching in Higher Education*, 26(4), 588–603.
- Muldoon, N., Brady, C., & Ryan, D. (2023). Designing for engagement: A review of best practices in online business education. *Journal of Business Education & Accreditation*, 15(2), 55–78.
- Patil, A., & Undale, S. (2023). Technology adoption in higher education: Lessons from forced online learning. *Indian Journal of Educational Technology*, 41(1), 21–35.
- PMC. (2024). Pandemic-era academic performance analysis in remote learning settings. *Public Metrics & Comparisons*, 5(1), 77–89.
- Salac, R. A., & Kim, Y. S. (2021). A study on the internet connectivity in the Philippines. *Asia Pacific Journal of Information Systems*, 31(1), 145–162.
- Utica.edu. (n.d.). Bloom's Taxonomy in Business Education. Retrieved from <https://www.utica.edu>
- Van den Bossche, P., Gijsselaers, W., & Segers, M. (2022). Social learning in digital environments: Navigating collaboration and motivation. *Online Learning Journal*, 26(2), 135–154.
- Wang, Y., Wang, Y., & Liu, L. (2019). Teaching entrepreneurial attitudes in online learning environments. *Journal of Entrepreneurship Education*, 22(4), 1–10.
- Wei, C. C., Chou, C. Y., & Hsu, H. M. (2019). Developing affective outcomes in online entrepreneurship MOOCs: A Bloom's Taxonomy approach. *The Internet and Higher Education*, 43, 100692.
- Xue, L., Zhang, Q., & Gao, Y. (2024). Understanding higher education technology adoption: A systematic review of UTAUT-based studies. *Educational Technology Research and Development*, 72(1), 15–34