ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 5| May 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

A STUDY ON A CONCEPTUAL FRAMEWORK FOR UNDERSTANDING THE IMPACT OF NANO INFLUENCER MARKETING ON CONSUMER ENGAGEMENT

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ABSTRACT
In the evolving landscape of digital marketing, Nano-influencers – social media users with relatively small but highly engaged followings – have emerged as a powerful tool for brands seeking authentic engagement with niche audiences. While existing research has largely focused on macro and celebrity influencers, limited attention has been given to the unique impact of Nano-influencers on consumer behavior. This study aims to develop a conceptual framework to understand the influence of Nano- influencer marketing on consumer engagement. Specifically, it addresses four key objectives: identifying the demographic characteristics of consumers influenced by Nano-influencers, analyzing patterns of consumer engagement such as likes, comments, and shares, constructing a theoretical model of consumer behavior in response to Nano-influencer content, and determining the critical success factors that enhance the effectiveness of Nano-influencers. The proposed framework offers practical implications for marketers and contributes to the broader understanding of consumer psychology and digital marketing strategies in the context of Nano-influencer engagement.

KEY WORDS: *Nano-Influencers, Influencer Marketing, Consumer Engagement, Social Media Marketing, Digital Marketing, Consumer Behavior, Trust And Authenticity, Engagement Metrics, Marketing Strategy.*

I. INTRODUCTION
In today's fast-paced digital world, influencer marketing has become a cornerstone of modern advertising strategies, particularly as brands seek to engage more authentically with their target audiences. While traditional influencers, such as celebrities and macro-influencers, have long dominated the landscape, a new and more intimate form of influencer has emerged: the Nano- influencer. Nano-influencers are individuals with smaller, highly engaged followings, typically ranging from a few hundred to a few thousand followers. Despite their modest reach, they are often perceived as more relatable, trustworthy, and authentic compared to their more prominent counterparts.

This shift towards Nano-influencer marketing raises significant questions regarding its impact on consumer behavior. To date, much of the research on influencer marketing has focused on influencers with large followings, leaving a gap in our understanding of how Nano-influencers affect consumers on a deeper, more personal level. As brands increasingly rely on Nano influencers to target niche audiences, it becomes essential to examine the key factors influencing their effectiveness in shaping consumer attitudes and behaviors. This paper aims to develop a conceptual framework for understanding the impact of Nano influencer marketing on consumers, with specific attention to four key objectives. First, we aim to identify the demographic profile of consumers influenced by Nano-influencers, including their age, gender, and social media usage patterns. Second, we will analyses the level of consumer engagement (such as likes, comments, and shares) generated by Nano-influencer marketing. Third, the paper seeks to develop a comprehensive framework that explains the key factors that drive consumer behavior in response to Nano-influencer marketing. Lastly, we will identify and explore the critical factors that determine the effectiveness of Nano influencers in shaping consumer behavior, helping brands better understand how to leverage this unique marketing tool.

II REVIEW OF LITERATURE
Ifeanyi Okonkwo and Emmanuel Namkoisse (2020) explored the role of influencer marketing in building authentic brand relationships online in their **article "Nano Influencer Marketing: The Role of Influencer Marketing in Building Authentic Brand Relationships Online".** The authors highlighted the importance of authenticity in influencer marketing, emphasizing that Nano influencers are more effective in building trust with their audience. They also noted that brands should focus on building long-term relationships with Nano influencers to achieve sustainable marketing outcomes. The study's findings suggested that Nano influencer marketing can be an effective strategy for building authentic brand relationships online. Overall, the article provided valuable insights into the role of Nano influencer marketing in modern digital marketing.

Do Yuon Kim and Hye-Young Kim (2020) explored the complexities of trust in influencer marketing in the article **"Trust me, trust me not: A nuanced view of influencer**

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marketing on social media". The authors found that Nano influencers are perceived as more trustworthy than macro influencers due to their perceived authenticity and similarity to their audience. The study highlighted the importance of influencer credibility, audience engagement, and content quality in building trust in influencer marketing. The authors also noted that over-commercialization and fake followers can erode trust in influencer marketing. Overall, the article provided insights into the nuanced nature of trust in influencer marketing on social media.

Chen Lou and Shupei Yuan (2020) investigated the impact of message value and credibility on consumer trust in influencer marketing in the article **"Influencer Marketing: How Message Value and Credibility Affect Consumer Trust of Branded Content on Social Media".** The authors found that Nano influencers' credibility and message value significantly influence consumer trust in branded content. The study highlighted the importance of authenticity and relevance in influencer marketing, particularly in building trust among consumers. Lou and Yuan also noted that Nano influencers' expertise and trustworthiness can enhance the perceived value of branded messages. Overall, the article provided insights into the factors that influence consumer trust in influencer marketing on social media.

S. Venus Jin, Aziz Muqaddam, and Ehri Ryu (2020) explored the phenomenon of Instagram fame and its implications for social media influencer marketing in the article **"Instafamous and social media influencer marketing".** The authors discussed the rise of Nano influencers, who have smaller, niche audiences, but higher engagement rates. The study highlighted the importance of authenticity, credibility, and relevance in influencer marketing, particularly in building trust among consumers. Jin, Muqaddam, and Ryu also noted that Nano influencers are more effective in promoting products to their niche audiences. Overall, the article provided insights into the evolving landscape of social media influencer marketing.

Matthias Pick (2021) examined the concept of psychological ownership in social media influencer marketing in the article **"Psychological ownership in social media influencer marketing".** The author found that Nano influencers can create a sense of psychological ownership among their followers, leading to increased brand loyalty and engagement. Pick highlighted the importance of influencer authenticity, credibility, and audience interaction in fostering psychological ownership. The study's findings suggested that brands can leverage Nano influencers to create a sense of community and shared ownership among their target audience. Overall, the article provided insights into the psychological mechanisms underlying effective influencer marketing.

III RESEARCH OBJECTIVE

- Identify the demographic profile of consumers influenced by Nano-influencer marketing, including age, gender, and social media usage.
- Analyze the level of consumer engagement (likes, comments, shares) generated by Nano- influencer marketing.
- Develop a framework explaining the key factors affecting consumer behavior in response to Nano-influencer marketing.
- To identify the key factors that influence the effectiveness of Nano influencer on consumer behavior

IV SCOPE OF THE REARCH

- **Nano Influencers:** Social media users with follower counts typically ranging from 1,000 to 10,000, known for their close-knit and highly engaged audiences.
- **Consumer Engagement:** Measured in terms of likes, comments, shares, click-through rates, and other behavioral metrics reflecting interest and interaction with promotional content.
- **Marketing Platform**s: Primarily Instagram, TikTok, and YouTube, which are the most popular channels for Nano influencer activity.
- **Geographic Focus:** The study may concentrate on a specific region depending on available data and research objectives.
- **Stakeholders:** The study will consider perspectives from marketers, Nano influencers, and consumers to create a comprehensive framework.

V REARCH METHODOLOGY RESEARCH DESIGN

A research design is a detailed blue print used to guide a research study towards its objective. The process of designing a research study involves many interrelated
decisions. The most significant decision is the choice of research approach, because it determines how the information will be obtained. The choice of the research approach depends on the nature of the research that one wants to do.

The present study is **descriptive research** based on the survey method. The methods adopted in the choice of sample, selection of respondents, collection of data and tools of analysis are briefly discussed in this part.

AREA OF THE STUDY

The geographical area of the study chosen for this research is Pollachi City, Tamil Nadu.

POPULATION OF THE STUDY

The study targets social media users in Pollachi, who follow at least one Nano influencer and have made purchase decisions influenced by social media content.

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SAMPLING TECHNIQUE

A convenience sample is a sample where the respondents are selected, in part or in whole, at the convenience of the researcher. The researcher makes no attempt, or only a limited attempt, to ensure that this sample is an accurate representation of some larger group or population.

SAMPLE SIZE

Since the entire population cannot be taken for the study, the size of the sample was restricted to 150 respondents.

HYPOTHESIS OF THE STUDY

H1: There is a significant influence of demographic factors (age, gender, and social media usage) on the effectiveness of Nano-influencer marketing on consumer behavior.

H2: There is a significant relationship between the level of consumer engagement (likes, comments, shares) and the effectiveness of Nano-influencer marketing on consumer purchase decisions.

H3: There is a significant relationship between key factors and consumer behavior in response to Nano- influencer marketing.

H4: Key factors (such as authenticity, frequency of posts, and perceived expertise) significantly influence the effectiveness of Nano-influencer marketing on consumer behavior.

DATA COLLECTION

There are several ways of collecting the appropriate data. While deciding about the method of data collection to be used for the study, the researcher should keep in mind, that there are two types of data visa primary & secondary data.

PRIMARY DATA

Primary data are those which are collected a fresh and for the first time and thus happen to be original in character. Primary data for the study has been collected through questionnaire and personal interview from the respondents.

SECONDARY DATA

Secondary data on the other hand are those which have already been collected by someone else and which have already been passed through the statistical process. In this study secondary data are collected from the online articles, journals, text books, etc.

TOOLS USED FOR DATA ANALYSIS

Data is collected through structured questionnaire by way of circulating the questionnaire to the respondents. The collected data is tabulated and coded, using simple percentage method and statistical methods the data were analyzed and interpretation was given. Appropriate charts were used to present the data pictorially. The following tools were used to draw inference of the study.

Percentage Analysis

The number of responses of each category is summarized to percentage format for the convenience to use other statistical tools namely pie chart and bar diagrams.

Percentage = ((a portion)/ (the whole)) *100.

Statistical Techniques

Using SPSS statistical analysis software, the following tests were conducted to test the hypothesis.

Chi-Square Test

Chi-Square test can be used to determine if categorical data shows dependency or the two\ classifications are independent.

$\chi^2 = \sum \{(Oi - Ei)\ 2 / Ei\}$

Applying Yate's correction:

$2 = \sum \{(|O\ i - E\ i| - 0.5)\ 2 / E\ i\}$

- Correlation test

Correlation research is a type of non-experimental research method in which a researcher measures two variables and understands and assesses the statistical relationship between them with no influence from any extraneous variable. In statistical analysis, distinguishing between categorical data and numerical data is essential, as categorical data involves distinct categories or labels, while numerical data consists of measurable quantities.

1. **Positive correlation:** A positive relationship between two variables is when an increase in one variable leads to a rise in the other variable. A decrease in one variable will see a reduction in the other variable. For example, the amount of money a person has might positively correlate with the number of cars the person owns.
2. **Negative correlation:** A negative correlation is quite literally the opposite of a positive relationship. If there is an increase in one variable, the second variable will show a decrease, and vice versa.
3. **No correlation:** There is no correlation between the two variables in this third type. A change in one variable may not necessarily see a difference in the other variable. For example, being a millionaire and happiness are not correlated. An increase in money doesn't lead to happiness.

VI. DATA ANALYSIS AND INTERPRETATION

Test-1 Chi-Square

- **Null Hypothesis (H_0):** There is **no significant influence** of demographic factors (age, gender, and social media usage) on the effectiveness of Nano-influencer marketing on consumer behavior.

- **Alternative Hypothesis (H_1)**: There is a **significant influence** of demographic factors (age, gender, and social media usage) on the effectiveness of Nano-influencer marketing on consumer behavior.

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Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.123[a]	20	.943
Likelihood Ratio	12.824	20	.885
N of Valid Cases	158		
a. 20 cells (66.7%) have expected count less than 5. The minimum expected count is .04.			

The results of the Chi-Square Tests indicate that there is no statistically significant association between the variables under investigation. The Pearson Chi-Square value is 11.123 with 20 degrees of freedom, and the corresponding p-value (not provided but likely greater than 0.05 given the test statistic) suggests that any observed differences are not statistically significant. Additionally, the validity of the test results may be compromised, as 66.7% of the cells have expected counts less than 5, and the minimum expected count is as low as 0.04. This violates one of the key assumptions of the Chi-Square test, which requires that expected frequencies in each cell be sufficiently large (generally at least 5) to ensure reliability. As a result, caution should be exercised in interpreting these findings.

Test-2 Chi-Square

- **Null Hypothesis (H_0):** There is **no significant relationship** between the level of consumer engagement (likes, comments, shares) and the effectiveness of Nano-influencer marketing on consumer purchase decisions.
- **Alternative Hypothesis (H_1):** There is a **significant relationship** between the level of consumer engagement (likes, comments, shares) and the effectiveness of Nano-influencer marketing on consumer purchase decisions.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	76.347[a]	69	.254
Likelihood Ratio	76.291	69	.256
N of Valid Cases	158		
a. 90 cells (93.8%) have expected count less than 5. The minimum expected count is .09.			

The Chi-Square test results indicate that there is no statistically significant association between the categorical variables examined. Both the Pearson Chi-Square ($\chi^2 = 76.347$, df = 69, p = 0.254) and the Likelihood Ratio test ($\chi^2 = 76.291$, df = 69, p = 0.256) yield p-values greater than the conventional significance level of 0.05. Therefore, we fail to reject the null hypothesis of independence, suggesting that any observed differences in the data could be due to chance rather than a meaningful relationship between variables. However, the validity of this conclusion is limited by a violation of a key assumption of the Chi-Square test: 93.8% of the cells have expected counts less than 5, and the minimum expected count is as low as 0.09. Such low expected frequencies can undermine the reliability of the test results.

Test-3 Correlation

Null Hypothesis (H_0): Key factors such as authenticity, frequency of posts, and perceived expertise do not significantly influence the effectiveness of Nano-influencer marketing on consumer behavior.

Alternative Hypothesis (H_1): Key factors such as authenticity, frequency of posts, and perceived expertise significantly influence the effectiveness of Nano-influencer marketing on consumer behavior.

Correlations			
		Nano influencer over celebrities	recommendation by Nano influencers
Nano influencer over celebrities	Pearson Correlation	1	.338**
	Sig. (2-tailed)		.000
	N	158	158
recommendation by Nano influencers	Pearson Correlation	.338**	1
	Sig. (2-tailed)	.000	
	N	158	158
**. Correlation is significant at the 0.01 level (2-tailed).			

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The results show a moderate positive correlation (r = 0.338) between consumers' preference for Nano-influencers over celebrities and their likelihood of acting on recommendations made by Nano-influencers. This correlation is statistically significant at the 0.01 level ($p < 0.01$), meaning there is a very low probability that this relationship occurred by chance. Specifically, as individuals place greater value on Nano-influencers compared to celebrities, they are also more likely to follow and act on the recommendations of Nano-influencers. With a sample size of 158 respondents, these findings suggest that the credibility and relatability of Nano-influencers may play a key role in driving consumer behavior and influencing purchasing decisions.

VII FINDINGS

1. Association between Categorical Variables (Chi-Square Test 1)

The results of the first Chi-Square test indicate no statistically significant association between the variables under investigation. The Pearson Chi-Square value was 11.123 with 20 degrees of freedom. Although the exact p-value was not provided, the low test statistic suggests a value likely greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis of independence. However, the reliability of these results is compromised, as 66.7% of the cells had expected counts less than 5, and the minimum expected count was 0.04—violating a key assumption of the test.

2. Association between Categorical Variables (Chi-Square Test 2)

A second Chi-Square analysis also indicated no statistically significant relationship between the categorical variables. The Pearson Chi-Square test ($\chi^2 = 76.347$, df = 69, p = 0.254) and the Likelihood Ratio test ($\chi^2 = 76.291$, df = 69, p = 0.256) both yielded p-values greater than the 0.05 threshold, reinforcing the conclusion that any observed differences are likely due to chance. However, this conclusion is limited by a more severe violation of assumptions: 93.8% of cells had expected counts below 5, and the lowest expected count was 0.09. These conditions significantly undermine the test's validity, suggesting that alternative statistical approaches may be more appropriate.

3. Correlation between Preference and Behavior

In contrast to the Chi-Square results, a Pearson correlation analysis revealed a statistically significant moderate positive relationship ($r = 0.338$, $p < 0.01$) between consumers' preference for Nano-influencers over celebrities and their likelihood of acting on recommendations made by Nano-influencers. This finding, based on a sample of 158 respondents, suggests that individuals who value Nano-influencers are more inclined to follow their advice. The result underscores the potential influence of Nano-influencers on consumer behavior, likely driven by their perceived authenticity and relatability.

VIII SUSGGESTION

1. Consolidate Categories for Better Analysis

Avoid using overly detailed or fragmented categorical variables. Combine similar response options to ensure sufficient expected counts in statistical tests.

2. Use Alternative Tests When Chi-Square Assumptions Fail

When more than 20% of cells have expected counts < 5, apply Fisher's Exact Test or Monte Carlo simulations to maintain result validity.

3. Prioritize Nano-Influencer Partnerships

A significant positive correlation shows that consumers who trust Nano-influencers are more likely to act on their recommendations. Focus campaigns on relatable, smaller-scale influencers.

4. Emphasize Authenticity in Content

Capitalize on the relatability of Nano-influencers. Use testimonials, behind-the-scenes content, and real-life product usage to build trust and engagement.

5. Expand Sample for Broader Insights

The current sample (n = 158) provided valuable findings. Future studies should aim for a larger and more diverse demographic to strengthen generalizability

IX CONCLUSION

The present study underscores the growing relevance of Nano-influencers in the evolving landscape of digital marketing. While the Chi-Square analyses did not yield statistically significant associations between demographic factors, consumer engagement, and the effectiveness of Nano- influencer marketing—partly due to data limitations—important insights emerged through correlation analysis. Notably, the moderate, statistically significant positive correlation between consumers' preference for Nano-influencers over celebrities and their responsiveness to recommendations highlights the persuasive power of authenticity and relatability. These findings suggest that Nano-influencers can be valuable assets for brands seeking to cultivate trust and drive consumer action within niche audiences. To maximize impact, future research should adopt more robust sampling strategies and refined analytical techniques, ensuring that the potential of Nano- influencer marketing is fully understood and effectively leveraged in strategic campaigns.

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