



Instagram-based Social Media Marketing Activities and Prospective Students' Behavioral Engagement: A PLS-SEM Study in a Private University

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Abstract

This study examines the relationship between Instagram social media marketing activities (SMMA) and prospective students' behavioral engagement at a private higher education institution. Previous studies on SMMA have predominantly focused on commercial sectors, while limited research has explored how brand awareness and brand image simultaneously mediate the relationship between SMMA and behavioral engagement in higher education settings. This study addresses this gap by investigating the mediating roles of brand awareness and brand image in the relationship between Instagram-based SMMA and behavioral engagement among prospective students of Semen Indonesia International University (UISI), Indonesia. A cross-sectional survey design was employed using purposive sampling. Data were collected through an online questionnaire distributed to senior high school and vocational school students who followed or interacted with the university's Instagram account (@pmbuisi). Of the 161 responses collected, 133 valid responses were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that Instagram SMMA is positively associated with brand awareness and brand image. In turn, both brand awareness and brand image are positively associated with prospective students' behavioral engagement. However, the direct relationship between SMMA and behavioral engagement was not significant. The mediation analysis demonstrates that brand awareness and brand image fully mediate the relationship between Instagram SMMA and behavioral engagement. These findings suggest that Instagram marketing activities in higher education are more effective in fostering engagement when they first strengthen prospective students' cognitive and emotional perceptions of the university brand. This study contributes to the higher education marketing literature by providing empirical evidence on the mediating mechanisms linking Instagram SMMA and behavioral engagement within a single private university context. The findings also offer practical insights for higher education institutions in designing brand-oriented Instagram communication strategies to enhance prospective student engagement.

Keywords: *Instagram, Social Media Marketing Activities, Prospective Students, Brand Awareness, Brand Image, Behavioral Engagement, PLS-SEM*

INTRODUCTION

The rapid development of digital technology has transformed how organizations communicate and build relationships with their audiences. Nowadays, higher education institutions (HEIs) increasingly rely on social media and digital branding to reach and persuade prospective students, especially Gen Z, whose search and evaluation of universities are deeply embedded in social platforms (Barus, 2023; Kaplan & Haenlein, 2010). Among social media platforms, Instagram has gained prominence for its visual and interactive features, which closely align with the communication preferences of Generation Z audiences. Despite a growing recognition that social media can support higher education branding, questions remain about how specific platform-based marketing activities translate into prospective students' behavioral



engagement.

Social media marketing activities (SMMA) have emerged as a widely used concept for understanding how organizations utilize social media to communicate with audiences. Recent work shows that SMMA can enhance relational outcomes and brand-related responses in commercial settings (Sohaib et al., 2022; Safeer, 2024). In branding research, SMMA has been linked to brand awareness, brand image, and brand equity across industries, suggesting that social media content can shape how consumers recognize and evaluate brands (Tarabieh, 2022). However, higher education-specific studies have only begun to adapt these insights, often treating social media generically and focusing on broad outcomes such as institutional reputation or student engagement without underlying brand mechanisms.

Although several studies have begun to explore SMMA within higher education, the mechanisms through which social media marketing influences prospective students' engagement remain insufficiently explained. For example, Ruangkanjanases et al. (2022) investigated the role of higher education SMMA in influencing behavioral engagement through brand equity. Their study demonstrated that SMMA positively affects brand equity and behavioral engagement among prospective students. However, the study conceptualized brand equity as a broader construct and examined multiple social media platforms simultaneously, without specifically focusing on Instagram or distinguishing the individual mediating roles of brand awareness and brand image. Similarly, Barus (2023) emphasized the importance of social media engagement and brand equity in higher education marketing, particularly through platforms such as Instagram, Facebook, and Twitter. Nevertheless, the study primarily offered a conceptual discussion of social media and engagement, without empirically examining the mediating mechanisms that link SMMA to prospective students' behavioral engagement. In addition, Perera et al. (2023) highlighted the growing role of digital branding and online engagement strategies in educational marketing, yet limited attention was given to how specific brand-related mechanisms shape prospective students' behavioral responses in a single institutional context.

Against this backdrop, a clear gap remains at the intersection of sector, platform, mediation mechanism, and behavioral outcomes. First, higher education studies often treat social media collectively rather than isolating Instagram-based activities, despite its distinctive visual affordances and high youth engagement. Second, although brand equity has been modeled as a mediator between SMMA and behavioral engagement in higher education, prior work generally aggregates brand awareness and brand image into a single construct, leaving their distinct mediating roles underexplored. Third, few studies focus on behavioral engagement as a concrete set of actions despite evidence that such engagement reflects meaningful student-brand interaction in digital environments.

In response to these gaps, the present study focuses on the Instagram-based social media marketing activities of a private university in Indonesia and examines their relationship to prospective students' behavioral engagement. Grounded in the Stimulus-Organism-Response (S-O-R) framework, which explains how marketing stimuli influence behavior through internal psychological states, the study positions Instagram-based SMMA as the stimulus, brand awareness and brand image as distinct components of organismic brand equity, and behavioral engagement as the response. Specifically, it aims to answer whether and how brand awareness and brand image jointly mediate the relationship between Instagram SMMA and prospective students' behavioral engagement. By testing this mechanism using PLS-SEM on prospective student respondents, the study extends prior higher education SMMA research that treated brand equity as a single mediator. By focusing on a single higher education institution and a specific social media platform, this study aims to provide a more contextualized understanding of how Instagram marketing activities

contribute to prospective students' engagement through brand-related mechanisms.

LITERATURE REVIEW

SOR Theory (Stimulus-Organism-Response)

The Stimulus-Organism-Response Theory, proposed by [Mehrabian and Russell \(1974\)](#), posits that environmental stimuli influence individuals' internal psychological states, which in turn shape behavioral responses. In this study, Instagram social media marketing activities (SMMA) act as the stimulus through interactive, informative, entertaining, and personalized content encountered by prospective students on university Instagram accounts. These digital stimuli influence users' perceptions and evaluations of the institution, consistent with previous studies showing that social media interactivity, informativeness, and entertainment positively affect audience perceptions and engagement behaviors ([Godey et al., 2016](#); [Chen & Lin, 2019](#)).

The organism component is represented by brand awareness and brand image because both reflect cognitive evaluations relevant to prospective students during the early information-search stage. Compared with constructs such as trust or satisfaction, these variables are considered more suitable because prospective students may not yet have direct experience with the institution. The response in this study is behavioral engagement, including liking, commenting, sharing, viewing, or saving institutional social media content. Prior studies suggest that greater familiarity and positive brand perceptions encourage higher levels of engagement ([Dessart et al., 2015](#); [Schivinski & Dabrowski, 2016](#)). Overall, the SOR framework explains that Instagram-based SMMA indirectly influences prospective students' behavioral engagement through brand awareness and brand image.

Social Media Marketing Activities (SMMA)

Social media marketing activities (SMMA) are organizational marketing efforts conducted through social media platforms to communicate with audiences, distribute content, and strengthen audience relationships. In higher education, SMMA is increasingly used to promote institutional identity, communicate academic information, and engage prospective students through digital platforms such as Instagram. Since Generation Z audiences actively consume visual and interactive online content, universities have increasingly adopted social media marketing strategies to enhance communication effectiveness and institutional visibility. The concept of SMMA was initially developed by [Kim and Ko \(2012\)](#), who identified dimensions such as entertainment, interaction, trendiness, personalization, and word-of-mouth. Later studies incorporated informativeness as an important dimension in digital communication contexts ([Rahman, 2018](#)). In higher education environments, these dimensions represent how universities create engaging, relevant, and informative content to attract prospective students and maintain institutional visibility on social media.

This study focuses specifically on Instagram-based SMMA because Instagram is one of the most widely used visual platforms among prospective students and plays an important role in institutional branding communication. Through Instagram, universities can share visual content about campus life, student activities, academic programs, institutional achievements, and admissions information while encouraging engagement with prospective students. Prior studies have utilized SMMA as a multidimensional construct, which contributes to stronger audience perceptions and higher engagement levels ([Chen & Lin, 2019](#); [Godey et al., 2016](#)). In the context of higher education marketing, SMMA are not merely promotional tools but also mechanisms for shaping institutional perceptions and strengthening relationships with prospective students. Therefore, this study conceptualizes SMMA as digital communication stimuli that may influence

prospective students' behavioral engagement through brand-related psychological processes. This study focuses specifically on the informativeness and entertainment dimensions of SMMA. These dimensions were selected because they most closely align with the Instagram account's communication objectives, which primarily involve disseminating admission-related information and engaging prospective students through informative, visually appealing content.

Behavioral Engagement

Behavioral engagement refers to observable user interactions with social media content, such as liking, commenting, sharing, viewing, saving, and participating in online activities related to a brand or organization. In this study, behavioral engagement refers specifically to prospective students' interactions with university Instagram content, rather than to academic engagement in learning activities. This concept aligns with [Ruangkanjanases et al. \(2022\)](#), who define engagement as the time, effort, and energy individuals allocate when interacting with digital brand-related content. In higher education, behavioral engagement may reflect prospective students' interest in learning more about a university through Instagram. Previous studies suggest that interactive, entertaining, and informative social media content can encourage stronger engagement; however, the psychological mechanisms underlying this relationship remain underexplored. Therefore, this study examines behavioral engagement as a response outcome that is indirectly influenced by brand awareness and brand image.

Brand Equity

Brand equity theory explains how consumers develop value perceptions toward a brand through cognitive and affective evaluations over time. According to [Keller \(1993\)](#), brand equity reflects the added value associated with a brand name that influences consumer attitudes, responses, and behavioral intentions. In higher education, this theory is relevant because prospective students often evaluate universities based not only on academic offerings but also on institutional reputation, recognition, and image communicated through digital media. This study adopts brand equity theory to explain how Instagram-based social media marketing activities shape engagement through brand-related perceptions, particularly among prospective students in the early evaluation stage who may not yet have direct experience with the institution.

Rather than treating brand equity as a single construct, this study focuses on brand awareness and brand image as the most immediate psychological outcomes of exposure to Instagram marketing. This approach extends prior research, such as [Ruangkanjanases et al. \(2022\)](#), by separately examining the mediating roles of brand awareness and brand image within a single-platform context. Furthermore, the integration of Stimulus-Organism-Response Theory and brand equity theory strengthens the study's conceptual foundation, in which SMMA serves as the external stimulus, brand awareness and brand image represent internal evaluations, and behavioral engagement reflects the resulting response.

Brand Awareness

Brand awareness refers to consumers' ability to recognize and recall a brand in different situations. According to [Rossiter and Percy \(1997\)](#), brand awareness reflects the strength of a brand's presence in consumers' memory through two dimensions: brand recognition and brand recall. In higher education, brand awareness represents prospective students' ability to identify and remember a university among competing institutions. This is important because prospective students are often exposed to many university options during their information-gathering process, and institutions with stronger brand awareness are more likely to be included in their

consideration sets. Social media marketing activities, particularly through Instagram, help strengthen brand awareness by increasing institutional visibility and repeatedly exposing users to university-related content. Previous studies have shown that social media marketing activities positively affect brand awareness in educational contexts, yet most research has focused only on awareness formation without fully examining its impact on engagement behaviors. Therefore, this study positions brand awareness as a mediating psychological mechanism linking Instagram-based SMMA and prospective students' behavioral engagement.

Brand Image

Brand image refers to consumers' perceptions, beliefs, and associations toward a brand, including aspects such as institutional credibility, academic quality, campus environment, innovation, and reputation. According to Kotler (2004), brand image reflects how consumers evaluate an organization based on their accumulated information and experiences. In higher education, Instagram plays an important role in shaping these perceptions through content such as campus activities, student achievements, testimonials, academic events, and institutional communication, which help universities strengthen a positive image among prospective students. Previous studies indicate that a positive brand image encourages stronger engagement behaviors because users are more likely to interact with institutions they perceive favorably. However, research in higher education social media marketing rarely examines brand image and brand awareness simultaneously as dual mediators between SMMA and behavioral engagement. Therefore, this study positions brand image as a central organizational construct that explains how Instagram-based marketing activities influence prospective students' engagement behaviors through institutional perceptions.

Model and Hypothesis Development

This study uses the Stimulus–Organism–Response (S-O-R) framework, which emphasizes that external stimuli from the digital environment can shape internal psychological processes, ultimately producing a specific behavioral response. In this study, social media marketing activities are assumed to serve as stimuli that can influence prospective students' perceptions when they interact with educational institution content on social media. The developed model views brand awareness and brand image as components of the organism that represent users' internal processes for assessing and responding to stimuli. Brand awareness is the level of recognition of the institution, while brand image reflects the quality of associations and the image formed in prospective students' minds. These two perception indicators are considered the result of digital stimuli from social media marketing activities. Brand awareness and brand image, then, are considered to influence behavioral engagement. Behavioral engagement, as a response, reflects the extent of prospective students' active involvement with the institution's digital content, including the intensity of interaction, time spent, and the urge to respond. Based on Figure 1, the selection of variables in this study was guided by the need to understand how marketing activities on social media can shape user perceptions and how these perceptions give rise to behavioral engagement in the context of digital interactions with higher education institutions.

The four main variables used in this study, namely social media marketing activities, brand awareness, brand image, and behavioral engagement, were chosen because they are strongly related to the digital communication strategies currently implemented by educational institutions. These research variables are elements determined to describe prospective students' interaction with the institution's social media content, enabling analysis and the drawing of scientific conclusions about their behavior patterns.

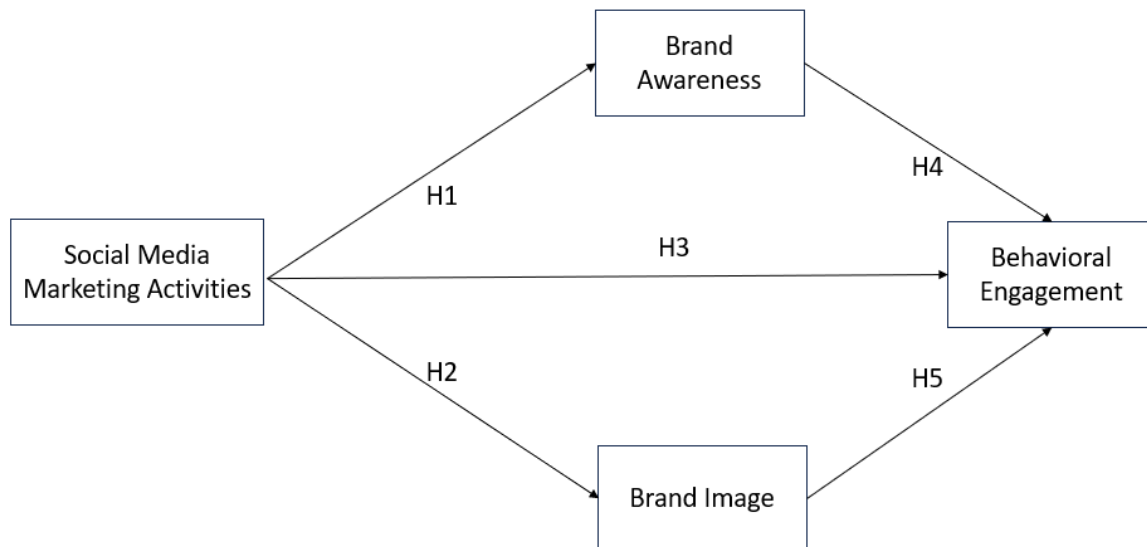


Figure 1. Model and Hypothesis Development

The Effect of Social Media Marketing Activity (SMMA) on Brand Awareness

Social media marketing activities (SMMA) are a series of marketing activities that utilize social media platforms to convey information, build relationships, and encourage audience engagement. In promoting educational institutions, SMMA, as operationalized in this study through informativeness and entertainment, plays an important role in increasing brand awareness by enabling the dissemination of consistent, interesting, and easily accessible information to prospective students. The measured dimensions of SMMA, namely informativeness and entertainment, contribute to increasing prospective students' awareness of an institution.

When marketing activities are carried out regularly and are relevant, prospective students become more familiar with the institution's identity, logo, study programs, and registration information. Repeated exposure to interesting and informative content will strengthen the audience's memory and increase their ability to recognize and remember the institution. Social media marketing activities have a positive and significant influence on brand awareness, meaning that the more effective the marketing activities are, the stronger the resulting brand awareness. Thus, the following hypothesis is presented.

H1: Social Media Marketing Activities have a positive and significant effect on Brand Awareness

The Effect of Social Media Marketing Activity (SMMA) on Brand Image

In addition to increasing brand awareness, social media marketing activities also play an important role in shaping brand image. Brand image is formed by consumers' perceptions of the information, atmosphere, and experiences presented on social media. Interesting, interactive content that follows trends and provides a positive experience will build the institution's image as modern, responsive, and credible.

When an institution presents informative, relevant content, prospective students will perceive it as professional and high-quality. Similarly, active interaction on social media, such as replying to comments or providing quick information, can create a positive perception of the institution's service and attention to its audience. This is reinforced by prior research by [Seo & Park, \(2018\)](#), which found that social media marketing activities have a direct and significant effect on brand image, primarily because social media provides a space for more authentic, humanistic communication between institutions and their users. Thus, the following hypothesis is presented.

H2: Social Media Marketing Activities have a positive and significant effect on Brand Image.

The Effect of Social Media Marketing Activities (SMMA) on Behavioral Engagement

Social media marketing activities play an important role in encouraging user behavioral engagement, which is real engagement, such as liking, commenting, sharing, or interacting with content. When the content is informative, entertaining, and visually engaging, users tend to feel involved and motivated to participate. Active interactions from institutions, such as responding to comments or providing quick information, also strengthen closeness and encourage higher engagement.

Research by [Cheung and Pires \(2021\)](#) shows that social media marketing activities significantly increase user engagement through interactive and valuable digital experiences. SMMA elements such as informativeness and entertainment positively affect user engagement. Thus, the following hypothesis is presented.

H3: Social Media Marketing Activities have a positive and significant effect on Behavioral Engagement

The Effect of Brand Awareness on Behavioral Engagement

Brand awareness is the ability of consumers to recognize and remember a brand, as well as to understand its main characteristics ([Keller, 2013](#)). In the context of social media, a high level of brand awareness makes prospective students more familiar with, more trusting of, and more interested in interacting with content from educational institutions. When brand awareness increases, prospective students feel closer to the institution and are more likely to engage behaviorally, such as liking, commenting, saving content, sharing posts, or following the institution's official social media accounts.

This sense of familiarity creates the perception that the institution is relevant and credible, encouraging the audience to be more actively involved in its digital activities. [Dessart et al. \(2015\)](#) found that consumer brand engagement is influenced by the level of awareness formed through exposure to digital content. The higher a person's brand awareness, the more likely they are to engage with social media behaviorally. Thus, the following hypothesis is presented.

H4: Brand Awareness has a positive and significant effect on Behavioral Engagement

The Effect of Brand Image on Behavioral Engagement

Brand image is consumers' perception of a brand, formed by experiences, information, and emotional and cognitive impressions ([Keller, 2013](#)). On social media, a positive brand image, such as an institution perceived as modern, responsive, high-quality, and trustworthy, encourages the audience to engage more actively. When prospective students have a positive image of an institution, they are more motivated to engage with its content. This arises because they feel that the institution is relevant to their needs, provides valuable information, and presents an enjoyable digital experience.

A strong brand image also increases pride and emotional closeness, thereby strengthening behavioral engagement such as commenting, sharing content, or participating in digital campaigns. [Seo & Park \(2018\)](#) show that brand image positively influences consumer reactions and behavior on social media. The more positive a brand's image is, the greater the likelihood that consumers will engage with its digital activities. Thus, the following hypothesis is presented.

H5: Brand Image has a positive and significant effect on Behavioral Engagement

Mediating Role of Brand Awareness and Brand Image in the Effect of SMMA on Behavioral Engagement

Brand awareness serves as an important bridge between social media marketing activities (SMMA) and behavioral engagement. When social media marketing activities, such as informative content and entertainment-oriented content, are managed well, prospective students become more familiar with the institution and more likely to remember it. This increased awareness makes them feel more familiar with and closer to the institution, encouraging them to engage further by liking, commenting, or sharing content.

Research by [Godey et al. \(2016\)](#) explains that SMMA has a significant impact on brand awareness, particularly through dimensions relevant to digital content communication, including informativeness and entertainment. In addition, [Bruhn et al. \(2012\)](#) found that strong brand awareness can increase consumer engagement on social media due to a sense of closeness and brand recognition.

Brand image also plays an important mediating role between SMMA and behavioral engagement. Content that is interesting, consistent, in line with trends, and presented professionally will shape a positive image of the institution as a modern, credible, and responsive organization. When brand image is well established, audiences are more motivated to engage behaviorally, such as commenting, following digital events, or sharing content.

[Schivinski and Dabrowski \(2016\)](#) show that well-managed social media activities strongly influence brand image through users' perceptions of quality and trust. Furthermore, [Dessart et al. \(2015\)](#) emphasize that a positive brand image encourages various forms of engagement because users recognize the brand's emotional and symbolic value. Therefore, the following hypotheses are presented.

H6: Brand Awareness mediates the effect of Social Media Marketing Activity on Behavioral Engagement.

H7: Brand Image mediates the effect of Social Media Marketing Activity on Behavioral Engagement.

RESEARCH METHOD

Sample selection and data collection

The population of this study consists of prospective students, specifically high school and vocational school students considering a private university as a place to continue their higher education. This population was selected because prospective students increasingly rely on social media platforms, particularly Instagram, to search for university-related information and evaluate institutional reputation. The study was conducted at Semen Indonesia International University (UISI), a private university in Indonesia that actively uses its Instagram account (@pmbuisi) to disseminate admission-related information and engage prospective students. This study employed a purposive sampling strategy because the research required respondents with specific characteristics relevant to the objectives ([Etikan, 2016](#)). The inclusion criteria were: (1) senior high school or vocational school students or equivalent, (2) active users of Instagram, and (3) individuals who had followed, viewed, or interacted with content from the @pmbuisi Instagram account. To ensure respondent eligibility, screening questions were placed at the beginning of the questionnaire. Respondents who did not meet the inclusion criteria were automatically excluded from further participation.

Although the questionnaire distribution incorporated a limited snowball approach, the primary sampling strategy remained purposive. Initially eligible respondents were encouraged to share the survey link only with peers who met the same inclusion criteria. To minimize uncontrolled distribution, the survey introduction explicitly stated the respondent requirements,

and the questionnaire link was distributed primarily through targeted educational and student-related social media networks. In addition, duplicate submissions were minimized by allowing only one response per Google account and by screening for identical response patterns during data cleaning. Prior to full-scale distribution, the questionnaire underwent preliminary testing involving five respondents to evaluate item clarity, wording consistency, readability, and questionnaire flow (Fowler & Cosenza, 2009). Minor revisions were subsequently made to improve the clarity of instructions and measurement items.

The questionnaire was distributed online via Google Forms over a 10-week period, yielding 161 responses. During the screening process, 28 responses were excluded due to incomplete answers, failure to meet the screening criteria, duplicated entries, or patterned responses indicating inattentive completion. Consequently, 133 valid responses were retained for final analysis. Regarding sample adequacy, the final sample size satisfies several recommended criteria for Partial Least Squares Structural Equation Modeling (PLS-SEM). First, based on the “10-times rule,” the minimum sample size should exceed ten times the largest number of structural paths directed at a single endogenous construct (Hair et al., 2017). Since the most complex endogenous construct in this model received three structural paths, the minimum recommended sample was 30 respondents. Second, the sample size exceeded the minimum threshold recommended for medium effect sizes in PLS-SEM power analysis (Hair et al., 2021). Therefore, the sample of 133 respondents was considered sufficient for reliably estimating the proposed structural model.

The demographic profile of respondents included gender, residence, and involvement status with the university’s Instagram account. Most respondents were 16–19 years old and used Instagram daily, reflecting the characteristics of prospective students targeted by university social media marketing. Details on the participants’ demographic characteristics are presented in Table 1. Ethical considerations were carefully addressed throughout the research process. Participation was voluntary, and informed consent was obtained before respondents accessed the questionnaire. Respondents were informed about the purpose of the study, anonymity of responses, confidentiality of data, and their right to discontinue participation at any time. No personally identifiable information was collected during the survey process.

Table 1. The result of the measurement model assessment

Measure	Item	Frequency	Percentage (%)
Total		133	100
Gender	Female	83	62,41
	Male	50	37,59
Residence	Gresik, East Java	48	36,09
	Outside Gresik	85	63,91
Involvement Status	Followers & Active Viewers	109	81,95
	Active Viewers	24	18,05

Source: Processed data (2026)

Questionnaire development

The questionnaire consisted of screening questions, demographic information, and measurement items for the study constructs using a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Measurement items for Social Media Marketing Activities (SMMA) were adapted from Bushara et al. (2023) and Labausa et al. (2023), focusing specifically on

informativeness and entertainment dimensions because these dimensions most closely reflect the communication objectives of the @pmbuisi Instagram account, which primarily provides admission information and engages prospective students through informational and entertaining content. Therefore, dimensions such as trendiness, customization, and word-of-mouth were not included in the measurement model. Measurement items for behavioral engagement, brand awareness, and brand image were adapted from [Ruangkanjanases et al. \(2022\)](#). All the questionnaire items (Table 2) were translated into Indonesian using a back-translation procedure, and content validity was assessed through pilot testing. Reliability and validity were evaluated using Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity tests. To minimize common method bias, the study ensured respondent anonymity, used clear item wording, and logically separated construct items. The result of Harman's single-factor test revealed that the common latent factor accounted for less than 50% of the variance, indicating common method bias was not a serious issue.

Table 2. Measurement Items and Sources

Variable	Statement	Source
Informativeness	I believe that the content presented on the Instagram account @pmbuisi provides clear information about study programs and academic activities at UISI.	Bushara et al. (2023) and Labausa et al. (2023)
	I perceive that the information provided through the Instagram account @pmbuisi is clear, informative, and accurate.	
Entertainment	I find the content published on the Instagram account @pmbuisi interesting and engaging.	Ruangkanjanases et al. (2022)
	I perceive that the Instagram account @pmbuisi provides innovative and interactive content.	
Brand Image	I am impressed by the well-managed activities of the Instagram account @pmbuisi.	Ruangkanjanases et al. (2022)
	I am impressed that UISI consistently presents positive content through the Instagram account @pmbuisi.	
Brand Awareness	The content posted on the Instagram account @pmbuisi helps me recognize the characteristics of UISI.	Ruangkanjanases et al. (2022)
	The content posted on the Instagram account @pmbuisi helps me remember the UISI logo.	
Behavioral Engagement	When I want to learn more about UISI and its undergraduate study programs, I prefer to visit the Instagram account @pmbuisi.	Ruangkanjanases et al. (2022)
	I am interested in continuing to follow the content posted on the Instagram account @pmbuisi.	
	I am satisfied with my interactions with the Instagram account @pmbuisi.	

Statistical Analysis

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software to analyze the relationships among latent constructs. PLS-SEM was considered appropriate because the study aimed to examine predictive relationships and mediation effects within a relatively complex model involving multiple latent variables and indicators. Furthermore, PLS-SEM is suitable for exploratory and prediction-oriented research with relatively moderate

sample sizes (Hair et al., 2021). The analysis consisted of two stages: evaluation of the measurement model and evaluation of the structural model. The measurement model assessment included indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The structural model evaluation examined collinearity, path coefficients, coefficient of determination (R^2), effect sizes (f^2), PLSPredict, and mediation effects using a bootstrapping procedure with 5,000 resamples.

FINDINGS AND DISCUSSION

Measurement Model

The measurement model was assessed by examining indicator loadings, Composite Reliability (CR), and Cronbach's Alpha to determine the internal consistency of each construct. As shown in Table 3, all indicator loadings exceed 0.840, indicating strong contributions of the indicators to their respective constructs and confirming the adequacy of the measurement items. Furthermore, all constructs exhibit Cronbach's Alpha values ranging from 0.751 to 0.888, exceeding the 0.7 threshold. The CR values, which range from 0.889 to 0.923, are also above the minimum threshold of 0.70. Therefore, the results indicate high internal consistency.

Construct validity was evaluated through two complementary assessments: convergent validity and discriminant validity. Convergent validity was assessed using Average Variance Extracted (AVE), which reflects the proportion of indicator variance captured by a construct relative to the variance arising from measurement error. The analysis shows that all constructs achieved AVE values higher than 0.5, confirming that the requirement for convergent validity was met. Discriminant validity was assessed using the Fornell–Larcker and HTMT criteria. As exhibited in Table 4, the square root of each construct's AVE is greater than its inter-construct correlations, confirming that discriminant validity is established across all latent variables (Prassida & Hsu, 2022). As displayed in Table 5, the HTMT ratio is below the 0.9 threshold, indicating favorable discriminant validity (Henseler et al., 2015).

Table 3. The results of the measurement model assessment

Indicators	Indicator Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Social Media Marketing Activities				
SMM1	0.870	0.888	0.923	0.749
SMM2	0.840			
SMM3	0.883			
SMM4	0.868			
Brand Awareness				
BAW1	0.900	0.751	0.889	0.800
BAW2	0.889			
Brand Image				
BIM1	0.915	0.813	0.915	0.843
BIM2	0.921			
Behavioral Engagement				
BET1	0.867	0.864	0.917	0.785
BET2	0.904			
BET3	0.887			

Source: Processed data (2026)

Table 4. The results of discriminant validity (Fornell-Larcker)

		BAW	BET	BIM	SMMA
BAW	Brand Awareness	0.895			
BET	Behavioral Engagement	0.699	0.886		
BIM	Brand Image	0.674	0.612	0.918	
SMMA	Social Media Marketing Activities	0.713	0.577	0.755	0.865

Source: Processed data (2026)

Table 5. The results of discriminant validity (HTMT)

		BAW	BET	BIM	SMMA
BAW	Brand Awareness				
BET	Behavioral Engagement	0.864			
BIM	Brand Image	0.857	0.728		
SMMA	Social Media Marketing Activities	0.869	0.652	0.888	

Source: Processed data (2026)

Structural Model

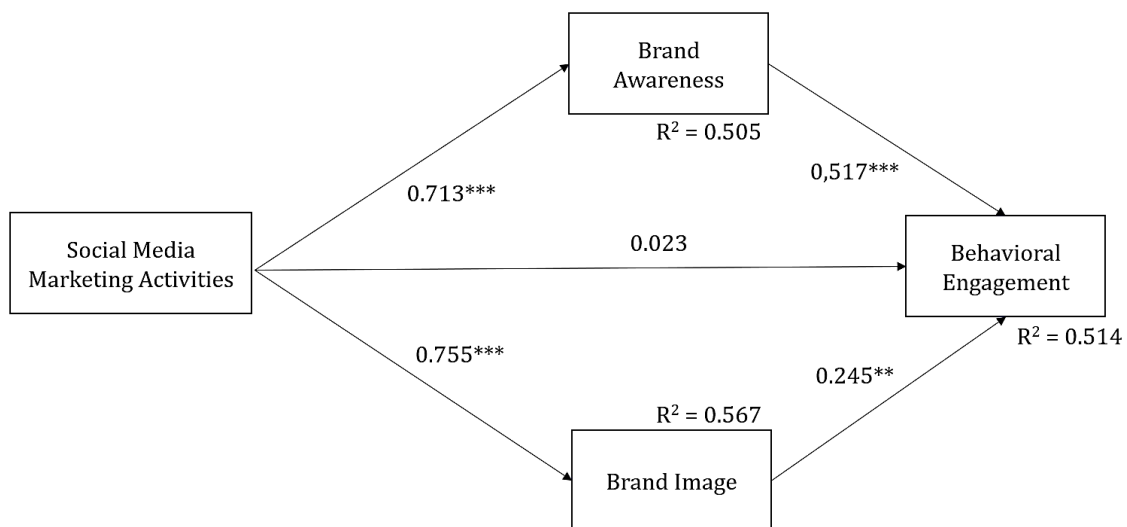
The collinearity check was first conducted using the variance inflation factor (VIF) values. All VIF values, as shown in Table 6, are clearly below the threshold of 5, implying that collinearity is not an issue within the structural model (Hair et al., 2017). The R^2 values of the endogenous constructs were then examined. In this study's model, three endogenous constructs are analyzed: BAW (Brand Awareness), BIM (Brand Image), and BET (Behavioral Engagement). Based on the results (Table 6), the BIM construct had the highest R^2 value of 0.567, indicating that the model's predictors explained 56.7% of the variance in brand image. The BAW construct had an R^2 of 0.505, followed by the BET construct at 0.514. Thus, the R^2 values for all endogenous constructs were interpreted as moderate (Hair et al., 2011). The Q^2 values for the endogenous constructs were above 0, as displayed in Table 6, indicating that predictive relevance was established. The PLS-SEM analysis yields lower prediction errors for all behavioral engagement indicators than the naïve linear model (LM) benchmark, indicating the model has high predictive power (Hair et al., 2011).

In Figure 2, the statistical significance and relevance of the path coefficients in the structural model were analyzed. Statistical significance was evaluated using t-statistics, p-values, and confidence intervals from bootstrapping estimates. The results reveal that SMMA has a positive and significant influence on BAW ($\beta = 0.713$, $p < 0.001$), thereby supporting H1. They also demonstrate a positive and significant impact on BIM ($\beta = 0.755$, $p < 0.001$), thereby supporting H2. Conversely, the relationship between SMMA and BET is positive but not significant ($\beta = 0.023$, $p > 0.05$), leading to the rejection of H3. The paths from BAW to BET ($\beta = 0.517$, $p < 0.001$) and from BIM to BET ($\beta = 0.245$, $p < 0.01$) exhibited significant positive effects as hypothesized. Thus, H4 and H5 were supported. The detailed results are presented in Table 7. To evaluate the substantive impact of exogenous constructs, the f^2 effect sizes were assessed. Following the guidelines established by Pidgeon & Giufre (2014), an f^2 value of 0.02 represents a small effect, 0.15 represents a moderate effect, and 0.35 represents a large effect. The results in Table 7 demonstrated that SMMA had a strong effect on BAW and BIM. BAW had a moderate effect on BET, whereas BIM had a small effect. Unfortunately, the effect of SMMA on BET was found to be insubstantial.

Table 6. The results of VIF, R-square, Q-square, and PLS predict

Construct & Indicators	Collinearity (VIF)	R ²	Q ²	PLS-SEM_RMSE	LM_RMSE
Brand Awareness		0.505			
BAW1	1.564		0.430	0.708	0.738
BAW2	1.564		0.338	0.803	0.810
Behavioral Engagement		0.514			
BET1	1.861		0.303	0.790	0.793
BET2	2.725		0.247	0.744	0.765
BET3	2.541		0.178	0.841	0.857
Brand Image		0.567			
BIM1	1.885		0.461	0.629	0.632
BIM2	1.885		0.460	0.590	0.620
Social Media Marketing Activities					
SMM1	3.456				
SMM2	2.947				
SMM3	3.549				
SMM4	3.063				

Source: Processed data (2026)



Note: *p < 0.05; **p < 0.01; ***p < 0.001

Figure 2. Results of significance and relevance of the path coefficients**Table 7.** The result of f² and hypothesis testing

Hypotesis	Path Coefficients	T statistics	P values	Confidence Intervals		f ²	Hypothesis Testing Results
				5.0 %	95.0%		
H1: SMMA → BAW	0.713	12.573	0.000	0.613	0.801	1.034	Supported

Hypotesis	Path Coefficients	T statistics	P values	Confidence Intervals		f ²	Hypothesis Testing Results
				5.0 %	95.0%		
H2: SMMA → BIM	0.755	16.411	0.000	0.680	0.831	1.329	Supported
H3: SMMA → BET	0.023	0.178	0.429	-0.201	0.224	0.000	Not supported
H4: BAW → BET	0.517	5.579	0.000	0.373	0.678	0.253	Supported
H5: BIM → BET	0.245	2.609	0.005	0.092	0.395	0.050	Supported

Source: Processed data (2026)

Mediation Analysis

Following model validation, this study examined whether brand awareness (BAW) and brand image (BIM) functioned as mediators in the relationship between social media marketing activities (SMMA) and behavioral engagement (BET). A mediation analysis approach was employed, which acknowledges that a significant indirect effect is sufficient to establish mediation even when the direct effect is not statistically significant (Hayes, 2009; Rucker et al., 2011). To assess the significance of the mediating paths, a bootstrapping procedure with 5,000 resamples at the 95% confidence level was conducted, and the results are presented in Table 8. The results revealed that the direct effect of SMMA on BET was not statistically significant ($\beta = 0.023$, $p > 0.05$). However, the indirect effects of SMMA on BET through BAW ($\beta = 0.369$, $p < 0.001$) and BIM ($\beta = 0.185$, $p < 0.01$) were significant. Furthermore, the total effect was significant ($\beta = 0.577$, $p < 0.001$). Therefore, BAW and BIM act as mediators in this relationship, thus validating H6 and H7.

Table 8. Results of mediation analysis

Path	Coefficient	P value	Confidence Intervals	
			5.0%	95.0%
Direct Effect				
SMMA → BET	0.023	0.429	-0.201	0.224
Indirect Effect				
SMMA → BAW → BET	0.369	0.000	0.261	0.508
SMMA → BIM → BET	0.185	0.006	0.071	0.306
Total Effect				
SMMA → BET	0.577	0.000	0.455	0.708

Source: Processed data (2026)

Discussion

Within the S-O-R logic, the empirical findings of this study suggest that Instagram-based social media marketing activities (SMMA) serve as key external stimuli that are associated with prospective students' internal brand-related states. Previous research consistently shows that SMMA are related to brand equity, often conceptualized as brand awareness (BAW) and brand image (BIM), in the education services environment (Lilembalemba & Phiri, 2024; Masa'deh et al., 2024). The present findings extend this by showing that informative and entertaining Instagram content from a university is positively associated with BAW and BIM, positioning SMMA as an antecedent within the tested higher education brand-equity model.

In the context of HEIs, this research aligns with previous studies showing that BAW plays a crucial role in supporting engagement behaviors, such as continued content consumption (Gray, 2019). BIM, which reflects emotional and evaluative judgments, also positively influences behaviors (Zou, 2023). This study contributes by empirically demonstrating that among high schoolers engaging with a private university on Instagram, BAW and BIM are not merely parallel brand outcomes but rather important psychological correlates for behavioral engagement with institutional content.

From a private university branding perspective, the results reinforce the central role of brand equity (conceptualized as BAW and BIM) in linking SMMA to meaningful behavioral engagement. Prior work in the HEI context shows that SMMA is significantly associated with BAW, BIM, and broader brand equity, which in turn affect loyalty and attitudes toward the institution (Marhareita et al., 2022; Garza et al., 2024). In this institutional context, the findings demonstrate that Instagram content appears to function primarily as an informational and symbolic field that clarifies “who the institution is” and may help students feel confident enough to interact with or spend time on the content.

The most salient finding of this study is the confirmation of the prominence of BAW and BIM as active mediators, theoretically consistent with S–O–R evidence, whereby social media stimuli may not be directly associated with behavioral responses without intervening organismic states. This aligns with findings that brand awareness and image mediate the effects of SMMA on behavioral intention and loyalty in commercial settings (Faisal & Ekawanto, 2022; BİLGİN, 2018). The present findings suggest that at this particular private university, Instagram content may be more effective at shaping perceptions than at prompting immediate behavioral responses, perhaps due to the high-stakes, high-involvement nature of university choice, where credibility and reputation must be firmly established. The non-significant direct effect in this study therefore illustrates that Instagram-based SMMA is linked to engagement primarily through its association with awareness and a compelling institutional image. Thus, this research reveals that in HEIs, institutional branding is not merely an attitudinal endpoint but a mechanism that may help explain prospective students’ active engagement.

CONCLUSIONS

The present study examines the relationships between Instagram-based social media marketing activities (SMMA) and prospective students’ behavioral engagement (BET) at a private Indonesian university, exploring whether brand awareness (BAW) and brand image (BIM) mediate this link within an S–O–R framework. The empirical findings demonstrate that SMMA is positively associated with BAW and BIM, which further connect to BET. Notably, the direct pathway from SMMA to BET is not significant, offering a novel mediation pattern in higher-education social media research. In the context of higher education institutions (HEIs), this suggests that social media marketing activities serve as the “stimulus” that corresponds with the “organism” (the cognitive and emotional assessment of the university’s brand). Behavioral engagement, or the “Response,” appears to be closely tied to the level of brand equity established in the prospective student’s mind. This underscores the need for strategic, brand-oriented social media content for a private university aiming to cultivate meaningful engagement.

Theoretically, the study enriches social media research on digital higher education marketing by specifying brand awareness and brand image as core and distinct organismic states through which SMMA is linked to behavioral engagement in the higher education sector. By documenting a non-significant direct path from SMMA to behavioral engagement while showing significant indirect paths via awareness and image, the study supports the view that Instagram-

based SMMA effects in a private university context are primarily perception-driven. These findings align with nuanced S-O-R applications in which stimuli relate to behavior through complex psychological mechanisms rather than simple, direct routes.

For higher education managers, the findings suggest that content should be strategically designed to be not only entertaining but also highly informative, cultivating awareness and a favorable image that can foster deeper behavioral engagement. This implies emphasizing academic strengths, student success stories, and campus life in visually appealing, interactive formats. For a private Indonesian university, this suggests that Instagram should be managed as a branding and relationship-building platform, where informativeness and entertainment indirectly support engagement by strengthening recognition and a favorable institutional image.

LIMITATION & FURTHER RESEARCH

This study has several limitations that should be considered when interpreting the findings. First, the study employed a cross-sectional survey design, which limits the interpretation of the relationships to associative rather than causal conclusions. Second, the use of non-probability sampling through purposive and limited snowball sampling may restrict the generalizability of the findings beyond the specific institutional context examined. Third, the study relied on self-reported questionnaire data, which may be subject to response bias and common method variance despite procedural remedies implemented during data collection.

In addition, behavioral engagement was measured based on perceived social media interaction behaviors rather than actual Instagram analytics or behavioral tracking data. The operationalization of Social Media Marketing Activities (SMMA) was also limited to informativeness and entertainment dimensions, excluding other dimensions such as trendiness, customization, and electronic word-of-mouth. Furthermore, this study focused on a single private higher education institution and prospective students who accessed institutional information through Instagram, which may limit broader contextual applicability. Future research is encouraged to involve larger, more diverse samples across multiple institutions, include additional social media platforms such as TikTok, YouTube, or X, and use longitudinal or mixed-methods approaches to examine social media engagement processes more comprehensively over time.

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