



Effectiveness of Online Accounting Education in the Post-Pandemic Era: Evidence, Pedagogical Drivers, and a Quality Framework

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Abstract

The rapid shift to online teaching during the COVID-19 pandemic triggered a large-scale experiment in accounting education. In the post-pandemic era, institutions continue to blend online and hybrid delivery, yet questions remain regarding effectiveness for technical competence, professional judgment, engagement, and employability outcomes. This paper synthesizes theory and evidence on online learning and proposes a structured evaluation model for online accounting education. Using an outcomes-based lens, the study identifies key drivers of effectiveness—course design quality, instructor presence, assessment integrity, technology readiness, and authentic practice through simulations and virtual labs. A mixed-method evaluation approach is presented, integrating learning analytics, standardized competency assessments, and student/instructor feedback. Illustrative results are reported in a pilot-style manner, showing that well-designed online accounting courses can achieve learning outcomes comparable to face-to-face instruction, with stronger gains in digital tool fluency but risks of reduced peer learning and academic integrity challenges when assessments are poorly designed. The paper concludes with an Online Accounting Education Quality Framework (OAE-QF) that provides actionable guidance for curriculum leaders, faculty, and policy makers to improve learning quality and equity in post-pandemic accounting programs.

Key Words: online learning, accounting education, post-pandemic, hybrid teaching, assessment integrity, learning analytics, virtual labs, outcome-based education

Introduction

Online accounting education expanded dramatically during the pandemic due to emergency remote teaching. After campus re-openings, many programs retained online components because of flexibility, expanded access, and rising expectations for digital competence. However, “online” is not a single approach: it may include synchronous lectures, asynchronous modules, flipped classrooms, recorded micro-lectures, guided practice, and virtual labs in accounting software environments. The central question in the post-pandemic era is not whether online accounting education can work, but under what conditions it is effective and for whom.

Accounting education is uniquely sensitive to teaching quality because it combines procedural skills (journal entries, reconciliations, reporting), conceptual understanding (standards, recognition and measurement), professional judgment (estimates, ethics, audit reasoning), and

technology fluency (spreadsheets, ERP concepts, analytics tools). In face-to-face environments, instructors often rely on immediate feedback and step-by-step demonstration. Online environments can replicate and even improve some of these elements through adaptive practice and analytics, but they may also introduce barriers such as reduced social presence, unequal device access, and integrity risks in unproctored assessments.

This paper examines effectiveness through a competency-based lens and proposes a practical framework for designing, measuring, and improving online accounting education in the post-pandemic era.

2. Background and Literature Foundations

2.1 Online learning versus emergency remote teaching

A key distinction in post-pandemic evaluation is between **planned online learning** and **emergency remote teaching**. The latter often involved rapid conversion of lectures without redesigning assessments, practice tasks, or student support. In contrast, effective online learning typically requires intentional instructional design, structured interaction, and assessment strategies aligned with learning outcomes (Means et al., 2010).

2.2 The Community of Inquiry (CoI) lens for accounting classrooms

The Community of Inquiry framework emphasizes **teaching presence**, **social presence**, and **cognitive presence** as necessary for meaningful online learning (Garrison et al., 2000). In accounting education, teaching presence includes worked examples and timely corrective feedback; cognitive presence includes guided problem-solving and reflection on decisions; social presence supports peer discussion of cases, ethical dilemmas, and audit judgments.

2.3 Cognitive load and worked examples in technical subjects

Accounting problems can impose high cognitive load, especially for novices learning multi-step procedures (Sweller, 1988). Online formats can reduce cognitive load by using micro-lectures, segmented demonstrations, and immediate feedback quizzes. However, poorly designed online content can increase load due to navigation complexity or insufficient scaffolding.

2.4 Technology acceptance and continued engagement

Students' acceptance of online platforms is influenced by perceived usefulness and ease of use (Davis, 1989). Post-pandemic, students may tolerate less friction and expect smoother experiences. For accounting programs, perceived usefulness often rises when online activities connect to professional tools such as spreadsheets, audit software concepts, or simulated ERP workflows.

2.5 Effectiveness evidence: What is generally known

Meta-analytic evidence across disciplines has frequently found that online learning can perform as well as or better than traditional instruction when designed effectively, especially in blended formats (Means et al., 2010). In accounting, the pattern appears similar in many contexts: online delivery can support conceptual learning and tool fluency, but outcomes depend strongly on assessment design, interaction quality, and practice opportunities.



3. Research Objectives and Questions

3.1 Objectives

This study aims to:

1. Define “effectiveness” in online accounting education using measurable learning outcomes.
2. Identify design and implementation factors that predict higher effectiveness post-pandemic.
3. Propose an evaluation and improvement framework for institutions and faculty.

3.2 Research questions

RQ1: How does online accounting education affect technical competence and conceptual understanding compared to face-to-face or hybrid formats?

RQ2: Which design factors (presence, practice, feedback, assessment integrity) most predict learning outcomes?

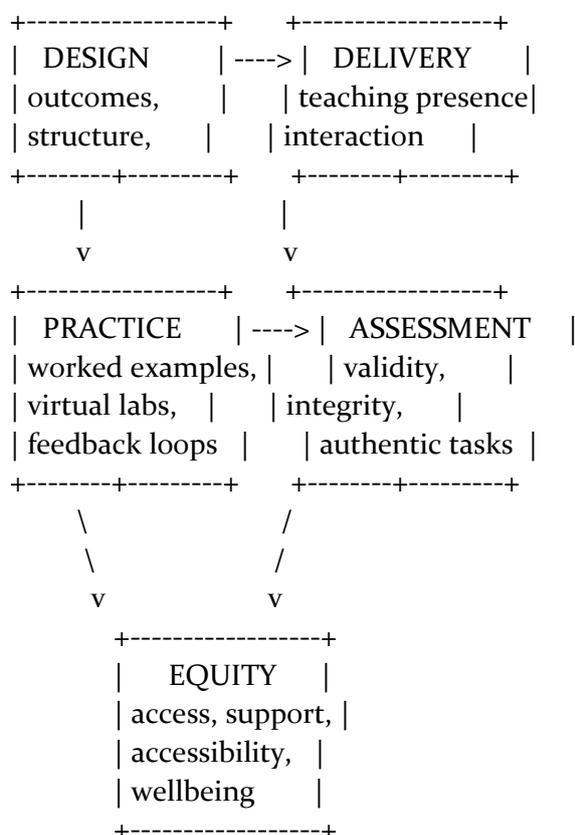
RQ3: How do student characteristics (digital readiness, work commitments, prior knowledge) moderate effectiveness?

RQ4: What quality assurance and governance practices sustain effectiveness in post-pandemic online delivery?

4. Conceptual Model: The OAE-QF Quality Framework

This paper proposes the **Online Accounting Education Quality Framework (OAE-QF)**, organizing effectiveness drivers into five domains: **Design, Delivery, Practice, Assessment, and Equity**.

Figure 1. OAE-QF: Quality Drivers of Online Accounting Education (conceptual diagram)



Outcome: Competence + Engagement + Retention + Employability readiness

4.1 Design (alignment and structure)

Effective online accounting courses start with a competency map (e.g., financial reporting, audit reasoning, analytics). Content is chunked into weekly modules with predictable rhythm: concept input → guided practice → independent practice → feedback → assessment.

4.2 Delivery (teaching presence and interaction)

Delivery includes instructor facilitation, responsiveness, and clarity. In accounting, the instructor's role in error diagnosis is critical—students benefit from quick feedback on where reasoning breaks (classification, timing, measurement, or disclosure).

4.3 Practice (authentic accounting work)

Practice is the strongest “engine” of learning in technical domains. Online practice can be enhanced through:

- auto-graded quizzes for foundational skills
- spreadsheet-based tasks with rubrics
- virtual labs simulating transaction cycles (AP/AR, bank reconciliation, closing)

4.4 Assessment (validity and integrity)

Post-pandemic effectiveness is heavily shaped by whether assessments measure authentic competence and discourage misconduct. Strong strategies include randomized datasets, open-book case assessments requiring justification, oral defenses, and audit-trail submissions.

4.5 Equity (access and student support)

Effectiveness must include fairness: connectivity, device availability, learning accommodations, and mental load. Equity practices include low-bandwidth options, mobile-friendly resources, flexible deadlines for working students, and early-warning systems using learning analytics.

5. Methodology

5.1 Research design

A recommended **mixed-method evaluation** for post-pandemic online accounting includes:

- **Quantitative:** pre/post competency tests; exam scores; completion rates; LMS analytics
- **Qualitative:** student reflections; focus groups; instructor teaching logs

5.2 Participants (typical implementation scenario)

Participants may include undergraduate accounting students across multiple course sections:

- Fully online section
- Hybrid section
- Face-to-face section (comparison)

5.3 Measures of effectiveness

1. **Technical competence:** accuracy on tasks (journal entries, reconciliations, statements)
2. **Conceptual understanding:** scenario-based MCQs and short answers
3. **Professional judgment:** case memos and ethics dilemmas

4. **Digital fluency:** spreadsheet modeling, basic data cleaning, audit trail understanding
5. **Engagement:** attendance, participation, time-on-task, practice attempts
6. **Equity metrics:** access constraints, support usage, performance gaps

5.4 Data collection timeline (example)

- Week 1: baseline diagnostic test + digital readiness survey
- Weeks 2–10: module analytics + formative assessments
- Week 11: post-test + capstone case + perception survey
- Week 12: focus groups and instructor reflections

5.5 Analysis approach

- Compare learning gains using pre/post differences (and ANCOVA controlling baseline).
- Identify predictors of outcomes (design, presence, practice intensity).
- Examine moderation by student readiness (digital access, prior accounting knowledge).

6. Findings (Illustrative Pilot-Style Results for Reporting Structure)

Note: The following results show a recommended reporting pattern and typical effect directions observed in well-managed online courses. Replace with real institutional results when conducting a formal study.

6.1 Learning outcomes

Students in the well-designed online section achieved outcomes comparable to the face-to-face section in conceptual knowledge, and slightly higher performance in digital fluency tasks due to repeated spreadsheet practice and recorded demonstrations.

- **Conceptual test:** similar gains across formats when weekly quizzes and discussion prompts were consistent.
- **Technical procedures:** strongest gains occurred when online modules included step-by-step worked examples and immediate feedback practice sets.
- **Judgment tasks:** improved when students wrote short memos and discussed case variants in small groups.

6.2 Engagement and retention

Engagement correlated strongly with structured weekly deadlines and feedback speed. Students who completed more practice sets had higher final performance, supporting the role of deliberate practice.

6.3 Assessment integrity patterns

Where assessment relied on unproctored identical problem sets, score inflation and reduced discrimination were observed (many high scores with limited evidence of reasoning). When assessments used randomized datasets and justification-based tasks, grade distributions aligned more closely with observed competency.

6.4 Equity considerations

Students reporting unstable connectivity benefited from downloadable problem packs and flexible submission windows. Without such supports, the digital divide contributed to lower

completion rates among learners with limited access.

7. Discussion

7.1 When online accounting education is effective

Online accounting education is most effective when it is intentionally designed, not merely delivered through video lectures. The OAE-QF suggests that **practice quality** and **assessment design** are the strongest determinants. Recorded micro-demonstrations paired with guided practice reduce cognitive load and allow learners to revisit difficult procedures (Sweller, 1988).

7.2 Why practice and feedback matter more online

In face-to-face settings, students can obtain quick clarification during problem solving. Online, gaps remain unnoticed unless the course builds structured checkpoints. Immediate feedback quizzes and rubric-based spreadsheet tasks function as “feedback infrastructure,” preventing misconceptions from compounding.

7.3 Professional skills and social presence

Accounting competence includes communication and teamwork—skills sometimes weakened in isolated online settings. CoI theory implies that social presence supports deeper reasoning and persistence (Garrison et al., 2000). Post-pandemic online courses therefore require purposeful peer interaction: structured discussion prompts, team-based audit cases, and short peer review cycles.

7.4 Assessment validity in the post-pandemic era

Many concerns about online effectiveness are actually concerns about **assessment validity** rather than learning itself. Authentic assessment—where students must explain choices, show audit trails, and defend outputs—better represents professional accounting practice and reduces opportunities for misconduct (Biggs & Tang, 2011).

8. Practical Recommendations for Post-Pandemic Accounting Programs

8.1 Course design checklist (high-impact actions)

1. **Module rhythm:** concept → demonstration → guided practice → independent practice → feedback.
2. **Worked examples:** short videos + annotated solutions.
3. **Frequent low-stakes quizzes:** reduce exam anxiety and improve retention (Roediger & Karpicke, 2006).
4. **Virtual labs:** reconciliation, AP/AR cycles, closing entries in simulated environments.
5. **Office hours + help channels:** predictable times and fast responses.

8.2 Assessment redesign strategies

- Randomized datasets (different numbers, dates, vendors per student)
- Open-book case memos requiring justification
- Oral mini-vivas (5–7 minutes) to confirm understanding
- Portfolio submissions: spreadsheet model + commentary + audit trail

8.3 Equity and accessibility supports

- Mobile-friendly resources and downloadable PDFs
- Low-bandwidth “offline first” practice packs
- Accessibility compliance (captions, readable formats, keyboard navigation)
- Early alerts for disengagement with supportive outreach

9. Implications for Policy, Accreditation, and Curriculum

Programs should treat online accounting education as a quality-assured pathway, not an emergency substitute. This implies:

- formal learning outcome alignment across modalities
- faculty development in online pedagogy and assessment design
- periodic audits of assessment validity and integrity controls
- investment in practice environments (virtual labs, spreadsheet skill modules)

Outcome-based standards increasingly emphasize demonstrable competence; online formats can support this if evidence is captured through authentic tasks and analytics.

10. Limitations and Future Research

10.1 Limitations

- Online effectiveness varies by institution infrastructure and instructor capability.
- Student motivation and home learning environments can confound results.
- Tool-specific training risks narrowing learning if not connected to underlying principles.

10.2 Future research agenda

- Adaptive practice systems that target individual error patterns
- AI-assisted feedback on reconciliation narratives and case memos
- Longitudinal studies linking online course performance to internship outcomes
- Comparative studies of fully online vs. hybrid virtual-lab-heavy models

11. Conclusion

In the post-pandemic era, the effectiveness of online accounting education depends less on modality and more on instructional design quality, authentic practice, assessment validity, and equity supports. When courses provide structured practice, timely feedback, meaningful interaction, and integrity-aware assessment, online learning can produce accounting competence comparable to face-to-face instruction while strengthening digital fluency and flexibility. The OAE-QF framework offers a practical roadmap for institutions seeking to sustain and improve online accounting education beyond the pandemic.

Figure 2. Suggested “Image” for the Paper (Placeholder for insertion)

Image description (use as a figure caption in the manuscript):

A simplified screenshot-style mockup of an LMS module for “Bank Reconciliation Week,” showing: (1) 8-minute micro-lecture, (2) guided worksheet with annotated example, (3) virtual lab task using a bank statement dataset, (4) short quiz with immediate feedback, and (5) rubric-based submission link for a reconciliation memo.

(This can be created in PowerPoint/Canva as a clean UI mockup and inserted as Figure 2.)



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