Social media marketing and performance of high-tech brands

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Abstract

In the rapidly evolving digital landscape, social media marketing is significant in shaping consumer behavior, yet its impact on brand image, perceived product quality, and purchase intention is less explored, particularly in the setting of emerging economies such as Nigeria. Taking Apple products as a case study, this study examines the impact of three aspects of social media marketing—content type, engagement level, and exposure frequency—on Nigerian consumers' attitudes and intentions. With a quantitative design, data were collected via a structured survey from 261 Nigerian social media users. Linear regression analysis was employed to examine relationships between independent variables (content type, engagement level, exposure frequency) and dependent variables (brand image, perceived quality, purchase intention). Model validity was examined with goodness-of-fit tests (R-squared, F-statistics) and regression diagnostics (Durbin-Watson test) to ascertain robustness. Results indicate that content type has a consistently positive influence on brand image ($\beta = 0.168$, *p* < 0.01), perceived quality ($\beta = 0.591$, *p* < 0.001), and purchase intention ($\beta = 0.671$, *p* < 0.001). Engagement level enables brand image ($\beta = 0.224$, *p* < 0.001) but negatively impacts perceived quality ($\beta = -0.223$, *p* $= 0.012$) and purchase intention ($\beta = -0.485$, *p* < 0.001). Exposure frequency does not affect brand image but has a negative effect on purchase intention ($\beta = -0.210$, *p* $= 0.036$), which is a sign of ad fatigue. The findings stress the value of quality and pertinent content for generating brand credibility and consumer intent, while cautioning against overexposure and untargeted interaction. To Nigerian tech-savvy consumers, marketers need to prioritize content relevance and strategic engagement in order to establish emotional connections and long-term loyalty, minimizing risks of saturation and diminishing returns. This study offers actionable insight for optimizing social media strategies in dynamic, under-researched markets.

Keywords: Consumer engagement, Content strategy, Frequency of exposure, Mediation analysis, Nigerian undergraduate students, Structural equation modeling (SEM).

1. Introduction

In the contemporary business environment, the rapid evolution of technology and the widespread adoption of social media have fundamentally altered traditional marketing paradigms. Social media platforms, including Facebook, Instagram, LinkedIn, and X (formerly Twitter), have become critical components of marketing strategies, offering unprecedented opportunities for businesses to engage with consumers in real-time, personalized, and interactive ways [1]. These platforms facilitate direct communication between businesses and their target audiences, enabling companies to deliver tailored content that resonates with consumers and drives engagement.

Also, while the global impact of social media marketing has been widely studied, there is a noticeable gap in the literature concerning its effects on specific demographic groups in emerging markets, particularly among Nigerian undergraduate consumers [2]. Nigerian undergraduate students represent a significant segment of the population that is both tech-savvy and highly active on social media platforms. This demographic's engagement with social media makes it an ideal group for studying how social media marketing influences consumer perceptions and behaviors. Extant literature indicates that the frequency with which consumers encounter advertisements on social media plays a crucial role in shaping their perceptions of brands. Repeated exposure to brand advertisements can lead to increased brand familiarity, which often translates into more positive brand associations [3]. Frequent exposure to advertisements on social media platforms can reinforce brand awareness and strengthen brand loyalty among Nigerian students. However, it is also important to consider the potential downsides of high-frequency exposure, such as ad fatigue, which can lead to diminished effectiveness of marketing campaigns and even negative brand perceptions if the exposure is perceived as overly repetitive or intrusive [4].

Additionally, the nature of the marketing content that consumers encounter on social media significantly influences their perceptions of product quality and brand credibility. Content types such as sponsored posts, influencer endorsements, and promotional videos each have unique effects on consumer perceptions [5]. Hence, this suggest that content that is informative, visually appealing, and presented by credible sources can enhance consumers' evaluations of product quality. Well-crafted promotional videos that highlight product features and benefits, as well as endorsements from trusted influencers, are likely to positively influence students' perceptions of product quality and desirability [6]. Conversely, poorly executed or overly commercial content may lead to skepticism and negatively impact brand perception [7].

Furthermore, engagement levels on social media, which include actions such as likes, comments, and shares, serve as indicators of how actively consumers are interacting with a brand's content. High levels of engagement typically signal strong consumer interest and can significantly influence purchase intent [8]. Content that generates substantial engagement among Nigerian students is likely to correlate with higher levels of purchase intent, as engagement often reflects a deeper connection with the brand [9]. This connection is crucial for converting brand awareness into actual purchasing decisions, especially in a competitive market where consumers have numerous alternatives [9]. Hence, The interplay between the frequency of exposure, type of content, and engagement levels is complex and often interdependent. Frequent exposure to high-quality, engaging content can reinforce positive brand perceptions and increase the likelihood of purchase intent [10]. Similarly, engaging content that resonates with consumers can lead to increased exposure through organic sharing, further amplifying its impact on brand image and product evaluation [4]. Understanding these relationships is critical for developing effective social media marketing strategies that not only reach but also resonate with the target audience, ultimately driving consumer behavior in favor of the brand. Therefore, this study aims to explore how social media marketing influences consumer perceptions and behaviors of undergraduate students within the Nigerian context.

2. Methodology

This study adopts a quantitative research approach using a survey research design to examine the impact of social media marketing on consumer perceptions and purchase intentions for high-tech brands—specifically Samsung and Apple among Nigerian undergraduate students. The research focuses on three independent variables: frequency of exposure, type of content, and engagement level, and investigates their influence on brand image, product quality evaluation, and purchase intention. The target population consists of undergraduate students from two selected Nigerian universities, representing a tech-savvy demographic that is highly active on social media platforms. A purposive sampling technique was employed to ensure representativeness across faculties and academic levels. A total of 379 questionnaires were distributed, and 261 valid responses were retrieved and analyzed, yielding a response rate of approximately 68.9%.

Data was collected through a structured questionnaire adapted from validated instruments in prior research. The instrument utilized a 5-point Likert scale ranging from *1 = Strongly Disagree* to *5 = Strongly Agree* and was organized into

four sections: (1) Demographic Information, (2) Social Media Marketing Factors (frequency of exposure, type of content, engagement level), (3) Consumer Perception of Product Quality and Brand Image, and (4) Purchase Intention. Content validity was ensured through expert review by supervisors, academic peers, and field specialists, while construct validity was assessed through a pre-test conducted among a small group of students. Composite reliability was used to evaluate internal consistency, with all constructs exceeding the recommended 0.70 threshold—FOE: 0.904, TOC: 0.914, ENGL: 0.903, BRDI: 0.878, PQE: 0.886, and PRT: 0.907 confirming measurement reliability.

Data analysis involved both descriptive statistics (mean, standard deviation, frequency distributions) and inferential statistics. Specifically, regression analysis was conducted to test the hypotheses and determine the strength and significance of relationships between social media marketing variables and the outcome variables. Ethical considerations were rigorously observed throughout the study. Participants provided informed consent and were informed of their right to withdraw at any time. All responses were anonymized to protect respondent confidentiality, and data was used strictly for academic purposes in compliance with the ethical guidelines of the institutions involved.

3. Result

3.1. Social media Marketing and Brand image

The first three hypotheses examined the extent of the relationship between social media marketing and the brand image of Apple products. The results of the goodness of fit show that the adjusted R-square value is 0.75, thus indicating that seventy-five percent (75%) of the variation in respondents' perception of brand image is explained by variations in their perception of frequency of exposure, type of content and extent of engagement (See Table 1). The value of the Drin-Watson statistic of 2.131 is within the threshold of DU, 4−DU (S Table 1), thus suggesting that the stochastic error terms are not serially correlated. The computed F statistic of 280.5 and the associated significant probability of $p < 0.01$ is significant, thus suggesting that the linear regression model is a good fit to the data (See Table 1). All the goodness of fit tests suggest that the model fits the data properly.

The results of the regression coefficients indicate that there is a negative relationship between frequency of engagement and the brand image of Apple products. However, the relationship is not statistically significant, thus we do not reject the null hypothesis one. The other indicators of social media marketing, type of content and engagement level have positive relationships with the brand image of Apple products and the positive relationships are statistically significant so we reject null hypotheses 2 and 3. The implication is that increases in the type of content marketed on social media and the engagement level on social media will stimulate increases in the brand image of Apple products. In a nutshell, there is a significant positive relationship between social media marketing and the brand image of Apple products using type of content and engagement level (See Table 1). The results further suggest that the type of content of Apple products marketed on social media and the engagement level in the social media marketing of Apple products can be used to predict customers' perception of the brand image of Apple products.

Table 1.
Social Media Marketing and Brand Image.

Model Summary				
Model	**R**	**R-Square**	**Adjusted R-Square**	**Durbin-Watson**
1	0.867	0.753	0.75	2.131

Table 1. Continue.

ANOVA					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	140.811	3	46.837	280.503	0.000
Residual	43.306	257	0.18		
Total	187.117	260			

Table 1. Continue.

Coefficients					
Model	**Unstandardized Coefficients (B)**	**Std. Error**	**Standardized Coefficients (Beta)**	**t**	**Sig.**
Constant	0.547	0.115	-	4.759	0.000
Foe	-0.056	0.052	-0.057	-1.065	0.268
Toc	0.157	0.06	0.168	2.791	0.006
Engl.	0.749	0.048	0.224	15.719	0.000

3.2. Social Media Marketing and Customers' Perception

The 4th, 5th and 6th hypotheses examined the extent of the relationship between social media marketing and the customers' perception of the quality of Apple products. The results of the goodness of fit show that the adjusted R-square value is 0.194, thus indicating that nineteen-point four percent (19.4%) of the variation in respondents' perception of the quality of Apple products is explained by variations in their perception of frequency of exposure, type of content and extent of engagement (See Table 2). The value of the Drin-Watson statistic of 2.458 is approximately within the threshold of DU, 4−DU (S Table 2), thus suggesting that the stochastic error terms are not serially correlated. The computed F statistic of

21.876 and the associated significant probability of p < 0.01 is significant, which means that the linear regression model is a good fit to the data (See Table 2). Again, although the R-square value is low, it shows that the model has some explanatory power. Thus, all the goodness of fit tests suggest that the model fits the data properly.

The results of the regression coefficients indicate that there is a negative relationship between level of engagement and the quality of Apple products and the relationship statistically significant. The other indicators of social media marketing, frequency of engagement and type of content have positive relationships with customers' perception of the quality of Apple products but while the positive relationship between type of content and customers' perception of the quality of Apple products is statistically significant that of the relationship between frequency of engagement and customers' perception of the quality of Apple products is statistically insignificant so the 4th null hypothesis is not rejected but the 5th and 6th null hypotheses are rejected (See Table 2). The implication is that increases in the type of content marketed on social media will stimulate enhancement in the customers' perception of the quality of Apple products while increases in the engagement level on social media will reduce customers' perception of the quality of Apple products. In a nutshell, there is a significant positive relationship between social media marketing and the customers' perception of Apple products using type of content and a significant negative relationship between social media marketing and customers' perception of the quality of Apple products using engagement level (See Table 2). The results further suggest that the type of content of Apple products marketed on social media and the engagement level in the social media marketing of Apple products can be used to predict customers' perception of the quality of Apple products.

Table 2.
Social Media Marketing and Customers' Perception of Quality.

Model Summary

Model	R	R-Square	Adjusted R-Square	Durbin-Watson
1	0.451	0.203	0.194	2.458

Table 2. Continue.

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	28.58	3	9.53	21.876	0.000
Residual	111.957	257	4.36		
Total	140.546	260			

Table 2. Continue.

Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Constant	1.92	0.179	-	10.739	0.000
Foe	0.008	0.081	0.01	0.102	0.919
Toc	0.511	0.093	0.591	5.476	0.000
Engl.	-0.187	0.074	-0.223	-2.528	0.012

3.3. Social media Marketing and Customers' Purchase Intention

The 7th, 8th and 9th hypotheses examined the extent of the relationship between social media marketing and the customers' purchase intention of Apple products. The results of the goodness of fit show that the adjusted R-square value is 0.135 thus indicating that thirteen-point five percent (13.5%) of the variation in respondents' perception of customers' intention to purchase Apple products is explained by variations in their perception of frequency of exposure, type of content and extent of engagement (See Table 3). The value of the Drin-Watson statistic of 2.34 is within the threshold of DU, 4−DU (S Table 2), thus suggesting that the stochastic error terms are not serially correlated. The computed F statistic of 14.502 and the associated significant probability of p < 0.01 is significant, which means that the linear regression model is a good fit to the data (See Table 3). Again, although the R-square value is low, it shows that the model has some explanatory power. Thus, all the goodness of fit tests suggest that the model fits the data properly.

The results of the regression coefficients indicate that there is a positive relationship between level of type of content and customers' intention to purchase Apple products and the relationship statistically significant. The implication is that the type of content marketed on social media positively influences customers' intention to purchase Apple products. The other indicators of social media marketing, frequency of engagement and engagement level have negative relationships with customers' intention to purchase Apple products and both negative relationships between frequency of exposure and customers intention to purchase Apple products and the relationship between engagement level and customers' intention to purchase Apple products are statistically insignificant, thus the 7th, 8th, and 9th null hypotheses are rejected (See table 3). The implication is that increases in the frequency of exposure on social media will reduce customers' intention to purchase Apple products. In addition, increases in the frequency of exposure on social media will reduce customers' intention to purchase Apple products. In a nutshell, there is a significant positive relationship between social media marketing and the customers' intention to purchase Apple products using type of content, there a significant negative relationship between social media marketing and customers' intention to purchase Apple products using engagement level and there a significant negative relationship between social media marketing and customers' intention to purchase Apple products using frequency

of exposure (See Table 3). The results further suggest that the frequency of engagement, type of content and the engagement levels of the social media marketing of Apple products can be used to predict customers' perception of the quality of Apple products.

Table 3.
Social Media Marketing and Customers' Purchase Intention.

Model Summary

Model	R	R-Square	Adjusted R-Square	Durbin-Watson
1	0.38	0.145	0.135	2.34

Table 3. Continue.

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	26.865	3	8.955	14.502	0.000
Residual	158.699	257	0.618		
Total	185.565	260			

Table 3. Continue.

Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Constant	2.703	0.213	-	-13.074	0.000
Foe	-0.203	0.097	-0.21	-2.105	0.036
Toc	0.686	0.111	0.671	6.001	0.000
Engl.	-0.467	0.074	-0.485	-5.304	0.000

It is pertinent to note that engagement level has a positive relationship with brand image of Apple products but it has negative relationships with customers' perception of quality and intention to purchase. The implication is that while increased engagement level may stimulate the positioning of the brand in their minds and thus, strengthen the brand image, the continuous enhancement of the level of engagement may cast doubts in the minds of the customers about the quality of the product as repeat purchases are supposed to be determined by customers' experience wit the product as "the proof of the pudding is in the eating". The same argument is applicable to customers' purchase intention which is supposed to relate to their perception of the quality of the product.

4. Conclusion

This research concludes that high-quality content (TOC) always significantly and strongly impacts all important consumer outcomes i.e., brand image, perceived product quality, and purchase intention. This conclusion upholds the dominant position that useful, relevant, and interesting content assumes in shaping consumer attitudes and behaviors online. Such appealing content not only constructs their perception of the brand but also enhances the likelihood of purchasing. This aligns with more recent observations of Nigerian-based studies (e.g., [2, 11]) which support a content-oriented approach to social media marketing to establish emotional bonding, credibility, and brand loyalty among young technology-savvy consumers. II.

Moreover, the study verifies that consumer engagement with content (ENGL) likes, comments, shares, and other activities—has positive and significant impacts on brand image. This suggests that interactive social media environments can be utilized to reinforce brand identity, especially when consumers are made to feel included in the process of providing the content. Such engagement not only communicates relevance and authenticity but also helps to extend brand presence through user-generated promotion. These findings are consistent with Alaneme and Adegoke [12] who emphasized that social media platforms such as Facebook and Instagram are community-building platforms where interactive user participation drives emotional bonding with the brand. III.

Also, the study shows that Frequency of Exposure (FOE) is not significantly improving brand image and is negatively correlated with perceived product quality and purchase intention. This pattern suggests that consumers may become fatigued or even cynical when repeatedly exposed to the same or similar advertisements. The influence of ad fatigue, coupled with increasing digital clutter, has the potential to dilute the persuasive effect of advertising campaigns. Alaneme and Adegoke [12] and confirmed by Bright, et al. [13] within the Nigerian marketplace, the findings underscore the relevance of strategic scheduling to message and consumer-sensitive campaign planning in averting diminishing returns and negative brand impression resulting from overexposure.

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