

Technology Adoption Behavior: Role of Virtual Influencer Towards Purchase Intention of High-Tech Gadgets

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Abstract

The rapid advancement of technology and the increasing popularity of social media have led to the emergence of a new generation of marketing agents known as virtual influencers. To investigate the psychological and social dynamics that shape consumer purchase intentions toward gadgets after engaging with virtual influencers. The study used a structured questionnaire; the model was tested using Jamovi software. The study revealed various psychological and social dynamics that include the perception of gadget enthusiasm, parasocial relationships, novelty-seeking behavior, homophily, technological innovativeness, opinion leadership, materialism, and trust in AI-generated information, and how these factors collectively influence purchasing decisions. Through this research, marketers and virtual influencers identify their perception of the consumer's psychological and social dynamics. In the future, the researcher can consider other dynamics that influence consumers to change their perception toward products marketed by virtual influencers on various social media sites.

Keywords: Virtual Influencers, Purchase Intention, High-Tech Gadgets, Consumer Behavior, Social Media Marketing.

Introduction

In recent periods, the rise of virtual influencers has marked a significant shift in the social network and digital marketing landscape. Virtual influencers are computer-generated imagery (CGI) characters which interact on social media sites that began to blur the lines between reality and fiction, challenging traditional notions of celebrity and influence. In today's digital age, the adoption of new technology is heavily influenced by a wide range of factors, including social trends, marketing strategies, and the evolving role of influencers. Using virtual influencers has become an effective way for brands to connect with and engage with their customers through internet marketing. These virtual influencers reflect realistic characteristics and features like human influencers, these characters can live in a virtual world where new technologies are originally integrated into their daily lives, making it easier to weave high-tech gadgets into compelling narratives.

High Tech Gadgets are gadgets which are more advanced in technology and also more intricate. High-tech gadgets typically combine both advanced hardware (like powerful processors, sensors, displays) with sophisticated software (includes AI, machine learning, cloud integration) to provide functionalities that are both innovative and practical. These are designed to improve the experience of the users by making them faster, more efficient, and more versatile than traditional gadgets. By the protective use of the traffic foundation, the influencers interact with the audience in real time and create a social atmosphere for customers. By influencing the viewers, these influencers greatly impact the purchasing intention during the live show as well. These influencers are often seen as authentic, aspirational, and knowledgeable about the latest technologies, making them efficient in convincing their followers to embrace cutting-edge gadgets.

They can provide different demographics, ensuring that the message is delivered in a manner that is authentic to each group. The use of virtual influencers for promoting products on social media has become a future trend. The growth of influencer marketing is supported by experimental evidence showcasing the consequence of influencers in driving sales and organizational profitability; thus, more and more companies are investing in partnerships with online influencers. The advances in (Gen AI) generative artificial intelligence, machine learning, and advanced computer-generated graphics are changing the way companies create content and engage with their stakeholders. Purchase intentions are defined as a person's intention to buy a specific product or brand. Another interpretation of purchase intention is an empirical activity connected to purchasing a specific brand. The COVID-19 pandemic has led to the integration of both the offline and online approaches, creating a seamless commerce (omni channel) as a new competitive advantage now seen as the norm. However, the social media landscape is a social dynamic and constantly evolving. The current research attempts to investigate the psychological and social dynamics that shape consumer purchase intentions toward gadgets after engaging with virtual influencers.

Review of Literature

The international aspect /perspective on tech adoption behavior, particularly concerns the role of virtual influencers in shaping purchase intentions for high-tech gadgets of consumers/users, highlights the intersection of digital marketing, technological adoption, and cultural dynamics. Virtual influencers are computer-generated characters with a peculiar physical appearance and roles that can carry out tasks similar to those undertaken by human influencers (Sands et al., 2022; Thomas and Fowler, 2021). Purchase intention is an essential indicator for evaluating consumer behavior since it may predict the likelihood of a purchasing choice for a product. Higher purchase intentions indicate a consumer's enthusiasm to acquire a service or an item (Husnain and Toor, 2017). Virtual Influencers: The Future of Brand Marketing in the Digital Age, *International Journal of Advertising*, 39(4), 520-537. As a result, buy intention is a legitimate indicator of a genuine purchase, essential for tracking consumer behaviors (Lee and Koo, 2015; Rebelo, 2017; Pereira, 2018).

The national perspective on tech adoption behavior, particularly regarding the role of virtual influencers in molding the purchase intention for high-tech gadgets, explores how various countries' social, economic, political, cultural and technological landscapes influence the adoption of both new technology and virtual influencers in marketing. According to Kantar Media (2022), virtual influencers who maintain transparent content that focuses on educating audiences about technology tend to have a more significant impact on consumer decision-making. The Impact of Virtual Influencers on Consumer Behavior in the Tech Industry. *Journal of Marketing Research*, 58(3), 343-358. - The Role of Virtual Influencers in Shaping Purchase Intentions of High-Tech Gadgets. *Marketing Insights*, 22(1), 91-105. The Technology Acceptance Model (TAM) has been developed by three authors, and is foundational in understanding tech adoption behavior. This

model recommends that perceived ease of use and perceived usefulness as key factors influencing the adoption of technology. Virtual influencers could leverage these factors by demonstrating the ease of use and benefits of high-tech gadgets. Venkatesh, Morris, Davis, & Davis (2003)

Research Gap

Venkatesh et al., (2003) – Their Technology Acceptance Model (TAM) suggests that practical application and efficiency to drive long-term adoption, which is adapted to study how virtual influencers contribute to existing purchase behavior. Most of the ongoing research on virtual influencers leads to focus on short-term engagement and immediate impacts on consumer behavior. There is a lack of longitudinal studies that explore the long-term impact of virtual influencers on consumer tech adoption, especially concerning high-tech gadgets that require ongoing updates or version releases (e.g., smartphones or smart devices). Casaló et al., (2008)-Trust is an important factor in tech adoption (e.g., Casaló et al., 2008), but there is insufficient research on how virtual influencers influence trust specifically in high-tech gadgets. Research could examine how consumers perceive virtual influencers in terms of credibility, authenticity, and expertise, especially regarding products that demand significant investment, such as high-end tech gadgets. Jin et al., (2014) – Their effort on influencer marketing can be elaborated to consider how high technologies like AI and AR might change the social dynamics of virtual influencers in tech-related campaigns. As virtual influencers become more AI-driven, with innovations in augmented reality (AR) and machine learning, their research needs to explore how these technologies enhance or complicate the effectiveness of virtual influencers in tech adoption. The integration of AI and AR could significantly alter how virtual influencers engage with consumers and how products are demonstrated, especially high-tech gadgets. As in the research conducted by Casaló et al., (2008), Trust in the virtual influencer serves as a precursor for the users to trust the high-tech product promoted by them. If consumers believe the influencer, they are more likely to have faith in their recommendations, which could then change to purchase intention and the adoption of the product. Here usability and the satisfaction of the product act as a mediator between the virtual influencer and the cutting-edge technology. In the research conducted by Jin et al., (2014), Engagement through Virtual Influencers- When AR applied is to enhance product demos, consumers may engage with AI-powered virtual influencers in a different way than they would with real influencers. Because it combines the virtual and the real world, the experience could be more captivating, particularly when exhibiting high-tech gadgets.

For the research gap in the study conducted by Venkatesh et al., (2003) reflects the lack of concentration for longitudinal studies has been filled by implementing the variables such as Virtual Influencer-Technology Acceptance Model (VITAM), Consumer Tech-Savviness (CTS), Virtual Influencer-Consumer Interaction (VICI) that helps to engage with the customers and to get to know about their level of knowledge and usage towards the technology.

Methodology

This research undertakes an empirical study by preparing a structured questionnaire to study the level of influence by the virtual influencer on the purchase intention of high-tech gadgets and circulated among different age categories, to analyze their tech adoption behavior of the users.

Design	Description
Research Design	Empirical
Sample Design	Convenience Sampling Technique
Population	Gadgets Buyer

Survey Instrument	Questionnaire
Data Collection	Primary Data: Questionnaire secondary Data: Articles (Elsevier, Emerald Insight, Google Scholar)
Research Tool	Linear Regression, Correlation, Independent Sample T-Test
Software	Jamovi, Ms Excel

This questionnaire is prepared based on the influence and tech adoption behavior of the gadget buyers/consumers by the influence of the virtual influencer on the promotion of high tech gadgets. This questionnaire consists of the gender, education qualification and employment status. The statements about Gadget lover, InherentNovelty seeking behavior, Parasocial relationships, Homophily, Technological innovativeness, Technological opinion leadership, Materialism based on level of agreement, Trustworthiness, Purchase intention. The variables about their corresponding statements are given below in Table 2.

Table 2 Variables and their Statements

Variables	Codes	Statements
Gadget Lover	GL 1	I love to play around with technological gadgets.
	GL 2	Even if they aren't the newest things on the market, learning how to operate technological products is interesting to me.
	GL 3	Old or new, playing with technological products brings me a lot of enjoyment.
	GL 4	Others may not understand it, but it's kind of a thrill to play with products that have a high-tech component.
	GL 5	If I were alone for several hours, I could entertain myself easily if I had lots of gadgets to play with.
	GL 6	Leafing through catalogs from high-tech vendors such as Sharper Image and Dell is something I like to do.
	GL 7	It is easy for me to spend a lot of time playing around with almost any kind of technological device.
	GL 8	Some people find it irritating, but I enjoy figuring out how to get technological goods and services to work.
Inherent Novelty Seeking Behavior	INSB 1	I prefer an unpredictable life that is full of change to a more routine one.
	INSB 2	I like surprises.
	INSB 3	I like continually changing activities.
	INSB 4	I like to experience novelty and change in my daily routine.
	INSB 5	When things get boring, I like to find some new and unfamiliar experience.
	INSB 6	I am continually seeking new ideas and experiences.
	INSB 7	I feel close enough to my favourite influencer to use their social media.

Parasocial Relationship	PS 1	I feel comfortable about a message from my favourite influencer on their social media.
	PS 2	I can rely on the information I get from my favourite influencer.
	PS 3	I feel fascinated by my favourite influencer's social media.
	PS 4	In the past, I pitied my favourite influencers when they made a mistake on their social media.
	PS 5	I think my favourite influencer's social media is helpful for my interests (in fashion and four others).
Homophily	HY 1	This influencer thinks like me.
	HY 2	This influencer is similar to me.
	HY 3	This influencer is like me.
	HY 4	This influencer shares my values.
	HY 5	This influencer has a lot in common with me.
	HY 6	This influencer behaves like me.
	HY 7	This influencer has thoughts and ideas that are similar to mine.
	HY 8	I think this influencer could be a friend of mine.
	HY 9	I would like to have a friendly chat with this influencer.
	HY 10	This influencer treats people like I do.
Technological Innovativeness	TI 1	I get a kick out of buying new high-tech items before most people know they exist.
	TI 2	It is cool to be the first to own new high-tech products.
	TI 3	I get a thrill out of being the first to purchase a high technology item.
	TI 4	Being the first to buy new technological devices is very important to me.
	TI 5	I want to own the newest technological products.
Technological Opinion Leadership	TOL 1	When they choose technological goods and services, people do not come to me for advice.
	TOL 2	People rarely come to me for advice about choosing technological products.
	TOL 3	People that I know pick technological gadgets and services based on what I have told them.
	TOL 4	I often persuade people to buy the technology products that I like.
	TOL 5	I often influence people's opinions about technological goods and services.
Materialism	MAT 1	My life would be better if I owned certain things I don't have.
	MAT 2	I'd be happier if I could afford to buy more things.
	MAT 3	It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.

Trustworthiness	TW 1	This influencer shows their true personality on social media.
	TW 2	I feel this influencer is being honest in their posts.
	TW 3	This influencer's online persona aligns with who they are.
	TW 4	I would describe this influencer as authentic.
Purchase Intention	PI 1	I will likely buy products recommended by this influencer.
	PI 2	I will purchase the products recommended by this influencer the next time I need that type of product.
	PI 3	I will try the products recommended by this influencer.
	PI 4	I intend to purchase products recommended by this influencer shortly.

Analysis and Findings

Demographic Variables

The sample consists of 131 participants, with a higher representation of females (73.3%) compared to males (26.7%). In terms of educational qualifications, the majority of participants have completed an undergraduate degree (61.1%), while 16.8% have schooling as their highest level of education. A smaller proportion holds postgraduate degrees (19.1%), and 3.1% fall into the 'Others' category.

When looking at employment status, just over a quarter of the participants (27.5%) are employed, whereas the majority, 58.0%, are unemployed. Additionally, 14.5% fall into the 'Others' category, which may include students, freelancers, or those in non-traditional employment arrangements

Table 3 Demographics Profile

Variables	Levels	Frequencies (n)	% of Total
Gender	Male	35	26.7%
	Female	96	73.3%
Education Qualification	Schooling	22	16.8%
	UG	80	61.1%
	PG	25	19.1%
	Others	4	3.1%
Employment Status	Employed	36	27.5%
	Unemployed	76	58.0%
	Others	19	14.5%

Perceptual Difference among Gender Cohorts

Table 4 Results from Independent sample t-test among Gender Cohorts

Variable	t	df	p-value	Results
Gadget Lover	3.20	129	0.002	Significant ($p < 0.05$)
Inherent Novelty Seeking Behavior	2.06	129	0.042	Significant ($p < 0.05$)
Parasocial Relationships	3.73	129	$< .001$	Highly Significant ($p < 0.01$)
Homophily	4.15	129	$< .001$	Highly Significant ($p < 0.01$)
Technological Innovativeness	2.74	129	0.007	Significant ($p < 0.05$)

Technological Opinion Leadership	4.21	129	< .001	Highly Significant (p < 0.01)
Materialism	2.96	129	0.004	Significant (p < 0.05)
Trustworthiness	3.26	129	0.001	Highly Significant (p < 0.01)
Purchase Intention	3.32	129	0.001	Highly Significant (p < 0.01)

The data provided presents results from independent-samples t-tests comparing various factors between two groups (male and female, based on the hypothesis that the mean differs). The results show major differences for most variables, with p-values less than 0.05, indicating that the means of the two groups vary significantly. For example, Homophily (p < .001) and Technological Opinion Leadership (p < .001) show very strong differences between the groups, while others like Inherent novelty seeking behavior (p = 0.042) and Technological innovativeness (p = 0.007) also show significant, though weaker, differences. The mean differences suggest that, for instance, males have a higher mean score on Homophily (5.98) and Technological Opinion Leadership (3.09), while females show notable variations in areas such as Gadget Lover (3.45) and Materialism (1.50). The Standard Errors (SE) differ, with smaller values indicating more precise estimates of the mean differences. Overall, the findings recommend that gender has a significant impact on these factors.

Estimation of Relationship

Table 5 Results from Correlation Analysis

	GL	INSB	PSR	HP	TI	TOL	MAT	TRU	PI
INSB	0.507 ***	—							
PSR	0.635 ***	0.526 ***	—						
HP	0.542 ***	0.482 ***	0.709 ***	—					
TI	0.634 ***	0.620 ***	0.732 ***	0.682 ***	—				
TOL	0.630 ***	0.556 ***	0.743 ***	0.712 ***	0.801 ***	—			
MAT	0.594 ***	0.536 ***	0.635 ***	0.533 ***	0.684 ***	0.680 ***	—		
TRU	0.564 ***	0.511 ***	0.697 ***	0.790 ***	0.739 ***	0.700 ***	0.610 ***	—	
PI	0.619 ***	0.607 ***	0.751 ***	0.779 ***	0.822 ***	0.801 ***	0.691 ***	0.806 ***	—

The correlation matrix reveals several strong positive relationships between the variables, all statistically significant (p < 0.001). Purchase intention (PI) indicates strong correlations with various factors, including technological innovativeness (TI, r = 0.822), technological opinion leadership (TOL, r = 0.801), and homophily (HP, r = 0.779). Trustworthiness (TRU) is significantly correlated with PI (r = 0.806) and other variables, such as materialism (MAT, r = 0.680) and technological opinion leadership (TOL, r = 0.739). In specific, technological opinion leadership reflects significant correlations with other variables like trustworthiness (r = 0.700), materialism (r = 0.684), and homophily (r = 0.743). The profound correlations are between the purchase intention and parasocial relationships (PSR, r = 0.751), and between parasocial relationships and

homophily ($r = 0.709$), recommending that these variables contribute a robust interconnection. Overall, the correlations indicate that factors like technological innovativeness, trustworthiness, and parasocial relationships are central drivers of purchase intention.

Impact on Purchase Intention

Table 6 Results from Regression Analysis

Path	Estimate	SE	t	p-value	Results
Trustworthiness → Purchase Intention	0.2246	0.0727	3.0891	0.002	Significant ($p < 0.01$)
Materialism → Purchase Intention	0.1297	0.0760	1.7056	0.091	Not Significant
Technological Opinion Leadership → Purchase Intention	0.1411	0.0648	2.1774	0.031	Significant ($p < 0.05$)
Technological Innovativeness → Purchase Intention	0.1810	0.0604	2.9935	0.003	Significant ($p < 0.01$)
Homophily → Purchase Intention	0.0850	0.0309	2.7470	0.007	Significant ($p < 0.01$)
Parasocial Relationships → Purchase Intention	0.0538	0.0588	0.9140	0.363	Not Significant
Inherent Novelty Seeking Behavior → Purchase Intention	0.0584	0.0381	1.5330	0.128	Not Significant
Gadget Lover → Purchase Intention	-17.645	0.0333	-0.0151	0.988	Not Significant
Model Fit Adjusted $R^2 = 0.804$					

The linear regression analysis provides a good fit for the data with an R^2 of 0.816, indicating that approximately 81.6% of the variance in the purchase intention can be explained with the help of predictors. The adjusted R^2 of 0.804 is a more conservative estimate based on the number of predictors and suggests a slightly more conservative estimate. The Root Mean Square Error (RMSE) of 1.46 indicates the model's prediction error. The F-statistic of 67.5 with a p-value of $< .001$ verify that the overall model is statistically significant. Among the predictors, trustworthiness ($p = 0.002$), technological opinion leadership ($p = 0.031$), technological innovativeness ($p = 0.003$), homophily ($p = 0.007$), and materialism ($p = 0.091$) importantly influence purchase intention, with materialism approaching significance. Parasocial relationships, inherent novelty seeking behavior, and gadget lover do not contribute much to the model ($p > 0.05$), specifically their insufficient impact on purchase intention.

Conclusion

The research exhibits the level of impact of virtual influencers in evolving role of shaping the tech adoption behavior, especially to the purchase intention of high-tech gadgets. Their ability to enhance trust, emotional connections, and create a parasocial relationship influences the consumer decisions. Through strategies such as social proof, gamification, technological innovations, technological opinion leadership, trustworthiness, inherent novelty seeking behavior, virtual influencers can foster a deeper connection with consumers to drive interest, and ultimately increase the likelihood of adoption. The influence of the predictors shows a different level of engagement with others. In conclusion, the standard of the products also plays a major role in the adoption of technology in their lives.

Virtual influencers must be designed to look as highly skilled, authentic, and related to improve the trustworthiness. The trust is crucial in driving purchase intentions. As with human influencers,

their opinions and the reviews should be perceived as impartial and put in order with the interests of their audience. Producers of the high-tech gadgets should give prominent importance to both men and women, to increase their sales equally among the genders by having a keen focus while representing their brand through virtual influencers. Virtual influencers can highlight the technological factors of gadgets that set them apart from competitors, focusing on the cutting-edge innovations such as AI, VR, 5G, or other advancements. Tech adopters value innovations. Focusing on the variable gadget lover contributes much to the advanced technology.

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