

Exploring the Deep Integration of Information Technology and Accounting Practical Training Course Teaching

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Abstract: As higher education reform continues to deepen in the current era, the push to seamlessly weave information technology (IT) into subject-specific instruction has come to be viewed as an indispensable lever for enhancing the caliber of graduate outcomes. Nowhere is this more critical than in accounting, whose practical training component—arguably the most hands-on element of the curriculum—exerts a determining influence on the development of students' core professional capacities. In practice, however, the role that IT currently plays in most training classrooms remains largely confined to a supportive, tool-based function, stopping well short of the kind of genuine "integration" or "curricular reconstruction" that reformers envision. Framed by constructivist epistemology and the principles of blended learning, the present inquiry sets out to systematically pinpoint the principal bottlenecks that obstruct deeper synergies between technology and accounting practicum instruction. In response, we articulate a set of coherent strategies organized around four thematic pivots: updating the substance of teaching materials, retooling the instructional workforce, recalibrating learners' cognitive expectations, and rethinking conventional pedagogical models. Moreover, the discussion extends to spotlighting the far-reaching implications of successful integration—namely, its capacity to align accounting education with the profession's ongoing digital transformation, to nurture a more rounded set of student competencies, and to infuse simulated training with a heightened sense of real-world credibility. In its final analysis, the paper insists that genuine integration transcends the mere superimposition of digital gadgets onto existing curricula; instead, it demands a systemic and deliberate re-architecting of teaching objectives, learning content, instructional workflows, and evaluative mechanisms.

Keywords: Information Technology; Accounting Practicum Teaching; Curriculum Integration; Blended Teaching; Computerized Accounting.

1. Introduction

The opening decades of the 21st century have witnessed an unprecedented proliferation of digital technologies—big data, cloud infrastructure, AI-driven analytics, and mobile connectivity among them—that are collectively redrawing the operational blueprints and skill requirements of industries across the board. Accounting, a field historically anchored in double-entry bookkeeping and paper trails, finds itself at the epicenter of this upheaval: the erstwhile world of manual ledgers and physical vouchers has given way to electronic billing systems, cloud-based financial shared services, and AI-assisted accounting platforms. This profound transition, in turn, places mounting pressure on tertiary accounting educators to fundamentally rethink not only the instructional rationale behind their practicum offerings but also the concrete methods by which these courses are executed. [1-2]

Policy frameworks have not been indifferent to this urgency. Successive national education plans—most notably the Education Informatization 2.0 Action Plan—have repeatedly stressed the necessity of "fostering deep-seated integration between information technology and instructional activities, with the aim of achieving sweeping reforms in educational thinking, delivery modes, and institutional structures." Despite such high-level endorsements, the reality observed in many university training classrooms tells a different story. The prevailing pedagogical script remains remarkably unchanged: a prescribed case enterprise, a fixed monthly transaction cycle, and a linear workflow from start to finish. Within this highly patterned environment, IT tools

seldom rise above the roles of presentation aids, arithmetic utilities, or rudimentary software walkthroughs; their far richer capacities—for crafting authentic work scenarios, delivering real-time diagnostic feedback, enabling sophisticated data interrogation, and supporting geographically dispersed team collaboration—remain conspicuously underutilized.

What, then, accounts for this persistent gap between policy aspiration and classroom reality? Our analysis points to three interrelated sources of friction: (i) the accelerating obsolescence of training content in the face of rapidly evolving IT capabilities; (ii) the mismatch between many instructors' current technological proficiency and the competencies demanded by truly integrated instructional design; and (iii) the tension between students' expectations of interactive, digitally mediated learning and the still-prevalent passive lecture-style delivery. Tackling these problems cannot be accomplished through isolated technical adjustments; rather, it calls for a fundamental re-architecting of the training curriculum's goal structure, resource base, and evaluative logic—all rooted in a deliberate pedagogical philosophy. It is from this standpoint that the current study proceeds: to diagnose core deficiencies, to articulate integration pathways that are both conceptually robust and implementable in practice, and to reflect on what these reforms signify for the future trajectory of accounting pedagogy. [3]

2. Current Status of the Integrated Development of Information Technology and Accounting Practical Training Teaching

2.1. Outdated Training Content and Slow Update of Case Materials

At present, the training materials employed across most undergraduate and vocational accounting programs in China display considerable uniformity and are markedly out of date. A survey of leading accounting practicum textbooks issued over the past five years indicates that more than 70% continue to rely exclusively on manufacturing firms as their case backdrop, with the economic transactions described being largely confined to routine operations—procurement, production, sales, and expense reimbursement—and the majority of case scenarios having been established prior to 2018. While this type of content does serve to familiarize students with fundamental accounting workflows, it suffers from three notable deficiencies.

To begin with, the industrial scope is excessively narrow. In contemporary practice, accounting services extend well beyond manufacturing to encompass emerging sectors such as e-commerce, logistics, financial technology, cultural and creative industries, and renewable energy—each of which has its own distinctive rules for revenue recognition, cost aggregation, and tax handling. Learners who have been exposed only to factory-based cases are likely to encounter a pronounced "context gap" when they transition to real-world employment. Secondly, the updating of regulatory content has fallen behind. Since 2017, China's accounting standards for revenue, financial instruments, leasing, and other key areas have undergone successive revisions, and the nationwide rollout of electronic invoices and specialized VAT e-invoices was completed in 2021. Despite these changes, many training textbooks persist in presenting outdated treatments, thereby creating a measurable "standards disconnect" between academic preparation and workplace requirements. Thirdly, the simulation of job roles is unrealistic. Traditional practicum designs typically require each student to single-handedly execute the entire accounting cycle—from voucher creation through to financial statement preparation. Although this approach cultivates a comprehensive perspective, it obscures the authentic division of labor, authorization controls, and approval chains that characterize modern finance departments, thus denying students meaningful exposure to internal control mechanisms in action.

Furthermore, the pace at which case materials are refreshed lags conspicuously behind the ready availability of digital information resources. Although the internet offers a wealth of listed company annual reports, tax policy commentaries, and practical case databases, most faculty teams lack formalized protocols for systematically sourcing, evaluating, and adapting these materials into teachable formats. This disconnect—between the ease of technological access and the persistence of content inertia—stands as a telling indicator of integration that remains only superficial. [4]

2.2. Structural Shortcomings and Capability Bottlenecks of the Teaching Faculty

Teachers are the "primary converters" of technology-curriculum integration, and their technological literacy and innovative instructional design capabilities directly determine

the depth of integration. However, the current accounting practical training faculty faces a dual dilemma.

On the one hand, the proportion of "dual-qualified" teachers is insufficient. Genuine practical training teaching requires teachers to possess both solid accounting theory and first-hand corporate finance work experience. Yet survey data from some provincial universities indicate that less than 35% of lead instructors for practical training courses have more than three years of corporate finance experience, and the proportion of those additionally trained in information system development or application is even lower. Many young teachers enter the podium directly after graduation, with their own operational experience limited to simulated internships during study, lacking personal exposure to new business forms such as e-accounting suites, financial shared service centers, and RPA financial robots, making it difficult to avoid "armchair strategizing" in teaching.

On the other hand, teachers' technological application remains at a "low-level" stage. From the perspective of the TPACK (Technological Pedagogical Content Knowledge) framework, effective integrated teaching requires teachers to simultaneously possess technological, pedagogical, and content knowledge, and to achieve their cross-integration. Currently, most teachers use information technology at the level of courseware production, attendance tracking, and grade statistics, showing little familiarity with deep application models such as flipped classrooms, virtual simulation, and online collaborative learning. More concerning is that existing teacher training programs focus predominantly on operational training of technical tools while neglecting the cultivation of higher-order ability to "design integrated learning activities," resulting in teachers who, even after learning software operations, cannot organically embed them into teaching objectives.

2.3. Students' Cognitive Bias toward Practical Training Courses and Insufficient Learning Motivation

If teachers are the pivotal agents through which technology meets curriculum, then their digital literacy and their aptitude for inventive pedagogical design will inevitably dictate how far integration can genuinely proceed. Yet, when we examine the current makeup of the accounting practicum teaching workforce, a rather sobering picture emerges—one characterized by not one but two intersecting deficits that mutually reinforce each other.

The first of these concerns the paucity of faculty members who can legitimately claim "dual qualification." Authentic training instruction is inherently demanding: it calls for a combination of deep theoretical comprehension and substantial practical experience within corporate finance settings. Disturbingly, however, evidence drawn from surveys at a number of provincial universities indicates that less than 35% of the principal practicum instructors have spent upwards of three years working in enterprise finance departments, and those with additional training in information system design or implementation constitute an even smaller subset. The more common trajectory is for young academics to move directly from postgraduate study into university teaching, bringing with them little more than the simulated case experience they encountered as students. Their personal exposure to the operational realities of e-accounting environments, shared service infrastructures, or robotic process automation is minimal at best, which inevitably

renders their classroom instruction susceptible to the charge of being "armchair theorizing"—plausible in principle but disconnected from the dynamics of contemporary financial work. [5]

Compounding this experience gap is a second, equally formidable bottleneck: the technological competence of many incumbent faculty members remains confined to a relatively rudimentary level. The TPACK (Technological Pedagogical Content Knowledge) framework offers a useful diagnostic lens here, reminding us that effective integration demands not merely separate stores of technical, pedagogical, and content knowledge, but their active and deliberate intersection. In practice, however, most instructors deploy IT resources only for elementary functions—crafting presentations, recording attendance, and tabulating final marks—and have yet to venture into more transformative applications like flipped classroom delivery, immersive virtual simulation, or digitally mediated peer collaboration. What makes this situation particularly concerning is the orientation of existing teacher training initiatives, which overwhelmingly emphasize hands-on operation of specific software packages while giving short shrift to the more intellectually demanding task of weaving those tools into coherent, objective-driven learning activities. The net result is a troubling irony: even after mastering the mechanics of a given program, many teachers remain unable to embed it meaningfully within their pedagogical framework, leaving the promise of integration largely unfulfilled.

3. Systematic Strategies for Integrating Information Technology and Accounting Practical Training Teaching

Addressing the above issues, this paper proposes the following four-dimensional integration strategies, each mutually supportive, forming a closed-loop advancement system.

3.1. Constructing a Dynamically Updated Digital Case Resource Repository

Tackling the persistent issue of content obsolescence demands more than occasional, teacher-initiated updates; it calls for a formally structured, technology-supported mechanism that ensures case materials remain current on an ongoing basis. Such a mechanism, we argue, rests upon three interconnected pillars.

The first pillar involves the formation of cross-institutional case development teams. By drawing upon the infrastructure of regional university consortia or existing industry-education collaboration platforms, we can assemble mixed teams comprising academic faculty, corporate financial controllers, and practicing certified public accountants. Together, these stakeholders would negotiate and codify a transparent set of screening criteria for case selection—criteria that must simultaneously satisfy four conditions: sufficient industrial breadth (spanning at least five distinct sectors), regulatory currency (full alignment with the latest accounting pronouncements and tax legislation), pedagogical appropriateness (manageable transaction volumes with graduated difficulty), and practical feasibility (access to anonymized real-world corporate data where available).

The second pillar concerns the development of an intelligent online case repository, underpinned by robust database architecture. Historically accumulated case

materials would be systematically indexed and archived according to multiple classification axes—industry sector, complexity level, conceptual focus, and target academic term—and made accessible through user-friendly search interfaces. Instructors, drawing upon this infrastructure, could rapidly assemble tailored case combinations that correspond to their unfolding teaching schedules, yielding a flexible content portfolio structured around three tiers: foundational cases, supplementary cases, and frontier cases. Where technical capacity permits, the incorporation of intelligent recommendation algorithms would further enable personalized case assignment, pushing supplementary practice materials to individual students based on their prior performance—thereby operationalizing differentiated instruction at scale.

The third pillar involves the direct integration of authentic cloud-based accounting platforms and electronic voucher repositories. Through strategic partnerships with commercial bookkeeping agencies or corporate financial shared service centers, academic programs could secure access to anonymized monthly accounting data—with all sensitive identifiers rigorously redacted—so that students are compelled to grapple with the genuine ambiguities, irregular vouchers, and cross-period adjustments that real-world practitioners routinely encounter. Complementing this, a diversified collection of electronic invoice specimens—including VAT special invoices, standard invoices, and digital travel receipts—can be compiled into a searchable digital reference bank, affording students sustained practice in identification, authentication, and appropriate accounting treatment. The pedagogical value of such "de-simulated" authentic materials cannot be overstated: by replacing sanitized textbook scenarios with the textured complexity of actual financial data, they significantly elevate both the realism and the cognitive challenge of the training experience.

3.2. Promoting a Three-Stage Progressive Teaching Model of "Manual Bookkeeping – Computerized Accounting – Intelligent Finance"

A central premise of our approach is that integration does not reduce to a simple binary choice between traditional and digital methods, nor to their uncritical juxtaposition within the same curriculum. What is needed, instead, is a carefully orchestrated cognitive progression—a learning arc that moves students deliberately from foundational skill acquisition through technological familiarization and onward to strategic awareness. [6]

The starting point of this arc is deliberate and unhurried: manual bookkeeping, far from being a nostalgic relic, serves here as an indispensable pedagogical instrument. Students work through a complete monthly accounting cycle for a representative manufacturing enterprise—from voucher scrutiny and journal preparation, through ledger posting and trial balance verification, to period-end adjustments and final statement production. The logic governing this phase is intentionally analog and stepwise: instructors scrutinize each operation individually, offering granular corrections designed to embed procedural accuracy and conceptual clarity at the most fundamental level. The underlying assumption is straightforward—cognitive fluency with the manual process furnishes the interpretive framework students will later need to make sense of what automated systems are actually doing.

Once this baseline competence is secured, the same

transactional dataset is migrated to a computerized environment, where students re-execute the entire cycle using mainstream platforms like UFIDA U8 or Kingdee K/3. The pedagogical value here lies not in the software per se, but in the comparative exercise it enables: by juxtaposing manual and automated treatments—particularly in voucher entry, posting, closing, and reporting—students come to recognize both the time-saving advantages and the hidden algorithmic logics that underpin digital systems (for example, the rules that enable automatic account-direction verification, or the computational procedures that govern period-end close). Supplementing this, advanced spreadsheet techniques—lookup functions, data aggregation via pivot tables, simulation modeling, and macro automation—are concurrently developed, equipping students to handle larger-scale financial data than manual methods alone would permit.

The final phase extends the trajectory still further, introducing business intelligence analytics and robotic process automation at an applied conceptual level. Visualization tools such as Power BI and Tableau enable students to perform multi-perspective analysis on training-derived data and to craft interpretive reports that go beyond routine financial statement preparation. Meanwhile, hands-on engagement with RPA platforms—UiPath Community Edition offers an accessible entry point—on focused tasks like invoice recognition and reconciliation automation, cultivates a tangible appreciation for how smart technologies are gradually absorbing the more repetitive dimensions of accounting work. It bears emphasizing, however, that this phase does not presuppose universal programming competence; its primary ambition is cognitive rather than technical—to embed the recognition that technology is not merely a supplementary aid but a constitutive force reshaping the financial function itself.

Across these three phases, the learner moves from manual rigor, through digital fluency, to strategic technological awareness—a progression that embodies the core pedagogical conviction that information technology, properly deployed, does not supersede professional judgment but rather expands its reach and amplifies its impact.

3.3. Creating a Multimedia, Scenario-Based, and Interactive Digital Learning Ecosystem

If integration is to extend beyond content updating and pedagogical sequencing, it must also attend to the material and organizational conditions under which learning takes place. Information technology, we contend, provides the means to substantially diversify these conditions—not through the mere addition of digital gadgets, but through the deliberate construction of a multi-layered learning ecosystem that addresses different dimensions of student need.

One layer of this ecosystem consists of targeted micro-learning resources. Rather than relying solely on textbooks or in-class demonstrations to convey procedural knowledge, we propose the development of a curated library of short video modules—each lasting between five and eight minutes—focused on specific operational cruxes that frequently impede student progress. These include, for example, the nuanced review of original vouchers, the construction of defensible period-end adjustments, and the correct completion of balance sheet presentations. The pedagogical value of these resources lies not in their length but in their accessibility and reusability: students can engage with them on demand, before

tackling practical tasks as preparatory scaffolding, or retrospectively when stumbling blocks emerge during independent work. Crucially, effective micro-lectures go beyond surface-level demonstration; they incorporate explicit "error alerts"—highlighting common misconceptions—and, perhaps more valuably, voiceover commentary that externalizes the expert's internal reasoning process, thereby rendering tacit professional judgment visible and learnable.

A second layer extends the learning environment from individual viewing to collaborative role-play, through a virtual simulation job-rotation platform. This system constructs a digital finance department comprising a spectrum of functional roles—financial manager, general ledger accountant, cost accountant, cashier, auditor, tax accountant—and randomly assigns students to these positions for each training cycle. Working from an identical set of business transactions, participants must coordinate their actions according to prescribed internal control protocols: the cashier attends to cash-related vouchers and journals, the general ledger accountant reviews and posts, the financial manager exercises oversight and finalizes outputs. The system's distinctive contribution lies in its capacity to log each participant's operational footprint automatically, while also generating evaluative prompts—both peer-assessment cues and process-bottleneck diagnostics—that direct students' attention to the interdependence of roles and the importance of procedural compliance in real-world finance teams.

A third layer addresses the perennial challenge of assessment scalability and feedback timeliness. Traditional grading of manual accounting workbooks is labor-intensive and delays the provision of actionable feedback. An intelligent grading platform, equipped with image-recognition capabilities, offers a practical alternative. Students photograph or scan their completed vouchers and ledgers for upload; the system subsequently extracts critical data points—voucher identifiers, account codes, monetary entries—and benchmarks them against reference solutions, automatically flagging deviations and classifying error patterns. The benefits here are twofold: instructors are relieved of a substantial portion of routine grading labor, while students receive rapid, visually formatted diagnostic reports that map their specific deficiencies and guide subsequent corrective effort. In this way, the platform not only streamlines assessment logistics but also transforms evaluation from a terminal judgment into an ongoing learning resource. [7]

3.4. Reforming the Course Evaluation Mechanism: From "Result-Oriented" to "Process-Added-Value"

If the preceding strategies address what and how students learn, the question of how we assess that learning is equally consequential—and, in many ways, more resistant to change. Conventional evaluation practice in accounting training has tended to privilege final outputs—the completed account books, the balanced trial balance, the polished statements—as the primary, if not exclusive, indices of achievement. A technology-integrated approach, however, compels us to broaden our evaluative gaze: to attend not only to what students produce at the end of the process, but also to how they navigate the learning journey itself.

We propose an assessment architecture that distributes weight across three distinct evaluative dimensions, each addressing a different temporal and qualitative aspect of

student performance.

One dimension—to which we assign 40% of the total grade—is process-oriented evaluation. This category captures the continuum of student engagement throughout the training period, drawing on multiple data sources: completion of pre-class video modules, frequency and quality of contributions to online discussion forums, system-generated activity logs (which record login patterns, operational sequences, and revision histories), and peer-assessed evaluations of collaborative performance. The inclusion of these process metrics reflects a deliberate pedagogical choice: we consider the habits of preparation, the willingness to participate in collective inquiry, and the capacity for iterative revision as themselves legitimate and valuable learning outcomes, not merely as proxies for eventual achievement.

A second dimension—also weighted at 40%—is outcome-based evaluation. Here the focus shifts to the terminal artifacts of student work: the final manual and computerized accounting suites, judged for both technical accuracy and procedural conformity; and the financial analysis reports, assessed for interpretive insight, evidentiary grounding, and clarity of exposition. These traditional outcome measures remain indispensable, providing a summative benchmark of whether students have internalized the core technical competencies that the training is designed to convey.

The final dimension, carrying a 20% weighting, is what we term developmental evaluation. This component departs from static measurement in favor of a growth-oriented perspective. It encompasses two sub-elements: first, the comparative analysis of performance gains between pre-course and post-course assessments, which captures individual learning trajectories rather than absolute standings; second, the metacognitive quality evident in students' reflective practice essays, wherein they are invited to articulate what they have learned, what they found challenging, and how their understanding has evolved. This developmental orientation acknowledges that the ultimate value of education lies not only in where students end up, but in the distance they have traveled from their starting points.

Taken together, this tripartite evaluation model pursues a dual objective: it cultivates sustained motivation for active process engagement, while simultaneously furnishing a more comprehensive and realistic picture of the competency gains that integrated instruction can generate—one that honors both the products students create and the processes by which they create them.

4. Multi-dimensional Significance of Deep Integration of Information Technology and Financial Practical Training

4.1. Responding to the Digital and Intelligent Transformation Requirements of the Contemporary Accounting Profession

Is a solid command of double-entry bookkeeping and familiarity with standard accounting procedures still sufficient preparation for today's accounting graduates? The evidence from ongoing professional transformation suggests otherwise. The discipline has been steadily migrating from a transaction-processing paradigm toward a more managerial, analytically oriented, and digitally mediated mode of operation—a trajectory formally recognized in the Ministry

of Finance's 14th Five-Year Plan for Accounting Reform and Development, which urges the acceleration of digital transformation and the standardization of data practices alongside comprehensive electronic voucher adoption. The scale of this transition is measurable: electronic invoices now account for over 85% of all invoices issued nationwide, tax declaration processes have been fully digitized, and ancillary financial functions—bank reconciliation, social security administration, and audit evidence collection—are increasingly conducted through interconnected digital platforms.

The implications for accounting education are inescapable. Practitioners whose training has equipped them only with manual bookkeeping skills, without complementary exposure to information system workflows, cybersecurity considerations, and digital archiving protocols, will face mounting difficulties in performing even routine professional tasks. Yet the challenge extends beyond operational competence. Deeply embedding information technology into the training curriculum serves a purpose far more ambitious than familiarizing students with particular software packages: it aims to cultivate a qualitatively different professional orientation—an "accounting sensibility" attuned to digital environments. This sensibility comprises at least three interrelated capacities: the ability to distinguish valid evidentiary signals from the noise of massive electronic datasets; the capacity to recognize and assess the internal control vulnerabilities that information systems invariably introduce; and the facility to harness analytical tools for strategic decision support, rather than merely for retrospective record-keeping. Traditional training models, focused predominantly on procedural accuracy and rule application, have largely failed to develop these capacities. Yet it is precisely these capabilities that now define the new baseline of accounting competence in a digitally saturated professional landscape.

4.2. Promoting the Coordinated Development of Students' Professional Competence and Transferable Skills

One of the distinguishing features of deeply integrated instructional designs is that they are inherently project-based and collaborative in nature—a characteristic that yields benefits extending well beyond the acquisition of domain-specific accounting knowledge. Indeed, such designs simultaneously nurture a suite of transferable capabilities that are increasingly valued in contemporary professional settings.

Foremost among these is collaborative competence, which is exercised and refined through the virtual simulation job-rotation system. Here, students are required to coordinate their activities across multiple communicative modalities—composing written handover notes, engaging in oral discussions (whether face-to-face or via digital platforms), and exchanging messages within the system itself—all while conveying complex accounting judgments with precision and clarity. This multi-channel interaction intentionally replicates the communication ecology of actual finance departments, where the efficient transmission of information is critical to both workflow continuity and the maintenance of effective internal controls.

Closely related is the cultivation of critical thinking and diagnostic reasoning. When students are presented with non-standard transactions—discount arrangements, non-monetary exchanges, or contingent liability assessments, for example—

they quickly realize that formulaic textbook responses are insufficient. The pedagogical design forces them to engage in a more demanding cognitive sequence: consulting primary regulatory sources, debating interpretations with peers, and seeking authoritative confirmation from instructors. This iterative process embodies a complete intellectual arc—from initial puzzlement, through collaborative exploration, to validated resolution—that closely parallels the diagnostic reasoning required of practitioners confronting novel or ambiguous situations.

Perhaps most significant in the longer term is the development of self-directed learning capacity and digital information literacy. The technology-enriched learning environment provides students with access to an extensive array of resources—course platforms, academic search engines, tax law databases, and professional repositories—and, crucially, encourages them to take initiative in mobilizing these tools to address unfamiliar problems. Over successive training cycles, this repeated exercise consolidates a recursive learning pattern: problem identification → resource discovery → critical screening and synthesis → practical application and verification. In a profession where regulatory frameworks and technological tools are subject to continuous revision, this metacognitive capacity for autonomous knowledge acquisition may ultimately prove more valuable than the mastery of any specific factual or procedural content.

4.3. Enhancing the Authenticity and Credibility of Practical Teaching and Stimulating Intrinsic Learning Motivation

Perhaps the most persistent criticism leveled against traditional practicum offerings concerns their overly sanitized, simulation-heavy character, which frequently engenders a passive student mindset: “Since this is not a real company, mistakes carry no real consequences.” The integration of information technology offers a promising corrective to this pedagogical shortcoming. [8]

The first observable benefit lies in the enhanced authenticity of learning materials. Through the deployment of electronic voucher libraries, genuine accounting datasets, and dynamically updated case scenarios, students are confronted with data fragments that originate from actual business operations. They are required to assess transaction legality, verify voucher validity, and evaluate the reasonableness of proposed accounting treatments—tasks that mirror the daily responsibilities of practicing accountants. This “near-real” learning context effectively evokes a sense of professional accountability and intellectual seriousness that contrived textbook examples rarely inspire.

A second complementary benefit concerns student motivation and feedback. When learners observe that their completed accounting workbooks, after undergoing automated system validation, generate standardized financial statements—or when they produce dynamic visual dashboards using BI visualization tools—they experience a palpable sense of accomplishment and intellectual curiosity about the technological instruments at their disposal. This positive affective response, in turn, generates a self-reinforcing cycle of sustained engagement and exploratory learning.

Perhaps most significantly, online platforms enable institutions to establish remote partnerships with external corporate mentors and industry specialists. These experts can

periodically review student submissions and provide constructive online feedback; in more advanced implementations, they may even subcontract certain real bookkeeping tasks—subject to rigorous anonymization and security authorization protocols—to qualified students. This “real accounts, real practice” model dramatically narrows the gap between academic preparation and professional application, yielding a qualitative enhancement in training outcomes that simulated exercises alone cannot achieve.

4.4. Challenges and Future Prospects of Integration Practice

To acknowledge the transformative potential of deep integration is not to ignore the very real impediments that currently constrain its realization. A sober assessment of the implementation landscape reveals obstacles that span institutional, material, and ethical dimensions—each deserving of careful consideration before we project too confidently toward the future.

At the institutional level, the most pervasive barrier is one of inertia. Curricular structures, credit-hour assignments, and examination regimes in many universities have remained remarkably stable over extended periods, effectively locking in traditional pedagogical modes and offering little structural encouragement—or even space—for faculty members to experiment with integrated approaches. This rigidity is compounded by material constraints: not all institutions possess the laboratory infrastructure, software licensing budgets, or network capacity required to support virtual simulation environments or data-intensive instructional models. Beyond these logistical hurdles, there are ethical and security considerations that cannot be casually dismissed. The incorporation of real corporate data—however educationally valuable—inevitably raises questions of trade secret protection and personal privacy, demanding that institutions establish clear protocols for data anonymization, authorized usage, and accountability in the event of breaches.

What, then, are the most plausible directions for future progress? Our analysis suggests three intersecting pathways. One is the movement toward increasingly intelligent systems, in which AI-driven assistants monitor student performance in real time and deliver adaptive, context-sensitive feedback—a development that promises to make individualized instruction feasible at scale. Another is the expansion of resource-sharing networks across institutions, enabled by MOOCs, virtual faculty collaboration spaces, and open-source case platforms; such networks hold the potential to democratize access to high-quality training materials and thereby mitigate the resource disparities that currently separate well-funded from under-resourced programs. A third pathway, perhaps the most ambitious, is the deepening of ties with the industrial ecosystem itself—through the adoption of enterprise-level financial cloud platforms in coursework, so that students encounter the same tools and systems they will use in professional practice, rendering the transition from classroom to workplace far less abrupt than it currently is.

Yet as we pursue these technical and organizational innovations, we would do well to remember what integration is fundamentally about. It is not a project of technological replacement—of teachers displaced by algorithms, or paper supplanted by screens—but rather one of amplification and extension: amplifying the pedagogical wisdom that only experienced educators can bring, and extending the cognitive reach of learners through tools that enable modes of analysis,

synthesis, and insight that manual methods alone cannot support. The challenge before accounting educators, then, is to approach this transformation with both ambition and humility—with openness to new possibilities, yes, but also with careful attention to what is worth preserving, and with a willingness to reflect critically on what the integration of technology truly adds to the educational enterprise. Only in this way can we hope to produce graduates who are not merely technically proficient but genuinely equipped—with both solid professional grounding and the digital fluency that the twenty-first-century accounting profession demands.

5. Conclusion

To frame the integration of information technology and accounting practical training as a mere technical upgrade would be to fundamentally misunderstand its nature. It is, more accurately, a sustained and systemic pedagogical transformation—one that implicates not only what is taught and how it is delivered, but also the institutional conditions, faculty capabilities, student expectations, and assessment philosophies that collectively shape the educational experience. This paper has sought to contribute to that transformation by identifying the principal obstacles that currently constrain effective integration and by proposing concrete, theoretically informed strategies to address them: the development of dynamic digital case repositories, the adoption of a phased teaching progression from manual through computerized to intelligent systems, the cultivation of a rich multimedia learning ecosystem, and the reorientation of evaluation toward process-added-value metrics. In parallel, we have explored the wider implications of such integration—its potential to bridge the gap between academic preparation and professional practice, to cultivate a more rounded set of student competencies, and to restore a sense of authenticity and purpose to training exercises that have too often felt contrived and low-stakes.

What emerges from this analysis is a recognition that the most consequential shift is neither technical nor logistical, but conceptual. Information technology, in this reframing, ceases to be a peripheral tool deployed for convenience or efficiency; it becomes instead a cognitive partner—a medium through which students encounter, interrogate, and construct accounting knowledge in ways that would be impossible through manual methods alone. It is this reorientation—from

thinking of technology as an aid to thinking of it as constitutive of the learning process—that holds the key to moving practical training beyond the familiar terrain of knowledge transmission and into the more demanding but ultimately more rewarding domain of capability development. If accounting education is to produce graduates who are genuinely fit for the digital age—professionally grounded, analytically agile, and technologically fluent—then this conceptual shift is not optional. It is, we would argue, the essential precondition for any reform that aspires to be more than cosmetic.

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