

# ACTIVE LEARNING PEDAGOGIES, STUDENT ENGAGEMENT, AND PERCEIVED LEARNING OUTCOMES IN UNDERGRADUATE CORPORATE FINANCE EDUCATION

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## Article history

Received date : 3-7-2026  
Revised date : 4-7-2026  
Accepted date : 14-8-2026  
Published date : 15-8-2026

## To cite this document:

Wan Abdullah, W. R., Puteh Salin, A. S. A., Noordin, N., Ghuslan, M. I., Ahmad, M., & Rosli, S. A. (2026). Active learning pedagogies, student engagement, and perceived learning outcomes in undergraduate corporate finance education. *International Journal of Accounting, Finance and Business (IJAFB)*, 11 (66), 418 - 440.

**Abstract:** *The increasing complexity of the business environment requires accounting graduates to develop not only technical expertise but also strategic judgement, digital competence, collaboration, and problem-solving capabilities. Responding to this educational challenge, this study investigates the effects of traditional lectures, experiential learning, collaborative learning, and educational technology integration on student engagement and perceived learning outcomes in undergraduate corporate finance education. A quantitative cross-sectional survey was conducted among final-semester accounting undergraduates enrolled in a corporate finance course at Universiti Teknologi MARA (UiTM), Perak Branch, Malaysia. After removing duplicate responses, data from 332 students were analysed using partial least squares structural equation modelling (PLS-SEM). The measurement model demonstrated satisfactory reliability and validity, while the structural model explained 65.5% of the variance in student engagement and 82.3% of the variance in perceived learning outcomes. Experiential learning emerged as the strongest predictor of student engagement, followed by traditional lectures, collaborative learning, and educational technology*

*integration. Student engagement significantly enhanced perceived learning outcomes and mediated the relationships between experiential learning, collaborative learning, educational technology integration, and perceived learning outcomes. In contrast, the direct effect of collaborative learning on perceived learning outcomes was not significant, indicating that its educational value operates primarily through increased student engagement. These findings extend constructivist and experiential learning perspectives by demonstrating that student engagement functions as the key mechanism through which complementary pedagogical approaches enhance learning outcomes in corporate finance education. The study provides practical guidance for accounting educators and curriculum designers seeking to develop learner-centred, technology-enhanced learning environments that better prepare graduates for contemporary professional practice.*

**Keywords:** *accounting education; active learning pedagogies; corporate finance education; educational technology integration; experiential learning; perceived learning outcomes; student engagement.*

## Introduction

Automation, data analytics, artificial intelligence, and complex organizational contexts are transforming the accounting profession. As a result, accounting graduates must go beyond procedural competency to demonstrate critical thinking, technology proficiency, communication, cooperation, and strategic financial judgment. Recent research stresses instructional designs that connect disciplinary knowledge to authentic professional tasks (Churyk et al., 2024, 2025; Lee & Perdana, 2023). Corporate finance is a particularly difficult component of the curriculum because it demands students to transition from retrospective, standards-based financial reporting to prospective decisions on risk, valuation, capital structure, and investment assessment (Badicu et al., 2025). Learners must analyze unclear information, evaluate alternatives, and justify recommendations in the face of uncertainty. Traditional lectures are still useful for organizing concepts and decreasing initial cognitive load, but they are insufficient to create transferable workplace skills.

This constraint is addressed by active learning, which involves students in case analysis, problem-based learning, simulations, peer collaboration, spreadsheet modeling, and interactive digital tools that reflect professional situations (Malan & Dyk, 2021; Walusa & Qhosola-Mahlomaholo, 2026). Experiential interventions are associated with increased engagement, critical thinking, data analytics skills, and perceived relevance, according to empirical investigations (Lee & Perdana, 2023; Rossouw & Steenkamp, 2025). Furthermore, technology-supported engagement is linked to academic success and multidimensional engagement, which is heavily influenced by course design and student confidence (Getenet et al., 2024; Churyk et al., 2024).

Despite these findings, three major research gaps remain: pedagogical configurations are frequently studied separately, the literature heavily favors introductory courses over corporate finance for accounting undergraduates, and context-specific evidence about Malaysian undergraduates in their final semesters is scarce. This study fills those gaps by investigating the simultaneous direct and engagement-mediated effects of traditional lectures, experiential learning, collaborative learning, and educational technology integration within a unified framework based on constructivist, experiential, and student-engagement perspectives.

This study addresses these gaps by investigating the impact of traditional lectures, experiential learning, collaborative learning, and educational technology integration on student engagement and reported learning outcomes among accounting undergraduates in their final semester. It makes a contribution by testing an integrated model based on constructivism, experiential learning theory, and student engagement perspectives; distinguishing between direct pedagogical effects and engagement-mediated effects; and providing context-specific evidence for accounting educators and curriculum designers.

## Literature Review

### Accounting Education and Active Learning

The accounting profession has seen a major upheaval, owing to digital technology, automation, big data analytics, and artificial intelligence (AI). Graduates are no longer considered merely as technical financial statement preparers, but as strategic business consultants responsible for interpreting financial data, supporting organizational decision-making, managing uncertainty, and communicating complicated financial insights (Brabete et al., 2024). As a result, higher education institutions are under pressure to transition from passive, instructor-centered pedagogies based on memorization (Krishnan et al., 2023) to active learning paradigms that prioritize competency development, critical thinking, and professional judgment (Viviers & Villiers, 2020; Woolfolk, 2018).

Active learning positions students as active participants who construct knowledge through authentic problem-solving, reflection, and peer interaction (Bell, 2021). Within accounting education, this encompasses diverse strategies such as case-based learning, business simulations, and technology-supported learning environments (Barnett-Itzhaki et al., 2023). These interventions significantly improve student involvement, motivation, and practical confidence (Yusof et al., 2020). Active configurations are especially vital in corporate finance education, where learners must evaluate uncertain prospective events - such as cash flows, risk-return trade-offs, and valuations - rather than record historical transactions (Badicu et al., 2025).

Furthermore, educational technologies like as spreadsheet modeling, simulators, and AI-powered teaching tools help to speed this transition by allowing for instant formative feedback and collaborative analysis (Zakaria et al., 2025). However, digital tools boost learning outcomes only when they are integrated into coherent instructional frameworks that encourage critical reflection (Akintayo et al., 2024). Modern accounting programs must generate graduates who can combine technical expertise with teamwork, digital literacy, and ethical decision-making (Hassanudin, 2025; Rkein et al., 2024). Understanding how different active techniques interact to enhance engagement and perceived learning results within a unified framework remains a top research focus.

### Theoretical Foundations

This study combines three complementing frameworks: Constructivist Learning Theory, Experiential Learning Theory (ELT), and Student Engagement Theory, to explain how students build knowledge and develop the engagement required for beneficial educational results (Evans et al., 2020). Constructivism provides the instructional framework (Gono & Moraes, 2023). Vygotsky (1978) defined learning as an active, socially mediated process in which pupils develop knowledge through interaction and dialog. Instead of passively accepting information, students interpret and negotiate meaning, transforming the instructor into a facilitator (Brailas et al., 2017). Corporate finance requires higher-order judgment and synthesis to manage

uncertainty and justify strategic decisions, rather than relying on rule-based computations (Grant & Baden-Fuller, 2018).

ELT (Kolb, 1984) describes how students transform experience into competence through a four-stage cycle of tangible experience, reflective observation, abstract conceptualization, and active experimentation (Kolb & Kolb, 2022). This cycle is directly applicable to corporate finance, as decision-making entails negotiating uncertainty with quantitative evidence and expert judgment (Calma & Davies, 2020). Cases and simulations encourage the reflection and active testing necessary to develop this financial acumen (Kumar & Darshini, 2024).

Finally, Student Engagement Theory views engagement as the fundamental driver of academic accomplishment, going beyond mere attendance (Hauzel et al., 2024). It includes active task engagement (behavioral), interest and affiliation (emotional; Dubey et al., 2023), and deep cognitive processing (Vermeulen & Volman, 2024). Authentic activities (Howell, 2021) and technology-enhanced environments (Godsk & Møller, 2024) drive these characteristics, highlighting student involvement as the key relationship between active learning pedagogies and perceived learning outcomes.

## Development of Hypotheses

### Traditional Lectures

Traditional lectures remain an important instructional method because they provide conceptual organization, clarify complicated financial ideas, and lay the theoretical groundwork for higher-order learning activities (Osman et al., 2024). When lectures are planned as instructional scaffolding rather than passive information delivery, they help students learn fundamental ideas before applying them to real-world financial situations (Win et al., 2025). As a result, traditional lectures are predicted to positively impact students' perceived learning outcomes. Therefore, the following hypotheses are proposed:

*H1: Traditional lectures positively influence student engagement.*

*H2: Traditional lectures positively influence perceived learning outcomes.*

### Experiential Learning

Experiential learning enables accounting and business students to combine academic theory and professional practice. By directly engaging with actual business situations, learners are transformed from passive recipients to active participants who gain structural ownership of their knowledge base thru continual analysis, reflection, and decision-making (Heyworth-Thomas, 2023). This strategy is critical for teaching graduates to negotiate modern corporate environments marked by volatility and strategic unpredictability (Aldamen et al., 2021).

Experiential activities in corporate finance, such as case studies, simulations, and spreadsheet modeling, immerse students in real-world financial management scenarios. Instead of relying on memorized formulas, these arrangements challenge learners to interpret data, evaluate risks, and explain projected strategic decisions (Lee, 2024), fostering conceptual fluency, analytical thinking, and professional judgment. This methodology is well-supported by empirical evidence. Lee and Perdana (2023) discovered that experiential frameworks improve data analytics competency and professional skills more than traditional methods. Similarly, Molendijk, Taplin, and Brennan (2025) revealed that authentic, well-facilitated experience configurations significantly increase student involvement. Furthermore, active learning

treatments dramatically improve critical thinking and collaborative problem-solving abilities (Rossouw & Steenkamp, 2025).

Experiential learning, however, does not come with automatic benefits. Complex and unfamiliar tasks can increase cognitive strain when students lack prior knowledge or instructions are unclear. Experiential activities can also induce ambiguity because genuine financial problems may include insufficient knowledge and more than one defensible answer. Participation may be unequal if some students are more skilled at financial analysis or spreadsheet modeling than others. For these reasons, experiential learning heavily relies on adequate scaffolding, explicit task expectations, facilitator supervision, and chances for organized reflection (Heyworth-Thomas, 2023; Win et al., 2025). Molendijk et al. (2025) agree that facilitation and task design are vital for maintaining engagement. Thus, when tasks are authentic but appropriately structured, experiential learning can improve engagement and perceived learning outcomes; poorly scaffolded activities, on the other hand, might cause overload or doubt. Important gaps in the literature persist because experiential learning is frequently studied apart from technology and cooperation, with much of the information coming from introductory or general business courses rather than advanced corporate finance settings (Kumar & Darshini, 2024). Therefore:

*H3: Experiential learning positively influences student engagement.*

*H4: Experiential learning positively influences perceived learning outcomes.*

### **Collaborative Learning**

Collaborative learning is an important part of modern accounting education because it represents the consultative, team-oriented nature of professional practice (Viviers & Villiers, 2020). Shared activities prepare students for the workplace by allowing them to generate knowledge collaboratively and develop critical professional competencies. From a constructivist standpoint, collaborative configurations use social interaction to improve knowledge development. According to Vygotsky (1978), learning occurs thru cognitive dialog in which individuals question preconceptions. This is useful in corporate finance education, since problems rarely have a single correct answer and students must evaluate data under unpredictable conditions (Jasni, 2025). Group collaboration requires students to articulate reasoning, address opposing interpretations, and improve financial models thru constructive feedback (Jasni, 2025).

Structured peer assessment has been shown to enhance involvement and accountability (Adesina et al., 2023), whilst collaborative activities can develop the critical-thinking and teamwork skills required by employers (Churyk et al., 2024; Churyk et al., 2025). Nonetheless, collaborative learning has critical boundaries. Poorly designed group labor can lead to social loafing and unequal contributions, especially when individual roles are unclear (Li et al., 2023). Dominant group members may dominate debate or decision-making, limiting the opportunity for quieter pupils to contribute. Learning may also become dependent on the knowledge, effort, and dependability of peers. Furthermore, collaborative tasks might increase coordination and cognitive demands when the work is complex or roles are unclear (Janssen & Kirschner, 2020). These constraints imply that effectiveness is dependent on work structure, unambiguous role allocation, individual accountability, peer evaluation, and lecturer supervision. As a result, just because students work in groups does not mean collaboration will boost learning. Designing the group procedure to encourage meaningful involvement and engagement will increase its instructional value. Existing research also tends to focus on group work in isolation (Fadzil et al., 2024), leaving little data on how collaboration interacts with other pedagogical approaches

in corporate finance. Based on constructivism, collaboration is projected to improve engagement and learning outcomes (Ndovela et al., 2023). Therefore:

*H5: Collaborative learning positively influences student engagement.*

*H6: Collaborative learning positively influences perceived learning outcomes.*

### **Educational technology integration**

Digital transformation positions technology integration as an essential instructional technique and a fundamental graduate employability criterion (Shaleh, 2024). Rather of simply serving as teaching tools, digital platforms such as spreadsheets, simulations, and artificial intelligence (AI) applications enable students to visualize financial linkages, automate computations, and practice workflows in real-world scenarios (Zakaria et al., 2025). Based on constructivist ideas, interactive settings allow students to investigate realistic business issues and generate meaning thru data experimentation (Dziubaniuk et al., 2023). In corporate finance, spreadsheet modeling reduces the computational effort, allowing learners to devote higher-order cognitive processing to output interpretation, risk assessment, and decision justification (Zakaria et al., 2025).

According to empirical evidence, attitudes toward digital technology, literacy, and self-efficacy all have a substantial impact on online involvement. When technology-enhanced environments are linked with course aims, they optimize engagement and professional learning (Churyk et al., 2024, 2025). To ensure improvement, technology must be included into learner-centered models (Shroff et al., 2018), weighing the benefits of AI feedback against ethical reasoning discussions (Francis et al., 2025). Significant gaps remain in integrated models (Laufer et al., 2021), advanced finance, and the Malaysian terrain. Based on constructivism, integration is predicted to improve engagement and learning results. Therefore:

*H7: Educational technology integration positively influences student engagement.*

*H8: Educational technology integration positively influences perceived learning outcomes.*

### **Student Engagement**

Student engagement explains why students who are exposed to similar educational methods achieve different results. While instructional designs present opportunities, success is determined by how deeply learners commit their behavioral, emotional, and cognitive resources (Reinhold et al., 2024). Behavioral engagement comprises active task participation (Huang & Wang, 2022); emotional engagement shows interest and belonging (Alrashidi et al., 2016); and cognitive engagement entails deep processing and self-regulation (Shernof et al., 2017).

Sustained engagement is essential in calculation-intensive corporate finance courses that emphasize analytical reasoning over rote memorization; cognitively disengaged students seldom grasp these skills (Sinnewe et al., 2023). Active pedagogies serve as preconditions: experiential configurations stimulate scenario analysis (Arjomandi et al., 2021); cooperation encourages discourse (Ndovela et al., 2023); and educational technologies provide interactive feedback (Abubakar et al., 2024). Engagement is a dynamic interaction between individual, instructional, and technological elements (Bergdahl et al., 2024), which influences how digital platforms improve performance (Getenet et al., 2024).

However, the accounting literature usually investigates active strategies without considering participation as a mediator. This study, based on constructivist and experiential frameworks, identifies engagement as the central mechanism explaining how structured scaffolding (Khatter et al., 2024), experiential immersion (Etling et al., 2023), collaboration, and digital tools

(Arjang et al., 2024) work together to reinforce outcomes. As a result, the following hypotheses are proposed:

- H9*: Student engagement positively influences perceived learning outcomes.
- H10a*: Student engagement mediates the relationship between experiential learning and perceived learning outcomes.
- H10b*: Student engagement mediates the relationship between collaborative learning and perceived learning outcomes.
- H10c*: Student engagement mediates the relationship between educational technology integration and perceived learning outcomes.

### Research Gap

The growing body of literature on accounting education consistently demonstrates that learner-centred pedagogies contribute positively to students' academic development, engagement, and professional competency. Recent studies show that experiential learning enhances critical thinking, professional judgement, and data analytics competencies by bridging classroom instruction and professional practice (Lee & Perdana, 2023; Molendijk et al., 2025; Rossouw & Steenkamp, 2025). Collaborative learning improves communication and teamwork, while educational technology increases flexibility, digital competence, and engagement within meaningful instructional designs (Adesina et al., 2023; Getenet et al., 2024).

Despite expanding literature in business education, four prominent research gaps remain. First, contemporary research predominantly investigates active learning tools in isolation, limiting insight into their relative values when deployed simultaneously within a single pedagogical framework. Second, the absolute majority of existing accounting literature focuses on introductory accounting, tax compliance, or standard financial reporting rather than advanced corporate finance curricula for upper-level undergraduates. Third, while higher education research frequently notes positive links between active learning and student performance, empirical models rarely treat multi-dimensional student engagement as an explicitly modeled psychological mediator. Finally, context-specific empirical evidence within Malaysian higher education spaces is heavily scarce, especially regarding final-semester students navigating the professional academic-to-workplace transition.

Addressing these limitations, this study tests an integrated pedagogical framework that simultaneously examines traditional lectures, experiential learning, collaborative learning, and technology integration among final-semester Malaysian accounting undergraduates. By doing so, it contributes an integrated explanatory framework, advances theory by positioning student engagement as a core mediator, and provides context-specific evidence to help curriculum developers prepare graduates for complex, technology-enabled professional environments.

### Conceptual Framework

To address these limitations, this study proposes and examines a unified conceptual framework (Figure 1). This diagram depicts the simultaneous routes of organized lectures, experiential learning, collaborative projects, and technological integration. Importantly, the model maps both the direct and indirect pathways of these instructional styles to perceived learning results, which are mediated by the dynamic notion of student involvement.

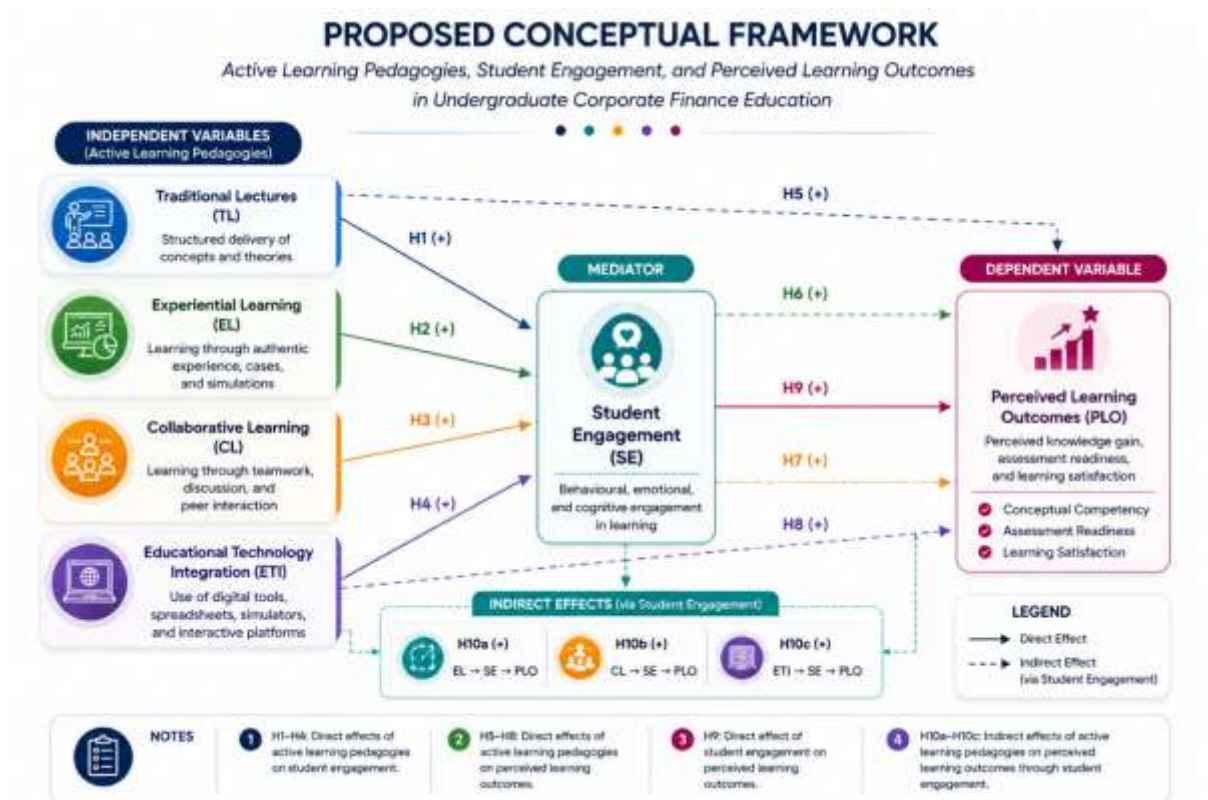


Figure 1. Proposed conceptual framework of the relationships between active learning pedagogies, student engagement, and perceived learning outcomes.

## Methodology

### Research Design and Participants

This study adopted a quantitative cross-sectional research design to examine the relationships among active learning pedagogies, student engagement, and perceived learning outcomes in undergraduate corporate finance education. A cross-sectional survey was appropriate because the constructs were measured at a single point in time. The study population comprised 408 eligible Semester 5 students enrolled in the compulsory Fundamentals of Financial Management (MAF253) course at Universiti Teknologi MARA (UiTM), Perak Branch, Tapah Campus, during the data collection period. As the population size was manageable, a census approach was adopted, and all 408 eligible students were invited to participate.

Data were collected electronically at the end of the teaching semester using a structured online questionnaire. A total of 334 submissions were received, representing an initial response rate of 81.9%. During data screening, two duplicate submissions were identified based on identical student identification numbers. For each duplicated case, the earliest submission was retained, and the later duplicate was removed. This resulted in 332 unique and usable responses, representing a final usable response rate of 81.4%. The final sample was considered adequate for estimating the proposed PLS-SEM model (Hair et al., 2022).

### Measurement Instrument

Data were collected using a structured questionnaire comprising validated measurement scales adapted from previous accounting and higher education studies. All constructs were operationalised as reflective latent variables and measured using a five-point Likert scale,

ranging from 1 (strongly disagree) to 5 (strongly agree). This response format was selected because of its widespread application in educational research and its suitability for measuring students' perceptions and attitudes. The questionnaire measured six constructs. Traditional lectures were assessed using three items, experiential learning using six items, collaborative learning using three items, educational technology integration using three items, and student engagement using three items. The dependent construct, perceived learning outcomes, was measured using eight items representing three dimensions: conceptual competency, assessment readiness, and learning satisfaction. Prior to analysis, the questionnaire was reviewed to ensure alignment with the proposed conceptual framework.

### Data Analysis

The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). PLS-SEM was selected because the study focuses on explaining and predicting student engagement and perceived learning outcomes within an integrated model containing multiple latent constructs, simultaneous direct paths, and mediation effects. The model also combines several pedagogical predictors that are theoretically related, making a variance-based approach suitable for estimating their relative contributions within the same structural model. In addition, PLS-SEM permits the measurement and structural models to be assessed in a single analytical framework and is appropriate for prediction-oriented research involving reflective constructs and indirect effects (Hair et al., 2022). The choice of PLS-SEM was therefore driven by the study's predictive objective and model structure rather than by sample size alone.

Before model estimation, the dataset was screened for response duplication, completeness, and data suitability. Student identification numbers were used only to detect duplicate submissions; two duplicates were identified, and the later submission in each pair was removed. The remaining 332 cases were retained as unique usable responses. The dataset was then checked for missing or unusable responses before measurement-model assessment. Because PLS-SEM does not require multivariate normality, the subsequent assessment focused on indicator reliability, construct reliability and validity, collinearity, and the structural relationships (Hair et al., 2022).

Following current methodological recommendations, the analysis was conducted in two sequential stages.

In the first stage, the measurement model was evaluated to establish the reliability and validity of the measurement instrument. Indicator reliability was assessed using outer loadings, while internal consistency reliability was evaluated using Cronbach's alpha,  $\rho_A$ , and Composite Reliability (CR). Convergent validity was assessed using the Average Variance Extracted (AVE), whereas discriminant validity was examined using the Heterotrait-Monotrait Ratio (HTMT).

In the second stage, the structural model was assessed. Multicollinearity among predictor constructs was examined using Variance Inflation Factors (VIF) before estimating the structural relationships. The hypothesised relationships were evaluated using standardised path coefficients ( $\beta$ ), bootstrapped t-values, p-values, and 95% bias-corrected confidence intervals generated from 5,000 bootstrap resamples. Model explanatory power was assessed using the coefficient of determination ( $R^2$ ), while the relative contribution of each predictor was evaluated using effect size ( $f^2$ ). The predictive relevance of the model was assessed using the Stone–

Geisser predictive relevance statistic ( $Q^2$ ). Mediation effects were evaluated by examining the significance of indirect effects together with their corresponding confidence intervals.

The evaluation criteria followed current PLS-SEM guidelines. Indicator loadings above 0.708 indicated satisfactory indicator reliability. Values exceeding 0.70 for Cronbach's alpha,  $\rho_A$ , and composite reliability demonstrated acceptable internal consistency. AVE values above 0.50 supported convergent validity, whereas HTMT values below 0.90 indicated satisfactory discriminant validity. Multicollinearity was considered acceptable when VIF values were below 5.0 (Hair et al., 2022; Henseler et al., 2015).

### Ethical Considerations

Participation in the study was entirely voluntary. Before completing the questionnaire, participants were informed of the study's purpose and assured that their responses would be used solely for academic research. Participation constituted informed consent, and respondents were free to withdraw at any stage without consequence. To protect participants' privacy, all responses were anonymised prior to analysis, and no personally identifiable information was included in the analytical dataset. Data were analysed and reported only in aggregate form to ensure confidentiality.

## Results

### Respondent profile

As presented in Table 1, the sample consisted predominantly of female students (71.4%,  $n = 237$ ), while male students accounted for 28.6% ( $n = 95$ ). Regarding academic performance, more than half of the respondents (50.3%) reported a cumulative grade point average (CGPA) between 3.50 and 4.00, followed by 40.4% with a CGPA between 3.00 and 3.49. Only 9.3% of respondents reported a CGPA below 3.00, indicating that the majority of participants demonstrated relatively strong academic performance.

**Table 1: Respondent profile**

| Variable  | Category                                 | n   | %     |
|-----------|------------------------------------------|-----|-------|
| Gender    | Male                                     | 95  | 28.6  |
|           | Female                                   | 237 | 71.40 |
| Age       | 22–23 years                              | 289 | 87.0  |
|           | $\geq 24$ years                          | 43  | 13.0  |
| Programme | Diploma in Accounting                    | 253 | 76.2  |
|           | Diploma in Accounting Information System | 79  | 23.8  |
| CGPA      | $< 3.00$                                 | 31  | 9.3   |
|           | 3.00–3.49                                | 134 | 40.4  |
|           | $\geq 3.50$                              | 167 | 50.3  |

These demographic characteristics suggest that the sample comprised academically capable students with substantial exposure to undergraduate accounting education, making them appropriate respondents for evaluating the effectiveness of active learning pedagogies in corporate finance.

### Measurement model

Prior to testing the structural relationships, the measurement model was evaluated to establish the reliability and validity of the reflective constructs. Following the recommendations of Hair et al. (2022), indicator reliability, internal consistency reliability, convergent validity, and discriminant validity were assessed.

As reported in Table 2, all indicator loadings exceeded the recommended threshold of 0.708, with the lowest loading exceeding 0.79, indicating satisfactory indicator reliability. Internal consistency reliability was also well established. Cronbach's alpha values ranged from 0.851 to 0.949, while Composite Reliability (CR) values ranged from 0.910 to 0.959, substantially exceeding the recommended minimum value of 0.70. These findings demonstrate excellent internal consistency across all constructs.

Convergent validity was subsequently assessed using the Average Variance Extracted (AVE). All AVE values ranged between 0.746 and 0.825, comfortably exceeding the recommended threshold of 0.50. Collectively, these results indicate that the measurement model possesses satisfactory reliability and convergent validity.

Descriptive statistics further revealed generally favourable student perceptions across all constructs. Traditional lectures recorded the highest mean score ( $M = 4.609$ ,  $SD = 0.530$ ), followed by collaborative learning ( $M = 4.550$ ,  $SD = 0.562$ ), educational technology integration ( $M = 4.526$ ,  $SD = 0.579$ ), experiential learning ( $M = 4.506$ ,  $SD = 0.550$ ), perceived learning outcomes ( $M = 4.466$ ,  $SD = 0.563$ ), and student engagement ( $M = 4.447$ ,  $SD = 0.624$ ). Overall, these findings indicate that respondents expressed positive perceptions of both the pedagogical approaches implemented and their learning experiences.

**Table 2: Measurement model**

| Construct                          | Items | Mean  | SD    | $\alpha$ | CR    | AVE   |
|------------------------------------|-------|-------|-------|----------|-------|-------|
| Traditional lectures               | 3     | 4.609 | 0.530 | 0.871    | 0.923 | 0.799 |
| Experiential learning              | 6     | 4.506 | 0.550 | 0.931    | 0.946 | 0.746 |
| Collaborative learning             | 3     | 4.550 | 0.562 | 0.851    | 0.910 | 0.772 |
| Educational technology integration | 3     | 4.526 | 0.579 | 0.870    | 0.920 | 0.794 |
| Student engagement                 | 3     | 4.447 | 0.624 | 0.893    | 0.934 | 0.825 |
| Perceived learning outcomes        | 8     | 4.466 | 0.563 | 0.949    | 0.959 | 0.746 |

Discriminant validity was assessed using the Heterotrait–Monotrait Ratio (HTMT). As presented in Table 3, all HTMT values were below the recommended threshold of 0.90, providing evidence of satisfactory discriminant validity. Although the relationships between student engagement and perceived learning outcomes ( $HTMT = 0.899$ ) and between experiential learning and perceived learning outcomes ( $HTMT = 0.896$ ) approached the upper threshold, these values remained acceptable while reflecting the close conceptual relationships expected within the proposed theoretical framework. Although these two values exceed the strict 0.85 criterion, they remain below the more widely accepted threshold of 0.90, suggesting acceptable discriminant validity. This pattern is expected because student engagement and perceived learning outcomes are conceptually related constructs. Overall, the HTMT results indicate that discriminant validity is established according to the  $HTMT < 0.90$  criterion, with no evidence of severe multicollinearity or construct overlap.

**Table 3: Discriminant Validity (HTMT)**

| Constructs                              | TL    | EL    | CL    | ET    | SE    | PLO   |
|-----------------------------------------|-------|-------|-------|-------|-------|-------|
| Traditional Lectures (TL)               | -     | 0.823 | 0.735 | 0.691 | 0.774 | 0.842 |
| Experiential Learning (EL)              | 0.823 | -     | 0.788 | 0.800 | 0.851 | 0.896 |
| Collaborative Learning (CL)             | 0.735 | 0.788 | -     | 0.796 | 0.766 | 0.800 |
| Educational Technology Integration (ET) | 0.691 | 0.800 | 0.796 | -     | 0.752 | 0.807 |
| Student Engagement (SE)                 | 0.774 | 0.851 | 0.766 | 0.752 | -     | 0.899 |
| Perceived Learning Outcomes (PLO)       | 0.842 | 0.896 | 0.800 | 0.807 | 0.899 | -     |

From a theoretical standpoint, these constructs possess distinct conceptual boundaries: Experiential Learning represents the structural scaffolding and pedagogical input; Student Engagement serves as the multidimensional psychological mediator; and Perceived Learning Outcomes denote the final cognitive and affective educational endpoints. However, within an active, learner-centered corporate finance environment, these boundaries naturally blur.

Grounded in Constructivist and Experiential Learning Theories, authentic pedagogical configurations do not exist in isolation; rather, they function in a highly synchronized, iterative loop where the immersion in an experiential task (e.g., spreadsheet modeling or case analysis) directly activates student cognitive and emotional resources. This heightened psychological engagement, in turn, is the primary driver through which students internalize knowledge and recognize their own conceptual competency. Consequently, because an effective active learning environment is designed to tightly couple teaching methods, student involvement, and learning success, strong empirical associations among these latent variables are not only expected but mathematically reflective of a highly integrated educational ecosystem. The borderline HTMT values should therefore be interpreted as evidence of strong systemic alignment within the pedagogical framework rather than an absence of construct distinctiveness.

### Structural model

Following confirmation of the measurement model, the structural model was evaluated to test the proposed hypotheses. Prior to estimating the structural relationships, multicollinearity was examined using Variance Inflation Factors (VIFs). All predictor constructs recorded VIF values ranging from 2.44 to 3.79, well below the conservative threshold of 5.0, indicating that multicollinearity was not a concern. The structural model demonstrated substantial explanatory power. As shown in Table 4, the proposed model explained 65.5% of the variance in student engagement ( $R^2 = 0.655$ ) and 82.3% of the variance in perceived learning outcomes ( $R^2 = 0.823$ ), suggesting that the integrated pedagogical framework possesses strong explanatory capability.

**Table 4: Coefficient of Determination and Predictive Relevance**

| Endogenous Construct        | $R^2$ | Adjusted $R^2$ | $Q^2$ |
|-----------------------------|-------|----------------|-------|
| Student Engagement          | .655  | .651           | .512  |
| Perceived Learning Outcomes | .823  | .819           | .593  |

Bootstrapping with 5,000 resamples was subsequently performed to evaluate the hypothesised relationships. Consistent with H1, traditional lectures exerted a significant positive association on student engagement ( $\beta = 0.180$ ,  $t = 2.82$ ,  $p = .003$ ), indicating that well-structured lectures continue to play an important role in stimulating student participation. Experiential learning

emerged as the strongest predictor of student engagement ( $\beta = 0.438$ ,  $t = 5.60$ ,  $p < .001$ ), providing strong support for H2. Collaborative learning ( $\beta = 0.156$ ,  $p = .037$ ) and educational technology integration ( $\beta = 0.132$ ,  $p = .036$ ) also demonstrated significant positive associations with student engagement, supporting H3 and H4, respectively.

With respect to perceived learning outcomes, traditional lectures ( $\beta = 0.197$ ,  $p < .001$ ), experiential learning ( $\beta = 0.290$ ,  $p < .001$ ), educational technology integration ( $\beta = 0.134$ ,  $p = .007$ ), and student engagement ( $\beta = 0.326$ ,  $p < .001$ ) all exhibited significant positive relationships, thereby supporting H5, H6, H8, and H9. Among these predictors, student engagement demonstrated the strongest direct influence on perceived learning outcomes, highlighting its central role within the proposed theoretical model. In contrast, the direct relationship between collaborative learning and perceived learning outcomes was not statistically significant ( $\beta = 0.082$ ,  $t = 1.47$ ,  $p = .146$ ). Accordingly, H7 was not supported, suggesting that collaborative learning may influence learning outcomes through indirect rather than direct mechanisms.

**Table 5: Structural Model Results**

| Path                                   | $\beta$ | SE    | t    | p      | 95% CI          | Decision      |
|----------------------------------------|---------|-------|------|--------|-----------------|---------------|
| Traditional lectures→SE                | 0.180   | 0.064 | 2.82 | 0.003  | [0.062, 0.311]  | Supported     |
| Traditional lectures→PLO               | 0.197   | 0.049 | 4.05 | < .001 | [0.105, 0.296]  | Supported     |
| Experiential learning→SE               | 0.438   | 0.078 | 5.60 | < .001 | [0.275, 0.580]  | Supported     |
| Experiential learning→PLO              | 0.290   | 0.072 | 4.02 | < .001 | [0.142, 0.422]  | Supported     |
| Collaborative learning→SE              | 0.156   | 0.077 | 2.02 | 0.037  | [0.009, 0.310]  | Supported     |
| Collaborative learning→PLO             | 0.082   | 0.056 | 1.47 | 0.146  | [-0.027, 0.188] | Not supported |
| Educational technology integration→SE  | 0.132   | 0.066 | 1.98 | 0.036  | [0.007, 0.269]  | Supported     |
| Educational technology integration→PLO | 0.134   | 0.052 | 2.58 | 0.007  | [0.035, 0.239]  | Supported     |
| SE→PLO                                 | 0.326   | 0.068 | 4.81 | < .001 | [0.200, 0.466]  | Supported     |

### Mediation analysis

**Table 6: Mediation analysis**

| Indirect path                                              | Indirect effect | 95% CI         | Decision  |
|------------------------------------------------------------|-----------------|----------------|-----------|
| Experiential learning → Engagement → Outcomes              | 0.141           | [0.077, 0.221] | Supported |
| Collaborative learning → Engagement → Outcomes             | 0.051           | [0.002, 0.114] | Supported |
| Educational technology integration → Engagement → Outcomes | 0.045           | [0.002, 0.097] | Supported |

The mediating role of student engagement was examined using the bootstrapping procedure recommended for indirect effect estimation. As presented in Table 5, all indirect effects were positive and statistically significant, with the corresponding 95% confidence intervals excluding zero. Specifically, student engagement significantly mediated the relationship between experiential learning and perceived learning outcomes ( $\beta = 0.141$ , 95% CI [0.077, 0.221]), supporting H9a. Similarly, significant indirect effects were observed for collaborative learning ( $\beta = 0.051$ , 95% CI [0.002, 0.114]) and educational technology integration ( $\beta = 0.045$ , 95% CI [0.002, 0.097]), providing support for H9b and H9c, respectively. The mediation results further indicate different forms of mediation across pedagogical approaches. Because the direct effects of experiential learning and educational technology integration remained statistically significant after the inclusion of student engagement, these relationships represent complementary partial mediation. In contrast, collaborative learning demonstrated a significant indirect effect but a non-significant direct effect, indicating indirect-only mediation. This finding suggests that collaborative learning contributes to improved learning outcomes primarily by enhancing students' engagement rather than exerting an independent direct influence.

## Discussion

Experiential learning is the strongest predictor of student engagement and perceived learning outcomes. The results show that experiential learning was the strongest predictor of student involvement and one of the most powerful factors of reported learning outcomes among accounting undergraduates in their final semester. This finding suggests that authentic learning experiences are critical for students in connecting theoretical financial knowledge to actual decision-making. Rather than relying solely on lectures and textbook exercises, students who participated in case studies, problem-based learning activities, spreadsheet modeling, and realistic financial scenarios reported increased confidence in applying corporate finance concepts, solving complex financial problems, and preparing for professional practice.

One possible explanation is that experiential learning reduces the cognitive distance between classroom instruction and workplace expectations. Corporate finance requires students to interpret uncertain financial information, evaluate investment alternatives, estimate risks, and justify strategic recommendations rather than simply perform procedural calculations. Authentic learning activities expose students to these professional realities, encouraging them to actively construct knowledge through analysis, reflection, and repeated application. Consequently, students are more likely to develop meaningful conceptual understanding because they experience how theoretical principles operate within realistic organisational contexts.

This finding is consistent with Constructivist Learning Theory, which proposes that meaningful learning occurs when learners actively construct knowledge through authentic experiences and social interaction (Vygotsky, 1978). It also supports Kolb's (1984) Experiential Learning Theory, whereby students progress through concrete experience, reflective observation, abstract conceptualisation, and active experimentation. In the present study, experiential activities such as business case discussions and financial modelling allowed students to move repeatedly through these learning stages, thereby strengthening both conceptual understanding and professional judgement. The findings therefore provide empirical support for the continued relevance of these theoretical perspectives within contemporary corporate finance education.

The present findings are consistent with recent accounting education research. Lee and Perdana (2023) reported that experiential service-learning enhanced accounting students' data analytics competencies, sustainability awareness, and professional engagement by providing authentic learning experiences beyond conventional classroom instruction. Similarly, Molendijk et al. (2025) demonstrated that authentic experiential learning activities significantly improved student engagement, particularly when learning tasks closely reflected professional accounting practice. Rossouw and Steenkamp (2025) likewise found that active learning interventions enhanced accounting students' critical-thinking abilities by encouraging evidence-based reasoning and collaborative problem-solving. Collectively, these studies reinforce the proposition that experiential learning contributes to both cognitive development and professional competency by situating learning within realistic decision-making environments.

Nevertheless, the findings also suggest that experiential learning should not be implemented as isolated classroom activities. Previous research indicates that the educational benefits of experiential learning depend on instructional quality, authenticity, appropriate scaffolding, and opportunities for structured reflection. Poorly designed activities may increase cognitive load without improving conceptual understanding, particularly when students lack sufficient prior knowledge. Accordingly, experiential learning should be viewed as part of an integrated pedagogical approach that combines conceptual explanation, guided practice, collaborative discussion, and reflective evaluation. Such integration enables students to progressively develop analytical competence while avoiding excessive cognitive overload.

From a practical perspective, these findings have important implications for accounting educators and curriculum developers. Corporate finance courses should extend beyond formula-based instruction by incorporating authentic financial cases, investment appraisal exercises, spreadsheet modelling, and simulation-based decision-making activities. Assessment tasks should encourage students to justify assumptions, evaluate alternative financial strategies, and defend recommendations rather than simply calculate numerical solutions. Such instructional designs are likely to enhance engagement while simultaneously developing the analytical, technological, and professional competencies increasingly expected by employers within the accounting profession.

Overall, this study demonstrates that effective corporate finance education requires a balanced pedagogical approach that integrates structured lectures, authentic experiential learning, purposeful collaboration, and technology-enhanced instruction. Student engagement serves as the central mechanism through which these pedagogical practices translate into meaningful learning outcomes. The findings provide valuable guidance for accounting educators seeking to design learner-centred curricula that prepare graduates for increasingly complex and technology-enabled professional environments.

## Implications

### Theoretical Implications

This study makes several important contributions to the accounting education literature by advancing understanding of how complementary pedagogical approaches influence learning outcomes in undergraduate corporate finance education. First, it extends Constructivist Learning Theory by demonstrating that meaningful learning is not achieved through isolated instructional strategies but through the integration of structured lectures, authentic learning experiences, collaborative interaction, and technology-enhanced learning environments. The

findings reinforce the constructivist proposition that students develop more profound understanding when they actively construct knowledge through engagement with realistic financial problems rather than through passive knowledge transmission alone.

Second, the study contributes to Experiential Learning Theory (ELT) by providing empirical evidence that authentic learning experiences exert both direct and indirect influences on perceived learning outcomes. The finding that experiential learning was the strongest predictor of student engagement supports Kolb's experiential learning cycle, suggesting that opportunities for experience, reflection, conceptualisation, and experimentation remain fundamental for developing higher-order thinking and professional judgement within corporate finance education.

Third, this study advances Student Engagement Theory by conceptualising engagement as the central explanatory mechanism linking pedagogical practices with learning outcomes. While previous accounting education studies have frequently examined engagement as either an educational outcome or a descriptive classroom characteristic, the present findings demonstrate that engagement functions as a key mediating process through which active learning pedagogies enhance students' perceived learning outcomes. This provides a more comprehensive theoretical explanation of how instructional practices translate into meaningful educational outcomes.

Finally, the study contributes to the accounting education literature by proposing and validating an integrated pedagogical framework that simultaneously incorporates traditional lectures, experiential learning, collaborative learning, and educational technology integration. Unlike previous studies that have typically investigated these pedagogical approaches independently, the present findings demonstrate that they operate as complementary rather than competing instructional strategies. This integrated perspective broadens current understanding of learner-centred accounting education and provides a foundation for future research examining complex pedagogical relationships.

### **Practical Implications**

The findings provide several practical implications for accounting educators, curriculum designers, higher education institutions, and professional accounting bodies seeking to enhance learning experiences within corporate finance education.

First, the continued significance of traditional lectures indicates that they remain an essential component of effective accounting education when used as instructional scaffolding rather than as the sole teaching approach. Lecturers should employ concise, concept-focused lectures to establish theoretical foundations before transitioning students to authentic application activities.

Second, experiential learning should become a central feature of corporate finance curricula. Learning activities should extend beyond procedural calculations by incorporating business case analyses, investment appraisal exercises, financial simulations, spreadsheet modelling, and scenario-based decision-making tasks. Such activities should encourage students to evaluate incomplete information, justify assumptions, compare alternative financial strategies, and defend managerial recommendations, thereby promoting analytical reasoning and professional judgement.

Third, the indirect-only effect of collaborative learning suggests that group activities are most effective when they actively promote student engagement. Accordingly, collaborative tasks should be carefully structured to include clearly defined individual roles, peer evaluation, shared accountability, and guided reflection. These design features reduce the risk of unequal participation while encouraging meaningful interaction and collective knowledge construction.

Fourth, educational technology should be integrated strategically to support learning rather than merely digitising existing teaching practices. Technologies such as spreadsheet applications, financial modelling software, simulation platforms, learning management systems, and AI-assisted learning tools should be selected based on their capacity to facilitate conceptual understanding, provide immediate formative feedback, visualise financial relationships, and support self-directed learning.

Finally, curriculum evaluation should extend beyond measures of student satisfaction by incorporating broader indicators of educational effectiveness, including conceptual understanding, critical thinking, professional judgement, digital competence, teamwork, and readiness for professional practice. Such comprehensive evaluation will enable universities to assess whether graduates possess the competencies required within an increasingly digital and data-driven accounting profession.

### **Limitations and Future Research**

Several limitations should be considered when interpreting the findings. First, the study was conducted within a single corporate finance course at one campus of a Malaysian public university. Although the census approach provided good representation of the study population, the findings may not be fully generalisable to other institutions, disciplines, or educational contexts. Future studies could therefore test the model across different universities, accounting disciplines, and cultural settings.

Second, the cross-sectional design and reliance on self-reported measures limit causal interpretation and may introduce common method bias. Future research could use longitudinal or experimental designs and include objective learning measures, such as examination results, authentic assessments, or professional competency evaluations.

Finally, several HTMT values approached the recommended threshold, particularly those involving experiential learning, student engagement, and perceived learning outcomes. Although discriminant validity remained acceptable, further refinement of the measurement instruments may improve construct distinctiveness. Future studies could also examine moderating factors such as digital readiness, self-regulated learning, prior academic achievement, and AI literacy to better understand when active learning pedagogies are most effective.

### **Conclusion**

This study demonstrates that effective corporate finance education requires a balanced integration of traditional instruction and learner-centred pedagogical approaches. Although traditional lectures continue to provide essential conceptual scaffolding, experiential learning emerged as the most influential driver of student engagement, while student engagement functioned as the principal mechanism through which experiential learning, collaborative learning, and educational technology integration enhanced perceived learning outcomes.

These findings support an integrated pedagogical model in which structured explanation establishes conceptual foundations, authentic learning experiences cultivate analytical judgement, collaborative interaction promotes knowledge construction, and educational technology facilitates practice, feedback, and self-directed learning. Rather than viewing these instructional approaches as competing alternatives, the study demonstrates that their complementary implementation creates more engaging and effective learning environments for undergraduate accounting students.

Beyond its practical implications, the study contributes to accounting education research by integrating Constructivist Learning Theory, Experiential Learning Theory, and Student Engagement Theory within a unified explanatory framework. In doing so, it provides empirical evidence that student engagement represents the key mechanism through which multiple pedagogical approaches translate into meaningful learning outcomes.

As accounting graduates are increasingly expected to operate in digitally enabled, data-rich, and strategically complex business environments, accounting education must evolve beyond knowledge transmission toward pedagogical approaches that cultivate critical thinking, professional judgement, collaboration, and technological competence. The integrated framework proposed in this study offers both a theoretical foundation and practical guidance for designing learner-centred corporate finance education capable of preparing future accounting professionals for the evolving demands of the profession.

### **Acknowledgement**

This research was conducted under the auspices of the Faculty of Accountancy, Universiti Teknologi MARA (UiTM) Perak Branch, Tapah Campus, Malaysia. The authors gratefully acknowledge the support, guidance, and encouragement provided by the faculty members, whose valuable insights and constructive suggestions contributed significantly to the completion of this study. The authors also extend their sincere appreciation to the students who generously participated in the questionnaire survey. Their time, cooperation, and valuable responses were instrumental in the successful completion of this research. Finally, the authors would like to thank all individuals who, directly or indirectly, contributed to the successful completion of this study.

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