

OPTIMIZING ACCOUNTING EDUCATION THROUGH ARTIFICIAL INTELLIGENCE-POWERED MOBILE APPS

Ei Myo Thant Zin^{1*}, Myat Pan Hmone Thin², Hein Linn Htet³ & Muhammad Syukur⁴

^{1,2,3,4} School of Management, Mae Fah Luang University

*Corresponding author: muhammad.syu@mfu.ac.th

ABSTRACT

Accounting subjects are generally considered difficult because of their abstract theoretical concepts and the excessive use of quantitative analysis, which may cause cognitive overload and a lack of interest from students. In order to solve these problems, this project presents a mobile application based on artificial intelligence (AI) that aims to transform accounting education. The app provides AI-assisted tutoring, personalized learning tracks, interactive quizzes, and entertaining educational videos according to every student's learning speed, taste, and level of knowledge. Using the gamification features such as points, badges, and leaderboards, the platform increases motivation, enhances memory retention, and promotes consistent learning habits. In addition, it connects the knowledge gap between theory and practice by using real-world case simulations and scenario-based learning activities. Such features enable students to use the principles of accounting in a dynamic, practical manner. Finally, the app provides content in an easy-to-understand, flexible, and entertaining way. It seeks to enhance academic achievement, increase confidence, and change how students view and interact with accounting.

KEYWORDS: *Accounting education, artificial intelligence, gamification, mobile application, personalized learning.*

PROBLEM AND OBJECTIVE

While vital to business disciplines, accounting education faces persistent challenges that hinder effective learning. One major issue is cognitive overload, as students are often overwhelmed by complex subjects such as financial reporting, cost analysis, auditing, and taxation. These topics demand rapid mastery of technical terminology and abstract concepts within tight academic schedules, leading to reduced comprehension and retention. A disconnect between theory and practice compounds this challenge, as textbook-based instruction often fails to reflect real-world applications, making the content inaccessible and irrelevant. Moreover, traditional classroom models overlook variations in students' backgrounds, learning styles, and prior exposure to quantitative material, contributing to uneven outcomes and learning fatigue (Syukur, 2021).

The lack of personalized learning further limits effectiveness, with standardized instruction failing to meet diverse learner needs, causing some students to fall behind while others remain unchallenged. Engagement is also low in passive learning environments, restricting participation and weakening retention. Additionally, many students struggle with the mathematical and analytical demands of accounting, such as complex computations and data analysis, often resulting in diminished confidence and disengagement. To address these issues, this project proposes an AI-powered mobile application that delivers adaptive learning tailored to each student's progress, style, and needs. The app bridges theory and practice by integrating real-life scenarios, case studies, and simulations, while gamification elements such as points, badges, and interactive challenges - boost motivation and engagement. AI-driven real-time feedback and

performance tracking further support skill development and self-assessment. Designed for both self-paced and instructor-guided learning, the platform aims to make accounting education more accessible, personalized, and impactful for a diverse audience.

DESIGN DESCRIPTION

The proposed solution is an AI-powered mobile learning platform that enhances accounting education by combining personalized learning pathways with gamification strategies. The platform consists of several integrated modules designed to meet diverse learning needs and increase engagement. The AI Tutor module uses machine learning algorithms to monitor student progress, identify learning gaps, and recommend tailored content based on individual performance and preferences. It delivers guided explanations, problem-solving support, and adaptive feedback to help students progress and master concepts at their own pace.

The Gamified Learning feature introduces a reward system where students earn points, badges, and certificates by completing lessons, quizzes, and challenges. These elements, along with leaderboards and achievement tracking, draw on game-based pedagogy shown to enhance motivation and retention (Bhavani et al., 2020). The Interactive Multimedia Content module presents lessons through animated videos, visual infographics, and real-world examples to simplify complex topics. All content is developed with accounting educators to ensure instructional quality and curriculum alignment.

The Simulated Practice Environment allows learners to engage with realistic case studies and transaction-based scenarios, reinforcing practical skills through interactive tasks and AI-powered feedback. This integration of adaptive technology and simulations reflects current innovations in accounting education that leverage business intelligence tools to deepen student engagement (Yassin & Toumeh, 2024). Ensuring flexibility and accessibility, the platform is compatible with Android and iOS devices, optimized for low-bandwidth conditions, and available offline. A responsive web version is also supported for use on desktops and laptops. While designed primarily for undergraduate accounting students, the platform is scalable for professional development, certification training, and continuing education within the broader accounting field.

VISUALS

The AI Tutor module interface demonstrates how the application engages students in real time through a dynamic screen with a progress bar, personalized topic recommendations, and an interactive chat feature. This design enables students to ask questions, receive tailored explanations, and benefit from AI-driven support that adapts to their learning journeys. The gamification dashboard visually integrates game-based elements into the learning process, showcasing earned points, badges, and a leaderboard that promotes achievement and healthy competition. It also highlights completed quizzes, course milestones, and overall user progress, reinforcing motivation and sustained engagement.

The simulation workflow illustrates how students interact with real-world accounting scenarios by entering data such as journal entries and financial statements, receiving immediate AI-generated feedback, and refining their responses. This flow demonstrates the application of theoretical knowledge in a practical, problem-solving context. The adaptive learning pathway model visualizes how the platform customizes content based on individual performance. It maps learning trajectories according to pace, style, and learner choices such as quizzes or study guides - highlighting the app's responsiveness and ability to deliver personalized educational experiences.

NOVELTY AND UNIQUENESS

This project offers a distinctive integration of AI-driven adaptive learning and game-based engagement specifically tailored for accounting education—an approach that sets it apart from most existing educational applications in the field. While most current accounting apps focus primarily on delivering static content or preparing users for examinations through rote memorization, this platform introduces a dynamic learning environment that responds in real time to individual user behavior, creating an experience that closely resembles one-on-one tutoring. What further distinguishes this initiative is the incorporation of simulated accounting activities such as journal entry preparation, financial statement analysis, and tax computation into the learning process. These interactive features allow learners to move beyond passive knowledge acquisition and actively apply theoretical concepts in realistic, problem-solving contexts. The seamless fusion of personalized learning pathways with gamification elements such as achievements, challenges, and rewards is rarely found in contemporary educational tools, especially those designed for accounting education's specific cognitive and technical demands.

BENEFITS TO MANKIND

This innovation enhances access to quality accounting education by offering a flexible, AI-powered platform that supports learners regardless of location or socioeconomic status. Addressing cognitive overload, engagement issues, and the theory-practice gap helps reduce dropout rates and fosters digital literacy. The self-paced, personalized learning experience equips students with practical skills for the modern workplace, ultimately improving their career readiness and contributing to a more inclusive, skilled, and economically empowered society.

COMMERCIAL POTENTIAL

The app holds strong market potential in the growing education technology sector, offering a competitive advantage through its unique blend of AI personalization and gamified accounting learning. Adopting a freemium business model, it can provide free access to university students while generating revenue through subscriptions, premium features, institutional licenses, and corporate training packages. Its scalable design allows expansion across educational institutions, making it a cost-effective, sustainable, and profitable solution for academic and professionals.

CONCLUSION

This project demonstrates that optimizing accounting education through AI-powered mobile technology is feasible and essential in today's learning landscape. The platform offers a personalized, interactive, and scalable learning solution by tackling key challenges such as cognitive overload, limited practical application, and low student engagement. Its flexibility allows adaptation to diverse learner needs and institutional requirements. Future development will focus on expanding content into specialized accounting fields, integrating multilingual support, and exploring compatibility with formal academic curricula and Learning Management Systems (LMS), further enhancing its relevance and reach in global education.

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