



E-learning and distance education

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Background

E-learning, or electronic learning, encompasses all learning situations that utilize new technologies, including not only distance education but also the use of other new technologies in classroom settings. Collectively, such technologies promise advantages for higher education, offering students more flexible and economic options compared to traditional in-classroom courses. E-learning is considered one of the best methods of education for its ability to focus on individual learner needs and eliminate boundaries of place and time. However, distance education and e-learning also entail significant challenges, including problems with student retention and with access to technologies (the “digital divide”).

Key takeaways from the literature

- 1) Impact on Access to Education.** Online education has the potential to increase access to formal education rather than merely substituting for in-person options (Goodman et al. 2019). A significant portion of online applicants may come from different academic backgrounds and demographics than in-person students, including those from colleges with lower average SAT scores, higher proportions of low-income students, and lower graduation rates (Goodman et al. 2019). However, despite increased enrollment, online learning programs tend to have higher student attrition or dropout rates than traditional face-to-face programs. Some students drop out even before registering for their first course (Sun & de la Rosa 2015; Kai et al. 2017). The reasons for student attrition include personal problems, job obligations, insufficient study time, large course loads, lack of experience with higher education or online courses, young age, and lack of access to technology and computers (Britto & Rush, 2015). The “digital divide” where students lack sufficient knowledge of and access to technology, persists and creates a “homework gap” (Moore et al. 2018) Students with access to only one device at home (often a smartphone) face significant challenges, especially for assignments requiring larger devices. These students are more likely to reside in rural areas (Moore et al. 2018).
- 2) Importance of Engagement and Interaction.** A significant disadvantage of e-learning is the absence of important personal interaction among learners and between learners and instructors (Ananga 2020). Student engagement is crucial as it increases student satisfaction, enhances motivation, reduces isolation, and improves performance in online courses (Martin & Bolliger 2018). Student perceptions indicate that learner-to-



instructor engagement strategies are the most valued. Key strategies include regular announcements or email reminders from the instructor. Instructor presence is very important to online learners, who want instructors to support, listen to, and communicate with them (Martin & Bolliger 2018).

- 3) Student Support Services for Online Learners.** Comprehensive student support services are critical for online student retention and success (Britto & Rush 2013). Key support services highlighted by students and educators include: timely and helpful feedback from teachers; regular contact and communication with teachers/tutors using a variety of methods (email, online chat, face-to-face); Access to technical assistance and quick responses to technical problems; Induction or orientation programs to prepare students for online learning, including self-assessment for readiness and IT literacy; provision of clear learning objectives and assessment requirements (Choy et al. 2002). Predictive models, such as those using student activity data in online orientation courses, can identify at-risk students by analyzing behaviors like discussion board reply views and grade checking frequency (Kai et al. 2017).
- 4) Faculty Training and Development.** Faculty training is crucial for improving online course quality and student learning experiences. Training can help overcome resistance to online teaching methods and sharpen design skills (Sun & de la Rosa 2015). Training, particularly using Quality Matters (QM) standards, has been shown to significantly enhance learner interaction in online courses. It also has a marginal positive effect on students' perceptions of learning objectives, outcome assessments, and instructional materials (Sun & de la Rosa 2015). Administrators are encouraged to provide online teaching training programs, potentially offering incentives for faculty participation, to enhance consistency and quality across online programs.
- 5) Effectiveness of Hybrid-Flexible (HyFlex) Models.** Research on the effectiveness of the HyFlex model, which combines online and face-to-face learning, is limited and definitions vary (Verrechia & McGlinchey 2021). A study comparing a HyFlex statistics class (instructor present, students rotating in-person/Zoom) to a traditional face-to-face class found that the HyFlex class demonstrated a slight cognitive advantage (better performance on one quiz and the final exam). No significant difference was found in student affective responses (course evaluations) (Verrechia & McGlinchey 2021).

Associated interventions/activities

Successful e-learning interventions prioritize student-centered design, robust support systems, continuous faculty development, and a commitment to quality assurance, all of



which contribute to increased access, engagement, and positive learning outcomes. To implement effective e-learning, institutions should focus on several key areas:

- 1) Prioritize Comprehensive Student Support Services.** Institutions should ensure that online students have access to support services that are comparable to those offered to face-to-face students (Britto & Rush 2013). These services, including admissions, financial aid, registration, library, tutoring, and academic advising, must be fully available and accessible to online learners. Crucially, providing adequate technical support is essential, ideally available 24 hours a day, 7 days a week, with a single point of contact to address problems efficiently. Additionally, online orientation courses are vital for familiarizing students with the online learning environment, tools, processes, and technology, which helps build confidence and a sense of community. Institutions should also implement early alert systems (e.g., for non-login inactivity) and proactive advising to identify and support at-risk students even before they begin program-specific courses (Kai et al. 2017).
- 2) Foster Robust Learner Engagement Across Multiple Dimensions.** Student engagement is paramount for increasing student satisfaction, enhancing motivation, reducing feelings of isolation, and improving performance in online courses. While all types of engagement are important, learner-to-instructor engagement is particularly valued by students. Strategies for this include instructors sending regular announcements or email reminders, providing clear grading rubrics for all assignments, referring to students by name, creating forums for student questions, and delivering feedback through diverse modalities (e.g., text, audio, video). Timely, detailed, personalized, and constructive feedback from teachers is consistently highlighted as essential for student learning. Building rapport and fostering collaboration between students and instructors also contributes significantly to engagement (Martin & Bolliger 2018).
- 3) Invest in Comprehensive Faculty Training and Development for Online Pedagogy** Faculty training is a critical component for effective online teaching and course quality. Training programs, such as those based on Quality Matters standards, can significantly enhance learner interaction and have a marginal positive effect on students' perceptions of learning objectives, outcome assessments, and instructional materials. Such training helps instructors transition from a traditional lecturing role to a facilitator role in the online environment and familiarizes them with comprehensive standards for online course design. Professional development activities should be planned to meet the specific needs of personnel involved in e-learning and should be systematically evaluated for their impact on improving teaching and learning outcomes. Teachers and tutors involved in online delivery need specific professional development to understand the unique context and needs of online students (Sun & de la Rosa 2015).

- 4) Ensure High-Quality, Relevant, and Accessible Course Design and Content.** All instructional programs, regardless of their delivery mode, must align with the institution's mission and maintain academic integrity and quality comparable to face-to-face offerings (ACCJC 2011). This means online courses should use delivery systems and modes of instruction that are compatible with the curriculum's objectives and appropriate for the current and future needs of students. Course materials should be clearly presented in manageable amounts, with explicit learning objectives and clear assessment requirements (Choy et al. 2002). Incorporating real-world projects or scenarios and structuring discussions with guiding questions can significantly enhance student engagement and deepen their understanding of content. Providing flexibility in terms of pace, time, and place is a key reason students choose online learning (Britto & Rush 2013).
- 5) Address Technological Infrastructure and Digital Equity** A robust and secure technical infrastructure is fundamental for reliable online course delivery. Institutions must proactively identify and meet the technology needs for e-learning. This includes ensuring that electronic materials and applications are easily accessible via mobile technology and that their use does not impose an unmanageable burden on students' or their families' data plans, especially for those relying solely on smartphones for internet access. Addressing the "digital divide"—the gap in technology access and knowledge—is crucial for ensuring educational equity, as unequal access to devices and quality internet can perpetuate existing disparities. Moreover, technology support should be readily available and provided in a timely manner to both students and faculty (ACCJC 2011).

Related metrics and indicators:

To effectively measure the success of e-learning initiatives, institutions should utilize a comprehensive set of metrics that span student outcomes, engagement, faculty performance, and institutional quality. Drawing upon the provided sources, here are key areas for measurement:

- 1) Student Learning and Academic Outcomes** The most direct measure of e-learning success is how well students learn and achieve academic goals. This includes grades and assessment results, achievement of stated learning outcomes, development of skills, and comparability with face-to-face learning.
- 2) Student Retention and Persistence** Given the higher dropout rates often observed in online learning compared to campus-based courses, student retention and completion



rates are critical indicators of success. Metrics include course and program completion rates, future course registration / continued participation, enrollment growth and expansion, and early alert system effectiveness.

- 3) **Student Satisfaction and Engagement.** Student satisfaction and engagement are crucial for motivation, reducing isolation, and improving performance in online courses. Key metrics include overall student satisfaction, perceived value and usefulness, sense of community and reduced isolation, quality of interaction, timeliness and quality of feedback, meeting student expectations, and engagement with course elements.
- 4) **Faculty Effectiveness and Perceptions** The success of e-learning is heavily reliant on effective faculty engagement and performance. Metrics in this area include faculty use of LMS and e-learning tools, faculty perceptions of usefulness and ease of use, quality of online course design, impact of professional development, reduced "change fatigue," and instructor presence and support.
- 5) **Program and Institutional Quality** E-learning initiatives should contribute to the overall quality and effectiveness of the institution. Metrics include alignment with mission, quality comparability, effectiveness of evaluation processes, resource adequacy, and accreditation compliance.
- 6) **Technological Effectiveness and Accessibility** A robust and accessible technological infrastructure is foundational for effective e-learning. Metrics include reliability and functionality, availability and timeliness of technical support, accessibility of materials, and addressing the digital divide.

Supporting literature

[NOTE: Many of these sources are on file at RPIE as PDFs and can be shared on request]

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