

Click, Reflect, Learn: Transforming WhatsApp into a Pedagogical Tool

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Abstract

This study explores the integration of WhatsApp polls as a pedagogical tool to enhance engagement, critical thinking, and reflective learning among foundation students in a Business Management course at Universiti Teknologi PETRONAS (UTP). Recognising that many of these students come from non-business backgrounds with limited prior exposure to core concepts, the study addresses the need for low-stakes, accessible, and interactive learning strategies that extend beyond traditional classroom boundaries. A total of 18 WhatsApp polls were administered to 166 students across four academic disciplines, with poll design mapped to specific Course Learning Outcomes (CLOs). The study adopted an action research approach, incorporating descriptive data analysis to examine participation trends, reflective responses, and the role of real-time feedback. Four key independent variables were evaluated: Technology Integration, Reflective Learning, Instant Feedback, and Active Engagement, with Critical Thinking Ability serving as a mediating construct and Active Engagement as the primary learning outcome. Findings revealed consistently high student participation, with evidence of improved conceptual understanding and increased motivation to engage with course material beyond scheduled class hours. Student feedback further confirmed the effectiveness of WhatsApp polls in fostering deeper thinking and collaborative learning. The proposed conceptual framework illustrates how mobile-based interventions can effectively support foundational business education by bridging formal and informal learning environments. This study contributes to the discourse on mobile-supported learning in higher education by demonstrating the practical value of repurposing familiar digital platforms into structured learning tools. While limitations such as poll design constraints were noted, the study highlights the broader pedagogical potential of WhatsApp in shaping inclusive, reflective, and student-centred learning experiences.

Keywords: Whatsapp Polls, Mobile Learning, Student Engagement, Reflective Learning, Critical Thinking, Foundation Education, Instant Feedback, Business Management, Digital Pedagogy, Active Learning

Introduction

Integrating mobile technologies in education has become a catalyst for transforming traditional learning environments into more interactive and accessible spaces. In the evolving landscape of higher education, particularly at the foundational level, fostering sustained

student engagement beyond the classroom is becoming increasingly vital. Many foundation students taking business-related subjects, such as Business Management, come from diverse academic streams and may not have prior exposure to core business concepts. This often leads to surface-level understanding and reduced confidence during formal assessments. Therefore, it becomes essential to introduce interactive, low-stakes tools that allow students to consolidate their understanding before graded evaluations. WhatsApp, being a familiar platform, presents an opportunity to bridge in-class learning with informal, after-class reinforcement in a non-intimidating way. Among these technologies, WhatsApp has emerged as a widely used tool due to its ease of use, familiarity, and ability to facilitate real-time communication. Educators are increasingly exploring WhatsApp as a messaging app and a pedagogical tool that can foster student engagement, critical thinking, and collaborative learning (Anuyahong & Pucharoen, 2023). This research focuses on WhatsApp polls, an underexplored feature, to assess their effectiveness in enhancing active learning among foundation students in a business management course at the Centre for Foundation Studies (CFS), Universiti Teknologi PETRONAS (UTP).

This study argues that leveraging familiar digital platforms can bridge the gap between formal learning objectives and informal, student-driven interaction. Integrating WhatsApp polls into course delivery encourages students to reflect on course content, receive immediate feedback, and engage actively with peers and instructors. The research identifies four key constructs: Technology Integration, Reflective Learning, Instant Feedback, and Active Engagement, examining their influence on Critical Thinking Ability as a mediating factor in achieving deeper learning outcomes.

Through this approach, the study aims to contribute to the growing discourse on mobile-supported learning, particularly in higher education contexts where flexibility, inclusivity, and engagement are essential for student success. By focusing on foundation students, this research highlights the pedagogical value of using mobile-based tools, such as WhatsApp polls, to strengthen fundamental understanding, foster continuous engagement, and prepare students more effectively for summative assessments. It offers practical insight into how even simple technological interventions can significantly enhance student motivation, confidence, and critical thinking, key ingredients for academic progression at the early tertiary level.

By aligning poll activities with specific Course Learning Outcomes (CLOs), this research evaluates how mobile interventions can be purposefully designed to support educational goals while fostering a more interactive and reflective learning environment.

Literature Review

Integrating mobile technology into educational practices has led to new avenues for enhancing student engagement, participation, and learning outcomes. In particular, WhatsApp, a widely used mobile messaging application, offers a familiar and accessible platform that supports formal and informal learning. Research suggests that students are more inclined to interact through mobile applications than traditional Learning Management Systems (LMS) (Anuyahong & Pucharoen, 2023). This shift highlights the need for educators to explore tools like WhatsApp to facilitate active and reflective learning environments (Madden & Robinson, 2024).

This study identifies four dimensions for evaluating WhatsApp polls as a pedagogical tool: Technology Integration, Reflective Learning, Instant Feedback, and Active Engagement. These dimensions are independent variables (IVs) influencing students' learning experiences and achieving specific course learning outcomes (CLOs).

Technology Integration

The seamless incorporation of WhatsApp into learning processes provides students with an interactive and flexible medium for engagement. Unlike conventional systems, WhatsApp enables continuous access to learning content and peer interaction, encouraging students to remain connected to the subject matter beyond scheduled class time (Durgungoz & Durgungoz, 2022). This technological ease is vital in increasing participation, particularly among students who prefer mobile-based learning (John, 2022). As such, technology integration fosters more dynamic and accessible learning environments.

Reflective Learning

Reflective learning is crucial for deepening student understanding and promoting critical analysis of course material. WhatsApp polls enable students to pause, reflect, and evaluate their knowledge in real-time, often comparing their perspectives with those of their peers. According to Baporikar (2021), reflection within a familiar digital platform enhances cognitive engagement, leading students to internalise concepts more effectively. This reflective process is particularly valuable in business education, where critical thinking is essential for analysing complex scenarios.

Instant Feedback

The immediacy of feedback through WhatsApp polls allows students to recognise their learning progress and address misconceptions promptly. Real-time feedback is instrumental in maintaining student motivation and guiding their learning path (Hayatul Mardhiyah et al., 2024). By receiving instant clarification, students are better equipped to refine their understanding, strengthening their confidence and performance in subsequent tasks. Deng & Lin (2025) support this by emphasising that mobile-based feedback mechanisms contribute significantly to the quality of the learning experience.

Active Engagement

Active engagement, driven by interactive tools like WhatsApp polls, promotes continuous student participation and fosters collaborative learning. Regular polling encourages students to contribute, reflect, and interact with peers and instructors. Martinez & Gomez (2025) argue that engagement strategies enhance knowledge retention and build essential teamwork and communication skills. Active participation ensures that learning is not passive but an ongoing dialogue that aligns with the dynamic nature of business education.

Connection to Course Learning Outcomes (CLOS)

The alignment between these four dimensions and the intended Course Learning Outcomes (CLOs) lies at the core of this study. Each WhatsApp poll was purposefully designed to support targeted learning goals within the Business Management course. Specifically, the polls aimed to help students develop an understanding of core business concepts such as ethics and responsible practices (CLO1), apply foundational management principles to analyse how business operations influence organisational performance and the global economy (CLO2),

interpret real-world scenarios using relevant tools and analytical frameworks (CLO3), and enhance their communication and teamwork abilities through peer interactions and collaboration (CLO4). These outcomes go beyond formal curriculum benchmarks to reflect a broader goal of cultivating reflective, critical, and engaged learners, especially important at the foundation level.

Each independent variable supports different aspects of these CLOs. For instance, Technology Integration improves access to learning resources aligned with CLO1 and CLO2. Reflective Learning fosters deeper critical thinking required in CLO3, while Instant Feedback enables timely correction and reinforces understanding across all CLOs. Active Engagement most strongly supports CLO4, as it encourages collaboration and meaningful interaction among students.

The literature supports the view that incorporating WhatsApp polls into teaching practices can effectively foster reflective, responsive, and participatory learning. Collectively, these four independent variables contribute to a richer and more student-centred learning environment, one that supports the achievement of course outcomes. Nevertheless, to maximise their potential, limitations such as the platform's restricted poll design options must be acknowledged and addressed (Kasture, 2024).

Methodology

Drawing from the literature, this study is grounded on four key independent variables: Technology Integration, Reflective Learning, Instant Feedback, and Active Engagement. These variables were identified as essential in understanding how WhatsApp polls can influence student learning experiences, particularly in achieving specific Course Learning Outcomes (CLO1–CLO4) in a business management context. The conceptual framework guided the design of this study, utilising WhatsApp polls as the primary intervention to assess their impact on student participation, reflection, and engagement.

Research Context

This study was conducted at the Centre for Foundation Studies (CFS), Universiti Teknologi PETRONAS (UTP), focusing on the Business Management course (FCB0015) offered during the January 2025 semester. A total of 166 foundation students participated, representing a range of academic disciplines including Information Technology (IT), Business Management (BM), Computer Science (CS), and Information Systems (IS). Given the diverse academic backgrounds of the participants, many of whom had limited prior exposure to business studies, there was a clear need for pedagogical strategies that could strengthen students' foundational understanding and engagement.

In response to this need, a series of WhatsApp polls was designed and implemented throughout the semester. These polls were carefully crafted to align with the course's intended learning outcomes, which aim to develop students' understanding of core business concepts and ethical practices, their ability to apply basic management principles to real-world organisational and economic contexts, their analytical skills in interpreting business scenarios using appropriate tools, and their communication and teamwork competencies essential for navigating business environments. By embedding these learning goals into the structure of the WhatsApp polls, the study aimed to explore how mobile-based interventions

could reinforce conceptual clarity and promote active, reflective learning among foundation students.

Research Design

A practical, action research approach was employed, utilising WhatsApp polls as an intervention tool to assess the impact of mobile learning on student engagement and reflective learning. A total of 18 polls were developed and deployed throughout the semester, each mapped to specific topics within the course syllabus and associated CLOs. The polls were a mix of knowledge-based and opinion-based questions, stimulating critical thinking and measuring student understanding in real-time.

Data Collection

Data for this study were gathered through three primary sources. First, participation metrics were recorded by tracking response rates for each of the 18 WhatsApp polls. These figures serve as indicators of students' active engagement throughout the semester. Second, the content of each poll was carefully designed to reflect key elements of the four independent variables, such as technology integration, reflective learning, and instant feedback, in ensuring alignment with the study's conceptual framework. Finally, student perceptions were captured through a follow-up survey and an additional poll, which invited participants to share their views on the effectiveness of WhatsApp polls in supporting their understanding and learning experience. This combination of quantitative participation data and qualitative student feedback provided a holistic perspective on the impact of mobile-based learning interventions.

Data Analysis

Descriptive analysis was employed to interpret the participation data and identify response patterns across the 18 WhatsApp polls administered during the semester. The analysis focused on several key areas, including the level of student engagement with each poll, the extent to which students demonstrated reflective thinking in their responses, and the role of immediate feedback in addressing misconceptions and prompting further discussion. These insights were then systematically mapped against the study's conceptual framework to evaluate how each independent variable, known as technology integration, reflective learning, instant feedback, and active engagement, contributed to the attainment of the intended course learning outcomes (CLO1–CLO4). This process enabled the researchers to evaluate both the pedagogical effectiveness of the intervention and its alignment with the course's educational objectives.

Result and Findings

The analysis of WhatsApp polls conducted across 18 sessions revealed meaningful insights into student participation, the effectiveness of mobile-based learning, and the role of critical thinking in fostering active engagement.

Table 1: Student Participation Across 18 WhatsApp Polls presents a detailed breakdown of each poll, highlighting the poll number, topic, number of responses, mapped Course Learning Outcomes (CLO), and the corresponding Independent Variables (IVs): Tech Integration, Reflective Learning, and Instant Feedback. The table also shows how these IVs are linked to Critical Thinking Ability as a mediator and Active Engagement as the dependent variable (DV).

The consistent mapping underscores the alignment between specific pedagogical strategies and student engagement outcomes.

Table 1
Student Participation Across 18 WhatsApp Polls

Poll Number	Topic	Number of Responses	Mapped CLO	Mapped IV	Critical Thinking (Mediator)	Active Engagement (DV)
1	Tangible vs Intangible	55	CLO1	Tech Integration	Yes	Yes
2	Teaching Innovation Focus	77	CLO4	Active Engagement	Yes	Yes
3	UTP Business Name (SSM)	77	CLO2	Tech Integration	No	Yes
4	Economic Systems	80	CLO1	Reflective Learning	Yes	Yes
5	Driving Innovation Key	88	CLO4	Active Engagement	Yes	Yes
6	Leadership Styles	54	CLO2	Reflective Learning	Yes	Yes
7	McDonald's Legal Entity	64	CLO2	Tech Integration	No	Yes
8	Business Registration Fee	61	CLO3	Reflective Learning	Yes	Yes
9	Departmentalization Type	45	CLO3	Active Engagement	Yes	Yes
10	Protectionism Concept	39	CLO2	Reflective Learning	Yes	Yes
11	Tangible/Intangible Activities	67	CLO1	Reflective Learning	Yes	Yes
12	Output Identification	70	CLO3	Reflective Learning	Yes	Yes
13	MasWings Alliance Type	38	CLO2	Tech Integration	No	Yes
14	BMC Non-Component	60	CLO3	Reflective Learning	Yes	Yes
15	Group Assignment Tools	33	CLO4	Active Engagement	Yes	Yes
16	Sick Leave MC Action	40	CLO4	Instant Feedback	Yes	Yes
17	Procurement Dept Name	55	CLO2	Tech Integration	No	Yes
18	Motivation Theory (Money)	58	CLO1	Reflective Learning	Yes	Yes

Figure 1: Student Participation Across 18 WhatsApp Polls visually represents the trends in student responses, where participation remained notably high for topics involving tech integration and active engagement. Notably, peaks in response were observed for Polls 2 (Teaching Innovation Focus), 3 (UTP Business Name), and 5 (Driving Innovation Key), which also correspond to CLO4 and CLO2, indicating the relevance of interactive content in sustaining student attention. Furthermore, topics associated with reflective learning, such as economic systems and output identification, demonstrated stable engagement, reinforcing the role of reflection in supporting critical thought (Baporikar, 2020).

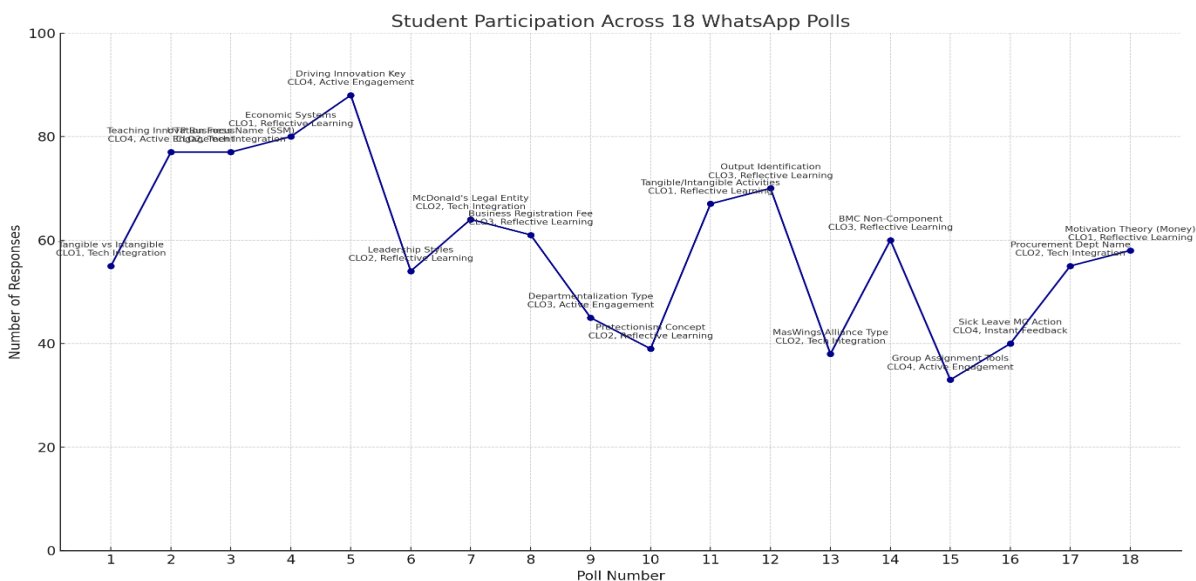


Figure 1: Student Participation Across 18 WhatsApp Polls

Figure 2: Overall Student Feedback on WhatsApp Polls depicts strong positive sentiment, with 81 students agreeing that the polls enhanced their understanding of business management concepts. This affirms WhatsApp's effectiveness as a pedagogical tool (Ahmed, 2019), highlighting its accessibility and contribution to improving comprehension through regular interaction and feedback loops.

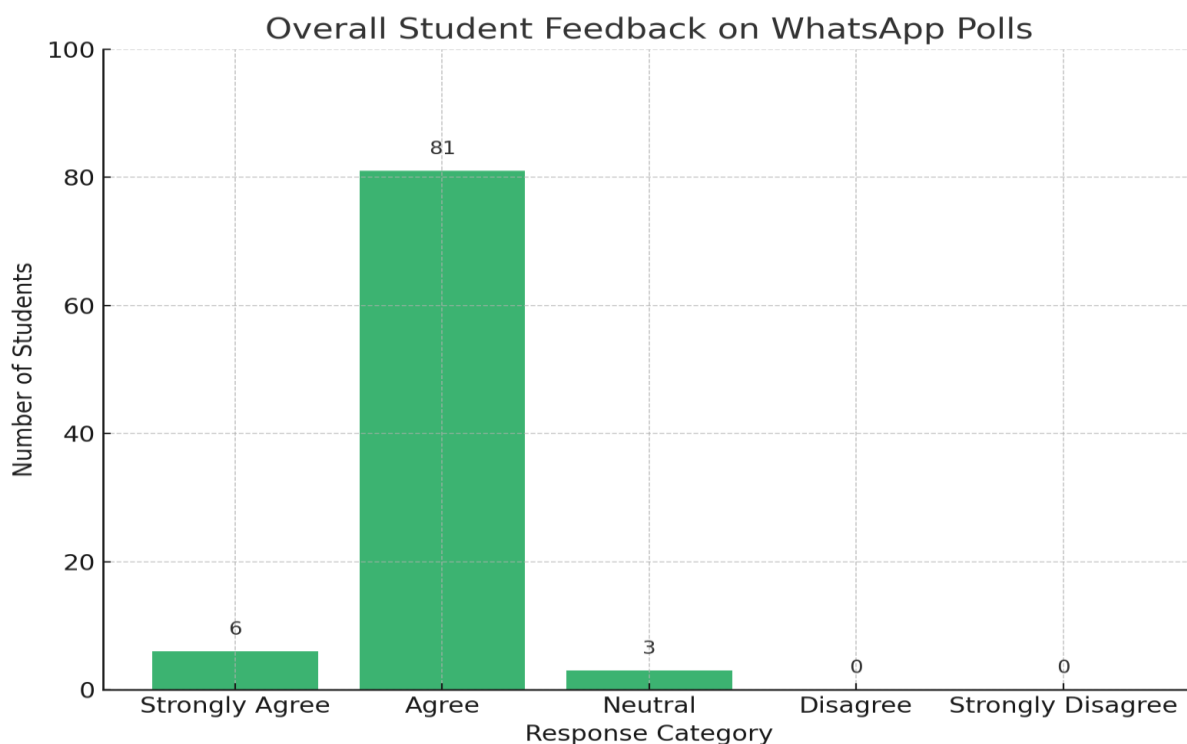


Figure 2: Overall Student Feedback on WhatsApp Polls

To synthesise the results, Figure 3: Proposed Framework, the Influence of WhatsApp Polls on Active Learning Outcomes through Critical Thinking illustrates the conceptual linkages established in this study. The framework illustrates how Tech Integration, Reflective Learning, and Instant Feedback collectively impact Critical Thinking Ability, which in turn drives Active Engagement. (Herlina et al., 2023). This mediated relationship emphasises fostering deeper cognitive processing to achieve meaningful learning engagement in mobile-supported environments.

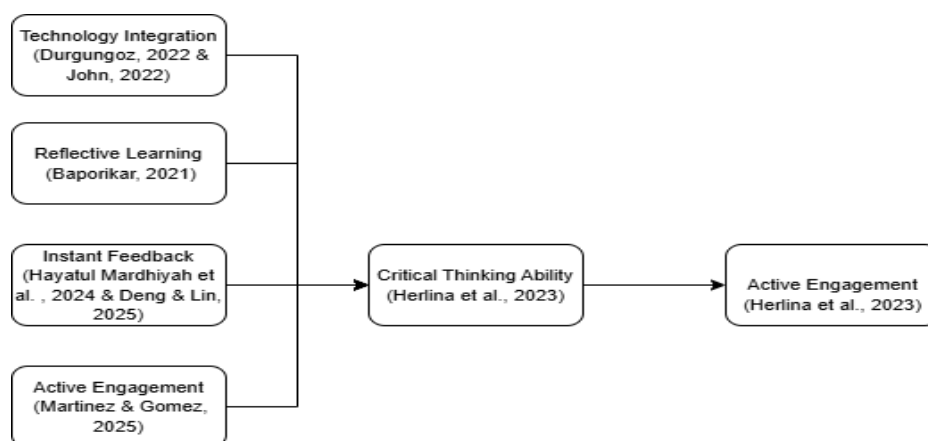


Figure 3: Proposed Framework, the Influence of WhatsApp Polls on Active Learning Outcomes through Critical Thinking

These findings collectively suggest that leveraging WhatsApp polls enhances participation and supports critical thinking, which is instrumental in promoting active learning. The proposed framework offers a structured perspective for scaling such approaches in broader educational contexts.

Conclusion

This study highlights the transformative potential of WhatsApp polls in bridging the gap between technology and learning within a business management foundation course. By leveraging a familiar mobile platform, students can engage more actively, reflect critically on course concepts, and receive instant feedback, thereby enhancing their comprehension and participation. Integrating Tech Integration, Reflective Learning, and Instant Feedback fostered Critical Thinking Ability, which emerged as a key mediator driving Active Engagement.

The data consistently showed high levels of student involvement across various polls, reinforcing that when strategically implemented, mobile-supported learning tools can complement formal instruction and enrich the educational experience. WhatsApp polls served as an assessment tool and a catalyst for deeper thinking and real-time clarification of concepts.

Aligned with CLO1 through CLO4, this approach supports a learner-centred environment that promotes self-assessment, collaborative dialogue, and sustained motivation. The proposed conceptual framework presents a scalable model for future applications across various courses, suggesting that the thoughtful integration of digital tools can significantly enhance active learning outcomes.

In conclusion, while WhatsApp's poll feature has certain design limitations, its accessibility and immediacy are valuable for fostering critical thinking and engagement, particularly in settings where mobile learning is increasingly central to student success.

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