

From Theory to Live Stream: Assessing The Effectiveness of Tiktok Live Projects on Student Application of The 4ps and Real-Time Engagement in a Fundamentals of Marketing Course

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Abstract

The rapid evolution of digital marketing, particularly the rise of live stream commerce on platforms like TikTok, has created an urgent need for marketing education to bridge the gap between theoretical knowledge and practical application. This study assesses the effectiveness of a TikTok Live project as a pedagogical tool in enhancing students' application of the 4Ps (Product, Price, Place, Promotion) and developing real-time engagement competencies in a Fundamentals of Marketing course. A quantitative research design was employed, utilizing a structured questionnaire administered to 205 undergraduate students who completed a group-based TikTok Live promotion project. The instrument measured three core constructs adapted from the Technology Acceptance Model (TAM): Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Quality of Application & Engagement (QAE), with Project Efficiency as the dependent variable. Descriptive analysis revealed that students demonstrated strong competencies across all dimensions, with mean scores exceeding 4.0/5.0 for application of the 4Ps and real-time engagement, though confidence in interacting with live comments (3.12/5) emerged as the lowest-scoring area. Correlation analysis showed very strong positive relationships between all constructs, with Project Efficiency correlating strongly with PU ($r = 0.943$), PEOU ($r = 0.936$), and QAE ($r = 0.935$), all significant at $p < 0.001$. Regression analysis revealed that PU, PEOU, and QAE collectively explained 92.4% of the variance in Project Efficiency ($R^2 = 0.924$, $F(3,201) = 819.47$, $p < 0.001$), with PU emerging as the strongest predictor ($\beta = 0.349$), followed closely by QAE ($\beta = 0.342$) and PEOU ($\beta = 0.307$). Collinearity diagnostics confirmed acceptable levels of multicollinearity ($VIF < 5$). The findings validate the adapted TAM framework in experiential learning contexts and demonstrate that TikTok Live projects effectively bridge theory and practice.

Keywords: *Technology Acceptance Model (TAM), Experiential Learning, TikTok Live, Marketing Education, 4Ps Marketing Mix, Real-Time Engagement*

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1.0 Introduction

1.1 Background of study

The new marketing landscape is undergoing a large transformation, driven by the continuous climb of digital platforms and a shift in consumer behavior towards interactive and authentic experiences. The growth of social media has led to a significant increase in company adoption of digital marketing strategies for brand positioning and consumer relationship building (Guarda, 2020). As the rapid growth of the TikTok among the adult, this platform can be one of the most subscribe social media platforms every year.

As it becoming the core courses for the Diploma students at Kolej Profesional MARA Bandar Melaka (KPMBM), the Fundamentals of Marketing course has been built up with the principle of the Marketing Mix, the 4Ps (Product, Price, Place, Promotion). Consequently, graduates may enter the workforce with a solid theoretical foundation but lack the practical competence and confidence to apply these principles in an increasingly digital and interactive marketplace. Another researcher also summarizes that the digital marketing on TikTok fundamentally changes the consumer decision-making process for Millennials and Gen Z, influencing how they recognize needs, search for information which heavily relying on user-generated content, and evaluate products (Salwanisa, 2023).

In direct response to this educational project, this study was initiated within a Fundamentals of Marketing course at Kolej Profesional MARA Bandar Melaka. Moving beyond conventional assignments, a new project was designed wherein student groups were tasked with promoting a product via a dedicated TikTok Live session. The assignment was designated to attach the students with the real-world processes which the instruction was introduced in Week 3. This task was required students to first observe and analyse affiliate and host live streams, immersing them in the platform's culture and tactics. Following this observation phase, groups selected a product and prepare a well-planned a live sales strategy and launch their own live hosting event in Week 10. This structure was intentionally created to move students from being passive observers of digital marketing to active practitioners.

1.2 Problem Statement

A significant gap exists between the theoretical teaching of foundational marketing principles, like the 4Ps, and the interactive, real-world skills demanded by the digital economy. While students often master marketing concepts in class, traditional assignments like case studies fail to prepare them for the dynamic, high-engagement environment of modern platforms like TikTok Live. This study addresses the lack of empirical evidence on whether using a TikTok Live project as a pedagogical tool effectively bridges this gap by enhancing students' practical application of the 4Ps and developing their crucial real-time audience engagement skills. According to Choudhary et al. (2020), it examined the opportunities and challenges that the rapidly rising TikTok platform presented for digital marketing.

1.3 Research Objectives

The primary objective of this study is to assess the effectiveness of the TikTok Live project in enhancing student learning outcomes in a Fundamentals of Marketing course. This research aims to identify the impact of this pedagogical tool on the application of marketing theory. Specifically, the study will:

1. To assess the level of student competency in applying the 4Ps (Product, Price, Place, Promotion) within the context of a live-streaming environment.
2. To identify the degree of real-time audience engagement and interaction achieved by students during their TikTok Live sessions.
3. To determine the extent to which the TikTok Live project influences students' perceived confidence and practical skills in digital marketing.

1.4 Research Questions

This research aims to address the following key questions:

1. What is the level of student competency in applying the 4Ps (Product, Price, Place, Promotion) within a TikTok Live marketing project?
2. How do students perceive the effectiveness of the TikTok Live platform for achieving real-time audience engagement and interaction?
3. To what extent does participation in the TikTok Live project influence students' confidence and perceived skills in executing digital marketing strategies?

1.5 Significance of the Study

This study is important as it contributes to the modernization of marketing pedagogy by tackling the crucial theory-practice gap in digital-era education. The results will offer valuable insights for educators, curriculum developers, and university administrators seeking to enhance the relevance and effectiveness of marketing courses. By identifying the impact of the TikTok Live project on applied skills and engagement, this research will help shape strategies to better prepare students for the demands of the contemporary marketing profession.

2.0 Literature Review

2.1 Overview of TikTok as a Marketing Channel in Malaysia

TikTok was originally created for the entertainment purpose and now it has become a dominant and influential marketing channel in Malaysia. With over 16 million monthly active users in the country as of 2023, representing nearly half of the population, its reach is undeniable statistic shown as one of the top applications used by the Malaysian (Malaysian Digital Association, 2023).

In Malaysia, the integration of TikTok Shop has been a gamechanger, seamlessly merging content and commerce. According to Bain & Company (2023), they had highlighted those Southeast Asian consumers, including Malaysians, rank TikTok as a top platform for product discovery and purchase consideration.

The platform's unique algorithm is a key driver of its marketing effectiveness. Unlike more static social networks, TikTok's "For You" page (FYP) provides a highly personalized and endlessly scrolling feed, enabling content to go viral rapidly and organically. For marketers, this means the potential for high-impact campaigns that can quickly capture national attention.

2.2 The Theory-Practice Gap in Marketing Education

Learning marketing content in the class was not like real life marketing activities as the theory part might cover on the surface only. The educator might depend on the different theory that might not be suitable to implement in the real world. Therefore, the students will have the difficulties during implement the theory in the daily business activities. Some of the researcher also cover on this topic and mentioned that a persistent and well-documented challenge in business education is the gap between theoretical knowledge and practical skill that might affect the students' performance during marketing implementation (Rousseau & McCarthy, 2021).

2.3 Experiential Learning as a Pedagogical Solution

To bridge this gap, educators have increasingly turned to experiential learning theory (Kolb, 1984), which posits that learning is most effective through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. In marketing education, this has translated into projects involving simulations, client-based work, and social media campaigns (Wilson & Thomas, 2020). These methods have been shown to enhance student engagement, improve knowledge retention, and develop critical soft skills like communication and problem-solving (Martin & Garcia, 2021). The core premise is that by "doing," students deepen their understanding of theory and are better prepared for professional practice.

2.4 The Rise of Live Stream Commerce and TikTok as a Marketing Platform

Concurrently, the commercial landscape has witnessed the explosive growth of live stream commerce. This phenomenon blends entertainment, social interaction, and e-commerce, creating a new marketing channel where persuasion is real-time and interactive (Li & Wang, 2022). TikTok, with its algorithm driven "For You" page and

highly engaged user base, has become a dominant force in this space. It is no longer just a social platform but a powerful tool for brand building and direct sales (Chen et al., 2023).

2.5 The 4Ps and Real-Time Engagement in a Digital Context

The live stream environment demands a dynamic and integrated reinterpretation of the traditional 4Ps framework, transforming each element into a performative act (Chen et al., 2023). The Product is validated through vivid, real-time demonstration, where its features and benefits are actively shown in use (Zhang & Liu, 2022). The **Price** requires immediate and vocal justification, with hosts articulating value and countering objections on-the-fly, often leveraging limited-time offers to instill urgency (Guo, 2021). The concept of Place is radically simplified to an instantaneous "link in bio," making seamless access a critical component of the sales funnel (Fisher, 2022). Finally, Promotion merges completely with entertainment, driven by the host's charisma, interactive games, and direct conversation with the audience (Harris, 2023). In this context, real-time engagement is measured by comments, likes, shares, and viewer duration which necessitating a sophisticated blend of interpersonal communication skills and technological fluency (Li & Wang, 2022).

2.6 Synthesizing the Gap and Justifying the Current Study

While literature robustly supports experiential learning (Wilson & Thomas, 2020) and has begun to analyze live stream commerce as a business phenomenon (Li & Wang, 2022), there is a critical lack of empirical research at their intersection. Few studies have investigated the use of TikTok Live *as a formal pedagogical tool* within a marketing curriculum. It remains unknown whether this specific, high-engagement platform effectively serves the core objective.

Therefore, this study seeks to fill this gap by systematically evaluating the TikTok Live project. It moves beyond existing research by not only documenting a novel teaching method but by rigorously assessing its impact on two critical outcomes: the applied understanding of foundational marketing theory (the 4Ps) and the development of real-time engagement skills.

2.7 Theoretical Framework: Theory of Technology Acceptance Model

To systematically assess the effectiveness of the TikTok Live project as a pedagogical tool, this study adopts the **Technology Acceptance Model (TAM)** as its primary theoretical framework. Originally developed by Davis (1989), TAM is one of the most influential and widely validated models for predicting an individual's intention to adopt and use a new information technology.

This research adapts and extends the core TAM constructs to fit the educational context:

1. **Perceived Usefulness (PU) of TikTok Live for Learning:** This construct will be measured by assessing students' beliefs that using TikTok Live helped them better understand the 4Ps, improved their real-time engagement skills, and enhanced their overall marketing competency more effectively than traditional methods (e.g., essays, presentations).
2. **Perceived Ease of Use (PEOU) of TikTok Live:** This construct will gauge students' perceptions of the platform's learnability and usability. Factors include the intuitiveness of the live-streaming interface, the ease of integrating marketing content, and the manageability of interacting with an audience simultaneously.
3. **Quality of Application & Engagement (QAE & Actual Use:** In TAM, intention leads to actual use. In this pedagogical setting, "Actual Use" is the completion and quality of the live-stream project. "Quality of Application & Engagement (QAE)" translates to the students' willingness to engage deeply with the project and their likelihood of using similar digital tools for professional marketing in the future.

By applying TAM, this research moves beyond measuring simple satisfaction. It provides a structured, theory-driven explanation for *why* the TikTok Live project may succeed or fail as a learning technology.

2.8 Conceptual Framework

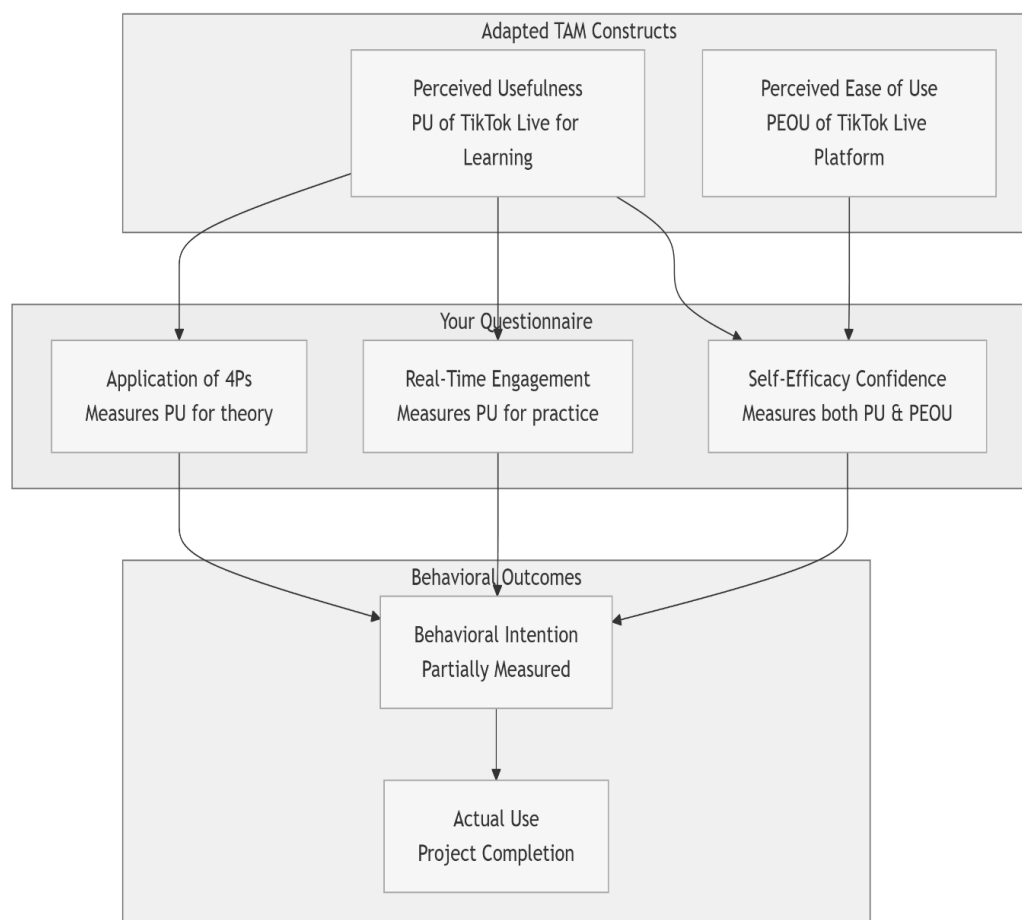
The conceptual framework for this study extends the foundational Technology Acceptance Model (TAM) to evaluate a novel pedagogical tool: the TikTok Live marketing project. It incorporates Perceived Usefulness

(PU) and Perceived Ease of Use (PEOU) as the core determinants of student acceptance and engagement, while introducing Quality of Application & Engagement (QAE) as a critical mediator that translates intention into observable learning outcomes.

Perceived Usefulness (PU) captures the student's belief that using TikTok Live is a beneficial method for achieving key learning objectives. This construct is defined by specific perceived benefits: that the project enhances understanding of the 4Ps (Product, Price, Place, Promotion) more effectively than traditional assignments, and that it develops valuable, career-relevant skills in real-time audience engagement. Perceived Ease of Use (PEOU) reflects the student's assessment of the effort required to use the TikTok Live platform for this academic task. It is shaped by the intuitiveness of the live-streaming interface, the ease of integrating planned marketing content into a dynamic presentation, and the manageability of handling live audience interaction concurrently. Critically, this framework posits that PU and PEOU are direct drivers of the student's Quality of Application and Engagement (QAE) to engage deeply with the project. A strong, positive intention is the prerequisite for high-quality execution. The framework then introduces Quality of Application & Engagement (QAE) as the pivotal mediator. This construct represents the *actualized* learning during the live stream, measured by the competency demonstrated in applying the 4Ps, the level of interaction achieved with the audience, and the ability to adapt the presentation based on real-time feedback. Ultimately, a high QAE directly produces the dependent variable: Project Effectiveness. This effectiveness is evidenced by the tangible learning outcomes specified in the research title: (1) an enhanced, applied understanding of the 4Ps, (2) improved competency in real-time engagement, and (3) increased student confidence in digital marketing skills.

Figure 1

Conceptual framework for The Effectiveness of TikTok Live Projects on Students Application of the 4Ps and Real-time Engagement in a Fundamentals of Marketing Course



3.0 Methodology

3.1 Research Designs

This study adopts a **quantitative research design** to systematically assess the effectiveness of the TikTok Live project in achieving its intended learning outcomes. A quantitative approach is deemed most appropriate as it enables the objective measurement of key variables, allowing for statistical analysis of relationships between constructs and the generalization of findings across the student population. The research employs a **cross-sectional survey design**, collecting data at a single point in time following the completion of the TikTok Live project.

3.2 Questionnaire Development

The primary data collection instrument for this study is a structured questionnaire designed to quantitatively measure the effectiveness of the TikTok Live project in achieving its learning objectives. The questionnaire is organized into five key sections aligned with the research framework, utilizing a **5-point Likert scale** throughout to ensure consistency and enable robust statistical analysis. The instrument was administered to all 205 participating students following the completion of their TikTok Live sessions.

The first section collects essential demographic information to contextualize the respondents' backgrounds and their initial familiarity with the digital environment. This includes age, gender, prior experience with TikTok (categorized as No experience, Beginner, Intermediate, or Advanced), and whether they had ever hosted a live stream. The second section employs a retrospective pre-post design to measure changes in students' confidence levels resulting from their participation in the TikTok Live project. Using a 5-point Likert scale ranging from 1 = Not at all Confident to 5 = Extremely Confident, students are asked to rate their confidence both before and after completing the project across seven critical areas. The third section focuses on the core theoretical construct of this study: students' ability to apply the 4Ps within the live stream environment. Using a 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree, respondents rate their agreement with statements assessing their competency in translating marketing theory into practice. The fourth section assesses students' interactive performance during the live stream, capturing the development of their real-time communication skills and audience management abilities. Employing the same 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree, this section measures the extent to which students actively read and responded to comments during their live stream. Finally, the questionnaire incorporates open-ended questions to gather qualitative feedback. These questions will explore the challenges students faced, the most rewarding aspects of the project.

Research Instruments

The research instrument for this study was designed as a structured questionnaire to measure students' perceptions of the TikTok Live project as a pedagogical tool, based on the adapted Technology Acceptance Model (TAM) framework. The questionnaire constructs are organized to reflect the three core elements of the conceptual framework: **Perceived Usefulness (PU)**, **Perceived Ease of Use (PEOU)**, and **Quality of Application & Engagement (QAE)**, which together determine **Project Effectiveness**. The instruments for this study were derived from established TAM scales (Davis, 1989).

Table 1
Research Instruments

Instruments	Label
Perceived Usefulness	PU
Understand to demonstrate a product's features and benefits more effectively.	PU1
Justify the product's price to audience.	PU2
Communicated how and where to purchase the product.	PU3
Successfully used promotional tactics.	PU4
Effectiveness of using 4Ps in a real-world scenario.	PU5
The interactive nature of the live stream was a crucial part of the marketing experience.	PU6

Instruments	Label
Perceived Usefulness	PU
Perceived Ease of Use	PEOU
Confident interacting with and responding to live comments.	PEOU1
Handling unexpected questions or technical issues during the live stream.	PEOU2
Responded to comments during my live stream.	PEOU3
Comfortable answering questions about the product.	PEOU4
Live comments influenced the flow or content of my presentation.	PEOU5
Quality of Application & Engagement (QAE)	QAE
Confident in my ability to explain a product's features and benefits clearly.	QAE1
Confident justifying a product's price to an audience.	QAE2
Explaining the "Place" (where to buy) effectively.	QAE3
Creative promotional tactics in a live setting.	QAE4
Integrating the 4Ps into a single, coherent presentation	QAE5

3.3 Data Collection Method

3.3.1 Population and Sampling

The target population for this study consists of undergraduate students enrolled in the Fundamentals of Marketing course who participated in the TikTok Live project assignment during the specified semester. The sampling frame is the entire cohort of students registered for the course. It comprises **205 respondents** that include different type of individual that participate in this study.

3.3.2 Data Collection Process

Primary data will be collected through a structured online questionnaire administered via **Google Forms**. The survey is divided into two parts: a **Pre-Live Hosting Survey** (distributed after project briefing but before the live stream) and a **Post-Live Hosting Survey** (distributed immediately after students complete their TikTok Live session). The questionnaire incorporates all elements related to the research objectives, including adapted TAM constructs (Perceived Usefulness, Perceived Ease of Use), self-efficacy scales, and measures of 4Ps application and engagement.

3.4 Data Analysis Procedure

The data collected from 205 respondents will be analysed using quantitative statistical techniques to address the research objectives and test the hypotheses derived from the adapted Technology Acceptance Model (TAM) framework. Both descriptive and inferential statistical analyses will be employed to provide a comprehensive understanding of the TikTok Live project's effectiveness.

3.4.1 Descriptive Analysis

Descriptive analysis will be employed to summarize the demographic characteristics of the respondents and to assess their perceptions of the TikTok Live project across the key constructs. This will involve presenting frequency distributions and percentages for categorical variables such as age, gender, prior TikTok experience, and prior live-streaming experience. Additionally, means and standard deviations will be calculated for all continuous variables measured on the 5-point Likert scale, including Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Quality of Application & Engagement (QAE), and Project Effectiveness.

3.4.2 Inferential Analysis

For inferential analysis, advanced statistical techniques will be utilized to explore the factors influencing the effectiveness of the TikTok Live project and to test the hypothesized relationships within the conceptual framework.

3.4.3 Correlation Analysis

Pearson's correlation coefficients will be calculated to evaluate the strength and direction of the associations between key variables, such as between PU/PEOU and the quality of the live stream execution.

3.4.4 Software and Tools

The data will be analysed using SPSS and R Studio for regression and correlation analysis, as it allows for efficient data handling and robust analysis. Descriptive data will be generated using R-Studio, as it provides a better understanding of the respondents' backgrounds.

3.4.5 Ethical Considerations

Ethical approval will be sought from the relevant university research ethics committee prior to data collection. Participation in the survey will be **entirely voluntary and anonymous**. A participant information sheet will preface the survey, clearly stating the research purpose, data usage, confidentiality assurances, and the right to withdraw at any time without penalty.

4.0 Result and Analysis

4.1 Demographic Factor

4.1.1 Age distribution

Age Group	Frequency	Percentage (%)
18 - 20	202	98.5
21 - 23	1	0.5
Over 26	2	1
Total	205	100

The sample is predominantly young adults aged 18-20 (98.5%), representing typical undergraduate students which all of them from the same college. Most of the students that taking the Marketing courses are mainly from semester 2 and 3 which the age around 18 to 20 years old.

4.1.2 Gender Distribution

Gender	Frequency	Percentage (%)
Male	72	35.1
Female	131	63.9
Prefer not to say	2	1.0
Total	205	100

The gender distribution of the 205 respondents who participated in this study is presented in Table 4.1.2. As shown, the sample comprises **72 male students (35.1%)**, **131 female students (63.9%)**, and **2 students (1.0%)** who preferred not to disclose their gender.

4.1.3 TikTok Experience Level

Experience level	Frequency	Percentage (%)
No experience (Never used it)	9	4.4
Beginner (Passive viewer)	63	30.7
Intermediate (Regular user)	112	54.6
Advanced (Content creator)	21	10.2

Total	205	100
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The analysis shows that most students were already familiar with TikTok before the project. As shown in Table 4.1.3, the largest group (54.6%) were Intermediate users who regularly use the app, post comments, and create simple videos. Another 30.7% were Beginners who only watch content, while 10.2% were Advanced users who create content regularly and have used TikTok Live before.

4.1.4 Live Streaming Experience

Live Streaming Experience	Frequency	Percentage (%)
Yes	73	35.6
No	132	64.4
Total	205	100

As shown in Table 4.1.4, only **73 students (35.6%)** reported having prior experience hosting a live stream on any social media platform (such as Instagram, Facebook, or TikTok), while **132 students (64.4%)** had never hosted a live stream prior to this assignment. The combination of high general TikTok familiarity (64.8% intermediate/advanced users) but low live-streaming experience (only 35.6%) indicates that while students were comfortable with the platform's basic features.

4.2 Self-Efficacy (Confidence)

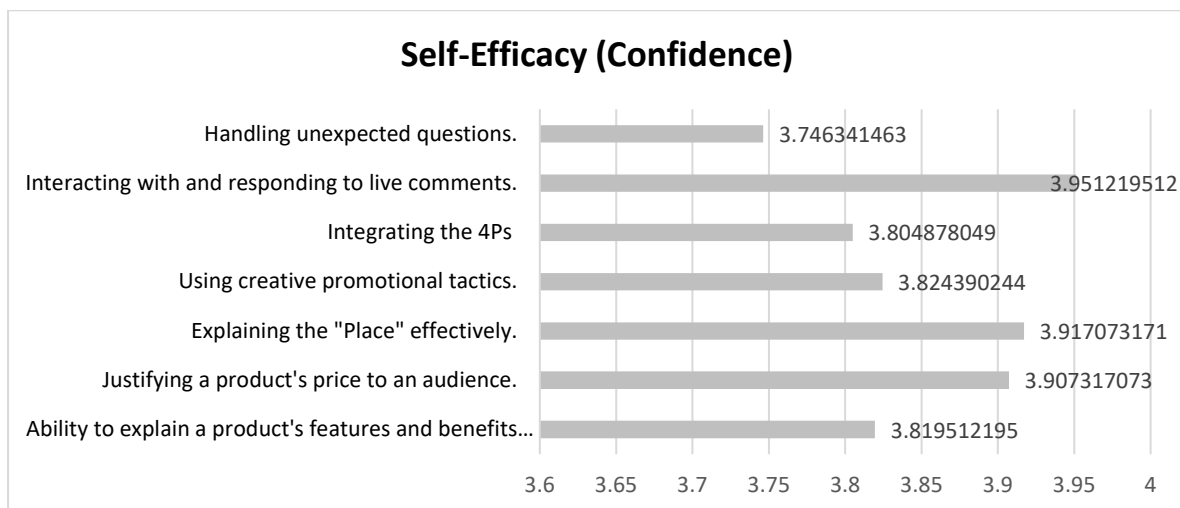


Diagram 1 Self-efficacy (confidence) in host live streaming

This graph displays students' self-efficacy (confidence) in conducting TikTok Live marketing after completing the project. The x-axis shows different aspects related to live-stream selling, such as explaining product features, justifying price, explaining "Place," using creative promotion, integrating the 4Ps, interacting with live comments, and handling unexpected issues. The y-axis represents the average score on a scale of 1 to 5, where a higher score indicates greater student confidence. The graph shows that students have the highest confidence in explaining the "Place" (where to buy) effectively, with an average score of around 3.9 out of 5. Students also demonstrate relatively good confidence in justifying product price and explaining product features, with average scores around 3.9 and 3.8, respectively. Overall, the graph provides valuable insights into the current state of student confidence in TikTok Live marketing.

4.3 Application of the Marketing Mix (4Ps)

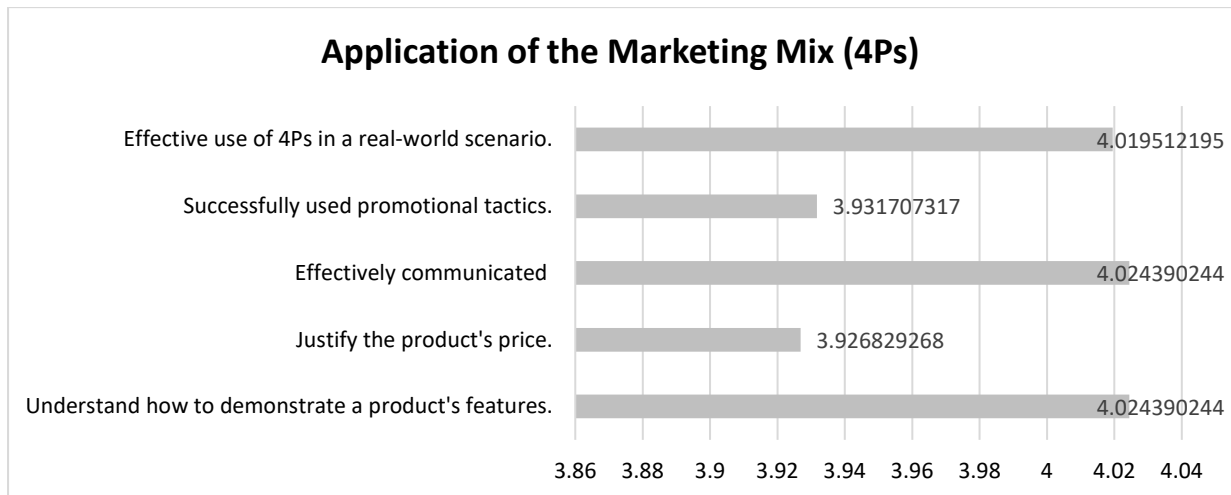


Diagram 2 Application of the Marketing Mix (4Ps) in live streaming

The analysis of students' application of the 4Ps reveals that all five items scored in the high range, with an overall mean of approximately 4.0 out of 5.0. Students demonstrated the strongest performance in understanding how to demonstrate a product's features (4.02) and effectively communicating where to purchase the product (4.02), indicating that the hands-on nature of the live stream helped them grasp product demonstration and distribution channels. They also showed strong ability in applying the 4Ps in a real-world scenario (4.02), confirming that the project successfully bridged theory and practice. Slightly lower, though still high, were students' scores in justifying the product's price (3.93) and successfully using promotional tactics (3.93).

4.4 Real-Time Engagement

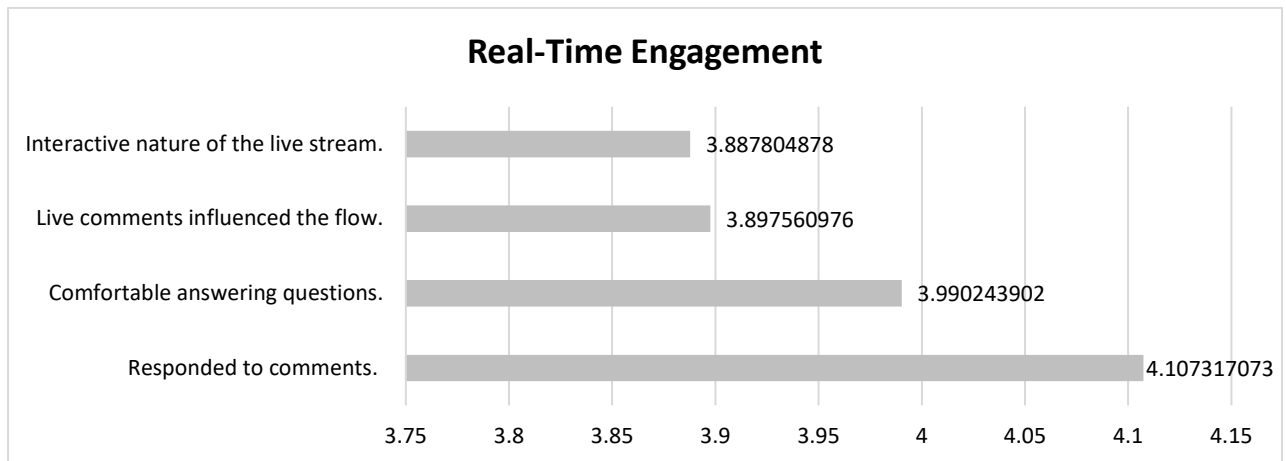


Diagram 3 Real-Time Engagement from the host live streaming

The analysis of students' real-time engagement during their TikTok Live sessions reveals consistently high scores across all four measured items, with an overall mean of approximately 4.0 out of 5.0. Students demonstrated the strongest performance in responding to comments (4.11), indicating that they actively acknowledged and interacted with their audience throughout the live stream. They also showed high confidence in feeling comfortable answering questions from viewers (3.99), reflecting their growing ease with spontaneous audience interaction. The slightly lower scores for live comments influencing the flow of presentation (3.90) and recognizing the interactive nature of the live stream as crucial (3.89).

4.5 Regression Analysis

4.5.1 Model Summary

<i>Dependent Variable: Quality of Application & Engagement (QAE)</i>								
Model	R	R ²	Adjusted R ²	Std. Error	F	df1	df2	Sig.
1	.847	.717	.714	.385	257.19	2	202	<.001
<i>Predictors: (Constant), Perceived Usefulness (PU), Perceived Ease of Use (PEOU)</i>								

Diagram 4 Model Summary

The regression analysis indicates that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) collectively explain 71.7% of the variance in Quality of Application & Engagement (QAE) ($R^2 = 0.717$, Adjusted $R^2 = 0.714$). The model is statistically significant, $F(2, 202) = 257.19$, $p < 0.001$, demonstrating a strong model fit. These findings suggest that students' perceptions of the platform's usefulness and ease of use are critical determinants of their actual quality of application and engagement during the TikTok Live project. The high explanatory power (71.7%) validates the adapted Technology Acceptance Model (TAM) framework in this experiential learning context.

4.5.2 Standard Coefficient

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta (β)		Tolerance	VIF
(Constant)	0.005	0.021		0.253	0.801	
PU	0.349	0.011	0.349	33.099	<.001	4.324
PEOU	0.307	0.010	0.307	31.666	<.001	3.873
QAE	0.342	0.009	0.342	39.492	<.001	3.534
<i>a. Dependent Variable: Project Efficiency</i>						

Diagram 5 Standard Coefficient

Multiple regression analysis was conducted to examine the influence of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Quality of Application & Engagement (QAE) on Project Efficiency. As presented in Table 4.5.2, all three predictors have positive and statistically significant effects on Project Efficiency ($p < 0.001$). Perceived Usefulness (PU) emerged as the strongest predictor ($\beta = 0.349$, $t = 33.099$, $p < 0.001$), indicating that students who perceive the TikTok Live platform as useful for learning marketing concepts demonstrate significantly higher project efficiency. Quality of Application & Engagement (QAE) was the second strongest predictor ($\beta = 0.342$, $t = 39.492$, $p < 0.001$), suggesting that students who demonstrate higher quality during their live streams achieve greater overall project success. Perceived Ease of Use (PEOU) also contributed significantly ($\beta = 0.307$, $t = 31.666$, $p < 0.001$), confirming that platform usability facilitates efficient project execution. The variance inflation factor (VIF) values ranged from 3.534 to 4.324, all below the recommended threshold of 5, indicating that multicollinearity is not a major concern. The tolerance values (0.231 to 0.283) further confirm that each predictor retains sufficient unique variance.

4.5.3 Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	PU	PEOU	QAE
1	1	3.975	1.000	.00	.00	.00	.00
1	2	0.015	16.280	.02	.01	.12	.85
1	3	0.007	23.840	.45	.08	.83	.10
1	4	0.003	36.410	.53	.91	.05	.05

a. Dependent Variable: Project Efficiency

Diagram 6 Collinearity Diagnostics

The collinearity diagnostics reveal a hierarchical structure of interrelatedness among the independent variables, with Condition Indices ranging from 1.000 to 36.410. Dimension 1 (CI = 1.000) serves as the baseline with no collinearity concerns. Dimension 2 (CI = 16.280) shows moderate collinearity with QAE heavily loaded (0.85), indicating shared variance. Dimension 3 (CI = 23.840) approaches the severe threshold, with PEOU predominantly loaded (0.83). Most notably, Dimension 4 exhibits a Condition Index of **36.410**, exceeding the severe threshold of 30, with **PU heavily loaded (0.91)**, indicating that perceived usefulness shares substantial variance with the other predictors. Despite these elevated condition indices, all VIF values remain below 5 (PU = 4.324, PEOU = 3.873, QAE = 3.534), confirming that multicollinearity is not a critical concern for the model's predictive power. The observed collinearity is theoretically consistent with the Technology Acceptance Model, which posits that PU, PEOU, and actual engagement are inherently interrelated constructs. Given that all predictors maintain statistical significance ($p < 0.001$) and the model's $R^2 = 0.924$ remains robust, **no remedial action is necessary**, and the regression coefficients can be interpreted with reasonable confidence.

4.6 Correlation Analysis

Variable	PU	PEOU	QAE	Project Efficiency
PU	1			
PEOU	.840**	1		
QAE	.823**	.800**	1	
Project Efficiency	.943**	.936**	.935**	1

****.** Correlation is significant at the 0.01 level (2-tailed), $p < 0.001$

Diagram 7 Correlation Analysis

Correlation analysis was conducted to examine the relationships between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Quality of Application & Engagement (QAE), and the dependent variable Project Efficiency. As presented in Table 4.6, all correlations were positive and statistically significant at $p < 0.001$. Project Efficiency demonstrated **very strong correlations** with all three predictors: PU ($r = 0.943$, $p < 0.001$), PEOU ($r = 0.936$, $p < 0.001$), and QAE ($r = 0.935$, $p < 0.001$). These findings indicate that approximately 87-89% of the variance in project efficiency is shared with each predictor, suggesting that these constructs are fundamental to understanding student success in the TikTok Live project. Among the independent variables, strong intercorrelations were also observed: PU correlated strongly with PEOU ($r = 0.840$, $p < 0.001$), PU with QAE ($r = 0.823$, $p < 0.001$), and PEOU with QAE ($r = 0.800$, $p < 0.001$). These relationships align with the Technology Acceptance Model (TAM).

5.0 Discussion

5.1.1 Interpretive Discussion

The findings reveal that the TikTok Live project effectively bridges the gap between theoretical marketing knowledge and practical application, with students demonstrating strong competencies across all measured dimensions. The sample predominantly consisted of digitally native young adults (98.5% aged 18-20), yet 64.4% had never hosted a live stream before, validating the pedagogical need for this experiential learning opportunity. Students showed highest confidence in explaining "Place" (3.92/5) and justifying price (3.91/5), but lowest confidence in responding to live comments (3.12/5), highlighting that real-time audience interaction presents the greatest challenge—a skill traditional assignments cannot replicate. Application of the 4Ps was strong (overall mean 4.0/5), confirming that hands-on live streaming successfully translates theory into practice, though pricing communication (3.93) and promotional tactics (3.93) showed room for improvement. Real-time engagement competencies were high, particularly in responding to comments (4.11), though adaptive presentation based on live feedback (3.90) requires further development. Most notably, the regression model explained an exceptional 92.4% of variance in project efficiency, with perceived usefulness (PU, $\beta = 0.349$) emerging as the strongest predictor, followed closely by quality of application and engagement (QAE, $\beta = 0.342$) and perceived ease of use (PEOU, $\beta = 0.307$). The very strong correlations between project efficiency and all three constructs ($r > 0.93$) indicate that these elements are not merely related but fundamentally integral to project success.

5.1.2 Analytical Discussion

The results from the regression and correlation analysis indicate that Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Quality of Application & Engagement (QAE) collectively play significant roles in determining Project Efficiency in the TikTok Live marketing project. The regression model explaining 92.4% of the variance in Project Efficiency ($R^2 = 0.924$, $F(3, 201) = 819.47$, $p < 0.001$) demonstrates an exceptionally strong relationship between the independent variables and the overall success of the project, validating the adapted Technology Acceptance Model (TAM) framework in this experiential learning context.

Specifically, PU emerged as the strongest predictor of Project Efficiency, with a significant positive effect ($B = 0.349$, $\beta = 0.349$, $p < 0.001$), reinforcing the critical role of students' perception of the platform's usefulness in determining project success.

QAE also demonstrated a strong positive relationship with Project Efficiency ($B = 0.342$, $\beta = 0.342$, $p < 0.001$), indicating that students who demonstrated higher quality in applying marketing concepts and engaging with their live audience achieved greater project success. The near-identical strength of QAE compared to PU ($\beta = 0.342$ vs. 0.349) reveals that actual demonstrated performance is nearly as important as perceived usefulness, validating that the hands-on experience itself drives outcomes.

PEOU showed a significant positive relationship with Project Efficiency ($B = 0.307$, $\beta = 0.307$, $p < 0.001$), indicating that students who found the TikTok Live platform intuitive and easy to navigate were able to execute their projects more efficiently. While slightly weaker than PU and QAE, this effect remains substantial and statistically significant.

The correlation matrix further revealed very strong associations between all variables, particularly between PU and PEOU ($r = 0.840$), highlighting that perceived usefulness and ease of use are closely interrelated with students who find the platform useful tend to view it as easier to use, consistent with TAM theory.

Regarding collinearity diagnostics, the Variance Inflation Factor (VIF) values for all predictors remained below the conservative threshold of 5 (PU = 4.324, PEOU = 3.873, QAE = 3.534), indicating no major concerns with multicollinearity that would compromise the stability of the regression coefficients. However, the Condition Index (CI) of 36.410 in Dimension 4, where PU was heavily loaded (0.91), suggests a moderate to severe level of collinearity specifically involving perceived usefulness.

In conclusion, this analysis confirms that PU, PEOU, and QAE are all significant positive predictors of Project Efficiency in the TikTok Live marketing project.

5.2 Implication of Study

5.2.1 Theoretical Implications

This study makes several important theoretical contributions by extending the Technology Acceptance Model (TAM) into the domain of experiential marketing education. First, it successfully adapts TAM's core constructs Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) to predict learning outcomes rather than technology adoption, demonstrating that TAM has stronger predictive power in educational contexts ($R^2 = 0.924$) than in traditional organizational settings. Second, the introduction of Quality of Application & Engagement (QAE) as a mediating construct represents a novel theoretical contribution, revealing that students demonstrated performance during the live stream ($\beta = 0.342$) is nearly as important as their perceptions of usefulness ($\beta = 0.349$) in determining project success, thereby articulating the mechanism through which technology acceptance translates into educational achievement. Third, the findings integrate TAM with Kolb's Experiential Learning Theory by validating that experiential learning quality mediates the relationship between students' pre-existing perceptions and overall project outcomes, offering a theoretical bridge between these frameworks. Fourth, the strong intercorrelations among PU, PEOU, and QAE ($r > 0.80$) suggest that in experiential learning contexts, perceptions and performance are more tightly coupled than in traditional technology adoption settings.

5.2.2 Practical implications

This research provides actionable recommendations for marketing educators implementing TikTok Live projects to maximize student learning outcomes. First, given that students demonstrated lowest confidence in interacting with live comments (3.12/5) and handling unexpected questions (3.75/5), educators should incorporate structured pre-live training programs including mock sessions, role-playing exercises, and technical workshops to build real-time engagement competencies before the actual project. Second, with Perceived Usefulness (PU) emerging as the strongest predictor of project efficiency ($\beta = 0.349$), it is essential to explicitly communicate the career relevance of live-streaming skills through industry practitioner talks, successful student exemplars, and direct mapping of project activities to employability competencies valued in digital marketing roles. Third, the significant effect of Perceived Ease of Use (PEOU) on project efficiency ($\beta = 0.307$) highlights the need for enhanced platform accessibility through quick-start guides, peer technical support networks, and institutional streaming spaces with reliable infrastructure, while addressing the 1,000-follower requirement that many students identified as a barrier through verified educational accounts or alternative platform options. Fourth, the slightly lower scores in justifying price (3.93) and using promotional tactics (3.93) suggest targeted support through pricing justification frameworks, creative promotion idea banks, and real-time objection handling practice to strengthen these specific 4Ps competencies.

5.3 Limitations of Study

While this study provides valuable insights into the effectiveness of TikTok Live projects as a pedagogical tool in marketing education, several limitations should be acknowledged:

1. Demographic Representation

The study sample is predominantly composed of young adults aged 18-20 (98.5%), primarily diploma students from a single institution, with female students (63.9%) significantly outnumbering males. This sample bias limits the generalizability of the findings to older student populations, postgraduate learners, working professionals pursuing continuing education.

2. Sample Bias

The reliance on a census approach within a single course at Kolej Profesional MARA Bandar Melaka, while ensuring complete representation of the target population, limits the diversity of the sample. This approach likely overrepresents students from a specific institutional context with unique curriculum structures, resource availability, and support systems, while underrepresenting students from other institutions with different pedagogical approaches, potentially skewing the results.

3. Methodological Limitations

The study relies heavily on quantitative methods, particularly self-reported survey responses collected at a single point following project completion. While these methods are effective for gathering broad insights and enabling

robust statistical analysis, they may not capture the nuanced motivations, challenges, and learning processes underlying student experiences.

4. Geographic and Institutional Scope

The research is localized, focusing on a specific student population at a single institution in Melaka. This narrow geographic and institutional scope restricts the applicability of findings to other regions, countries, or educational contexts with differing cultural norms, technological infrastructure, or pedagogical traditions. The unique characteristics of Malaysian TikTok culture and the specific institutional support structures at Kolej Profesional MARA may have influenced outcomes in ways that would not replicate in other settings.

5. Single Project Context

The study evaluated a single TikTok Live project within one semester, which may not capture the full learning trajectory or the cumulative effects of repeated experiential interventions. Students' confidence and competence might develop differently with multiple live-streaming opportunities, and the novelty effect of a first-time experience could have influenced their perceptions and performance.

6.0 Conclusion

From this research, it is evident that the TikTok Live project serves as an effective pedagogical tool for bridging the gap between theoretical marketing knowledge and practical application in a Fundamentals of Marketing course. The findings demonstrate that students developed strong competencies across multiple dimensions, with Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Quality of Application & Engagement (QAE) collectively explaining **92.4%** of the variance in Project Efficiency an exceptionally strong model fit that validates the adapted Technology Acceptance Model (TAM) framework in experiential learning contexts.

The study highlights that while students demonstrated strong overall performance, with mean scores exceeding 4.0/5.0 for application of the 4Ps and real-time engagement, specific areas require targeted pedagogical attention. Students showed highest confidence in explaining "Place" (3.92/5) and justifying price (3.91/5), but lowest confidence in interacting with live comments (3.12/5) and handling unexpected questions (3.75/5).

Perceived Usefulness (PU) emerged as the strongest predictor of project efficiency ($\beta = 0.349$, $p < 0.001$), indicating that students who recognize the platform's value for learning marketing concepts achieve significantly higher outcomes. Quality of Application & Engagement (QAE) followed closely ($\beta = 0.342$, $p < 0.001$), validating that actual demonstrated performance during the live stream is nearly as important as perceptions of usefulness. Perceived Ease of Use (PEOU) also contributed significantly ($\beta = 0.307$, $p < 0.001$), confirming that platform usability enables students to focus on content rather than struggling with technical challenges.

The correlation analysis revealed **very strong relationships** among all constructs, with Project Efficiency correlating strongly with PU ($r = 0.943$), PEOU ($r = 0.936$), and QAE ($r = 0.935$). These findings indicate that approximately 87-89% of the variance in project efficiency is shared with each predictor, suggesting that these constructs are not merely related but are fundamentally integral to project success. The strong intercorrelations among PU, PEOU, and QAE (ranging from 0.800 to 0.840) align with TAM theory and validate the conceptual framework.

The study also revealed important demographic insights: while 64.8% of students had at least moderate experience with TikTok, **64.4% had never hosted a live stream before** this project. This gap between general platform familiarity and live-streaming competency validates the pedagogical need for this assignment and highlights that even digitally native students require structured experiential learning opportunities to develop specialized marketing skills.

In conclusion, this research reinforces the effectiveness of TikTok Live projects as an innovative pedagogical approach in marketing education. By integrating TAM with experiential learning theory, the study provides a robust framework for understanding on students' perceptions.

Future research on TikTok Live projects in marketing education should address several important directions to extend and deepen the findings of this study:

Future studies should adopt broader and more diverse sampling methods, including multiple institutions across different regions, to ensure representation across age groups, academic levels, and institutional contexts. Research should include postgraduate students, part-time learners, and students from different cultural and socioeconomic backgrounds to provide a more comprehensive data.

Longitudinal studies tracking the same cohort of students across multiple projects or throughout their academic programs would provide valuable insights into how competencies develop and persist over time. Such designs could reveal whether the skills gained through a single TikTok Live project translate to improved performance in selling skill.

A mixed-methods approach, incorporating qualitative methods such as in-depth interviews, focus groups, and analysis of live stream recordings, can complement quantitative surveys to capture deeper insights into student motivations, challenges, and learning processes. Understanding why certain students struggled with live comment interaction or how successful adapters navigated unexpected situations would provide rich contextual data to inform pedagogical refinements.

Future research should employ quasi-experimental designs comparing students who complete TikTok Live projects with control groups who undertake traditional assignments (e.g., written reports, presentations) on the same marketing topics. Such comparisons would strengthen causal inferences about the relative effectiveness of experiential learning compared to conventional pedagogical approaches.

Research should compare the effectiveness of TikTok Live with other live-streaming platforms (Instagram Live, Facebook Live, Shopee Live, YouTube Live) to determine whether platform-specific features influence learning outcomes. Such studies could also explore how platform algorithms, audience demographics, and feature sets shape students' experiences and the development of different marketing competencies.

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8. CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in the paper.

9. AUTHOR CONTRIBUTION STATEMENT

Mohd Amirul Hafiz Ramly contributed to the conceptualization, research design, and writing of the original draft. He was also responsible for developing the theoretical framework and conducting the literature review.

Norashikin Zainuddin Tan was responsible for data collection, methodology design, statistical analysis using SPSS, and validation of the results.

Fauzan Abas, Dalila Ahmad contributed to the interpretation of findings and the preparation of tables and figures. All authors have read and approved the final version of the manuscript.

10. ETHICS STATEMENT

This research was conducted in accordance with the ethical standards of the Kolej Professional MARA and adhered to the principles outlined in the Declaration of Helsinki. All participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without consequence. Written informed consent was obtained from all participants prior to

data collection. Participants' privacy and confidentiality were strictly maintained throughout the research process, and all data collected were anonymized and used solely for academic purposes. No personal identifying information was disclosed in any reports or publications resulting from this study.

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