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Education in Practice focuses upon educational practices within the University of Birmingham, and a range of contributions are sought from full scholarly papers, reflective or discursive articles, reviews, short case studies, examples of practice and 'how to' guides. Contributions are aimed at informing the work of others and at directly influencing practices and approaches that enhance student learning.

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From inquiry to impact: sustaining the momentum of business education scholarship across transnational campuses

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There is a profound opportunity to elevate the discourse surrounding business education by positioning Business Education Research and Scholarship (BERS) not merely as an academic pursuit, but as the foundational catalyst for pedagogical innovation and institutional transformation across business schools (Ortalo-Magné, 2025). As the global economic landscape undergoes rapid, volatile shifts, the methodologies employed to cultivate the next generation of strategic leaders must fundamentally adapt. In this editorial we argue about establishing a high-level perspective on the strategic imperative of BERS, exploring how robust scholarship drives creative educational paradigms and outlines the critical ecosystems of institutional support necessary to empower educational researchers within business schools (Stéphanie, 2011).

The Strategic imperative of BERS in contemporary business schools

For decades, business schools have operated under an implicit tension between rigorous theoretical research and high-quality education that leads to employment. BERS serves as the vital conduit that bridges this historic divide, translating empirical investigation into impactful, real-world educational practice (Boronico, 2008). It shifts the focus from simply what we teach to a holistic examination of how we teach and the architectural design of the environments in which learning occurs. In an era defined by geopolitical realignments, digital disruption, and a heightened corporate focus on sustainability and responsible management, static curricula are no longer viable. The modern business ecosystem demands graduates who possess far more than mere technical knowledge; it requires critical thinkers who demonstrate cognitive agility, emotional intelligence, and cross-cultural adaptability, namely human skills (Montano and Manson, 2024; Montano and Toral, 2024). BERS provides the intellectual framework needed to systematically evaluate our educational efficacy. By interrogating traditional pedagogical assumptions, BERS empowers academics to

design dynamic learning experiences that mirror the complexities of the global marketplace, ultimately enhancing graduate employability and leadership capacity.

Catalysing innovative educational approaches

The true value of BERS lies in its capacity to foster an institutional culture of continuous experimentation and creative educational design. Rather than relying on anecdotal evidence or legacy practices, scholarship-informed pedagogy allows business schools to pioneer innovative approaches with measurable outcomes (Asarta *et al.*, 2018). Recent scholarship highlights several transformative domains where BERS is actively reshaping the classroom experience:

- **Authentic Assessment Architectures:** Moving beyond traditional, high-stakes summative examinations, research demonstrates that authentic, real-world evaluation methods, such as live business briefs, consultative reports, role plays and portfolio developments, significantly deepen student engagement and professional readiness.
- **Inclusive and Diverse Representation:** BERS encourages a critical re-examination of the narratives embedded within business teaching materials. Integrating diverse case studies, such as portfolios featuring women protagonists and leaders from underrepresented backgrounds, directly enhances a students' sense of belonging, challenges deep-seated industry stereotypes, and builds self-efficacy across diverse student cohorts.
- **Managing Transitional Expectations:** As cohorts become increasingly internationalised and diverse, BERS provides vital insights into the psychological and cultural mismatches between student expectations and academic realities. Scholarly interventions enable institutions to co-create realistic educational expectations, smoothing student transitions and fostering stronger cognitive engagement.

When business schools treat the classroom as a site of rigorous inquiry, teaching ceases to be a passive transmission of facts and becomes a dynamic, evidence-based practice that actively models innovation.

The critical need for structural support systems

Despite its demonstrable impact, educational research within business schools has historically faced systemic marginalisation, frequently mischaracterized as the 'stepchild' to traditional, discipline-specific research (Ortalo-Magné, 2025). Elevating BERS from an isolated, passion-driven activity to a core institutional priority requires intentional, robust, and multifaceted structural support. Educational researchers encounter unique hurdles, balancing intense teaching obligations with the rigorous demands of collecting and analysing pedagogical data. To build a sustainable ecosystem for scholarship, business schools must implement comprehensive support mechanisms:

- Targeted Financial Ecosystems: The provision of dedicated funding is essential to allow faculty to launch exploratory pedagogical projects, pilot innovative classroom technologies, and gather early-stage data.
- Dedicated Space and Time: Writing retreats, structured training modules, and pedagogical workshops offer faculty the mental bandwidth and community collaboration necessary to translate classroom innovations into peer-reviewed, publishable manuscripts.
- Forums for Dissemination: Creating collaborative academic networks, regional tracking initiatives, and dedicated conference proceedings, such as publishing special issues in open-access teaching journals, is vital. These platforms build publishing confidence among early-career scholars and visibly validate pedagogical research.
- Formalised Career Pathways: True institutional commitment is demonstrated when business schools formalise education-focused career tracks and teaching excellence centres, ensuring that high-impact scholarship is directly tied to promotion, parity, and institutional prestige.

When an institution invests in its educational researchers, it directly invests in the quality of its student experience and its long-term academic reputation.

The transnational stakes of BERS

Nowhere is this argument more urgent than within business schools that operate across borders, and the UK sector has particular reason to attend to it now. British universities have expanded their transnational offer substantially over recent decades, delivering degrees through branch campuses, franchise partnerships, and validated programmes across the Gulf, Asia, and beyond. Transnational higher education involves "the movement of people, knowledge, programs, providers, ideas, curricula, projects, research and services across national or regional jurisdictional borders" (Knight, 2007, p. 24), yet much of the contemporary expansion has treated "education as a product which can be packaged and sold abroad" (Branch, 2018). Many of these arrangements were built quickly, driven by the promise of new revenue streams and global reputation, with less attention paid to whether the educational relationship itself was sound (Wihlborg and Robson, 2018).

Many international campuses, wherever they originate, were established primarily to teach, generating revenue through student recruitment and delivery instead of discovery, and often without a parallel research culture in place to test their own educational choices (Berheide *et al.*, 2020). This teaching-first orientation is not, in itself, a problem. It becomes one when the curriculum being taught, and the assumptions embedded within it, are simply carried over from the home campus with no scrutiny of whether they hold up elsewhere. For UK institutions this risk is acute: a franchise model can quietly reproduce British curricula, case studies, and pedagogical

norms as the default standard against which every branch campus is measured, with local staff positioned to deliver, not to shape, what is delivered.

A curriculum built for one setting rarely travels cleanly to another. Course content shaped around the values and assumptions of a home campus can miss the mark for students elsewhere, and even well-intentioned educators have learned this through experience: a case study or example chosen without local knowledge can cause confusion, or worse, offence, instead of the engagement it was meant to spark. Scientometric work on the field identifies precisely these difficulties, pointing to intercultural transitions, the symbolic power of Western higher education, and the potential for cross-cultural ignorance in teaching and learning practices between partners (Dai, Mok and Li, 2023). What resolves this is not caution alone, but sustained enquiry into who students are and what they bring with them, an iterative process built with local staff and students, not handed down from a distant home campus.

This is where the UK context sharpens the stakes further. Relationships between a home campus and its overseas partners have historically run in one direction, with knowledge, quality assurance, and academic authority flowing outward from the UK institution and compliance flowing back. Left unexamined, this pattern does more than limit educational quality; it reproduces the very colonial dynamic that transnational education claims to have moved beyond, privileging certain forms of knowledge and marginalising others along lines of race, ethnicity, and geopolitical location (Kessi, Marks and Ramugondo, 2020), and risking what Santos (2014) terms epistemicide, the destruction of alternative ways of knowing. BERS offers a corrective. Sustained investment in scholarship at every campus, not only the home campus, builds the local research capacity and voice needed to make these partnerships genuinely reciprocal, so that what is taught, and how, is shaped as much by branch campuses as by the institutions that hold the accreditation or the history.

For UK business schools in particular, taking this seriously changes what a transnational partnership is for. It is no longer enough to ask whether an overseas campus can deliver a UK-accredited programme to a satisfactory standard. The more pressing question is whether staff and students on that campus have a genuine say in what is taught, whether local scholarship is resourced and recognised on the same terms as scholarship at home, and whether the relationship is built to evolve, not simply to replicate. Without that shift, UK institutions risk expanding their global footprint while quietly exporting a colonial model of education in new packaging. With it, BERS becomes not an add-on to transnational strategy, but the condition on which any claim to genuine partnership depends.

Concluding thoughts: a unified vision for business education

As we introduce this special issue, we invite readers to look beyond individual classroom case studies and view these contributions as part of a collective, strategic effort to redefine the future of management education. The insights contained within

these pages demonstrate the profound impact that occurs when faculty are supported to think deeply, research rigorously, and innovate boldly.

By championing BERS, business schools can move away from transactional, compliance-driven models of higher education and move toward a transformative paradigm that nurtures authentic, critical, and responsible global leaders. The responsibility rests upon institutional leaders, guest editors, reviewers, and faculty alike to continue advocating for the resources, recognition, and structural support that this vital scholarship deserves.

References

- Asarta, C. J., Bento, R., Fornaciari, C. J., Lund Dean, K., Arbaugh, J. B. (Ben), and Hwang, A. (2018). The Scholarship of Teaching and Learning: Changing the Dominant Narrative About (and In) Research Institutions. *Journal of Management Education*, 42(6), 731–748. <https://doi.org/10.1177/1052562918777271>
- Berheide, C. W., Watanabe, M., Falci, C., Borland, E., Bates, D. C., and Anderson-Hanley, C. (2020). Gender, type of higher education institution, and faculty work-life integration in the United States. *Community, Work & Family*. <https://doi.org/10.1080/13668803.2020.1776220>
- Boronico, J. (2008). The Challenges of Contemporary Business Education. *Journal of Hospital Marketing & Public Relations*, 18(2), 221–222. <https://doi.org/10.1080/15390940802234289>
- Branch, J. (2018). Transnational education: Trend, modes of practices and development. In *Higher education and the global marketplace: A practical guide to sustaining quality*. Springer
- Dai, K., Mok, K. H., and Li, X. (2023). Mapping the historical development and landscape of research about transnational higher education: A scientometric analysis from comparative and international perspectives. *Compare: A Journal of Comparative and International Education*, 1–20
- Kessi, S., Marks, Z., and Ramugondo, E. (2020). Decolonizing African Studies. *Critical African Studies*, 12(3), 271–282.
- Knight, J. (2007). Cross-border tertiary education: an introduction. In S. Vincent-Lancrin (ed.), *Cross-border Tertiary Education: A Way Towards Capacity Development*. OECD and World Bank, Paris, pp. 21–46
- Montano, S. and Toral Manson, I. 2024, 'Responsible marketing and consumption starts with changing mindsets: how educators can embed responsible marketing and consumption into curricula', in M. Saren, L.M. Hassan, M. McGowan, N.C. Smith, E. Surman and R. Varman (eds), *Responsible marketing for well-being and society: a research companion*, Routledge, Abingdon, pp. 84–100.

Montano, S. and Toral, I. 2024, Professor Sarah Montano and Dr Inci Toral—written evidence (ACT0010) to the House of Lords Communications and Digital Select Committee inquiry: Scaling up: AI and creative technology, UK Parliament, London.

Ortalo-Magné, F. (2025). Sustaining Excellence in Business Education (pp. 192–205). Routledge. <https://doi.org/10.4324/9781003533269-21>

Santos, B. de S. (2014). *Epistemologies of the South: Justice Against Epistemicide*. Paradigm Publishers, Boulder, CO

Stéphanie, D. (2011). Redesigning Management Education and Research. Edward Elgar. <https://doi.org/10.4337/9780857933591>

Wihlborg, M., and Robson, S. (2018). Internationalisation of higher education: drivers, rationales, priorities, values and impacts. *European Journal of Higher Education*, 8(1), 8–18.

From evidence to enhancement: reflective practice and the feedback loop in business education

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Business schools increasingly ask their staff to teach as they would have their students learn: through inquiry, iteration, and evidence. Boyer's (1990) call to recognise a scholarship of teaching alongside discovery, application, and integration, and Schön's (1983) account of the reflective practitioner, both argued that professional expertise is built through disciplined reflection on practice, not simply applied from theory downward. The papers collected in this issue take that argument seriously. Drawn from contributors working across our university's UK and Dubai campuses, each begins from a concrete problem encountered in the classroom, the programme, or the publishing meeting, and each closes a loop between evidence gathered from students and a considered change in practice. Read together, they offer a picture of business education scholarship as an iterative, data-informed craft, one that travels across geography and, in one case, across faculty boundaries.

This orientation is especially important at a time when business schools are responding simultaneously to rapid technological change, growing expectations around sustainability, increasingly diverse student cohorts, and closer scrutiny of the relationship between higher education and employment. In such a context, enhancement cannot be understood as a single intervention or a periodic response to formal evaluation. It is better viewed as a continuing cycle in which educators identify a need, design and implement a response, examine the resulting evidence, and refine their approach. Reflection gives this process its critical dimension: it asks not only whether an intervention appeared to work, but for whom, under what conditions, and with what unintended consequences. The contributions gathered here illustrate that cycle at various levels of practice, from individual seminar activities and learning resources to programme-wide systems. They also demonstrate that meaningful educational development does not always depend on extensive funding or radical

curricular redesign. It can begin with a carefully framed question, a willingness to listen to students, and the disciplined examination of everyday teaching decisions.

Closing the loop: institutional and programme-level feedback

The scale at which this feedback loop can operate is demonstrated by Hamayun, Ibrahim, and Ilyas, who report a three-year, programme-wide enhancement initiative within Computer Science provision at the university's Dubai campus. Theirs is the one paper in this collection to come from outside a business school, included deliberately. Its inclusion also makes a wider point about educational scholarship: the disciplinary boundaries that organise academic knowledge do not necessarily map onto the educational problems students and educators encounter. Questions of feedback, assessment, belonging, communication and trust across those boundaries, creating scope for disciplines to learn from one another. The architecture of feedback, action, and communication it describes has no disciplinary boundary, and business school colleagues will recognise the same survey, module evaluation, and student-staff forum mechanisms operating in their own programmes. Drawing on this data, the authors developed a coordinated set of interventions spanning teaching quality, assessment scheduling, curriculum coherence, and pastoral support. The results are striking: undergraduate satisfaction rose in a remarkable manner over the period, with comparable or larger gains at postgraduate level. What distinguishes this paper is less the individual interventions, many of which will be familiar to readers, than the systematic architecture connecting feedback to action and communicating that action back to students. This "you said, we did" ethos echoes a well-established finding in the assessment and feedback literature: feedback only improves learning when students see it acted upon and understand its consequences for their own work (Nicol and Macfarlane-Dick, 2006; Gibbs and Simpson, 2004), a principle recent work on teacher feedback literacy continues to sharpen by specifying what staff, not just students, need to do for that loop to close (Boud and Dawson, 2023). Applied here at institutional rather than assignment level, and demonstrably transferable from a computer science context to the business programmes represented elsewhere in this issue, it offers a model for programme teams rebuilding trust in survey mechanisms that students often regard as symbolic rather than consequential.

Discipline-specific innovation: technology, sustainability, and active learning

A second cluster of papers, spanning both our Dubai and UK campuses, works at module level, testing how specific pedagogical designs shift student engagement within business and accounting disciplines. Al-Samarrai's case study, based in Dubai, of Business Intelligence integration in a third-year accounting module responds to a well-documented gap between the analytical competencies employers expect and those traditional accounting curricula develop (Oesterreich and Teuteberg, 2019), a gap recent survey of

accounting faculty confirm is still driven as much by workload and confidence as by institutional resistance (Xu, Liu, and Krahel, 2024). Structured around Yassin and

Toumeh's (2024) five-stage integration framework and Kolb's (1984) experiential learning cycle, the intervention had students build self-directed Tableau 'stories' for a corporate audience, with strong academic outcomes and faculty development running in parallel. Konovalova's paper, based at our UK campus, turns to a related tension: how to embed sustainability within a core, profit-oriented module rather than confining it to electives, precisely the integration gap a recent systematic review of over a decade of scholarship identifies as still under-addressed at student and curriculum level (Beaumont *et al.*, 2024). Her carbon emissions simulation, run within taxation seminars, draws on dialogical learning (Cunliffe, 2002) and group flow theory to show how a short, low-cost game can prompt genuine critical reflection on the trade-offs between regulatory design and profitability. Sadri's contribution, again from Dubai, completes this cluster with a broader suite of active learning strategies, including a Shark Tank exercise, problem-based learning in management accounting, and Think-Pair-Share activities, grounded in constructivist and experiential learning theory (Kolb, 1984; Prince, 2004). Taken together, these three papers share a conviction that authentic, participatory tasks, whether built around software, simulation, or structured dialogue, do more to develop analytical and critical capacities than transmission-based teaching, a conclusion consistent with evidence that high-intensity active learning narrows achievement gaps between student groups rather than merely raising average performance (Freeman *et al.*, 2014; Theobald *et al.*, 2020), and one that clearly holds regardless of which campus, and which national or cultural context, the module is taught in.

Designing for the learner: resources that meet students where they are

Rogers and Samuels, writing from our UK business schools, shift the focus from classroom activity to learning resource design, presenting a case study of a research methods textbook proposal, since accepted by a British publisher, written specifically for international master's students in business and management. Their analysis of the market identifies a persistent gap: existing texts are either broad, discipline-neutral guides to academic skills or comprehensive but lengthy discipline-specific research methods books, and few are built around the coursework, word limits, and confidence-building needs of an increasingly international and EAL student population (Ballard and Clanchy, 1997; Lea and Street, 1998), a population whose distinctive supervision and feedback needs recent cross-national research continues to document (Nangimah and Walldén, 2023). Their proposal, developed with feedback from students and a commissioning editor, foregrounds explicit academic literacy support alongside methodological content. The paper is a useful reminder that pedagogical innovation is not confined to contact hours; the design of the resource's students' study from independently, particularly for cohorts navigating unfamiliar research and writing conventions, is itself a legitimate and under-examined site of scholarly enquiry.

The cross-campus and cross-disciplinary character of this issue adds a further dimension to its contribution. Although the UK and Dubai campuses operate within the

same institutional framework, their students encounter higher education through different cultural, professional and educational contexts. The papers range widely, from programme-level enhancement in Computer Science to Business Intelligence in accounting, sustainability simulation, active-learning strategies and learning resources for international master's students. The value of bringing these studies together therefore lies not in assuming that an intervention can be transferred unchanged from one setting or discipline to another, but in making its underlying design principles visible. Authenticity, structured participation, clear communication, and responsiveness to evidence recur throughout the collection, even where the teaching methods and student populations differ. These common principles create opportunities for colleagues to learn across geographical and disciplinary boundaries while remaining attentive to local needs. Good educational scholarship allows practice to travel without assuming that it is universally transferable, enabling colleagues to interrogate, adapt and test ideas within their own disciplinary, cultural and institutional contexts.

This approach also challenges a narrow understanding of educational innovation as the pursuit of novelty. Several of the practices discussed in this issue draw on established methods, including experiential learning, simulations, dialogical teaching, and student feedback. Their contribution comes from adapting these methods thoughtfully, examining their effects in a particular context, and making the resulting learning available to others. Innovation, in this sense, is not simply the introduction of a new tool or activity. It is the purposeful redesign of practice in response to evidence, followed by reflection on what should be retained, revised, or reconsidered.

Concluding thoughts

Across these five contributions, drawn from both our UK and Dubai campuses and, in one instance, a common methodological posture emerges: each author treats their own teaching context as a site of enquiry, collects evidence, whether survey data, reflective writing, or publisher and student feedback, and uses it to justify a specific design decision, rather than presenting pedagogy as a matter of personal preference or received wisdom (Trowler and Cooper, 2002). Several papers are explicit that their evidence is indicative rather than causal and analysed through practitioner reflection rather than controlled study. This is not a weakness to be apologised for; it reflects the practical constraints of scholarship conducted alongside a full teaching load, and is precisely the kind of practice-near evidence the scholarship of teaching and learning was conceived to value (Healey, 2000; Fanghanel, 2012). What these papers share with the wider ambitions set out elsewhere in this issue is a conviction that business education improves through the deliberate, cumulative work of noticing what is not working, assessing an alternative, and reporting honestly on what changed. We hope readers will take from this collection both specific interventions they might adapt in their own contexts and a broader confidence that their own classroom-level enquiry is worth documenting and sharing.

Teaching tomorrow's accountants today: a Business Intelligence integration case study

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Abstract

This article examines the integration of Business Intelligence (BI) tools into undergraduate accounting education through a case study implementation at the University of Birmingham, Dubai. Responding to the accounting profession's ongoing digital transformation and identified competency gaps, a comprehensive BI integration framework was implemented in a third-year Business Analytics module with module lead reflections observed. The intervention is grounded in Yassin and Toumeh's (2024) five-stage framework; incorporated curriculum adaptation, research integration, skills development, interdisciplinary collaboration, and career transformation strategies. Results from 29 students demonstrated strong academic outcomes, with majority (83%) achieving upper-level classifications, 2.1 or higher, alongside enhanced practical competencies in data visualisation and analytical thinking. This paper contributes to pedagogical innovation, beyond accounting disciplines alone, by providing reflective evidence of effective BI integration methods and their impact on student learning outcomes and career readiness from the point of view of the Module Leader.

Keywords: Business Intelligence, Accounting Education, Tableau, Pedagogical Innovation, Business Analytics, Digital Competencies

Introduction

The accounting profession stands at a critical juncture, confronting unprecedented disruption from digitalisation and technological advancement creating industry transformation. This change has been described as one of “constant flux and development, neither finite nor stationary,” (Al-Htaybat and von Alberti-Alhtaybat, 2017, p.851) firmly highlighting the perpetual nature of change facing both accounting practitioners and educators alike. Consequently, this ongoing evolution demands a fundamental reassessment of how accounting education prepares students for professional practice.

Contemporary accounting education faces mounting criticism for inadequately preparing graduates for technology-driven professional environments observing that current academic approaches are “perceived as superficial, failing to integrate all the necessary competencies” (Rindasu *et al.*, 2023, p.41) required in modern accounting practice. This criticism gains urgency given Kasztelnik and Campbell's (2025)

documentation of a 7.4% decline in accounting degree enrolment, with students gravitating toward technology-focused disciplines instead (Maurer, 2023). This highlights the attention needed for accounting programmes to rapidly integrate relevant digital competencies to maintain relevance.

In addition, the consequences of inadequate Business Intelligence (BI) education extend beyond individual student preparedness to affecting the profession's competitive positioning. The persistent knowledge gaps may compel businesses to recruit practitioners from alternative industries, potentially diminishing accounting's traditional role as the primary provider of financial intelligence (Rindasu *et al.*, 2023) which requires immediate response from accounting educators.

This article presents a case study of BI integration in undergraduate accounting education at the University of Birmingham, Dubai, implemented over 11 weeks during Semester 2 in 2025. The intervention specifically addresses identified digital competency gaps through integration of BI tools, particularly Tableau, within a third-year Business Analytics module. By examining both the implementation process and resulting outcomes, this study contributes to inform pedagogical innovation in accounting education.

This reflective case study is positioned within the pedagogical viewpoint that supports practical work using real tools and data as central to learning, rather than an afterthought. Using Kolb's (2015) experiential learning cycle, the 4-stage cycle of Concrete Experience, Reflective Observation, Abstract Conceptualisation and Active Experimentation maps closely to what students produced in the Tableau story assignment. Students select a self-chosen dataset (Concrete Experience), investigate what the data is actually telling them (Reflective Observation), which shapes into a defensible argument for a potential client (Abstract Conceptualisation), and builds towards a finished story that can be interacted with, manipulated and learnt from (Active Experimentation). This also places huge emphasis on authentic tasks and using self-selected data integrates Herrington and Oliver's (2000) work on authentic learning whereby the focus is on transferable, future-facing skills reflecting a practical skills-based approach to curriculum design rather than only theoretical. More broadly, Kolb (2015) suggests experiential learning is very important in lifelong learning creating the "critical linkages among education, work, and personal development" (Kolb, 2015, p.20) which are imperative for the dynamic future of accounting.

Literature Review

The digital competency gap in accounting

The accounting profession's digital competency gap represents a critical disconnect between educational preparation and professional requirements. Abbas (2025) and Rikhardsson and Yigitbasioglu (2018) identify a fundamental shortage of BI-focused accounting researchers, attributing this deficit to complexity in digitalisation and

technical knowledge required to navigate advanced analytical tools. This research gap manifests in accounting educational curriculums.

Oesterreich and Teuteberg's (2019) empirical findings quantify the severity of this gap, revealing that merely 14% of accounting professionals possess business analytics competencies, despite 96% reporting general IT skills (Oesterreich and Teuteberg, 2019, p.342). This stark disparity highlights a critical distinction between basic technological literacy and analytical capabilities. The prevalence of general IT skills without corresponding analytical competencies suggests that exposure to digital skills alone currently proves insufficient.

Furthermore, conventional accounting assessments typically focus on calculation correctness and rule application, failing to develop the critical thinking and analytical skills. Alternative assessment approaches, while potentially addressing analytical thinking, frequently cannot replicate the dynamic, interactive reporting environments characteristic of professional BI software such as Tableau. This pedagogical limitation creates a disconnect between academic preparation and workplace realities. If higher education is to attract students it must recognise "the underlying learning experiences for accounting graduates demand an interdisciplinary approach that draws input from professionals and academic scholars with expertise in information systems, statistics, computer science and engineering, ethical issues related to IT and big data." (Stancheva-Todorova, 2018, p.138)

Frameworks for BI integration in accounting education

Yassin and Toumeh (2024) propose a comprehensive five-stage framework for integrating BI software into accounting education. This framework provides structured guidance across multiple areas of educational transformation. The framework's five stages include:

- (1) **Curriculum adaptation** through integration of BI teaching exercises using tools such as Excel and Tableau with hands-on practical learning through data-driven projects.
- (2) **Research focus** integrating latest accounting requirements and skills needed for professional adaptation.
- (3) **Skills and competences** development targeting students' data analysis, interpretation abilities, and technological proficiency with BI tools.
- (4) **Interdisciplinary collaboration** fostering partnerships with other departments for cross-functional projects.
- (5) **Career transformation** preparing students for the evolving industry demands and enhancing relevant employability through BI skills development.

This framework aligns with calls for experiential learning in accounting education. The emphasis on hands-on practical learning through data driven projects reflects recognition that BI competencies develop most effectively through application rather than passive instruction such as lectures. The career transformation stage explicitly addresses the employability requirement that is driving curriculum reform positioning BI skills development as central to career readiness to recognise that educational institutions must respond to industry demands while maintaining academic rigor. This dual focus on practical skills and theoretical understanding distinguishes the framework from purely vocational approaches that might lack conceptual depth.

Method and implementation

Context and participants

This section describes a practice-based, reflective case study drawing on the Module Leader's implementation experience and routine teaching data, rather than a formal empirical study involving structured data collection. The intervention was implemented during Semester 2, 2025, within the third-year Business Analytics module at the University of Birmingham's Dubai campus. The cohort comprised 29 students enrolled in the BSc Accounting and Finance programme representing a diverse international environment, as Dubai's student population typically represents multiple cultural and educational backgrounds. (Kamla, 2023)

The module's positioning in the third year proved strategically significant, as students possessed foundational accounting knowledge while remaining proactive and receptive to new learning approaches before entering professional practice. This allowed BI competencies to combine with existing accounting knowledge rather than requiring students to develop both simultaneously.

All feedback reported in this case study derives from routine, informal module evaluation activities undertaken as part of standard teaching practice such as student evaluation comments, emails of thanks, informal verbal feedback offered to the Module Leader during and after class, and the Module Leader's own observational notes made across the semester rather than from a formal research study. These activities fell within normal teaching and module evaluation processes and, in line with institutional policy, did not require separate formal ethical review. No individually identifiable data is reported and all student comments have been aggregated and anonymised into thematic summaries. Academic performance is reported at module-level rather than as individual results and comments were grouped into recurring themes rather than analysed individually. Consistent with the case-study approach and practitioner reflection nature of this article, the outcomes reported below should be read as indicative of the intervention's perceived value rather than as causal evidence of its effect on learning.

Implementation of the five-stage framework

The implementation addressed each component of Yassin and Toumeh's (2024) framework, adapting recommendations to specific institutional contexts while adhering to the framework's core principles.

Curriculum adaptation

Curriculum adaptation centred on creating comprehensive, accessible learning resources. This involved creating additional Tableau walkthrough recordings providing detailed, real-world interactive content, enabling students to observe and replicate professional BI activities after the classes had ended. These recordings addressed the difficulty found of demonstrating complex software functionality within time-pressured traditional lecture formats where practice is needed to obtain proficiency. By making resources available for repeated viewing, the approach accommodated diverse learning paces and styles.

Lecture slides were transformed into podcast format using software such as Google NotebookLM, again supporting students with different learning preferences and enabling content engagement beyond scheduled class times. This approach recognised that accounting students possess varied learning styles with some benefiting from visual demonstrations and others, audio explanations reviewable multiple times.

Research focus

Research was connected to classroom learning with current academic literature in business analytics and accounting to emphasise critical thinking and decision-making skills, aligning educational content with the Module Lead's research objectives and interests. This approach exposed students to contemporary debates regarding BI's role in accounting to advance research-based teaching and grounded practical skill development in theoretical frameworks.

The research dimension served a dual purpose to enhance student learning while informing ongoing faculty research. Classroom observations and student work provided informal insights into how accounting students develop BI competencies, contributing to broader contextual understanding of effective pedagogical approaches for faculty interests.

Skills and competencies development

Interactive exercises were used to support assessment criteria whereby students needed to select their own dataset for the independent Tableau assignment project with each student creating a practical Tableau 'story' designed for corporate audiences for an assignment worth 75% of their grade. This approach positioned students as business analysts presenting insights to decision making, replicating professional communication contexts via dashboards. The requirement to select personally relevant datasets enhanced engagement while enabling students to apply BI tools to

domains of individual interest. Using an “ill-defined and unstructured” data selection remit created the need for “sustained thinking over a number of hours to complete” (Herrington and Oliver, 2000, p.35) applying active learning as if students were problem solving in a work environment.

The Tableau story format proved particularly valuable for developing analytical stories which, unlike static reports, required students to produce insights logically and build compelling arguments through data visualisation. This format develops communication skills alongside technical competencies, addressing Nielsen’s (2020) emphasis on the need for accountants to be prepared to present information effectively to decision-makers. Educators must forge a link between technological capability and human expertise, and this conveys that pedagogical skills should position BI tools as enablers of enhanced decision-making rather than a replacement of professional judgment. Accountants must move away from ‘bean counting’ towards working as strategic partners (Rautiainen *et al.*, 2024, p.3) to interpret data and educational interventions must link technical competency with BI platforms to ensure automated outputs from data can be appraised critically.

Interdisciplinary collaboration

Faculty upskilling was required to deliver the module via MIT's Executive programme which ensured instructional capability. The Module Leader obtained concurrent enrolment in ‘DataCamp’ providing structure for continuous learning with six-month free student access enabling parallel development of instructor and student competencies. This investment in faculty development recognised that effective BI instruction requires current practical knowledge, as software capabilities and industry practices evolve continuously.

Collaboration with Singapore and UK campuses facilitated knowledge exchange across the University of Birmingham's international network. This multi-campus collaboration enabled sharing of effective practices while acknowledging contextual variations across locations.

Career transformation

Multiple industry case studies used exposed students to BI applications beyond traditional accounting contexts, supporting Li and Zheng's (2018) position that human judgment remains essential across diverse strategic decision contexts. This demonstrated BI's versatility while emphasising transferable analytical skills applicable across professional domains, not limited to accounting.

The career transformation dimension emphasised immediate employability enhancement, even for those students that will not pursue careers in accounting post-graduation. Multiple students reported to the Module Leader that they gained practical skills applicable to internship opportunities and future professional roles with enhanced CVs by demonstrating BI competencies increasingly valued across industries.

To provide a visual summary of how the five-stage framework informed module design and assessment, Table 1 below maps each stage to its corresponding design elements, assessment or evidence, and observed outcome.

Table 1

Framework Stage	Module Design Element	Assessment Evidence /	Observed Outcome
Curriculum adaptation	• Walkthrough recordings • Lecture content converted to podcast format	• Canvas engagement analytics. • Student feedback on asynchronous material	• High interaction with materials • Accommodated the varied learning paces and styles
Research focus	• Classroom content linked to current BI/accounting literature and Module Leader's research interests	• Embedded in lectures and discussion. • Informal classroom observation	• Informed student learning • Contributed to faculty research understanding
Skills and competencies development	• Independent Tableau 'story' assignment using student-selected datasets (75% of grade)	• Tableau story project was assessed against a rubric	• Strong technical and analytical output. • Majority of students achieving upper-level classifications (2.1 and above)
Interdisciplinary collaboration	• Faculty upskilling (MIT Executive Programme, DataCamp).	• Faculty development reflections.	• Shared practice • Consistency across campuses via

Framework Stage	Module Design Element	Assessment Evidence /	Observed Outcome
	Cross-campus collaboration with Singapore and UK.	Cross-campus knowledge exchange.	informed and tailored practice
Career transformation	- Multiple industry case studies used. - Explicit framing of transferable analytical skills.	Informal reports of student feedback including responses of gaining internship and employment outcomes.	Students reported internships across finance, technology, and consulting and not just limited to accounting.

Source: Natalie Al-Samarrai

Results and outcomes

Maintaining the themes of the Framework above for curriculum adaptation, research, skills and competences, interdisciplinary collaboration and career transformation the following outcomes were observed:

Academic performance

The module produced academic outcomes that exceeded Module Leader expectation, with a substantial majority (83%) of the 29 students achieving upper-level (first-class or 2.1) classifications in the inaugural implementation year in Dubai. This strong overall achievement rate suggests that BI integration enhanced rather than complicated student learning although there are no previous cohorts in Dubai to compare to at the time of writing.

These results proved significant given the module's demanding technical content using Tableau and need for considerable work to be done outside of the classroom. The strong performance suggests that comprehensive support mechanisms like walkthrough recordings, interactive exercises, and multimodal content delivery using DataCamp enabled students to master BI functionality within an 11-week period of a semester.

Skills development and confidence

Students developed substantial analytical understanding enabling effective information presentation to decision-makers, as evidenced by their Tableau story projects. Observations during the semester revealed growing confidence as students progressed from initial tool familiarisation to sophisticated data storytelling. The student feedback captured informally in the case study particularly emphasised this confidence development.

Informal, aggregated feedback gathered by the Module Leader during and after the classes via verbal comments, emails of thanks and module evaluations indicated a recurring theme. For ethical reasons, individual comments are not reproduced or reported here and only thematic summaries are presented. However, several students described the module as among the most impactful they had studied, citing its perceived relevance to their future employability. Comments centred on feelings that theory and technical aspects of the module were relevant to all industries and work positions, not only accounting and finance. Students valued the hands-on experience with both Tableau and Excel which built practical skills that will extend beyond university.

Pedagogically, students communicated to faculty that they enjoyed the independence and autonomy of exploring Tableau with their own data which they felt would give them more confidence to adapt and learn on their own in the future. This supports Rindasu *et al.*'s (2023) argument that future accountants must learn how to learn rather than specific job skills and Kolb (2015) highlights that experiential learning is a suitable way to achieve life-long learning.

Engagement

The Canvas learning management system displayed high interaction with course materials along with high physical attendance in class. This sustained engagement suggests the practical orientation and relevance of the BI content, maintained student motivation despite substantial technical demands.

The success of walkthrough recordings proved particularly noteworthy due to requiring substantial faculty investment to produce. Students demonstrated appreciation via verbal feedback for these materials validating effort required to produce high-quality instructional content. The resources' asynchronous availability enabled students to engage with material at their own pace, accommodating different learning speeds.

Career readiness and professional application

Students have gained practical skills employable beyond university contexts with many reporting enhanced CVs featuring Tableau competencies that have facilitated internships across industries. Several students communicated to faculty that BI skills

proved instrumental in securing competitive positions, as employers increasingly seek candidates with demonstrated analytical capabilities.

The cross-industry applicability of developed skills proved particularly valuable in Dubai's diverse economy. Students secured internships in finance, technology, consulting etc. demonstrating BI competencies' versatility. This variety addresses concerns that specialised tool training might limit career options instead, as Rautiainen *et al.* (2024) suggests, BI skills appear to expand opportunities by signalling analytical sophistication applicable across domains. Goretzki *et al.* (2023) found that "management accountants currently work closely together in relatively few organisations" (Goretzki *et al.*, 2023, p.275) so this would have to improve as BI use grows and may provide strategic advantage.

Discussion and implications

Addressing the digital competency gap

This case study provides reflective evidence that BI integration can effectively address the digital competency gap identified in accounting education literature. The strong academic outcomes combined with demonstrated skill development suggest that comprehensive frameworks, rather than isolated tool training, enable sustainable competency development. The implementation's success in achieving high performance across diverse students indicates that BI capabilities, using current faculty, are broadly achievable rather than requiring exceptional technical aptitude.

The intervention's emphasis on critical thinking alongside technical proficiency addresses Rindasu *et al.*'s (2023) criticism of superficial approaches by requiring students to develop analytical narratives through Tableau stories.

Through the lens of Kolb's (2015) experiential learning cycle, the module's progression from data selection, through analysis, to a presented Tableau story mirrors the Concrete Experience, Reflective Observation, Abstract Conceptualisation and Active Experimentation he describes supporting how technical competence and critical engagement appeared to develop together rather than separately.

Scalability and resources

The successful implementation required substantial faculty development investment, including external training programmes and ongoing platform learning. This resource requirement presents scalability challenges, particularly for institutions with limited professional development budgets or high teaching loads. However, with the institution reflected in this study, cross collaboration across all three geographical campuses was maintained for consistency and reduces individual burdens.

In addition, the creation of walkthrough recordings and podcast materials potentially improves long-term scalability. As faculty proficiency increases through repeated delivery, the relative effort required for high-quality instruction may decrease.

Student independent learning

The implementation's emphasis on student dataset selection and independent project development proved crucial for engagement and learning depth. By enabling students to explore personally relevant topics, the approach fostered intrinsic motivation that sustained effort through technically challenging content. This student agency component may explain the high engagement levels reflected in class attendance and Canvas interaction. This pattern is consistent with self-determination theory (Ryan and Deci, 2000), where “opportunities for self-direction were found to enhance intrinsic motivation” (Ryan and Deci, 2000, p.70) and identifies autonomy as one key driver of intrinsic motivation. It is the Module Leader's interpretation that by allowing students to choose their own datasets, it may have supported a stronger sense of autonomy and ownership than a provided dataset would have.

Although this case study is set in accounting, the underlying reflections are not discipline-specific. The same approach could plausibly be applied in business analytics, finance, or other management modules where students need to translate data into a decision-relevant narrative for a non-technical, client audience.

Limitations and future research

This case study's primary limitation involves its single semester, single-campus scope detailed from the perspective of Module Leader observations and reflections. While outcomes proved encouraging, generalisability requires replication across diverse institutional contexts, student populations, and timeframes. Only the University of Birmingham's Dubai campus is represented here. The cohort size ($n=29$) is also relatively small, and the strong grade profile observed may partly reflect the particular characteristics of this cohort rather than the BI integration alone. As such, the outcomes reported here cannot support causal claims about the intervention's effect on academic performance; grades may reflect a range of contributing factors beyond BI integration, and the informal feedback gathered may be skewed toward more engaged students who were more likely to volunteer comments.

Future research should examine BI integration outcomes across multiple semesters to assess sustainability and identify refinement opportunities. Longitudinal studies tracking graduates' professional progression would identify whether developed skills translate into career advancement and enhanced practice. Comparative studies examining different BI platforms and pedagogical approaches would inform optimal implementation strategies.

Additionally, research investigating faculty experiences implementing BI integration would provide valuable insights into support needs and professional development effectiveness. Understanding instructor challenges and success factors would inform institutional support systems and faculty preparation programmes. Finally, studies examining student retention of BI competencies over time would assess learning usefulness beyond immediate academic outcomes.

Recommendations for practice

Based on this implementation's outcomes, several recommendations emerge for accounting educators and programme administrators considering BI integration:

- Prioritise experiential learning through meaningful hands-on projects rather than passive tool demonstrations.
- Invest in comprehensive faculty development recognising that effective BI instruction requires current practical knowledge beyond theoretical familiarity. Consider partnerships with industry or enrolment in executive education programmes.
- Develop learning resources accommodating diverse learning styles and enabling flexible engagement.
- Embed current academic research in BI education to develop critical thinking alongside technical proficiency.
- Foster cross-campus and interdisciplinary collaboration to share resources and effective practices.
- Emphasise career relevance explicitly, helping students recognise BI competencies' broad applicability and professional value. This connection enhances motivation and engagement.
- Enable student agency through dataset selection and project customisation, creating motivation and deeper learning due to personal interest.
- Plan for staff upskilling explicitly, recognising that BI instruction requires ongoing personal investment in tools and platforms alongside institutional training support.
- Share upskilling routes (e.g. executive programmes, platforms such as DataCamp) with colleagues considering similar integration, to reduce individual preparation burden.

Conclusion

This case study provides reflective evidence that systematic BI integration in undergraduate accounting education can help address identified competency gaps, while enhancing academic outcomes and career readiness. The implementation of Yassin and Toumeh's (2024) five-stage framework at the University of Birmingham, Dubai, resulted in strong academic performance, demonstrated skill development, sustained student engagement, and enhanced career prospects.

The strong overall achievement rate at upper-level classifications, combined with positive, thematically summarised student feedback and documented practical application of developed skills, provides indicative support for comprehensive BI

integration approaches. These outcomes offer encouraging, preliminary evidence that accounting education can respond to digital transformation demands without compromising academic or theoretical rigour.

The intervention's success derived from multiple complementary elements such as comprehensive faculty development and preparation, multimodal learning resources, experiential learning emphasis, research integration, interdisciplinary collaboration, and explicit career relevance. This holistic approach addresses both technical skill development and critical thinking creation, preparing students for professional roles requiring sophisticated analytical capabilities alongside traditional accounting expertise.

As the accounting profession continues evolving in response to technological advancement, educational institutions bear responsibility for preparing graduates with competencies demanded by practice. This case study provides encouraging evidence that such preparation is achievable through structured, comprehensive approaches informed by pedagogical research and professional requirements. The framework's successful implementation suggests pathways for broader curriculum transformation, contributing to accounting education's ongoing evolution in service of both student success and professional excellence.

Future implementations across diverse contexts will further refine understanding of effective BI integration, while longitudinal research will examine the lasting impact of these educational interventions on professional practice. Nevertheless, the case study's outcomes justify optimism regarding accounting education's capacity to meet contemporary challenges while preparing tomorrow's accountants for dynamic, technology-enabled professional environments today.

References

- Abbas, K. (2025) 'Management accounting and artificial intelligence: A comprehensive literature review and recommendations for future research', *The British Accounting Review*, 58 (2), pp. 1-22. Available at: <https://doi.org/10.1016/j.bar.2025.101551>.
- Al-Htaybat, K. and von Alberti-Alhtaybat, L. (2017) 'Big Data and corporate reporting: Impacts and paradoxes', *Accounting, Auditing & Accountability Journal*, 30 (4), pp. 850-873. Available at: <https://doi.org/10.1108/AAAJ-07-2015-2139>.
- Goretzki, L., Messner, M., and Wurm, M. (2023) 'Magicians, unicorns or data cleaners? Exploring the identity narratives and work experiences of data scientists', *Accounting, Auditing & Accountability Journal*, 36 (9), pp. 253-280. Available at: <https://doi.org/10.1108/AAAJ-01-2022-5621>.

Herrington, J. and Oliver, R. (2000) 'An instructional design framework for authentic learning environments', *Educational Technology Research and Development*, 48 (3), pp. 23-48. Available at: <https://doi.org/10.1007/BF02319856>.

Kamla, R. (2023) 'Strangers in the city: Spacing and social boundaries among accountants in the global city', *Contemporary Accounting Research*, 40 (4), pp. 2256–2287. Available at: <https://doi.org/10.1111/1911-3846.12879>.

Kasztelnik, K. and Campbell, S. (2025) 'The future of business data analytics and accounting automation', *The CPA Journal*. Available at: <https://www.cpajournal.com/2024/01/31/the-future-of-business-data-analytics-and-accounting-automation/>. (Accessed: 13 October 2026).

Kolb, D.A. (2015) *Experiential learning: experience as the source of learning and development*. 2nd edn. Pearson Education.

Li, Z. and Zheng, L. (2018) 'The impact of artificial intelligence on accounting', *Advances in Social Science, Education and Humanities Research*, 181, pp. 813–816. Available at: <https://doi.org/10.2991/icsshe-18.2018.203>.

Maurer, M. (2023) 'Accounting graduates drop by highest percentage in years', *Wall Street Journal*, 13 September. Available at: <https://www.wsj.com/articles/accounting-graduates-drop-by-highest-percentage-in-years-5720cd0f>. (Accessed: 13 October 2026).

Nielsen, S. (2020) *Management accounting and the idea of machine learning*. Economics Working Papers, No. 2020-09. Aarhus: Department of Economics and Business Economics, Aarhus University. Available at: https://pure.au.dk/ws/files/193942602/wp20_09.pdf. (Accessed: 13 October 2026).

Oesterreich, T.D. and Teuteberg, F. (2019) 'The role of business analytics in the controllers and management accountants' competence profiles: An exploratory study on individual-level data', *Journal of Accounting & Organizational Change*, 15 (2), pp. 330–356. Available at: <https://doi.org/10.1108/JAOC-10-2018-0097>.

Rautiainen, A., Scapens, R.W., Järvenpää, M., Auvinen, T., and Sajasalo, P. (2024) 'Towards fluid role identity of management accountants: A case study of a Finnish bank', *The British Accounting Review*, 56 (4), Available at: <https://doi.org/10.1016/j.bar.2024.101341>.

Rikhardsson, P. and Yigitbasioglu, O. (2018) 'Business intelligence & analytics in management accounting research: Status and future focus', *International Journal of Accounting Information Systems*, 29, pp. 37-58. Available at: <https://doi.org/10.1016/j.accinf.2018.03.001>.

Rîndașu, S.M., Topor, I.D., and Ionescu-Feleagă, L. (2023) 'The evolution of management accountants' digital skills in Industry 4.0: A qualitative approach',

Accounting, 1 (99), pp. 38-48. Available at: [https://doi.org/10.33146/2307-9878-2023-1\(99\)-38-48](https://doi.org/10.33146/2307-9878-2023-1(99)-38-48).

Ryan, R.M. and Deci, E.L. (2000) 'Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being', *American Psychologist*, 55 (1), pp. 68-78. Available at: <https://doi.org/10.1037/0003-066X.55.1.68>.

Stancheva-Todorova, E.P. (2018) 'How Artificial Intelligence is Challenging Accounting Profession', *Journal of International Scientific Publications*, 12 (1), pp.126-141.

Yassin, M. and Toumeh, A. (2024) 'Innovative approaches to accounting education: Incorporating business intelligence tools', *Cogent Business & Management*, 11 (1), Available at: <https://doi.org/10.1080/23311975.2024.2414851>.

Mainstreaming sustainability through games: integrating carbon literacy into accounting education

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Abstract

Business schools face increasing pressure to embed sustainability meaningfully within core curricula, yet traditional profit-oriented teaching structures make this challenging. This paper evaluates a curriculum-embedded carbon simulation game used to introduce sustainability and carbon regulation within a taxation seminar at a UK university. Drawing on thematic analysis of 43 student reflections collected immediately after the session, the study finds that the game fostered high engagement, collaborative decision-making, and critical exploration of tensions between profitability and environmental responsibility. Framed by dialogical learning and group flow theory, the findings show how short, immersive pedagogies can stimulate exploratory dialogue and deepen sustainability learning in mainstream business modules. Practical recommendations are offered for educators seeking scalable, transferable ways to integrate sustainability into business education.

Keywords: Sustainability Education, Game-Based Learning, Carbon Literacy, Business School Pedagogy, Dialogical and Experiential Learning, Group Flow, Profit-Sustainability Tensions

Introduction

Business schools are increasingly expected to prepare graduates capable of navigating complex sustainability challenges, including climate change, biodiversity loss, and social inequalities (Jones, Selby and Sterling, 2010; Figueiró and Raufflet, 2015). Yet sustainability remains difficult to embed meaningfully into mainstream business curricula. Core disciplines such as accounting, finance, and management often centre profitability, efficiency, and regulatory compliance, creating pedagogical tensions that marginalise environmental and social concerns (Gray and Collison, 2002; Rusinko, 2010; Waddock and Lozano, 2013). As a result, students rarely engage with the ethical, distributive, and long-term implications of sustainability dilemmas, despite evidence that such tensions are central to contemporary business practice (Hahn *et al.*, 2015; Joseph *et al.*, 2020; Kurucz *et al.*, 2014).

Responding to these challenges, sustainability scholars advocate for experiential, dialogical, and transdisciplinary pedagogies that encourage collaboration, reflexivity, and co-construction of meaning (Cunliffe, 2002; Wright *et al.*, 2023; Gutierrez-Huerter *et al.*, 2024). Dialogical learning helps students interrogate assumptions, negotiate uncertainty, and explore competing values. These capacities are essential when addressing “wicked problems” that transcend disciplinary boundaries and resist simple solutions (Hahn *et al.*, 2015). Complementary to this, group flow theory (Lavoie *et al.*, 2024) highlights how deep, shared engagement emerges when learners pursue common goals, communicate spontaneously, and develop collective momentum. Together, dialogical learning and group flow offer a lens for understanding how collaborative pedagogies may support conceptual transformation, especially in short, immersive learning environments.

Game-based learning operationalises these pedagogical principles by creating structured yet flexible learning spaces in which students can experiment with decisions, observe consequences, and engage collaboratively with complexity. Research in business and management education demonstrates that games enhance motivation, deepen conceptual understanding, and support critical thinking (Azriel *et al.*, 2005; Boyle *et al.*, 2016; López *et al.*, 2021). They also provide opportunities to simplify and explore complex real-world phenomena, making them particularly well-suited to sustainability topics characterised by uncertainty and competing priorities (Kapp, 2012; Møller, 2020; Salas *et al.*, 2009). Despite this potential, the use of educational games to integrate sustainability within core business modules remains under-developed (Calabor *et al.*, 2019; De Silva and Nilipour, 2024), with most interventions occurring through electives, one-off sessions, or extra-curricular initiatives (Tijmsma *et al.*, 2023).

This paper responds to these concerns by evaluating a carbon simulation game integrated within a taxation seminar at a UK university. Designed to prompt students to consider regulatory design, abatement costs, and ethical implications, the game required students to navigate three major carbon policy instruments: command-and-control, carbon tax, and emissions trading, while negotiating the tensions between profitability and environmental responsibility. The session was introduced without explicit sustainability framing, providing a context for examining how students engage with sustainability concepts when they are embedded within a profit-oriented disciplinary module.

The research question guiding this study is: *How does a game-based learning environment influence business students’ understanding of carbon regulation and their perceptions of the tensions between profitability and sustainability within a core business education module?*

Drawing on 43 reflective responses collected immediately after the session, supported by three years of teaching observations, the study investigates how the intervention fostered dialogical engagement, group flow, and deeper sustainability learning. The

findings demonstrate how short-term, immersive pedagogies can bring sustainability to the forefront of mainstream business curricula and provide insights into how educators can foster exploratory and expansionary dialogue within disciplinary boundaries. This paper contributes to business education by:

1. demonstrating how a low-cost, scalable pedagogical intervention can integrate sustainability into a core business module;
2. extending dialogical learning and group flow theory to curriculum-embedded, short-duration activities; and
3. offering practical recommendations for embedding sustainability across business school programmes, thereby responding to institutional calls for transformative, transdisciplinary education (Brinkhurst *et al.*, 2011; Vienni Baptista and Rojas-Castro, 2020).

The remainder of the paper is structured as follows. Section 2 provides the background and pedagogical context for the study, including the rationale for integrating sustainability through game-based learning. Section 3 describes the carbon emissions game and its design. Section 4 outlines the methodological approach. Section 5 presents the findings across three themes: student engagement, learning outcomes relating to carbon regulation, and reflections on profit–sustainability tensions. Section 6 offers a discussion of these findings through the lenses of dialogical learning and group flow. Section 7 outlines practical implications and the transferability of the activity for business-school educators. Section 8 concludes the paper.

Background and pedagogical context

Integrating sustainability into accounting education presents several challenges. The discipline is traditionally focused on financial performance, and sustainability topics are often relegated to elective modules or guest lectures (Mburayi and Wall, 2018). However, professional bodies such as ICAEW and ACCA have begun embedding sustainability into their qualifications, signalling a shift in expectations for future accountants (ICAEW, 2023; ACCA, n.d.).

To address these challenges, this study adopts a “piggybacking” strategy, embedding sustainability into existing modules rather than creating standalone electives (Godemann *et al.*, 2011). The carbon emissions game was introduced within taxation seminars, aligning with existing learning outcomes while introducing climate-related content. This approach ensures that sustainability is treated as a core component of accounting education rather than an optional add-on.

Gamification has gained traction as a method for enhancing student engagement and learning outcomes. Educational games provide a structured yet flexible environment for exploring complex topics, allowing students to experiment with decisions and observe consequences (Kapp, 2012; Salas *et al.*, 2009). In accounting education, games have been used to teach financial principles, but their application to

sustainability remains underexplored (Coulson and Thomson, 2006; Tran and Herzig, 2023).

Integrating sustainability into mainstream business modules requires pedagogical approaches that help students engage with complexity, uncertainty, and competing priorities. Traditional lecture-based formats often reinforce disciplinary silos and managerial logics that marginalise environmental and social concerns (Rusinko, 2010; Waddock and Lozano, 2013). In contrast, dialogical learning emphasises the co-construction of meaning through interaction, reflexivity, and negotiation, enabling students to explore sustainability dilemmas collaboratively (Cunliffe, 2002; Gutierrez-Huerter *et al.*, 2024; Wright *et al.*, 2023). Such approaches are particularly relevant for sustainability topics, which frequently involve navigating tensions between profitability, ethics, and long-term environmental impacts (Hahn *et al.*, 2015; Joseph *et al.*, 2020).

Game-based learning provides a practical mechanism for fostering this form of dialogical engagement. Research in business and management education has shown that educational games enhance motivation, deepen conceptual understanding, and support critical thinking by allowing students to experiment with decisions and observe their consequences (Azriel *et al.*, 2005; Boyle *et al.*, 2016; Kapp, 2012). Games also create structured yet flexible environments for exploring complex and interdisciplinary phenomena, making them well suited to sustainability education (Møller, 2020; Salas *et al.*, 2009).

In addition, the concept of group flow, which reflects the collective experience of deep engagement characterised by shared goals, spontaneous communication, and co-creation, provides a useful lens for understanding how students learn collaboratively during simulations (Lavoie *et al.*, 2024). When game dynamics support group flow, students are more likely to engage critically, negotiate meaning, and sustain attention throughout the activity.

These theoretical perspectives justify the use of a carbon simulation game within a taxation module. They highlight how dialogical learning, collaborative decision-making, and immersive group engagement can support students in grappling with the ethical, strategic, and regulatory tensions inherent in sustainability challenges.

The carbon emissions game was designed to simulate real-world decision-making under different regulatory frameworks. It challenges students to reconcile financial performance with environmental responsibility, encouraging them to think critically about the role of business in addressing climate change. This design also reflects experiential learning principles, which emphasise learning through direct experience, reflection, and active experimentation (Kolb, 1984). In addition, the game provides a form of situated learning by embedding sustainability dilemmas within a realistic business decision-making environment, enabling students to learn through participation in an authentic, practice-oriented task (Lave and Wenger, 1991).

The carbon emissions game

The design of the activity was inspired initially by Corrigan's (2011) pollution game, which demonstrates the comparative effectiveness of emissions taxes and tradable permits in economics classrooms. I subsequently discussed adaptations of this approach with Dr. Gautam Sethi at Bard College in New York, who has used a modified version of the game with economics students. Drawing on these initial ideas, I substantially redesigned the activity for taxation students by developing a narrative context, creating a structured slide deck to support live facilitation, and explicitly incorporating ethical, distributive, and policy-design dimensions. These modifications enabled the game to engage business students in exploring both the technical and normative tensions inherent in carbon regulation.

The game simulates three regulatory approaches: command-and-control, carbon tax, and emissions trading. Students work in teams representing companies with varying abatement costs, making strategic decisions across three rounds. Each round introduces a new policy framework, requiring students to adapt their strategies and consider the implications of their choices. The game was delivered to third-year undergraduate and postgraduate students across three academic years. In 2024, 43 students participated and completed reflective surveys immediately after the session. The game was designed to resemble real-world scenarios, encouraging students to think critically about policy design, corporate strategy, and ethical implications. The key learning outcomes of the session included:

- Understanding carbon regulation mechanisms
- None of the policies are perfect
- The choice would depend on the government's objective (Emissions reduction, Revenue generated, Economic costs)
- Recognising the impact of pricing and compliance costs
- Reflecting on ethical and strategic dimensions of sustainability

The game also aimed to foster collaboration, negotiation, and strategic thinking, which are transferable skills that are essential for future professionals navigating complex sustainability challenges. In practice, I facilitate the activity through a short slide deck, with group results completed live to support comparison and prompt discussion.

Methodology

Research context

This study evaluates a pedagogical intervention embedded within a taxation seminar at a UK business school. The session introduced students to carbon emissions regulations through an immersive, game-based activity simulating three regulatory approaches: command-and-control, carbon taxation, and emissions trading. The game was refined over three years of teaching and was designed to support

sustainability learning within a core disciplinary context, without requiring prior knowledge of carbon regulation or sustainability concepts.

Participants and data collection

The study involved 43 students enrolled in two taxation modules: 30 undergraduates and 13 postgraduates. The modules did not explicitly advertise sustainability content, ensuring that participants were not pre-selected for interest in the topic. Students worked in groups to play the carbon simulation game and were invited to complete a short reflective survey immediately after the session. The survey included open-ended questions about learning outcomes, decision-making, engagement, and perceptions of carbon regulation.

Completion of the survey was voluntary. Students were given approximately ten minutes to reflect on the session while their experiences were still fresh. Their reflections, combined with three years of teaching observations, form the empirical basis of this study. In reporting findings, undergraduate and postgraduate students are referred to using the labels “UG” and “PG”.

Analytical approach

The reflective responses were analysed using thematic analysis (Clarke and Braun, 2017). The analytical process involved several stages. First, initial codes were informed by the premeditated themes embedded in the survey design, which drew on three years of running the intervention (e.g., engagement, activities, decision-making, sustainability tensions). However, because students often responded holistically rather than question-by-question, the analysis shifted towards an inductive approach. This resulted in a hybrid analytical strategy, combining deductively informed initial codes with inductively generated themes emerging from the data.

Coding was conducted iteratively, beginning with repeated readings of each reflection to identify significant ideas. Initial codes were then grouped into broader categories based on conceptual similarity. Through this process, three overarching themes were developed: (1) student engagement and motivation during the activity, (2) learning outcomes relating to carbon regulation and sustainability trade-offs, and (3) reflections on the tensions between profitability and sustainability. These themes were triangulated with observations from three years of delivering the session to strengthen the credibility of the findings.

Reflexive notes were maintained during coding, and inconsistencies in initial interpretations were reconciled through re-review of the data. Although the sample is modest, the richness of the reflections and the consistency across multiple cohorts support the robustness of the themes. Theme development prioritised patterns that emerged consistently across both undergraduate and postgraduate reflections.

Ethical approval

This study received ethical approval from the University of Birmingham Humanities and Social Sciences Ethical Review Committee (Reference: ERN_2033-Jan2024). All participants provided informed consent prior to completing the survey. Consent was obtained through the first survey question, which asked students to confirm that their anonymised responses could be used for research purposes. Students received a small incentive (£10 Amazon voucher), and no identifiable data were collected. The project was supported by a £587 grant from the University's Education Enhancement Fund (Project Reference: PGCHE013).

The study draws on qualitative data from student reflections and teaching observations. The survey asked students to comment on their learning outcomes, decision-making processes, engagement levels, and attitudes toward carbon regulations. Thematic analysis was used to identify patterns and insights as mapped out in Appendix A.

Findings

The analysis generated three interconnected themes: (1) student engagement and the emergence of group flow during the activity, (2) learning outcomes relating to carbon regulation and sustainability tensions, and (3) students' reflections on how the game supported critical thinking about profit-sustainability dilemmas. Each theme is presented below with supporting illustrative extracts from the survey responses.

Engagement and Motivation

This theme explores how students experienced the carbon simulation game as an immersive and collaborative activity, and how shared goals, negotiation, and team interaction contributed to group flow. Many students described the session as highly engaging, emphasising the value of working in teams and making decisions collectively:

"I did love to work in teams and also I made new friends today." (PG10)

"The different outcomes motivated me and in the end I was satisfied as I felt like as a group we worked together to come to a solution." (UG25)

Students consistently identified the cooperative and strategic elements of the game as central to their sense of engagement. Several commented on the realism of the decision-making environment and the opportunity to practise skills relevant to real-world organisational contexts:

"[W]hat motivated my decisions was the interaction with colleagues and working as a team to solve a shared objective which is a key skill used in a real life environment. [M]oreover my competitive nature urged me to put in the most effort to ensure my team achieved the best results. [O]verall [I] was very satisfied with the outcome and progress made" (UG16)

Others highlighted a strong sense of ownership over team outcomes, frequently referring to “our company” and expressing pride, or frustration, based on their performance:

“My main motivation was to ensure my company’s costs were as low as possible. Therefore I used calculations that involved low cost. I was satisfied as I felt my company used its permits effectively” (UG29)

“Yes, [I] was very Satisfied with the outcomes as our company cut the cost from 1,690 to 1,500. The emission has reduced from 15 to 4 Tonnes. Our company has abated 11 tonnes of carbon” (PG5)

This personal investment is critical in sustainability education, where fostering a sense of responsibility and agency is key to long-term behavioural change.

While group activities were central, the game also accommodated individual preferences, such as a focus on calculations or strategic thinking. Group flow does not require everyone to engage identically; instead, it allows diverse contributions to enhance the collective experience:

“I like to be at the stage of calculating as it improves my numeracy skills as well as observing how much money I can save.” (UG11)

This versatility ensures that sustainability concepts are accessible to students with varying learning styles. Overall, the reflections indicate that the game created the conditions for collaborative engagement, helping students become immersed in the activity while contributing in ways that aligned with their strengths. These dynamics provided a foundation for shared discussion and reflective learning in the subsequent stages of the exercise.

Learning outcomes: understanding carbon regulation and sustainability tensions

The second theme examines the range of learning outcomes reported by students, focusing on their developing carbon literacy, conceptual understanding of regulatory mechanisms, and ability to identify sustainability trade-offs.

Through their reflective responses, students demonstrated increased understanding of:

- Carbon regulation frameworks (ETS, carbon tax, command-and-control)
- Policy design and implementation challenges
- Strategic responses to regulation
- Ethical and equity considerations

For example, many students reported increased carbon literacy, noting that the game helped them understand the structure and implications of different regulatory instruments:

“The game is good and interesting. It guided me to know three different types of policies on carbon emission. Carbon taxes and Emissions trading are more like market-based regulations than Command and control. I feel ETS is more flexible and can help companies achieve their emission goals better, even some companies can gain some profits from selling the permits for carbon emission.” (PG3)

“I learnt about grandfathering and how governments sometimes give out permits for free, I was previously unaware that these permits could be sold to competing firms, their impact seems positive as they not only target carbon emissions but also motivate firms to produce better technology that is more sustainable for the future to evade these costs (taxes)” (UG21)

Students demonstrated a growing appreciation for the complexities of carbon regulation, often commenting on the challenges governments face in designing effective interventions:

“It has allowed me to appreciate how it may be difficult to find the right way to implement them, however I still believe it is important to have them in place.” (UG23)

Many reflected on the limitations or trade-offs inherent in each policy instrument. Several noted that while ETS offers flexibility and cost-effectiveness, carbon taxes are easier to administer and predict:

“I have identified that carbon trading is the most effective way to motivate companies to reduce their carbon emissions” (UG6)

“After I participated [in] the game, I can now understand the basis of each policy option and I could differentiate and compare them. There is no best option though. But the best approach would be carbon tax.” (PG2)

Students also recognised that regulatory design shapes corporate behaviour and can lead to unintended consequences:

“It has made me think more about the effects on the businesses, which I didn't take into account before, and how the cost of abating is something to consider when creating a scheme e.g. if the carbon tax is lower than everyone's cost of abating they will just pay the tax and not actually reduce emissions” (UG4)

A striking proportion of students reported increased support for carbon regulation as a result of the activity. Their reflections often moved from technical understanding to normative endorsement:

“It has allowed me to visualise the impact they can actually have on carbon abatement and therefore, I am in support of these regulations.” (UG3)

“Experiencing the challenges and successes of implementing carbon regulations in my gaming environment has inspired me to support real-world emissions reduction policies and practices.” (UG11)

“I think it is not that easy to determine which approach should the government take for reducing carbon emission policy, but the action must be done so really quickly because if we wait too long, the impact of carbon emission will get worse.” (PG2)

These reflections illustrate that the game supported not only conceptual understanding but also personal engagement with the moral and societal dimensions of carbon regulation. The activity prompted students to reflect on the real-world implications of policy choices and to consider how economic and environmental priorities interact.

Navigating Profit-Sustainability Tensions

Students’ reflections revealed nuanced engagement with the tensions between profitability and sustainability. Although the game began within a familiar profit-oriented frame, many students moved beyond cost minimisation to question fairness, ethical implications, and broader societal impacts of regulatory design.

Several students recognised that companies face dual pressures: reducing emissions while remaining financially viable. UG reflections tended to emphasise the strategic challenge of minimising costs, whereas PG reflections more often articulated the normative dilemma of reconciling responsible business practice with profit expectations.

“The game has contributed to my knowledge and understanding of emissions regulations as it showed me how different policy instruments can have a significant impact on how companies would operate. They will always operate in the way that best benefits them to reduce their own costs, however in the sense there is further available social impacts such as improving green reputation, companies may look to spend excess or more money to improve this in this case, however this was not consider[ed] during the game...” (UG15)

“We have to be more concerned about climate change issues. As a government, we should make the best option policy. As a businessman, we should comply with the regulations and make the best decision to still make a profit in the responsible way.” (PG6)

Together, these reflections illustrate how the game helped students identify the inherent tension between commercial imperatives and sustainability goals, prompting consideration of both economic motivations and ethical responsibilities.

Students also demonstrated critical engagement with the ethical and practical limitations of market-based approaches such as emissions trading. UG students often questioned the legitimacy of trading permits, whereas PG reflections tended to critique market design, oversight, and risks of speculation:

“I just don't understand how government or companies can sell or buy co2 allowances, because no one actually owns them, it is from the nature... I think no one really cares about the environment, the allowances are just there to make extra money for the government.” (UG7)

“A market-based carbon policy might make carbon emissions permits an investment product... the government needs to weigh the pros and cons and strengthen supervision of the carbon permit trading market.” (PG1)

These reflections indicate that students not only learned how trading schemes function but also considered their fairness, ethical basis, and vulnerability to gaming.

Students also recognised that carbon regulations have unequal impacts across firms and society. Some students suggested improvements to regulatory design that reflected concerns about fairness, market oversight, or the distribution of burdens:

“I believe that there should be fewer permits given out so that companies are forced to either pay large sums for their emissions or eradicate their emissions” (UG29)

“I can now understand what policies the government could execute and what will be the impact on economy (like social cost, revenue, and excessive cost that will eventually affect customer/society).” (PG2)

Students also raised concerns about social equity, highlighting the potential for policies to disproportionately affect vulnerable stakeholders:

“I do believe the government should ensure they do not trickle down to consumers such as an individual who has to now pay more for gas than they used to, due to an increase in regulations and does not have the choice to not get gas as it is an important need” (UG21)

These reflections demonstrate emerging awareness of distributional justice issues and the social ramifications of carbon policy.

Overall, this theme demonstrates that the activity provided students with the opportunity not only to understand regulatory mechanisms but to critically interrogate their design, implications, and fairness. The reflections show evidence of early-stage ethical reasoning and policy critique, providing a strong foundation for deeper discussion in the subsequent section. Together, these themes illustrate how the carbon simulation game supported students in developing carbon literacy, engaging collaboratively with policy trade-offs, and reflecting critically on the tensions between profitability and sustainability. These insights directly inform the discussion that follows, which examines the pedagogical implications of the intervention for business-school sustainability education.

Discussion

This study asked: How does a game-based learning environment influence business students' understanding of carbon regulation and their perceptions of the tensions between profitability and sustainability within a core module? The findings indicate that the carbon simulation game (a) fostered high levels of engagement and collaborative problem-solving, (b) enhanced students' understanding of carbon regulation and sustainability trade-offs, and (c) enabled students to identify and reflect on the tensions between profitability and environmental responsibility. In this section, I interpret these outcomes through the lenses of dialogical learning and group flow to explain why and how the intervention supported these forms of learning. I then consider the implications of these insights for the design of sustainability-related activities in business-school curricula.

Dialogical engagement in mainstream business modules

The carbon emissions game created opportunities for students to collaboratively explore sustainability dilemmas and compare the consequences of different regulatory approaches. This reflects the principles of dialogical learning, in which understanding is developed through interaction, questioning, and the co-construction of meaning (Cunliffe, 2002; Wright *et al.*, 2023; Gutierrez-Huerter *et al.*, 2024). Across the activity, students engaged in exploratory dialogue as they discussed abatement strategies, evaluated the implications of the three instruments, and negotiated with peers during the emissions-trading round. Several reflections showed evidence of movement from descriptive comments to more critical, normative concerns around fairness, pricing transparency, and distributive outcomes.

Embedding the activity within a taxation seminar also appeared to matter. Rather than treating sustainability as an add-on, the game allowed students to encounter policy design and ethical trade-offs within a familiar disciplinary frame. This aligns with arguments that sustainability education in business schools is strengthened when integrated into core modules and not siloed into electives (Rusinko, 2010; Waddock and Lozano, 2013). The shared decision-making context created by the game facilitated dialogical engagement by giving students a common reference point through which to articulate rationales, consider alternative perspectives, and negotiate meaning.

Group flow as the mechanism for collaborative learning

Patterns in the reflections and teaching observations also suggest that the activity created conditions associated with group flow: a collective state characterised by shared goals, deep engagement, and spontaneous communication (Lavoie *et al.*, 2024). The structure of the game, with rising complexity across the three rounds, appeared to help maintain a balance between challenge and skill. Immediate feedback from calculations, auctions, and group results, captured live during the seminar, supported students' sense of progression and collective focus.

This group-level engagement complements the dialogical processes described above. While dialogical learning explains how students interrogated assumptions and collaboratively constructed understanding, group flow helps explain why they remained absorbed, motivated, and willing to engage with one another's ideas. This finding aligns with research showing that game-based and simulation-based pedagogies can deepen learning by enhancing motivation, attention, and collaborative problem-solving when clear goals and immediate feedback are present (Kapp, 2012; Salas *et al.*, 2009; Boyle *et al.*, 2016; López *et al.*, 2021; Møller, 2020). The combination of dialogical engagement and group flow appears to have enabled students to engage with policy complexity in a way that felt both cognitively demanding and socially rewarding.

Making profit-sustainability tensions thinkable

The activity also surfaced the tensions between profitability and sustainability in a way that felt authentic to business students. Rather than explaining these contradictions through lecture content, the game required students to experience them directly, balancing abatement costs, tax payments, trading decisions, and strategic considerations under uncertainty. This experiential encounter enabled students to articulate the kinds of trade-offs and ethical questions highlighted in sustainability-oriented management scholarship (Hahn *et al.*, 2015; Joseph *et al.*, 2020; Kurucz *et al.*, 2014).

Students responded differently depending on their priorities: some emphasised cost minimisation, others foregrounded environmental responsibility, and several questioned whether market-based mechanisms were ethically robust or fair to smaller firms. These reflections reveal the emergence of what Hahn *et al.* (2015) describe as paradoxical thinking, in which learners begin to recognise that economic and environmental goals are often competing yet interdependent. Students' suggestions for improving regulatory design, for example, restricting permit allocation, enhancing oversight, or considering consumer impacts, further demonstrate their ability to critically evaluate policy instruments rather than simply comparing them in abstract terms.

By making tensions visible and discussable through action rather than explanation, the activity supported students in grappling with sustainability challenges in a manner consistent with both dialogical pedagogy and experiential learning traditions (Kolb, 1984; Lave and Wenger, 1991). This provided a foundation for the more structured design principles and pedagogical implications discussed in the following sections.

Implications for business-school pedagogy (design principles and transferability)

The analysis offers several implications for how sustainability can be integrated into mainstream business-school curricula. First, the findings reinforce arguments that sustainability learning is most effective when embedded within core disciplinary

modules rather than confined to electives or specialised sessions (Rusinko, 2010; Waddock and Lozano, 2013). By situating the activity within taxation teaching, the intervention enabled students to encounter sustainability dilemmas in a context that felt authentic and familiar, supporting calls for sustainability education to become a “normalised” aspect of business curricula rather than a peripheral addition.

Second, the game illustrates how carefully designed learning environments can support dialogical engagement. The shared task structure, opportunities for negotiation, and requirement to justify decisions created space for exploratory and expansionary dialogue (Cunliffe, 2002; Gutierrez-Huerter *et al.*, 2024; Wright *et al.*, 2023;). For educators, this suggests that sustainability-related activities benefit from formats that prompt students to compare their reasoning, engage with divergent viewpoints, and collaboratively construct understanding rather than simply absorb content.

Third, the activity highlights the pedagogical value of creating conditions associated with group flow (Lavoie *et al.*, 2024). The balance between challenge and skill, the immediacy of feedback, and the progression across rounds appeared to sustain student attention and motivation: factors shown to enhance learning in game-based and simulation-based pedagogies (Kapp, 2012; Salas *et al.*, 2009; Boyle *et al.*, 2016). This points to the importance of designing learning tasks that are immersive, socially engaging, and sufficiently complex to prompt sustained intellectual effort.

Finally, the intervention demonstrates that short-form, experiential activities can make complex sustainability tensions accessible within limited teaching time. Students not only applied carbon-regulation concepts but also began to question fairness, distributional impacts, and policy design: outcomes aligned with sustainability-oriented competencies such as ethical reasoning, systems thinking, and reflexivity. This suggests that experiential micro-interventions can meaningfully contribute to the broader aim of cultivating responsible business graduates, even when curricula are tightly constrained.

Together, these implications highlight how experiential, dialogical, and collaborative pedagogies can be embedded within existing business-school structures to support sustainability learning without requiring extensive curricular redesign.

UG-PG differences and learning conditions

Although undergraduate and postgraduate students engaged with the activity in broadly similar ways, some subtle differences emerged. Postgraduate reflections tended to be shorter and more concise, which may relate to linguistic confidence, cohort size, or familiarity with reflective writing. Undergraduate reflections were often more elaborated and narrative in tone, offering more detailed accounts of their team discussions and reasoning processes.

Despite these stylistic differences, both groups demonstrated comparable forms of learning. Students across levels recognised the trade-offs embedded in each

regulatory instrument, identified fairness and distributional concerns, and articulated tensions between profitability and sustainability. Both groups also reported high levels of engagement and described how the game helped them understand carbon regulation in practical terms. These similarities suggest that the activity was accessible and meaningful across different levels of study, while the variation in reflective depth highlights how learning conditions and prior experience may shape how students articulate their insights.

Validity considerations

The study has several features that strengthen the credibility of the findings. Reflections were collected immediately after the activity, allowing students to capture their impressions while the experience was still salient, and the analysis was supported by three years of teaching observations, which provided an additional interpretive lens. The use of a hybrid inductive–deductive coding approach also helped ensure that the themes reflected both the structure of the activity and the issues students raised spontaneously.

At the same time, there are limitations that shape the claims that can be made. The data reflect a single institutional context and rely on voluntary written reflections, which may privilege students who are more comfortable writing in English or more motivated to share their views. Immediate reflections provide insight into students' learning processes but do not capture long-term retention or application. These considerations do not undermine the value of the findings but indicate that future work could complement this design with follow-up measures, cross-institutional comparisons, or alternative modes of data collection to build a fuller picture of learning over time.

Practical Implications and Transferability

This study offers several practical implications for educators seeking to integrate sustainability into mainstream business modules. First, the findings illustrate that sustainability learning does not need to be confined to specialist or elective courses. Embedding a short, well-scaffolded simulation within a core disciplinary session can create meaningful opportunities for students to engage with complex policy instruments and to reflect on how organisational decisions intersect with environmental and societal concerns. For educators, this underscores the value of positioning sustainability not as an additional topic but as a natural extension of existing disciplinary content.

Second, the study demonstrates that game-based learning can provide an effective platform for fostering collaborative engagement and dialogical learning. The structure of the carbon simulation game, which requires students to work in teams, negotiate with peers, and respond to evolving scenarios, created the conditions for rich discussion about trade-offs, fairness, and policy design. Educators in other business disciplines can adapt this approach by designing activities that encourage students to compare alternative strategic or regulatory options, articulate rationales, and learn through interaction.

Third, the intervention is highly transferable. Because the game relies on simple materials and can be facilitated within a single seminar session, it can be integrated into a wide range of business subjects, including economics, operations management, strategy, public policy, and finance. In each case, the activity can serve as an entry point for exploring how sustainability considerations shape organisational decision-making and regulatory environments. With minor adjustments to the scenarios or data, educators can tailor the simulation to highlight sector-specific challenges or disciplinary priorities.

Finally, the findings suggest that integrating opportunities for structured reflection is essential for supporting deeper learning. Short reflective prompts can encourage students to articulate what they have learnt, connect the activity to broader sustainability debates, and critically evaluate the implications of different policy instruments. Incorporating such reflective elements can enhance the impact of experiential activities in business education and help students develop more nuanced understandings of sustainability challenges.

A brief adaptation guide with optional steps and examples for educators wishing to integrate or modify the activity in their own modules is provided in Appendix B.

Conclusion

This study explored how a game-based learning environment can support sustainability learning within a core business module. By engaging students in a carbon simulation game that contrasted command-and-control, carbon taxation, and emissions trading, the intervention enabled learners to explore policy trade-offs, negotiate conflicting priorities, and reflect on the tensions between profitability and environmental responsibility. The activity prompted students to move from descriptive understanding to more critical and ethical reasoning, illustrating how sustainability concepts can be introduced meaningfully within profit-oriented disciplinary contexts.

The findings show that short, immersive activities can foster dialogical engagement, encourage collaborative problem-solving, and deepen students' understanding of carbon regulation. They also demonstrate that sustainability learning is strengthened when students have opportunities to compare alternative policy instruments and discuss their implications for different stakeholders. For educators, the study provides an example of how a low-resource, transferable activity can be embedded within mainstream business curricula to create space for discussion, comparison, and reflection.

While the study is based on a single institution and immediate reflections, the results offer a foundation for future work on game-based sustainability education in business schools. Further research could examine longer-term learning outcomes, test adaptations of the activity in other disciplinary areas, or explore how different student groups, such as experienced postgraduate learners, engage with similar pedagogical designs. Overall, the study demonstrates that well-designed interactive activities can

help business students navigate complex sustainability issues and support institutions' broader efforts to integrate sustainability into their curricula.

Future work could also benefit from collaboration with educational psychologists and sustainability pedagogy specialists to deepen understanding of how dialogical engagement and group flow contribute to conceptual transformation.

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References

- ACCA (no date) *Sustainability within the ACCA Qualification*. Available at: <https://www.accaglobal.com/uk/en/about-us/accounting-for-a-better-world/acca-qualification.html> (Accessed: 13 June 2024).
- Azriel, J.A., Erthal, M.J. and Starr, E. (2005) 'Answers, questions, and deceptions: What is the role of games in business education?', *Journal of Education for Business*, 81(1), pp. 9-13.
- Boyle, E. A., Hainey, T., Connolly, T. M., Gray, G., Earp, J., Ott, M., Lim, T., Ninaus, M., Ribeiro, C., and Pereira, J. (2016) 'An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games', *Computers & Education*, 94, pp. 178-192.
- Brinkhurst, M., Rose, P., Maurice, G., and Ackerman, J. D. (2011) 'Achieving campus sustainability: top-down, bottom-up, or neither?', *International Journal of Sustainability in Higher Education*, 12(4), pp. 338-354.
- Calabor, M. S., Mora, A., and Moya, S. (2019) 'The future of 'serious games' in accounting education: A Delphi study', *Journal of Accounting Education*, 46, pp. 43-52.
- Clarke, V., and Braun, V. (2017) 'Thematic analysis', *The Journal of Positive Psychology*, 12(3), pp. 297-298.
- Corrigan, J.R. (2011) 'The pollution game: A classroom game demonstrating the relative effectiveness of emissions taxes and tradable permits', *Journal of Economic Education*, 42(1), pp.70-78.

Coulson, A. B., and Thomson, I. (2006) 'Accounting and sustainability, encouraging a dialogical approach; integrating learning activities, delivery mechanisms and assessment strategies', *Accounting Education: an International Journal*, 15(3), pp. 261-273.

Cunliffe, A. L. (2002) 'Reflexive dialogical practice in management learning', *Management Learning*, 33(1), pp. 35-61.

De Silva, T. A., and Nilipour, A. (2024) 'Is the accounting curricula keeping up with sustainability development?', *Accounting Education*, pp. 1-29.

Figueiró, P. S., and Raufflet, E. (2015) 'Sustainability in higher education: a systematic review with focus on management education', *Journal of Cleaner Production*, 106, pp. 22-33.

Godemann, J., Herzig, C. and Moon, J. (2011) *Approaches to changing the curriculum*. Paper presented at the ISIBS Workshop, Session II, University of Nottingham, Nottingham, 20-21 October.

Gray, R., and Collison, D. (2002) 'Can't see the wood for the trees, can't see the trees for the numbers? Accounting education, sustainability and the public interest', *Critical Perspectives on Accounting*, 13(5-6), pp. 797-836.

Gutierrez-Huerter O. G., Glozer, S., and Zeyen, A. (2024) 'Transdisciplinarity from the grassroots: exploring student-led dialogues for sustainability', *Studies in Higher Education*, 49(12), pp. 2584-2598.

Hahn, T., Pinkse, J., Preuss, L., and Figge, F. (2015) 'Tensions in corporate sustainability: Towards an integrative framework', *Journal of Business Ethics*, 127, pp. 297-316.

ICAEW (2023) *ICAEW among organisations urging action on SDGs*. Available at: <https://www.icaew.com/insights/viewpoints-on-the-news/2023/sep-2023/icaew-among-organisations-urging-action-on-sdgs> (Accessed: 13 June 2024).

Jones, P., Selby, D. and Sterling, S. (eds.) (2010) *Sustainability Education: Perspectives and Practice Across Higher Education*. London: Earthscan.

Joseph, J., Borland, H., Orlitzky, M., and Lindgreen, A. (2020) 'Seeing versus doing: How businesses manage tensions in pursuit of sustainability', *Journal of Business Ethics*, 164(2), pp. 349-370.

Kapp, K. M. (2012) *The gamification of learning and instruction: game-based methods and strategies for training and education*. John Wiley & Sons.

Kolb, D. A. (1984) *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Kurucz, E. C., Colbert, B. A., and Marcus, J. (2014) 'Sustainability as a provocation to rethink management education: building a progressive educative practice', *Management Learning*, 45(4), pp. 437-457.

Lave, J., and Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lavoie, R., Baer, M., & Rouse, E. D. (2025) 'Group flow: A theory of group member interactions in the moment and over time', *Academy of Management Review*, 50(3), pp. 493-518.

López, F. R., Arias-Oliva, M., Pelegrín-Borondo, J., and Marín-Vinuesa, L. M. (2021) 'Serious games in management education: an acceptance analysis', *The International Journal of Management Education*, 19(3), 100517.

Mburayi, L., and Wall, T. (2018) 'Sustainability in the professional accounting and finance curriculum: an exploration', *Higher Education, Skills and Work-Based Learning*, 8(3), pp. 291-311.

Møller, H. (2020) 'Academic content as a toy: a pilot case study on play as studyation in higher education', *The International Journal of Learning in Higher Education*, 27(2), p. 53.

Rusinko, C. A. (2010) 'Integrating sustainability in management and business education: a matrix approach' *Academy of Management Learning & Education*, 9(3), pp. 507-519.

Salas, E., Wildman, J. L., and Piccolo, R. F. (2009) 'Using simulation-based training to enhance management education', *Academy of Management Learning & Education*, 8(4), pp. 559-573.

Sharma, G., Greco, A., Grewatsch, S., and Bansal, P. (2022) 'Cocreating forward: how researchers and managers can address problems together', *Academy of Management Learning & Education*, 21(3), pp. 350-368.

Tijmsma, G., Horn, A., Urias, E., and Zweekhorst, M. B. (2023) 'Training students in inter-and transdisciplinary sustainability education: nurturing cross-faculty staff commitment and continuous community collaboration', *International Journal of Sustainability in Higher Education*, 24(4), pp. 765-787.

Tran, T. T., and Herzig, C. (2023) 'Blended case-based learning in a sustainability accounting course: An analysis of student perspectives', *Journal of Accounting Education*, 63, 100842.

Vienni Baptista, B., and Rojas-Castro, S. (2020) 'Transdisciplinary institutionalization in higher education: a two-level analysis', *Studies in Higher Education*, 45(6), pp. 1075-1092.

Waddock, S., and Lozano, J. M. (2013) 'Developing more holistic management education: Lessons learned from two programs', *Academy of Management Learning & Education*, 12(2), pp. 265-284.

Wright, A., Kuhn, T., Michailova, S., and Hibbert, P. (2023) 'Ventriloquial authority in management learning and education: A communication as constitutive of learning and education perspective', *Academy of Management Learning & Education*, 22(2), pp. 312-330.

Appendix A: Reflective survey questions and premediated themes

Premeditated themes	Trigger questions
Profit-sustainability tensions	1) What, in your opinion, were the important issues that emerged during the game?
Activities during the session	2) What motivated your decisions during the game, and were you satisfied with the outcomes?
Learning outcomes	3) How has this game contributed to your knowledge and understanding of carbon emission regulations and their impact?
Impact of the session	4) What impact has the game had on your attitude towards carbon emission regulations?
Engagement	5) What aspects of the game did you enjoy, and why?
Suggestion for improvement	6) What aspects of the game could be improved, and how?
Reflections not captured by trigger questions	7) Any other comments about the game that you would like to share

Appendix B: Suggested adaptation guide for educators

This table summarises one possible way of facilitating the carbon emissions game, based on the author's experience. It is intended as a flexible resource, not a prescriptive template.

Component	Purpose	How Educators May Choose to Approach It
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Pre-session preparation	Support basic understanding of policy instruments	Provide a short factsheet introducing <i>command-and-control</i> , <i>carbon tax</i> , and <i>emissions trading systems</i> , which students can skim ahead of the seminar.
Introduction (10 min)	Orient students to the setting: I used an imaginary country that currently has no carbon emissions regulations	Briefly explain that students will explore how different regulatory instruments could be used to achieve the imaginary country's carbon emissions abatement goal.
Role briefing (5 min)	Create meaningful variation and interdependence	Assign each team an energy company with different abatement costs. Clarify their goal: minimise compliance costs while meeting regulatory requirements.
Round 1: Command-and-control (10–15 min)	Surface cost asymmetries and rigidity	Invite students to calculate the costs of adopting the mandated “best available technology” (I use RCP). Use the PPT to record group results in real time.
Round 2: Carbon tax (15–20 min)	Explore behavioural thresholds and abatement choices	Present the carbon tax rate (e.g., \$150/tCO ₂ e). Students compare abatement costs vs tax payments and report their chosen abatement levels. Summarise results on the PPT slide.
Round 3: Emissions trading (20–25 min)	Encourage negotiation, trading, and strategic decision-making	Share initial permit allocations and open the emissions market for trading. Facilitate briefly, then step back to allow student negotiation.
Short debrief after each round (3–5 min)	Maintain group flow and consolidate insights	Use the “impact table” to fill in emissions reduced, economic cost, revenue, and social cost for each round. Highlight differences without evaluating students' decisions. I use just one PPT slide pack for the whole session

Final reflection (10 min)	Encourage reflections (students often surprise me with what they pick up or think!)	Offer prompt questions (e.g., “Which instrument felt fair? What would you change if you were the regulator?”)
Design considerations	Support adaptation across modules	Educators may choose to: (a) contrast multiple instruments, (b) introduce heterogeneity in firm cost structures, (c) maintain a challenge–skill balance, (d) prompt reflection on fairness and distributional impacts.
Adaptation across business disciplines	Transferability	This activity can be adapted for strategy (competitive advantage), operations (process redesign & cost curves), public policy (instrument choice), economics (externalities & welfare), finance/accounting (carbon risk & disclosure), or entrepreneurship (innovation opportunities).
Resourcing	Keep preparation light	Only simple materials are required: the PPT, factsheets, calculators/spreadsheets, and a results table to be completed live.
Evaluating learning	Evidence impact	Educators may consider a brief group/individual discussion or a short reflective question at the end. I use both.

Development of a learner-centred research methods textbook for international business master's students

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Abstract

Despite the large number of research methods textbooks, there remains a market niche for an accessible physical book specifically written for international master's students in business and management. This paper presents a case study of a recent research methods textbook proposal for this market niche which has been accepted by a reputable British publisher. It follows the style of a publication on proposal writing written by one of the authors and covers the remaining phases of doing a research project. The paper explains the context and rationale for a new book, the style and structure of the proposed book and feedback from prospective readers and the publisher. Conclusions are drawn on the direction of future textbook writing for international master's students.

Introduction

According to HESA (2026), between 2019 and 2025 the number of international students undertaking a UK master's in business and management subjects increased by 92% compared to a 78% increase across all subjects. This disproportionate growth in business and management programmes reflects their global marketability and the international recognition of UK qualifications in these fields. Furthermore, over the same period, HESA data indicates that the non-EU proportion of postgraduate taught master's students in business and management subjects increased from 59% to 74%, representing a significant shift in classroom composition and necessitating pedagogical approaches that respond to increasingly diverse educational backgrounds and cultural contexts. Despite recent visa changes introducing stricter post-study work provisions and increased financial requirements, demand for UK master's degrees from international students remains high, demonstrating the resilience of the UK's reputation for postgraduate business education.

Most UK business and management master's courses still include a dissertation as a large proportion of their credit, typically accounting for one-third to one-half of the total programme weighting (Healey, Jenkins, and Lea, 2014; Todd, Smith, and Bannister,

2004). This reflects the continued emphasis within UK higher education on inquiry-based and independent learning. As Healey, Jenkins, and Lea (2014, p. 16) argue, “the dissertation remains the cornerstone of the master’s curriculum, providing a unique opportunity for students to engage in independent knowledge construction.”

This continued emphasis on the dissertation reflects the sector’s commitment to developing students’ independent research capabilities and critical thinking skills, competencies that are highly valued by employers globally. However, the dissertation component also represents a significant challenge for many international students who may be encountering this form of extended, independent academic work for the first time. The transition from taught modules with regular guidance and structured assessments to the relatively autonomous nature of dissertation research can be particularly steep for students whose prior educational experiences have not prepared them for self-directed scholarly inquiry.

Most international master’s students are classified as using English as an Additional Language (EAL), which presents not merely linguistic challenges but also rhetorical and epistemological ones, as academic English embodies particular ways of constructing and presenting knowledge that may differ significantly from conventions in students’ first languages (Ballard and Clanchy, 1997). Many are used to rote learning and have limited experience with research methods or extended academic writing before beginning their courses, having developed their academic identities in systems that prioritise knowledge reproduction over knowledge creation (Ballard and Clanchy, 1997; Kinnell, 1990). They are also generally strategic learners, focusing on achieving good grades in their assessments (Tait, Entwistle and McCune, 1998), an approach that is entirely rational given the competitive graduate employment markets they will enter, but which can lead to surface-level engagement with research processes if not carefully guided. This strategic orientation means that resources which explicitly connect research activities to assessment criteria and demonstrate clear pathways to success are particularly valued. Despite behavioural changes in the modern digital age, including widespread use of online resources and digital learning platforms, a preference for physical books persists (Alsaeedi *et al.*, 2021), suggesting that tangible texts continue to offer cognitive and practical benefits such as easier annotation, reduced screen fatigue, and the ability to cross-reference multiple sections simultaneously.

Many international master’s students are therefore looking for a single physical book that will guide them to success in their dissertation, serving as a reliable companion throughout the research journey from initial topic selection through to final submission. However, the popular books on the market are often long and detailed, frequently exceeding six hundred pages and covering research methods comprehensively across multiple disciplines. While this comprehensiveness is valuable for building general research capacity, these texts are not strategically focused on students’ coursework outputs, typically a research proposal and a final thesis, with specific word limits, formatting requirements, and assessment criteria. They also do not provide

academic writing support or soft skills guidance covering crucial areas such as managing supervisor relationships, maintaining motivation during challenging phases, time management strategies, or dealing with common emotional challenges such as imposter syndrome and research anxiety. Dissertation completion depends not only on methodological competence but also on personal resilience and effective self-management. Furthermore, international master's students often seek out example dissertations to understand what is required, but an over-reliance on these can lead them to copy inappropriate surface-level elements such as chapter structures or section headings without understanding the underlying logic, or worse, to inadvertently plagiarise phrasing or argumentation styles (Pecorari, 2013).

Whilst there has been a move towards more concise business research methods books (such as Saunders and Lewis, 2025), study skills books for doing master's dissertations (such as Cottrell, 2026) and subject specific research methods books with some coursework advice (such as Collis and Hussey, 2019) there remains a market gap for a single subject specific book which provides step-by-step guidance and is written from the perspective of international master's students.

The purpose of this paper is to provide an account of the practice-based research undertaken to develop an evidence-based proposal to write such a book which was successfully submitted to a reputable British publisher. It begins with a conceptual framework followed by an explanation of our methodological approach and data analysis method. The research activity is then presented comprising of the development of the proposal rationale, feedback obtained from students on another book with a similar pedagogical approach and the design of our proposed textbook. The response from the publisher is then narrated followed by our reflections, conclusions and recommendations.

Although these findings informed the design of a textbook, the underlying pedagogical principles are transferable to wider educational practice. Clear scaffolding, authentic examples, integrated academic writing support and explicit attention to students' confidence and self-management could equally inform the design of dissertation modules, supervision practices and other research methods learning resources for international master's students.

Conceptual framework

Drawing on inquiry-based learning (Khalaf and Zin, 2018) and an academic literacy perspective (Lea and Street, 1998), the proposed textbook is designed to scaffold students' transition from knowledge consumers to novice researchers. Inquiry-based learning emphasises structured engagement with authentic research problems, while academic literacy recognises that disciplinary writing practices must be explicitly taught rather than assumed. For international master's students, textbooks that integrate methodological guidance with language support, worked examples and

reflective activities reduce cognitive load, make disciplinary conventions explicit, and support confidence in independent research.

Methodological approach

The purpose of the case study research was to persuade the publishers to allow us to write the book. The data collected and analysed is therefore limited to this purpose. Our paper therefore adopts a reflective practice-based descriptive case study (Price, 2017). The case centres on the design, development, and publisher evaluation of a learner-centred textbook proposal. The activity comprised identifying a pedagogical gap, designing the textbook structure, obtaining feedback from students and the publisher, and iteratively refining the proposal until it was accepted. Data consisted of the student and publisher feedback which was generated during this process together with the authors' reflective observations.

Feedback was obtained from 18 master's students enrolled on MSc Business and Management programmes at the University of Birmingham during the 2024–25 and 2025–26 academic years. Students represented programmes including MSc Management and MSc Human Resource Management. Participation was voluntary, and comments were provided after students had used the proposal-writing textbook to support their coursework.

Students were invited to provide brief written reflections on how they had used the textbook, which aspects they found most and least useful, and suggestions for the title of the new dissertation book. Comments were collected through end-of-module evaluations, supplemented by verbal feedback during teaching sessions.

Students were informed that their anonymous comments could be used for educational research and publication purposes. No identifying information has been included, and all quotations have been anonymised. The feedback was collected as part of the routine module review process, which constitutes a standard educational evaluation activity.

Data analysis

Student comments and publisher feedback were analysed using a simple thematic analysis approach (Braun and Clarke, 2006). Given the practice-based nature of the project, the purpose of the analysis was not to generate new theoretical insights but to identify recurring perceptions of value within the proposal-writing textbook that could inform the design of a companion dissertation textbook.

The student comments were read repeatedly by both authors to achieve familiarity with the dataset before being coded according to their primary meaning and focus. Initial codes included references to clarity, accessibility, confidence, practical usefulness, academic writing support, examples, structure, and direct application to assessed coursework. These codes were then compared and grouped into broader categories. Through discussion between the authors, overlapping categories were

consolidated into five overarching themes: clarity, accessibility, confidence-building, practical applicability, and academic writing support.

The final themes were selected because they occurred consistently across the student comments and aligned closely with the pedagogical objectives of the proposed textbook. The analysis therefore provided an evidence-informed basis for design decisions by identifying those aspects of the original textbook that students found most supportive of their learning. Rather than treating feedback solely as an evaluation of the existing text, the data were used as a source of design guidance for the development of the new proposal.

Publisher feedback was analysed separately and used to evaluate the pedagogical and commercial viability of the proposal. Particular attention was paid to comments relating to market positioning, audience needs, and differentiation from competing titles. The student and publisher datasets were then considered together to identify areas of convergence between learner needs and publishing priorities.

Although the dataset was relatively small (18 students and one commissioning editor), the purpose of the study was to generate practical insights to inform textbook development rather than produce statistically generalisable findings. The emphasis was therefore placed on identifying recurring patterns that could support an evidence-based design process.

Proposal rationale

The authors submitted a proposal for a new research methods book for international master's students to a UK publisher. This book will specifically address the post-proposal submission phases of a research project, with a particular focus on the dissertation stage. Building on the successful approach used in the previously published proposal writing book on business research projects (Samuels, 2023), this work aims to provide a practical, structured, and supportive guide tailored to the needs of international students navigating complex research tasks.

The current market situation is summarised in Figure 1. The books available on the market are divided into two dimensions: a focus on a specific discipline versus an academic skills focus; and a traditional approach versus a contemporary one. Example books in each category are critiqued. In general, they are rather long for our target audience and do not contain examples of actual student work.

Traditional discipline specific research methods textbooks	Traditional academic skills development textbooks
Example (Saunders et al., 2023)	Example (Wallace and Wray, 2021)
Critique:	Critique:
Not focused on doing the coursework	Not focused on doing the coursework
No student examples	No student examples
Long	Rather long
Contemporary discipline specific research methods textbooks	Contemporary academic skills development textbooks
Example (Saunders and Lewis, 2025)	Examples (Collis and Hussey, 2019; Greetham, 2019)
Critique:	Critique:
Covers contemporary issues (e.g. AI)	Either coursework focused or subject specific, but not both
Not focused on doing the coursework	No student examples
No student examples	Rather long
More concise but still rather long	

Figure 1: Market analysis of existing research methods textbooks

In addition, international students also encounter rhetorical expectations, unfamiliar academic conventions and differing epistemological assumptions that are rarely addressed explicitly in conventional research methods texts.

In summary, existing textbooks may be comprehensive yet insufficiently accessible for learners requiring integrated methodological and academic literacy support. They can appear inaccessible due to their length and their content does not generally resemble the writing that students are expected to create.

Student feedback

Feedback was collected from informal written comments provided by international master's students who had used our proposal-writing textbook (Samuels, 2023), together with written responses provided by the commissioning editor during the proposal review process. The student comments were analysed using thematic analysis (Braun and Clarke, 2006), with recurring themes identified relating to clarity, accessibility, confidence-building, practical applicability, and academic writing support. Representative quotations are presented below to illustrate each theme.

Clarity

Students valued the book's clear, step-by-step explanation of the research proposal process.

"The book broke the process down into simple, achievable steps. I finally understood how to move from a topic idea to a full proposal." (2024 MSc International Business student)

Accessibility

Students found the concise language and practical examples accessible, particularly for those using English as an additional language.

"As an international student, I found the examples incredibly helpful." (2024 MSc Human Resource Management student)

Confidence-building

Students indicated that the structured guidance increased their confidence and reduced anxiety about independent research and academic writing.

"The structure helped me to stay focused and reduced my anxiety about writing in academic English." (2024 MSc Human Resource Management student)

"Before using the book, I wasn't confident about where to begin my proposal. The clear guidance helped me approach each stage with much more confidence." (2025 MSc Management student comment)

Practical applicability

Students valued guidance and examples that could be applied directly to their own research proposals and assessed coursework.

"The examples made it much easier to relate the research methods to my own dissertation topic rather than just reading about the theory." (2025 MSc Management student comment)

"I found the step-by-step approach particularly useful because I could apply each chapter to the section of my dissertation I was writing." (2025 MSc Human Resource Management student comment)

Students appreciated the integration of academic writing guidance throughout each stage of the research process.

"The explanations helped me understand not only what to include in each section but also how to write in the style expected at master's level." (2025 MSc Management student comment)

"As an international student, I found the academic writing advice especially valuable because it explained things that were unfamiliar to me." (2025 MSc Human Resource Management student comment)

Summary

Overall, these comments suggest that the learner-centred and supportive design of the proposal writing book resonated strongly with international students across disciplines, reinforcing the rationale for a companion volume focused on the dissertation phase.

More importantly, the thematic analysis directly informed the design decisions incorporated into the new proposal. Firstly, feedback relating to clarity and confidence-building reinforced our decision to retain a highly structured step-by-step format that guides students through each stage of the dissertation process. Secondly, comments regarding accessibility influenced the decision to continue using concise language and to include worked examples drawn from authentic student work. Thirdly, feedback highlighting the practical applicability of the book supported the decision to organise chapters around the stages of dissertation completion rather than around abstract methodological concepts. Finally, students' positive responses to integrated academic writing guidance informed the decision to embed writing support throughout the text rather than presenting it as a standalone chapter. In this way, student feedback functioned not only as validation of the original concept but also as a direct influence on the pedagogical design of the proposed textbook.

Book design

Based on the feedback received from students and their appreciation for our previous book (Samuels, 2023), the proposed book will combine several key features to enhance learning and application.

Firstly, the proposed book will have a clear, step-by-step design. It is structured into five parts and 16 chapters as shown in Figure 2. Part 1 sets the scene for doing a dissertation. It assumes students have already submitted a proposal following the guidance in our previous book (Samuels, 2023) but summarises some of the key information here.

Part	Chapters
1. Setting the scene	1. Your current research project status 2. Academic writing 3. Managing the process 4. Writing your dissertation introduction
2. The critical phase	5. Doing your full literature review 6. Writing your dissertation methodology

	7. Designing your data collection instrument
3. The action and analysis phases	8. Collecting and preparing your data 9. Qualitative data analysis 10. Quantitative data analysis 11. Writing up your findings
4. The creative phase	12. Writing your discussion 13. Writing your conclusion 14. Revising and editing your dissertation
5. Post submission	15. Presenting and defending your dissertation 16. Future work based on your dissertation

Figure 2: Structure of proposed research methods book

Parts 2 to 4 cover the phases of doing the research project, blending advice on carrying out the research with advice on generating the dissertation thesis. Part 5 covers relevant issues after students have submitted their dissertation theses. This structure allows for a clear, step-by-step progression from proposal submission to dissertation completion.

Secondly, it will be discipline-specific and include examples and guidance directly relevant to students' fields of study. These examples will be in the form of extracts from a limited number of real students, accompanied by tutor feedback, providing readers with concrete illustrations of common challenges and effective strategies.

Thirdly, the writing style will be simple, concise and accessible style that avoids overwhelming the reader. Fourthly, academic writing training will be integrated throughout, reinforcing the development of critical writing skills necessary for high-quality dissertations.

Finally, soft skills support will also be emphasized, covering important aspects such as building productive relationships with supervisors, managing time, and maintaining motivation. The book will take a strategic approach, guiding students through the preparation of coursework components and research outputs, with the aim of improving both process and outcomes.

Publisher response

The publisher feedback was equally encouraging. The commissioning editor described the concept as "innovative in its integration of methodological guidance, academic literacy, and pastoral support, adding that the approach aligns perfectly with current trends towards inclusive pedagogy and internationalisation in higher education publishing. The editor was so impressed with the concept that they are now planning

to create an edited series of textbooks using the same engaging, student-centred style.

Following our successful application to the publishers, our book is due to be released in the Spring of 2027. The publishers' agreement and positive feedback indicate their confidence both in the pedagogical approach and its commercial implications.

Reflections and conclusion

Dissertations remain an important component of most business and management master's courses, serving as a culminating academic experience that demonstrates students' research capabilities and subject mastery. Despite evolving educational landscapes, international recruitment to these programmes remains strong, bringing together cohorts of students from varied cultural, linguistic, and educational backgrounds who enrich the learning environment but also present unique pedagogical challenges.

These international students need guidance in multiple areas – from understanding research methodologies and academic writing conventions to navigating ethical approval processes and managing their time effectively – and are actively looking for a one-stop resource to support them comprehensively through the complex process of doing a research project.

Whilst the academic book market offers numerous titles on research methods and dissertation writing, existing books do not fully target this need, often focusing narrowly on methodology or writing skills without addressing the broader support requirements of international students undertaking postgraduate research. Our forthcoming book is specifically targeted at this underserved niche, providing integrated guidance that addresses both the technical and pastoral dimensions of the dissertation journey, though we anticipate that its accessible approach and comprehensive coverage may also prove applicable to a wider audience, including domestic students and those studying at undergraduate level who would benefit from structured, supportive guidance through their research endeavours.

Beyond textbook development, this case study highlights broader principles for supporting international master's students. Resources that are structured around authentic assessment tasks, integrate methodological and academic writing guidance, and acknowledge the wider challenges of independent research may help improve both student confidence and learning outcomes. These principles could be adopted within dissertation modules, supervisory practice and institutional learning support.

This study was limited by the purpose of the research and the small sample size. Its evaluation has been based on persuading a publisher rather than more objective research criteria. Whilst the main finding of the study is an apparent strong market precedent for a concise, holistic, accessible international student-centred business dissertations textbook, a short volume will obviously lack the depth of existing longer textbooks.

Recommendations

More student research methods textbooks should be written from the perspective of international students with a focus on their coursework requirements, clarity and conciseness.

In order to develop holistic textbooks, academics should partner with central support staff who have a greater understanding and awareness of non-academic issues, such as academic writing and soft skills development.

Programme teams should review dissertation modules to ensure that methodological guidance, academic writing support and research process skills are integrated throughout the student journey rather than being treated as separate activities.

The student voice needs to be heard more clearly in the design of research methods textbooks, such as incorporating them in market research and including actual student examples with feedback.

In addition to textbook design, UK HEIs need to consider more carefully the pedagogical needs of their international students undertaking dissertation research. This can be achieved by forming better partnerships and developing teaching materials which adopt these stated principles.

References

- Alsaeedi, Z. S., Ngadiran, N. B. M., Kadir, Z. A. and Altowayti, W. A. H. (2021) An overview of reading habits and medium preference among university students. In 2021 *International Congress of Advanced Technology and Engineering (ICOTEN)*, July. IEEE.
- Ballard, B. and Clanchy, J. (1997) *Teaching International Students: A Brief Guide for Lecturers and Supervisors*. Deakin: IDP Education Australia.
- Braun, V., and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, pp. 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Collis, J., and Hussey, R. (2021) *Business Research: A practical guide for students*. 5th edn. London: Bloomsbury.
- Cottrell, S. (2026) *Dissertations and Project Reports: A step-by-step guide*. 2nd edn. London: Bloomsbury.
- Greetham, B. (2019) *How to Write your Undergraduate Dissertation*. 3rd edn. London: Bloomsbury.
- Healey, M., Jenkins, A. and Lea, J. (2014) *Developing Research-Based Curricula in College-Based Higher Education*. York: Higher Education Academy.
- HESA (2026) *What do HE Students Study?* Available at: <https://www.hesa.ac.uk/data-and-analysis/students/what-study#complete> (Accessed 6 August 2026).

Khalaf, B. K. and Zin, Z. B. M. (2018) Traditional and inquiry-based learning pedagogy: A systematic critical review. *International Journal of Instruction*, 11(4), pp. 545-564. <https://doi.org/10.12973/iji.2018.11434a>

Kinnell, M. (1990) *The Learning Experiences of Overseas Students*. Buckingham: Open University Press.

Lea, M. R. and Street, B. V. (1998) Student writing in higher education: An academic literacies approach. *Studies in Higher Education*, 23(2), pp. 157-172. <https://doi.org/10.1080/03075079812331380364>

Pecorari, D. (2013) *Teaching to Avoid Plagiarism: How to promote good source use*. Maidenhead: Open University Press.

Price, B. (2017) How to write a reflective practice case study. *Primary Health Care*, 27(9), pp. 35-43. <https://doi.org/10.7748/phc.2017.e1328>

Samuels, P. C. (2023) *Proposal Writing for Business Research Projects*. London: Taylor and Francis.

Saunders, M. N. K. and Lewis, P. (2025) *Doing Research in Business and Management: An essential guide to planning and undertaking your project*, 3rd edn. Harlow: Pearson.

Saunders, M. N. K., Lewis, P., and Thornhill, A. (2023) *Research Methods for Business Students*. 9th edn. Harlow: Pearson.

Tait, H., Entwistle, N. and McCune, V. (1998) *ASSIST: A reconceptualisation of the Approaches to Studying Inventory*. Edinburgh: University of Edinburgh Centre for Research on Learning and Instruction.

Todd, M., Smith, K. and Bannister, P. (2004) Supervising a social science undergraduate dissertation: staff experiences and perceptions. *Teaching in Higher Education*, 9(4), pp. 509-527. <https://doi.org/10.1080/13562510500527693>

Wallace, M. and Wray, A. (2021) *Critical Reading and Writing for Postgraduates*. 4th edn. London: SAGE.

Wingate, U. (2015) *Academic Literacy and Student Diversity: The case for inclusive practice*. Bristol: Multilingual Matters.

Innovative pedagogical strategies for enhancing student engagement and problem-solving skills in business education

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Abstract

The education sector is experiencing a paradigm shift towards student-centered teaching methodologies, particularly in business education. This case study, conducted at the University of Birmingham Dubai, explores the implementation of innovative pedagogical strategies aimed at enhancing student engagement and problem-solving skills. The primary challenge addressed was the need to design teaching strategies that cater to diverse student needs while fostering critical thinking and real-world application of knowledge. A multi-faceted intervention was developed, incorporating experiential learning, problem-based learning (PBL), and emerging technologies. Key activities included group exercises like 'Think-Pair-Share', online business simulations, and digital tools that replicated authentic business settings. These strategies facilitated interactive learning, allowing students to engage in virtual business negotiations and develop creative solutions to complex issues. The intervention yielded positive outcomes, with students demonstrating improved problem-solving skills and the ability to generate unique solutions. Recommendations for wider practice include adopting innovative pedagogies, integrating technology for personalized learning experiences, encouraging student autonomy, and fostering a collaborative environment. These approaches not only enhance student engagement but also prepare them for real-world business scenarios, making them more adept at navigating market dynamics and decision-making processes. The study underscores the importance of evolving teaching methods to meet the demands of modern education and the business landscape.

Context and challenges

The education sector is undergoing a significant transformation, with a shift towards student-centered teaching approaches and the integration of advanced technologies. At the University of Birmingham Dubai, the focus has been on adopting innovative pedagogies to enhance student engagement and learning outcomes. The primary challenge was to design and implement teaching strategies that cater to diverse student needs while fostering critical thinking and problem-solving skills. Traditional

teaching methods were insufficient in engaging students and preparing them for real-world business scenarios. Additionally, there was a need to integrate technology effectively into the learning process to provide immediate feedback and facilitate collaborative learning (Mota *et al.*, 2014). This context necessitated a comprehensive approach to teaching that not only addressed these challenges but also aligned with contemporary educational standards.

Intervention design

To address the challenges of student engagement and problem-solving skills, a multi-faceted intervention was designed, focusing on experiential learning, problem-based learning (PBL), and the use of emerging technologies. This case study exemplifies the application of these pedagogical strategies in a business education context, specifically targeting the enhancement of student engagement and problem-solving skills.

Key components of the intervention were introduced through various innovative examples, each underpinned by specific design principles and informed by established learning theories:

Shark Tank Activity: In the Managing Financial Resources module, I designed a "Shark Tank" exercise where students were allocated a mock budget to develop a business proposal. This activity is grounded in experiential learning theory, as proposed by Kolb (1984), which emphasizes learning through experience. By simulating a real-world entrepreneurial scenario, students engaged in active learning, which is a core principle of constructivist approaches. The collaborative nature of the exercise fostered peer interaction, allowing students to construct knowledge collectively. The authenticity of the task allowed students to see the relevance of their learning, significantly enhancing their engagement and creativity.

Problem-Based Learning (PBL) Design: For the Management Accounting module, I implemented a PBL approach where students tackled financial problems by breaking them down into a series of prearranged steps. This method aligns with inquiry-based learning, which encourages students to ask questions and explore solutions actively. The structured scaffolding provided in PBL is essential for guiding students through complex problem-solving processes, as highlighted by Hmelo-Silver (2004). The provision of expert analysis after each step served as a feedback mechanism, allowing students to reflect on their decisions and understand the implications of their choices. This iterative process not only improved their problem-solving capabilities but also encouraged them to think critically and develop unique solutions to complex numerical and financial issues.

Think-Pair-Share: I introduced short-term, self-directed group activities like 'Think-Pair-Share'. This strategy is rooted in active learning theory, which posits that students learn more effectively when they are actively engaged in the learning process (Prince,

2004). By allowing students to first think independently and then discuss their ideas with a partner, the activity fostered deeper understanding through dialogue. The collaborative structure encouraged students to articulate their thoughts and refine their understanding based on peer feedback, enhancing their communication skills and critical thinking.

Business Simulation: For a chapter on accounting and business management, I conducted an online business simulation where students resolved a financial situation or business case using provided online resources. This simulation is informed by constructivist learning theory, which emphasizes the importance of authentic tasks in promoting meaningful learning experiences. By immersing students in a realistic business environment, they were able to apply theoretical knowledge in practical scenarios. The immediate feedback provided during the simulation allowed students to adjust their strategies in real-time, reinforcing their learning and enhancing their problem-solving skills.

Synthesis of insights across interventions

Across these interventions, several key insights emerged regarding the effectiveness of the strategies employed:

- Collaboration Structures: The emphasis on collaborative activities, such as the Shark Tank and Think-Pair-Share, proved to be a significant factor in enhancing student engagement. Students reported feeling more motivated and accountable when working with peers, which fostered a supportive learning environment.
- Scaffolding and Feedback Mechanisms: The use of structured approaches in PBL and the provision of expert feedback were critical in guiding students through complex problem-solving processes. This scaffolding allowed students to build their skills progressively, leading to greater confidence and competence in tackling challenging tasks.
- Authenticity: The incorporation of real-world scenarios in activities like the online business simulation and Shark Tank exercise made learning more relevant and engaging for students. When students perceive the material as applicable to real-life situations, their motivation to learn increases significantly.
- Iterative Learning: The design of activities that allowed for reflection and iteration, such as the PBL approach, enabled students to learn from their mistakes and refine their problem-solving strategies. This iterative process is essential for developing critical thinking skills and fostering a growth mindset.

By synthesizing these insights and connecting them to established learning theories, it becomes clear that the combination of collaboration, structured support, authentic

experiences, and opportunities for iterative learning created a robust framework for enhancing student engagement and problem-solving skills in business education.

Methodology and evidence base

The evidence for the effectiveness of the innovative pedagogical strategies implemented in this case study was gathered through a combination of Module Evaluation Surveys (MEQs), attendance records, and engagement metrics. This multi-faceted approach allowed for a comprehensive understanding of student experiences and outcomes.

Data Collection

Module Evaluation Surveys (MEQs): At the end of each module, students were invited to complete MEQs, which included both quantitative and qualitative questions regarding their learning experiences. The qualitative data consisted of open-ended comments where students could express their thoughts on specific activities and their overall learning experience.

Attendance Records: Attendance was tracked throughout the semester to assess student participation in various activities. This data provided insights into student engagement levels and the correlation between attendance and participation in innovative pedagogical strategies.

Engagement Metrics: Engagement metrics were collected through various in-class activities and collaborative exercises. These metrics included attendance rates, participation levels during discussions, and the frequency of student interactions during activities.

Analysis and findings

The qualitative comments from the MEQs were analysed using thematic analysis, which involved identifying common themes and patterns in student feedback. This process allowed for the aggregation of insights into broader categories, such as perceived improvements in problem-solving skills, engagement levels, and the effectiveness of collaborative activities. Quantitative data from attendance records and engagement metrics were summarized to provide descriptive indicators of student participation and engagement. For example, attendance rates averaged 85% across modules, indicating a high level of student commitment to the learning process.

The findings from the MEQs and engagement metrics are framed as indicative rather than causal. While the data suggest positive trends in student engagement and problem-solving skills, it is important to acknowledge that these outcomes may be influenced by various factors beyond the implemented strategies. Therefore, the results should be interpreted with caution, recognizing that they provide insights into student experiences rather than definitive causal relationships.

Descriptive indicators:

The implementation of collaborative activities, including the "Shark Tank" exercise, problem-based learning (PBL) sessions, Think-Pair-Share activities, and business simulations, resulted in a remarkable increase in student engagement. Attendance records showed an average rate of 85%, reflecting strong commitment among students. Across these activities, 90% of students actively participated in discussions and expressed enthusiasm for more interactive experiences, as indicated in their feedback. The "Shark Tank" activity alone facilitated 3 peer feedback sessions, while the other activities further enhanced collaborative interactions, fostering critical thinking and teamwork. Overall, these activities not only heightened student interest and involvement but also demonstrated their willingness to contribute ideas and collaborate with peers, indicating a deeper investment in their learning processes.

Thematic Summaries of MEQs: The analysis of MEQ comments revealed several key themes:

- Improved Problem-Solving Skills: Many students noted that the PBL approach helped them develop critical thinking and problem-solving abilities, with 75% of respondents indicating a noticeable improvement in these areas.
- Enhanced Engagement: Students expressed that the interactive nature of activities like the Shark Tank and business simulations made learning more enjoyable and relevant, with 85% reporting increased motivation to participate.
- Collaboration and Communication: Feedback highlighted the value of collaborative activities in improving teamwork and communication skills with majority of students acknowledging that these experiences enhanced their ability to work effectively with others.

By employing this methodology and analyzing the evidence collected, the study provides a nuanced understanding of the impact of innovative pedagogical strategies on student engagement and problem-solving skills in business education.

Ethical considerations

This study adhered to ethical guidelines to ensure the confidentiality and anonymity of student participants. Instead of using direct quotations, feedback from the MEQs was analyzed and summarized thematically. This approach allowed for the identification of common trends and insights while maintaining the anonymity of individual students. All data collected from students were treated with confidentiality, and no identifiable information was disclosed. Participation in the MEQs was voluntary, and students

were informed of their right to withdraw at any time without any impact on their academic standing. By adhering to these ethical considerations, the study ensures that the integrity of the research process is maintained while respecting the rights and privacy of student participants.

Recommendations

Based on the findings of this case study, the following recommendations are made for wider practice in business education:

Adopt Innovative Pedagogies: Educators should integrate experiential and problem-based learning strategies to foster critical thinking and real-world application of knowledge. Activities like the "Shark Tank" exercise can encourage entrepreneurial thinking and critical reasoning. Tailoring these pedagogies to address diverse learning styles will ensure that all students benefit from hands-on, practical experiences that bridge the gap between theory and practice.

Integrate Technology Effectively: Utilize emerging technologies to create interactive and personalized learning experiences. This includes leveraging online platforms for simulations and collaborative activities, which can enhance student engagement and provide immediate feedback. Educators should explore tools that facilitate virtual business negotiations and other simulations that replicate real-world business environments, preparing students for future challenges.

Encourage Student Autonomy and Leadership: Design projects that require students to take on leadership roles and work independently. This approach not only builds confidence but also prepares students for the responsibilities they will face in their professional careers. Providing opportunities for self-directed learning can help students develop a sense of ownership over their educational journey.

Foster a Collaborative Learning Environment: Create activities that promote peer interaction and collaboration, establishing a supportive learning community. Group activities like 'Think-Pair-Share' and online business simulations can facilitate peer learning and encourage students to share diverse perspectives. By fostering a collaborative environment, educators can help students develop essential communication and teamwork skills, which are critical in today's interconnected business world.

Implement Continuous Feedback Mechanisms: Establish regular feedback loops through formative assessments and peer evaluations. This will allow students to reflect on their learning processes and outcomes, fostering a growth mindset. Continuous feedback can also help educators adjust their teaching strategies to better meet student needs.

Discussion

This case study highlights the importance of evolving teaching methods to meet the demands of modern education and the business landscape. The integration of innovative pedagogical strategies has shown to significantly enhance student

engagement and problem-solving skills. The findings suggest that elements such as collaboration structures, scaffolding, authenticity, and feedback mechanisms were particularly impactful in fostering a conducive learning environment.

The success of this intervention indicates that similar approaches could be beneficial in other educational contexts, particularly in disciplines that require critical thinking and problem-solving skills, such as engineering, healthcare, and the sciences. The positive student feedback underscores the value of experiential learning and the relevance of real-world applications in enhancing student motivation and learning outcomes.

However, it is essential to recognize that the findings are indicative rather than causal. While the strategies implemented yielded positive results, various external factors may have influenced student engagement and performance. Future research could explore longitudinal studies to assess the long-term impact of these pedagogical strategies on student outcomes.

Implications for Practice

The key lessons learned from this case study have significant implications for educators across various disciplines. First, the emphasis on experiential and problem-based learning can be adapted to any field that requires critical thinking and practical application of knowledge. For instance, in engineering, project-based learning can simulate real-world challenges, allowing students to apply theoretical concepts in practical settings. Similarly, in healthcare education, case-based learning can enhance clinical reasoning and decision-making skills.

Second, the integration of technology to facilitate interactive and personalized learning experiences is universally applicable. Educators in any discipline can leverage digital tools and platforms to create engaging learning environments that cater to diverse learning styles. For example, online simulations and collaborative tools can enhance student engagement in social sciences, humanities, and natural sciences.

Third, fostering a collaborative learning environment is essential across all fields. Encouraging peer interaction and teamwork not only enhances communication skills but also prepares students for the collaborative nature of the modern workforce. This approach can be particularly beneficial in disciplines such as business, where teamwork and effective communication are critical for success.

Finally, the implementation of continuous feedback mechanisms can enhance learning outcomes in any educational context. Regular formative assessments and peer evaluations can help students reflect on their learning processes and outcomes, fostering a growth mindset. This practice is relevant in disciplines ranging from the arts to the sciences, where iterative learning and self-reflection are vital for skill development.

By sharing these insights and strategies, educators across disciplines can enhance their teaching practices, ultimately leading to improved student engagement and learning outcomes.

Conclusion

The implementation of innovative pedagogical strategies at the University of Birmingham Dubai has demonstrated significant improvements in student engagement and problem-solving skills. By adopting experiential and problem-based learning approaches and integrating technology into the curriculum, educators can create a more dynamic and effective learning environment. This case study contributes to the broader discourse on pedagogical innovation in business education, emphasizing the need for teaching methods that prepare students for the complexities of the modern workforce. By fostering critical thinking, real-world application, engagement, leadership, and adaptability, business education can produce graduates who are not only knowledgeable but also capable of driving innovation and growth in their respective fields.

In conclusion, the findings of this study advocate for a shift towards more interactive and student-centered learning environments, which are essential for developing the skills necessary to navigate the challenges of an ever-evolving global market.

References

- Altbach, P. G., Reisberg, L., and Rumbley, L. E. (2019) *Trends in global higher education: Tracking an academic revolution*, Brill.
- Kolb, D. A. (1984) *Experiential Learning: Experience as the Source of Learning and Development*, Prentice Hall.
- Hmelo-Silver, C. E. (2004) 'Problem-based learning: An instructional model and its constructivist framework', in: D. H. Jonassen (Ed.), *Handbook of Research on Educational Communications and Technology*, Lawrence Erlbaum Associates, pp. 235-267.
- Mota, D., Reis, L. P., and de Carvalho, C. V. (2014) 'Design of learning activities—pedagogy, technology and delivery trends', *EAI Endorsed Transactions on Learning*, 1(4).
- Prince, M. (2004) 'Does Active Learning Work? A Review of the Research', *Journal of Engineering Education*, 93(3), pp. 223-231.