Journal of Engineering Science and Technology
Special Issue on ISCoE2024 Vol. 20 No. 4 (2025) 127-133

NEARPOD PLATFORM DESIGN: TRANSFORMATION OF 21ST CENTURY COLLABORATIVE LEARNING ANALYTICAL TEAM MODEL TO IMPROVE CRITICAL THINKING SKILL

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Abstract

This study aims to design a Nearpod-based learning platform by integrating the analytical team learning model to enhance students' critical thinking skill, particularly in accounting education. The research adopts a Research and Development (R&D) approach using the ADDIE model, including analysis, design, development, implementation, and evaluation. The analysis stage revealed that students face challenges in developing critical thinking skill, especially in accounting practice courses. Based on these findings, instructional content was designed by aligning Nearpod's interactive features with the analytical team learning model. In the development stage, accounting materials were successfully created and validated because Nearpod's tools effectively support collaboration, real-time feedback, and critical thinking-oriented tasks. Although implementation and evaluation have not yet been conducted, they are planned for future research. This study contributes a replicable instructional design that transforms traditional classroom practices into a digital, interactive experience aligned with 21st-century competencies.

Keywords: ADDIE model, Analytic team learning model, Critical thinking skill, Nearpod platform, 21st-century competencies.

1. Introduction

The collaborative learning analytical team model is a structured instructional strategy designed to strengthen students' critical thinking skill through role-based group tasks such as researching, analysing, and presenting. This model fosters problem-solving, reflective dialogue, and decision-making, aligning with 21st-century education goals. Critical thinking, defined as the ability to analyse, evaluate, and reason logically, is essential for academic success and real-world problem-solving. Many reports regarding critical thinking have been well-developed [1-5]. Yet, students often face challenges in developing this skill, particularly in accounting courses where abstract and applied reasoning are required [6].

The integration of technology into education has transformed the way students engage with content, instructors, and peers [7]. Educational technology now plays a pivotal role in promoting active learning environments that support inquiry, collaboration, and critical reflection. With the rise of digital platforms, educators are equipped with tools that offer real-time feedback, personalized instruction, and interactive media elements crucial to developing 21st-century skills such as critical thinking, communication, and collaboration [8, 9]. Technology also bridges the gap between traditional pedagogy and modern learner expectations by enabling flexible, multimodal access to content. In particular, digital platforms enhance collaborative learning by facilitating student participation in discussions, problem-solving tasks, and peer evaluation, thus aligning with constructivist and social learning theories [10, 11]. A variety of educational technologies have been used to achieve these goals, including Google Classroom, Kahoot, Edmodo, Padlet, and Nearpod, each offering different tools to promote interaction, feedback, and reflective thinking.

Among these tools, Nearpod stands out as a platform that supports highly interactive and reflective learning. It offers features such as live quizzes, collaborative boards, embedded videos, polls, and open-ended questions. These tools promote student engagement and allow instructors to monitor understanding and adjust instruction in real time. Studies have shown that Nearpod increases student motivation and mastery of subject matter, particularly in accounting and economics education [12-15]. In such contexts, Nearpod makes abstract content more accessible and supports inquiry-based learning by enabling students to evaluate cases, justify their reasoning, and collaborate in meaningful discussions [16-20].

When integrated with structured models like the analytical team approach, Nearpod provides a powerful mechanism for developing critical thinking. The collaborative roles in the team model align naturally with Nearpod’s interactive tools, allowing students to co-construct knowledge while receiving continuous formative feedback. Studies have shown that this integration fosters reflective thinking and improves students' ability to analyse problems, evaluate evidence, and formulate reasoned responses [6, 21-23].

This study aims to develop a collaborative learning design that integrates the analytical team model with the Nearpod platform to improve students’ critical thinking skills in accounting education. The novelty of this study lies in (i) the integration of the analytical team model into Nearpod’s interactive digital environment, (ii) the alignment of learning phases with critical thinking indicators

such as analysis, evaluation, and reasoning, and (iii) the use of real-time formative assessments embedded within collaborative learning tasks. The study contributes a transformative instructional model that addresses the demand for higher-order thinking skills in a digitally connected, 21st-century learning environment.

2. Method

This study used a Research and Development approach following the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. Detailed information is explained elsewhere [24, 25]. In the analysis phase, learning challenges related to critical thinking in accounting were identified. The design phase mapped analytical team roles to Nearpod's interactive features, supported by a storyboard and instructional flowchart. In the development phase, accounting materials were created using Nearpod tools such as quizzes, polls, and videos, then validated by instructional and subject matter experts. The implementation and evaluation phases are scheduled for future research to measure effectiveness through field testing, assessments, and student feedback.

3. Results and Discussion

Figure 1 presents the development flowchart for the Nearpod platform integrated with the analytical team model. The process begins with a needs analysis to identify gaps in students' critical thinking skills, particularly in accounting practice. This phase informs the instructional framework, which is based on assigning students' collaborative roles (researcher, analyst, and presenter) aligned with the goals of promoting analysis, evaluation, and reasoning. The next step involves the design of instructional flow through a storyboard and content sequence. This framework guides the development of interactive materials using Nearpod tools such as quizzes, open-ended questions, collaborative boards, and polls. After expert validation in instructional design and accounting, the model proceeds to preparation for classroom implementation and evaluation.

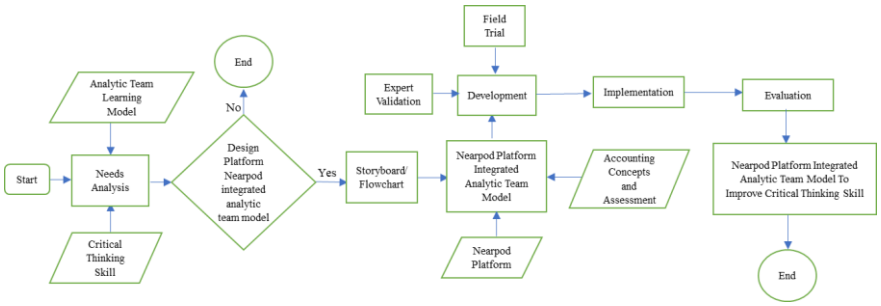

Fig. 1. Nearpod platform development flowchart integrated with analytic team model.

Figure 2 illustrates the Nearpod application interface and its functionality in supporting team-based learning. Figure 2(a) shows the "My Lessons" dashboard where teachers manage digital content. Figure 2(b) displays sample accounting lesson titles. Figures 2(c) and 2(d) demonstrate how students enter sessions via codes and input their identity. Figures 2(e) and 2(f) show learning materials and formative assessments, while Fig. 2(h) presents embedded external video

resources. These features allow learners to access structured content, complete tasks collaboratively, and receive real-time feedback. All of which are critical for enhancing critical thinking in a digital context. This platform design supports a shift from passive content delivery to interactive, reflective learning experiences. The integration of the analytical team model with Nearpod aligns with prior findings that digital interactivity improves student engagement, cognitive processing, and teamwork [6, 15, 26, 27].

Although the development and expert validation phases have been completed, the implementation and evaluation stages remain as future work. These will involve field trials, pre- and post-tests, and observations to measure critical thinking gains and instructional effectiveness. Despite this limitation, the design contributes a replicable model for promoting 21st-century competencies through digital-collaborative learning environments [20, 28-31]. Finally, this study adds new information regarding the use of media for improving teaching and learning process [32-36].

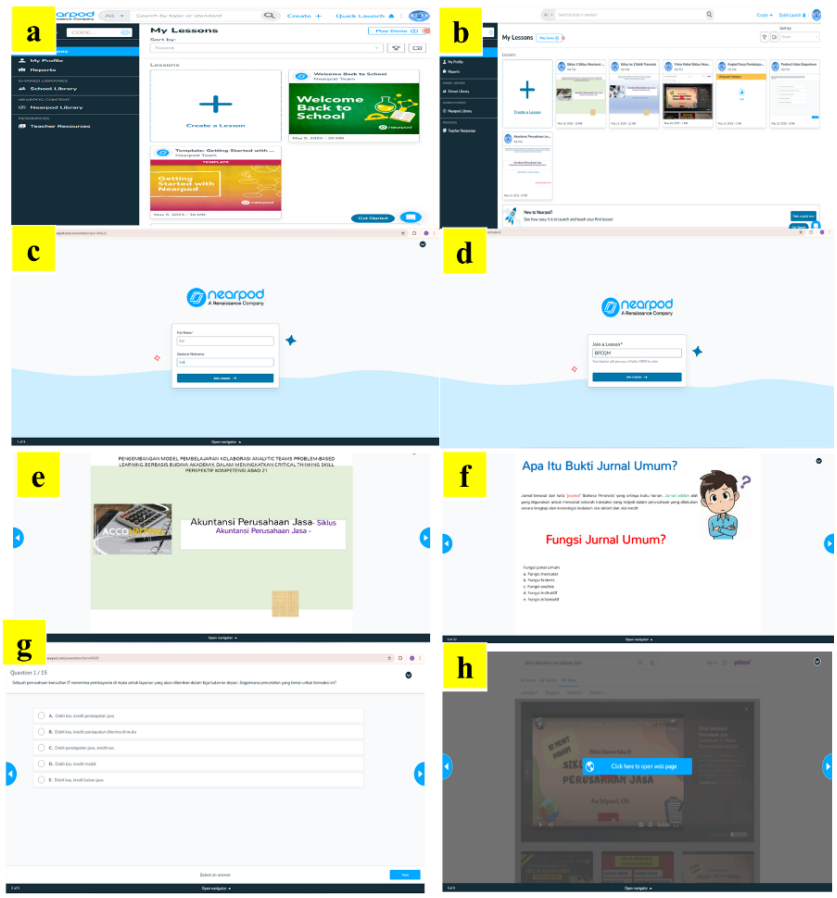

Fig. 2. Nearpod application display. Figs. (a), (b), (c), (d), (e), (f), (g), and (h) are the initial dashboard, my lesson, student login page, session code input page, and material collection in my lesson Nearpod platform appearance, respectively.

4. Conclusion

This study developed a digital learning model by integrating the analytical team's collaborative learning strategy with the interactive features of the Nearpod platform, aimed at strengthening students' critical thinking abilities in accounting education. Guided by the ADDIE instructional design model, the research completed the phases of analysis, design, and development, resulting in structured and role-based learning materials. These materials were validated by subject matter and media experts to ensure both content relevance and usability, the integration of Nearpod proved effective in supporting student collaboration, enabling real-time formative feedback, and fostering reflective assessment - core elements essential for critical thinking development. While the study has yet to carry out the implementation and evaluation phases, these will be the focus of subsequent research to measure the practical impact of the model. Overall, this work presents a replicable and adaptable learning framework that contributes to the advancement of 21st-century competencies through digital innovation and collaborative pedagogy.

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