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Business Education in the Age of AI

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Abstract

The rapid growth of AI has many implications for business learning across organizations. The expanding research on AI in business education has been fragmented so far. A pathway to manage the inputs and outcomes is relevant to academic, government and corporate settings. Business education needs a holistic re-evaluation of the pedagogy, roles and best practices in an AI-rich ecosystem.

Keywords

Artificial Intelligence, AI Collaboration, AI Integration, Business Education, Technology Adoption

1. Introduction

The rapid growth of artificial intelligence (AI) is reshaping business education, creating complex challenges and transformative opportunities for educators and learners. Recent systematic reviews document a sharp increase in scholarship on AI in higher education spanning practical applications, ethical concerns, and emerging learning designs. Yet fragmentation across topics and methods is noteworthy. This fragmentation motivates a more integrative treatment of AI's implications for business curricula and organizations.

Although interest in AI is widening across disciplines, empirical studies remain uneven. Many investigations focus narrowly on AI literacy, instructor preparedness, course management, or technology acceptance rather than on their intersection. Sector reports further confirm rapid uptake of generative tools on campuses and highlight practical pressures on business programs to revise curricula and assessment practices (GMAC). Together, these reviews and reports indicate a clear gap: descriptive accounts are plentiful, but integrative, actionable frameworks are scarce.

The conceptual framework synthesizes the strands of AI literacy, instructional

design, technology acceptance, and governance into a cohesive structure to guide organizations. By linking pedagogical pillars of Foundation, Application, and Safeguards (Mishra & Koehler, 2006) to institutional readiness and technology maturity, the framework translates descriptive findings into testable propositions and practical priorities. This article moves beyond single-issue studies by mapping where evidence exists and where targeted empirical work is needed.

Enthusiasm for AI's potential to enhance efficiency and creativity is growing. Scholars also raise concerns about learning depth, retention, and ethical protections. Systematic reviews stress the need for rigorous evaluation of learning outcomes and governance as AI becomes embedded in instruction. Classical models of technology adoption (e.g., Technology Acceptance Model) remain useful for explaining individual uptake, but do not fully capture organizational, curricular, and assessment dynamics that shape co-creative learning when AI is deeply integrated (Davis, 1989).

Generative AI tools are increasingly embedded in learning environments (Sundkvist & Kulset, 2024), influencing educators and student experiences. The methodology used in this study integrates diverse dimensions from the literature and sector practice to produce a conceptual roadmap for research and implementation. The framework is conceptual and should be treated as a working model that requires empirical validation through targeted pilots and longitudinal assessment.

2. AI in Business Education

This study advances an integrated framework that views business education as a socio-technical learning system transformed by AI. Drawing on theory and emerging empirical insights, the framework comprises five interconnected domains: 1) contextual inputs such as institutional readiness, teacher competence; 2) mediating educational processes including curriculum and AI-literacy instruction; 3) student engagement mechanisms like prompt literacy and AI collaboration; 4) learning outcomes including critical thinking and IP safeguards; and 5) feedback and institutionalization through continuous improvement driven and business community signals.

The proposed structure provides a systemic pathway for identifying causal mechanisms and measurable variables that guide business education in the AI era. Drawing on prior models of technology integration (e.g., Mishra & Koehler, 2006; Long & Magerko, 2020), the conceptual framework synthesizes AI-enabled learning into five actionable dimensions.

The diagram of **Figure 1** shows the five proposed interconnected domains.

Building on Mishra and Koehler's TPACK, the proposed five-domain framework shifts the focus from classroom alignment to a socio-technical view of AI-enabled business education. It integrates organizational context, learner engagement, and organizational feedback with program design, providing a systemic lens for assessment, governance, and infrastructure decisions.

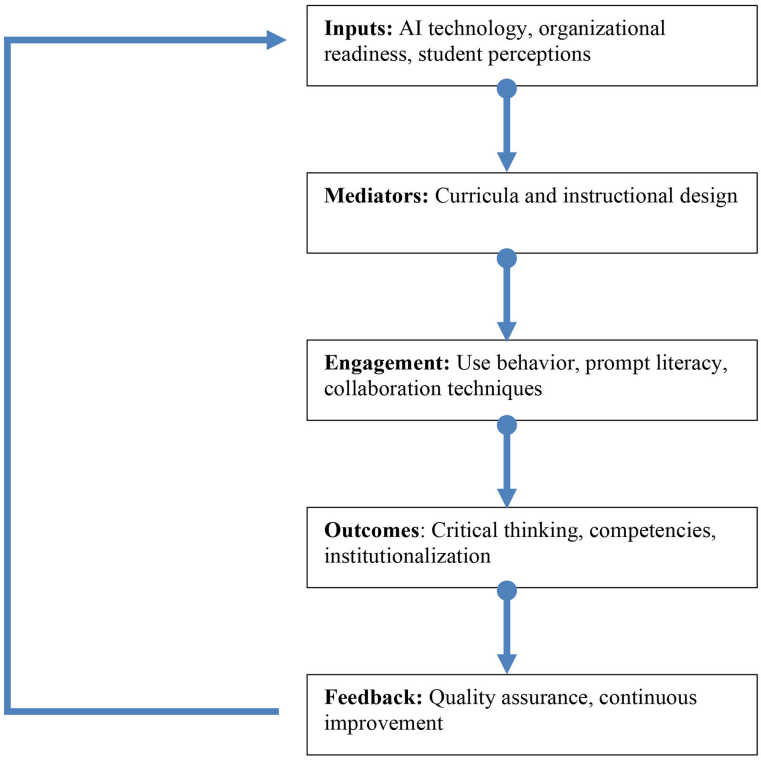

Figure 1. Framework for business education in the age of AI.

TPACK defines effective teaching as the intersection of technological, pedagogical, and content knowledge. While valuable for classroom design, it treats technology primarily as a tool and does not fully address institutional readiness, policy, assessment ecosystems, or learner agency—factors that become critical as AI capabilities evolve. The five-domain framework fills these gaps by operationalizing governance, safeguards, and co-creative learning as mechanisms that support adoption and learning outcomes.

3. Defining the Framework

The five interconnecting framework themes are described in further detail below.

3.1. Contextual Inputs

Conditions enabling AI integration:

- AI functionality to access advanced tools such as large language models and tailored assistants.
- Institutional readiness and policies for learning-technology investments, organizational guidelines and regulatory alignment.
- Instructor capabilities and AI literacy with organizational support, creative course design and openness to change.
- Learner attitudes, trust, perceived utility and prior exposure.
- Culture to foster AI acceptance across different domains (e.g. finance, marketing, operations).

3.2. Mediating Processes

Educative levers where integration occurs:

- Curriculum design incorporating AI-relevant learning objectives, competencies and balanced technical and meta-skills.
- Teaching practices with human-AI teaming, collaboration activities and AI-supported problem solving.
- Assessment design which shifts from recall to authentic, reflective, collaborative tasks, revised depth/breadth expectations and use of AI-resilient assessments.
- AI-literacy that reveals how AI works, limitations, prompt literacy, and applicable and evolving safeguards.

3.3. Participant Engagement

How trainers and learners interact:

- AI behavioral use, frequency and purpose (ideation, drafting, debugging, validation).
- Prompt literacy to craft and iterate prompts to obtain useful outputs.
- Reflective practice, critical evaluation of AI outputs and trust calibrations.
- Teaming and integrating AI steps across outputs, assignments, project teams, and internships that develop and apply human judgement.
- Learning management systems to stage, deliver, track, and report educational delivery.

3.4. Learning Outcomes

Intended and unintended consequences:

- Cognitive outcomes, critical thinking, problem-solving, conceptual mastery.
- AI collaboration skills, prompt engineering, human-AI decision orchestration, quality control.
- Domain competence and specific skills (e.g., accounting judgment, financial modeling, marketing projections).
- Ethical awareness, understanding data privacy, intellectual property and ethics of automation.

3.5. Feedback & Institutionalization

Assessment results, employer signals, policy feedback and processes, continuous improvement:

- Assessment types (quiz, presentation, team project, exam, certification).
- Analytical reports.
- Learner experiences (recruiting, placement, post-learning achievement).
- Instructor, faculty, lecturer, researcher and developer role descriptions, recruiting, recognition, and career development.

4. Analyzing the Framework

Recent studies suggest that student enthusiasm, ease of use, and peer recommen-

dations significantly enhance both perceived usefulness of AI and actual intention to adopt it for learning. Building on the Technology Acceptance Model (David 1989), researchers identify perceived ease of use, and perceived usefulness as central drivers. Using TAM insights, the hybrid model boosts perceived usefulness and ease through scaffolded practice and built-in safeguards.

The swift adoption of AI platforms like OpenAI ChatGTP (also known as Chat Generative Pre-trained Transformer) is widely recognized as the fastest rate of technology adoption in history.

Chat: Designed for conversational interaction.
Generative: Generates new output, not just retrieve or classify.
Pre-trained: Trained on large datasets before being fine-tuned for specific tasks.
Transformer: Neural network design to ingest and generate output.

Notably, adult learners are increasingly aware that AI can produce errors. Yet few respondents to a survey, expressed concern about the risks of over-reliance, such as diminished learning depth and retention. The growing use of AI shows high prevalence among information technology code development. In contrast, the available research data indicates that accounting, governance and risk management are relatively less easily augmented.

Given these trends, teaching and course management must evolve. A hybrid pedagogical approach has been proposed, blending domain expertise as learners gain confidence in the technical and ethical fluency in AI.

Using AI can springboard learners into acquiring judgment within organizations through three pillars. Foundation: AI capabilities, limitations and common biases. Application: AI techniques within tools of the domain/discipline (e.g., audit sampling, cost modeling, pro forma financial reporting, variance analyses, volume-price-promotion projections). Safeguards: governance, algorithmic transparency, data sources, codes of conduct (e.g. AICPA), intellectual property considerations, etc.

Business-community participants responded to a survey about teaching in the age of AI and about designing learning experiences. Instructors who received AI training were more likely to adopt creative, AI-enabled assignments. As initial fears subside, educators are increasingly teaching how to use AI to complement human judgment rather than simply prohibiting its use. Interactive workshops typically give learners hands-on AI experience, sharpen ethical reasoning, and support a hybrid approach.

Table 1 summarizes a recent study by Sundkvist & Kulset (2024) that tests four propositions. Perceived value, ease of use, peer recommendations and prior familiarity were significantly correlated with reported adoption. Test types, statistical results and implications related to participant survey responses are shown below. The regression analysis further points out a significant difference between the mean value of reported use in accounting courses (0.32) and reported use in other course disciplines (0.47).

Table 1. Survey results by Sundkvist & Kulset (2024).

Proposition	Statistical Test	Result	Analysis & Actions
Anticipated value affects adoption intention	Structural equation modeling (regression path analysis)	$B = 0.52$ $p < 0.01$	Provide guided, discipline-specific applications (drafting an audit memo, summarizing financial statements, formulate marketing projections, etc.).
Anticipated easy to use affects uptake	Structural equation modeling (regression path analysis)	$B = 0.31$ $p < 0.01$	Explain prompt engineering, interpreting AI results, identifying hallucinations to foster informed adoption.
Social influence affects intent to use	Structural equation modeling (regression path analysis)	$B = 0.22$ $p < 0.01$	Peer student's use and endorsement boost adoption. Empowering early adopters to host peer-to-peer sessions that reveal techniques and critique AI responses are effective.
AI familiarity affects likelihood to use	Independent samples t-test for prior users vs. non-users on future-use intention	N (99) $p < 0.03$	Use simple exercises initially to ramp-up familiarity. Let students critique AI's pros and cons prior to final papers or final exams. Mean intention for prior users = 4.2 vs. 3.6 for non-users on a 5-point scale.
User demographics affect likelihood to use	Further pre- and post-testing occurs by sector for deeper comparisons	TBD	Affluent users near large cities who are male may tend to adopt AI sooner than peers which has implications for improving accessibility.

A future extension of research could increase the quantities of surveys collected, and a more robust composition of survey takers to maximize validity, generalizability and minimize bias. As empirical evidence and practical use of AI in business education expand, the practices for business education in the age of AI are likely to gain broader endorsement and wider adoption.

5. Applying the Framework

Effective business education in the AI era prioritizes authentic problem-solving and the cultivation of professional skepticism. Lengthy and mini case studies, along with experiential simulations—such as factory floor or point-of-sale scenarios—prepare students to function in data-rich, ambiguous environments. Discipline-specific exercises can heighten realism (e.g., audit sampling, market simulations) foster deeper engagement and skill development, as does explicit instruction in AI prompt engineering, data synthesis, and error detection.

5.1. Inputs

Learners benefit from primers on foundational AI topics (Turing Test, machine learning, large language models, IBM Watson) and an overview of the respective AI models and adoption rates (Moore & Benbasat, 1996). It's helpful to point out the quickly evolving AI offerings, features, capabilities, partnerships and subscription/pricing models. External and internal thought leaders can be enlisted to showcase their innovative efforts to disseminate the latest knowledge and practices. Inviting outside speakers from academia and industry will benefit learners, curriculum designers and instructors and help mitigate any stale content in this fast-moving space.

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5.2. Mediators

The list of AI platform entrants is increasingly plentiful. For example, Table 2 shows Bard, Canva, DeepMind, Gemini, Jasper, OpenAI, Perplexity, etc.). The primer should include foundations on prompt engineering, and explain the resource-intensive demands placed on hardware, software, electricity, and climate.

Understanding the scale of investments by hyperscalers (e.g. Alphabet, Meta, Microsoft, Oracle) raises awareness of workforce trends and motivates continual skill development. Updated guidance on ethics, copyright, and intellectual property is important, as is fostering broad accessibility across diverse demographics.

Table 2. Rankings of popularity for AI products (ZD Net, 2025).

Tool	#
Chat GPT	1
Canva	2
Deepl	4
Gemini	1
Grammarly	3
Grok	1
Quillbot	3
Deepseek	1
MS Copilot	1
Remove BG	2
Translate	4
Perplexity	1
Character.ai	1
Claude	1
Midjourney	2
MS Image Creator	2
Jasper	3
Dall-E	2
Dreamstudio	2
Stable Diffusion	2
DeepAI	5

AI Type: 1-Chatbot; 2-Graphics Tool; 3-Writing Assistant; 4-Translation; 5-API Aggregator.

5.3. Engagement with Participants

As instructors learn to harness AI applications, increases in tailored and person-

alized assessment can occur. Course materials can more easily gamify and customize assignments and quizzes. Assessments can readily handle greater depth and volumes of course content, exercises, assignments and simulations.

The format and vehicles (e.g. classroom, online-real time, online-asynchronous) will vary by delivery mode and setting. The options available to instructors to assess individual learners and project teams will also align accordingly.

From the learner perspective, this suggests a need for:

- Prompt-engineering and human-to-AI collaboration skill as learners craft prompts, evaluate AI outputs, refine, and apply to business problem-solving.
- Critical thinking and judgment when AI produces an output, learners evaluate its reliability, detect errors and biases, and apply human judgement.
- Learner voice and discipline that includes not just technology viewpoint but also disciplines such as finance, operations, marketing and management. How learners experience AI varies by discipline, culture, and assessment experiences.
- Lifelong learning is needed due to AI capabilities evolving quickly. Learners must develop meta-skills of adaptation, continuous learning and computational finesse.

From the instructor perspective, this suggests a need for:

- Frameworks and new pedagogy designs as educators adapt and learn how to integrate AI tools meaningfully (not just as gadgetry or bolt-on), how to design assessment tasks compatible to different AI use cases, preparing learners for AI-inflected employers, customers and colleagues.
- Prioritize AI-literacy modules early in programs for prompt engineering and critical evaluation. Redesign assessments toward realistic, reflective, and team-based case study and other activities.
- Embed AI literacies to move faculty and learners from tool-user to critical AI-user.
- Blend human-AI teaming (e.g., Wang, 2025) shows generative AI integrated can combine with real-world business case experiences to improve creativity and problem-solving in business education.
- Provide faculty development, Such as micro-credentials that incorporate pedagogy design and AI capabilities.
- Use pilot projects, monitor learning outcomes and iterate.

Organizations must cope and not obstruct use of AI tools in learning. Instead, use AI to accelerate learning, remove drudgery, and nurture ongoing learning. In business education, the move is toward developing graduates who can think strategically about AI. New designs for business processes will integrate human-AI teams, evaluate AI-driven data/insights, lead ethically in AI-augmented organizations and innovate in an environment where AI is increasingly prevalent.

Such gaps are opportunities for extending the existing research. For example, by exploring how business students across disciplines perceive, adopt and use AI in learning; by examining how pedagogical redesign (tasks, assessments, assign-

ments) aligns with student experiences; and by assessing relationships between learner's AI-use behaviors, learning outcomes and competency development.

5.4. Assessments and Evaluations

Take-home essay-writing including composition, grammar and structure is less vital when learners are supplemented by AI. Instead, assessments will increasingly rely on:

- Incremental checkpoints and milestones to track student growth.
- Authentication safeguards to ensure assessment integrity when testing personal recall.

The evolving educator role requires expertise in identifying incremental progress, cultivating originality, and balancing formative and summative evaluation. Delivery modalities will vary, with innovative assessment approaches necessitated by changing teacher-student ratios, online platforms, and project-based learning.

6. Learning Management Systems

Parts of the educational-technology ecosystem—particularly learning management systems—are ripe for AI-driven modernization. Cloud-native, AI-powered platforms are poised to transform core functions such as content creation, course management and performance monitoring. Table 3 lists leading learning management systems commercially available from solution providers.

Table 3. Learning management systems.

LMS	Description	Site
Absorb	AI-driven, comprehensive, corporate learning oriented. Multi-media friendly.	absorblms.com
Adobe Learning Manager	Cloud-based built for mid to large enterprises including talent development analytics. Synchs to other Adobe products.	business.adobe.com/products/learning-manager
Articulate	E-learning software for online course creation.	articulate.com
Blackboard	Cloud-based, tailored toward higher education and organizations with analytics.	blackboard.com
Cornerstone	Cloud-based LMS designed for enterprise and government with emphasis on internal use cases.	cornerstoneondemand.com
Coursera	AI-powered tools to Build skills with course and skill-building content, tailored learning paths, custom training tailored with AI.	coursera.org
Docebo	AI-powered, cloud-based, intuitive learning platform built to deliver learning to an ecosystem of employees, customers and partners, along with data analytics for enterprise business growth.	docebo.com
Instructure	Cloud-based, open-source LMS available to organization of all sizes and types, but mainly aimed for higher education and education management.	instructure.com/canvas
Litmos	Cloud-hosted, E-Learning for employees, customers or partners.	litmos.com
Saba	Legacy offering acquired by Cornerstone OnDemand in 2020.	cornerstoneondemand.com/platform/saba-learning-management

Continued

Sana	Cloud-based, AI-driven versatile platform that capitalizes on large language models to create content, documents and integrations.	sanalabs.com
Skilljar	Cloud-based customer and partner training platform to foster product adoption and customer retention. Integrates with Salesforce.	skilljar.com
Talent	Cloud-based solution for training and development of workers and related reporting.	talentlms.com

7. Conclusion

Not unlike the cat-and-mouse lifecycles of cybersecurity, AI use will continually push the frontiers of computing and machine learning. AI can amplify creativity and accelerate learning but also raises concerns about usefulness, reliability and security. Appropriate AI deployment in business education requires guardrails, defined boundaries and targeted user knowledge so that benefits are fully realized across legal and ethical factors. Future research should anticipate risks such as worker displacement, infrastructure demands, and privacy threats and evaluate mitigation strategies.

Building on Mishra and Koehler's integration models, the five-domain framework reframes AI-enabled business education as a socio-technical system by linking pedagogical design to organizational readiness, learner agency, and continuous feedback. It extends classroom-centric constructs by operationalizing governance, safeguards, and co-creative engagement as mechanisms that provide a structure for business education.

Integrated pedagogical design, scaffolded support, electronic safeguards and real-time evaluations can foster AI adoption which complements and strengthens learning. While large organizational investments emphasize AI design and application, comparatively less attention has been devoted to pedagogy and individual competency. As AI tools move rapidly from novelty to mainstream, organizations aiming to improve learning outcomes will benefit from an approach which effectively integrates AI, rather than a bolt-on approach.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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