

Metaverse Marketing and Digital Consumer Purchase Behavior: Evidence from Baghdad Universities

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ABSTRACT

Purpose: The study explores how metaverse marketing affects the buying behavior of university students in Baghdad.

Methodology: Descriptive-analytical design was used and a study sample of 400 students was used on an electronic questionnaire. The research hypotheses were tested by means of Pearson correlation and multiple linear regression.

Results: The results showed that the metaverse marketing and purchase behavior were significantly positively related. The findings also showed that it had strong direct impacts of its four dimensions (immersion, interactivity, personalization, and digital trust) on purchase behavior.

Conclusions: The findings highlight the importance of digital trust and personalization in virtual marketing environments, demonstrating their effect on students' purchasing decisions.

Limitations: The research is limited to students in Baghdad universities, which may affect generalizability to other populations.

Contribution: This study offers practical guidance for marketers on leveraging metaverse platforms to influence digital consumer behavior in educational settings.

Keywords: *Digital Consumers, Digital Trust, Metaverse Marketing, Perceived Value, Purchase Intention.*

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1. Introduction

The world can observe the rapid changes in the character of the digital interaction preconditioned by the constant improvement of Virtual Reality (VR), Augmented Reality (AR) and three-dimensional (3D) spaces (Chen, 2024; Grant & Mairn, 2020; Grigoriu & Buraga, 2024). This transformation has led to the development of the Metaverse as an interactive online realm, which gives users a virtual experience of immersion which guides them beyond the realms of the traditional internet. This has consequently had a significant influence on marketing practices; marketing is no longer about putting up products on inactive digital platforms. Rather, it turns more and more to the creation of interactive virtual experiences that allow consumers to directly interact with brands in digital space that mimics reality (de Regt, Plangger, & Barnes, 2021; Wedel, Bigné, & Zhang, 2020; Zeng, Xing, & Jin, 2023).

In this regard, the paradigm of digital marketing has developed to a higher level, which has been called the concept of the Metaverse Marketing. It is based on the fundamental pillars of immersion, interactivity, personalization, and increasing digital trust, with the intention of developing a more engaging marketing experience that can greatly impact consumer behavior ([Prashar & Prashar, 2025](#); [Tao, Khan, Abbass, & Mehmood, 2025](#); [Wang, Du, & Cao, 2023](#)). Hypothetically, the deeper users engage the virtual world, the more possibilities they must interact and control, the more attention to their interests is paid to them, and they feel more secure online, the more likely they will develop a positive assessment of their real purchasing behavior ([Sigalingging & Tj, 2026](#); [Sihombing & Febriansyah, 2025](#)).

Although there has been a growing adoption of Metaverse applications in the marketing field across the world, there is an urgent need to comprehend how the nature of these environments may affect consumer purchasing behaviour especially in the new digital environment ([Fici et al., 2024](#); [Pillai, Sivathanu, & Rana, 2025](#); [Tao et al., 2025](#)). Moreover, the demographic of university students is also an important group in this respect as their rates of modern technologies usage are also high, and they are constantly involved with online sources. Based on this, the current study aims to examine the effects of the Metaverse marketing and its basic dimensions on the buying pattern of college students in various universities in Baghdad ([Shafira, Zaman, & Anisa, 2026](#)). This is achieved by a direct analytical model that seeks to test the correlation between the features of the virtual marketing environment-which is expressed by Metaverse marketing- and real time buying behavior ([Maianto, Sukesi, Tampubolon, Assagaf, & Ryadi, 2026](#); [Wang et al., 2023](#); [Wulandari & Permana, 2025](#)).

2. Literature Review and Hypothesis/es Development

2.1 Metaverse Marketing

The Metaverse represents a three-dimensional digital environment built on technologies such as Extended Reality (XR), Virtual Reality (VR), Augmented Reality (AR), and Blockchain. It allows users to engage in immersive experiences for gaming, work, commerce, and social interaction within a persistent virtual space, often referred to as the “Immersive Internet” ([Benaben, Congès, & Fertier, 2025](#); [Rafique & Qadir, 2024](#); [Tukur et al., 2024](#)). Metaverse marketing leverages these environments to create interactive and participatory experiences that enhance brand engagement, virtual transactions, and customer involvement. Unlike traditional advertising, this approach encourages consumers to actively participate in the brand experience rather than passively receiving content.

The key components of Metaverse marketing include immersive branding, virtual commerce, digital assets such as NFTs, and avatar-based personalization. Immersive branding allows consumers to participate in events or try products in simulated 3D spaces, which strengthens emotional connections and brand loyalty ([Chakraborty & Biswal, 2024](#); [Kumar, 2024](#); [Wongkitrungrueng & Suprawan, 2024](#)). NFTs provide unique ownership experiences that increase consumer engagement and identity expression. Virtual commerce enables real-time purchases in virtual environments, while avatars personalize interactions according to individual preferences, enhancing satisfaction and social connectivity.

2.2 Characteristics and Impact

Metaverse marketing is characterized by active, sensory-rich experiences, high interactivity, social integration, and secure digital ownership. Consumers engage with multiple sensory inputs and interactive elements, creating a strong sense of presence and social connection within virtual brand communities ([Batat, 2024](#); [Hennig-Thurau et al., 2023](#)). These features have been shown to increase consumer satisfaction, facilitate decision-making, enhance brand symbolism, and strengthen purchase intentions. However, challenges such as high implementation costs, privacy concerns, advanced digital literacy requirements, and uncertain regulatory frameworks remain significant obstacles for marketers ([Ghali, Rather, & Khan, 2024](#)).

2.3 Metaverse Marketing Experience Dimensions

This study conceptualizes Metaverse marketing through four primary dimensions such as, immersion, interactivity, personalization, and digital trust. Immersion reflects the degree of psychological and

sensory integration in the virtual environment, increasing the user's sense of presence. Interactivity measures the consumer's control over content and engagement with the environment and other users. Personalization represents how well the virtual content aligns with individual preferences, and Digital Trust captures the consumer's perception of security and reliability during online interactions.

2.4 Purchasing Behavior in Digital Spaces

Digital consumer behavior is shaped by cognitive, emotional, and behavioral processes that guide product search, evaluation, and purchase decisions. Unlike traditional purchasing, digital buying behavior is mediated by online platforms and algorithms, emphasizing speed, interactivity, and user-generated content (Chaffey, Ellis-Chadwick, & Mayer, 2009). Digital consumers rely on information-driven decision-making, social proof, engaging digital experiences, and interactive feedback. Their purchasing process includes need recognition, information search, alternative evaluation, purchase, and post-purchase evaluation, all influenced by trust, perceived risk, and perceived value (Abeysekera, Kotler, Kartajaya, & Setiawan, 2020; Kotler & Armstrong, 2004).

2.5 Research Gap

Despite growing interest in Metaverse marketing, prior research has largely focused on conceptual frameworks and purchase intentions rather than actual purchasing behavior or loyalty. Most empirical studies have examined technologically advanced markets, leaving regions such as Iraq underexplored. This study addresses this gap by testing how the dimensions of Metaverse marketing immersion, interactivity, personalization, and digital trust affect the actual buying behavior of university students in Baghdad. By using a straightforward analytical approach (correlation and multiple regression), the research provides practical insights into how these virtual marketing features influence consumer behavior in emerging digital markets.

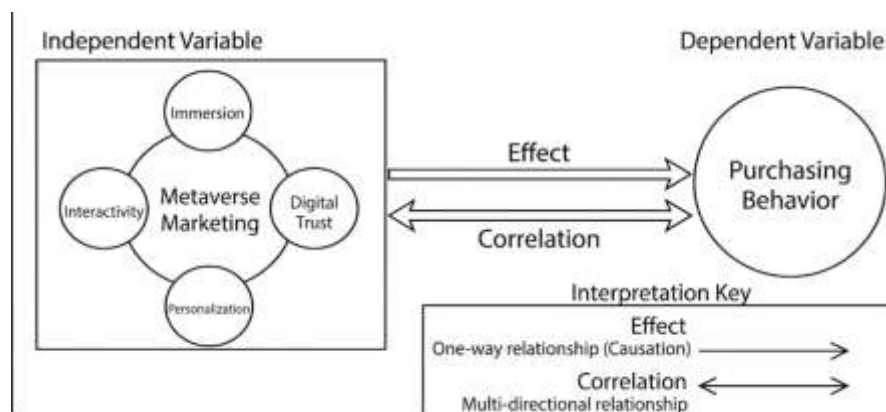


Figure 1. Hypothetical research model

Figure 1 shows the model presupposes that all these dimensions are components of the concept of the Metaverse marketing which has a direct effect on the purchasing behavior of university students. This framework rests on a central assumption: improving the features of the marketing environment in the Metaverse is more likely to lead to the emergence of positive purchasing behavior among digital consumers.

2.2 Hypotheses Development (H_1)

H_1 : There is a statistically significant correlation between Metaverse marketing and the purchasing behavior of university students

This hypothesis aims to examine whether a relationship exists between the overall Metaverse marketing environment and how students make purchasing decisions. It assesses the strength and direction of the association without implying causality. The hypothesis is further broken down into four sub-hypotheses:

H_{1a} : Immersion is significantly correlated with purchasing behavior

H_{1b} : Interactivity is significantly correlated with purchasing behavior

H_{1c}: Personalization is significantly correlated with purchasing behavior

H_{1d}: Digital Trust is significantly correlated with purchasing behavior

2.2 Hypotheses Development (*H₂*)

H₂: Metaverse marketing has a statistically significant impact on the purchasing behavior of university students

This hypothesis examines whether changes in Metaverse marketing, through its specific dimensions, directly influence student purchasing behavior. Unlike correlation, this hypothesis tests for a causal effect, highlighting which features of Metaverse marketing drive purchase decisions. The hypothesis is divided into four sub-hypotheses:

H_{2a}: Immersion has a significant positive impact on purchasing behavior.

H_{2b}: Interactivity has a significant positive impact on purchasing behavior.

H_{2c}: Personalization has a significant positive impact on purchasing behavior.

H_{2d}: Digital Trust has a significant positive impact on purchasing behavior.

3. Methodology

This study is descriptive-analytical, and this design was chosen as the most suitable for investigating the relationship between the variables, and causal effects of variables. The impact of the Metaverse marketing dimensions on purchasing behavior, the study employs the can be test with following multiple regression equation:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Variable *Y* represents actual purchasing behavior (dependent variable), β_0 is the constant (intercept), *X₁* through *X₄* denote the independent dimensions of Metaverse marketing (Immersion, Interactivity, Personalization, and Digital Trust), β_1 – β_4 are the regression coefficients for each dimension, and ε represents the random error term. This model allows for an examination of the direct contribution of each marketing dimension to students' purchasing decisions within the virtual environment ([J. Creswell, 2003](#); [J. W. Creswell & Creswell, 2017](#)).

The research population consists of university students in Baghdad for the 2025–2026 academic year, referred to as the digital consumer group. This cohort is highly technology-ready, extensively active in digital spaces, and possesses varying educational backgrounds, making them ideal for studying the impact of Metaverse marketing on purchasing behavior. Their frequent engagement with interactive media and immersive digital content provides a rich context to understand how the different marketing dimensions influence real consumer decisions.

A sample of 400 students was selected to meet the requirements for Structural Equation Modeling (SEM), ensuring sufficient statistical power to test both direct and indirect relationships between variables. Stratified random sampling was employed to ensure proportional representation across academic specializations, including Administrative, Technical, Scientific, and Humanities fields. Respondents were selected randomly within each stratum, reducing bias, and enhancing generalizability. The sample includes students from both state and private universities to reflect diverse educational, economic, and social backgrounds, corresponding closely with the characteristics of the target digital consumer segment and the immersive nature of the Metaverse marketing environment ([Hair, Risher, Sarstedt, & Ringle, 2019](#); [Kassem, 2019](#)).

3.1 Measurement Scale and Validation

Each of the items was measured on a five-point Likert scale 1 (strongly disagree) until 5 (strongly agree). The scale was chosen based on its effectiveness in accurately determining the degree of agreement in the behavioral studies. To make the face validity of the instrument, the questionnaire was presented to a group of academic specialists around administration and marketing. They provided their feedback on how clear and phrased the items were and made necessary changes. Thereafter, pilot test

was done on a small group of students to test the clarity of the statements and to make sure that the statements were easily comprehensible before the actual survey was distributed to the intended students.

Table 1. Measurement scales and operational definitions

Variables	Dimension	Operational Definition	No. of Items	Source
Metaverse Marketing	Immersion	The degree of a student's psychological and sensory integration within the virtual marketing environment.	5	Flavián et al., 2021
	Interactivity	The level of a student's ability to interact and exercise control within the virtual environment.	5	Kim, 2021; Dwivedi et al., 2022
	Personalization	The extent to which digital content and offerings align with the student's personal interests.	5	Baptista et al., 2022; Hennig-Thurau et al., 2023
	Digital Trust	The level of a student's sense of security and credibility during digital interaction.	5	Dwivedi et al., 2022; Shin, 2023
Purchasing Behavior		The actions and decisions taken by an individual when purchasing products or services.	5	Lim et al., 2020; Jin & Shin, 2021

Table 1 shows the study measures Metaverse Marketing through four dimensions such as immersion, which reflects a student's psychological and sensory engagement in the virtual environment, interactivity, capturing the level of control and interaction within the environment, personalization, representing how well digital content aligns with individual interests, and digital trust, indicating the student's perceived security and credibility in digital interactions. Each dimension is assessed using five items derived from established studies.

4. Results and Discussion

4.1 Statistical Description of the Research Sample

A total of 450 questionnaires were distributed, of which 421 were returned. After removing 21 incomplete responses, 400 questionnaires were included in the statistical analysis.

Table 2. Sample distribution according to demographic data

Variables	Category	Frequency	Percentage %
Gender	Male	218	54.5
	Female	182	45.5
Age	18–20 years	96	24.0
	21–23 years	214	53.5
	24 years and above	90	22.5
Specialization	Administrative/Business	158	39.5
	Technical / IT	124	31.0
	Scientific / Humanities	118	29.5
Academic Level	Third Year	176	44.0
	Fourth Year	224	56.0

Table 2 shows, there is a relative dominance of males (54.5%), with a reasonable representation of females. The age group (21-23 years) is the most represented, which is the most active online. The rich variety of majors increases the sample's representativeness of the population.

4.2 Pearson Correlation Analysis

The Pearson correlation coefficient was used to assess the degree of the association between the dimensions of Metaverse marketing and purchasing behavior.

Table 3. Results of correlation analysis

Variables	Purchasing Behavior	Significance (Sig.)
Immersion	0.62**	0.000
Interactivity	0.58**	0.000
Personalization	0.64**	0.000
Digital Trust	0.69**	0.000
Metaverse Marketing (Overall)	0.73**	0.000

Table 3 show a positive correlation between all Metaverse marketing dimensions and purchasing behavior. The correlation coefficient between Metaverse marketing and purchasing behavior was (0.73), which suggests a strong correlation. As such, the correlation hypotheses are supported.

4.3 Multiple Linear Regression Analysis

Performed multiple linear regression to explore the effects of Metaverse marketing on consumer purchase.

Table 4. Regression model summary

R	R ²	Adjusted R2	Significance (Sig.)	F-Value
0.75	0.56	0.55	0.000	125.84

Table 4 show that the dimensions of Metaverse marketing account for 56% of variance in the purchasing behavior, which is a high explanatory power as far as behavioral studies are concerned. Moreover, the F-value is significant, explaining that the overall model is significant.

Table 5. Regression coefficients

Dimension	Beta (β)	T-Value	Sig.	Decision
Immersion	0.24	4.82	0.000	Significant
Interactivity	0.19	3.96	0.000	Significant
Personalization	0.27	5.34	0.000	Significant
Digital Trust	0.31	6.12	0.000	Significant

Table 5 indicate that all Metaverse marketing dimensions have a significant positive effect on consumer behaviour. The strongest predictor (the most important dimension) was Digital Trust, followed by Personalization, Immersion and finally Interactivity.

4.4 Discussion

The findings indicate that Metaverse marketing has a strong and meaningful influence on the purchasing behavior of university students. The high correlation coefficients between each marketing dimension and purchasing behavior suggest that students are highly responsive to immersive and interactive digital environments. Digital Trust emerged as the strongest predictor, highlighting the importance of perceived security and credibility in virtual marketing spaces. Personalization, Immersion, and Interactivity also significantly contributed, demonstrating that tailored, engaging, and participatory experiences are essential in encouraging online purchases.

These results reinforce theoretical perspectives that immersive and interactive marketing enhances consumer engagement and decision-making in digital contexts. The high explanatory power of the regression model (56% variance explained) indicates that well-designed Metaverse marketing strategies can meaningfully drive purchasing behavior among digitally active populations. Practically, this suggests that marketers should prioritize building digital trust and personalized experiences to maximize conversion, while also leveraging interactive and immersive elements to sustain engagement in virtual

marketplaces. Overall, the study confirms that the combination of these dimensions is crucial for optimizing consumer behavior in emerging virtual environments.

5. Conclusions

5.1 Conclusion

The study confirms that Metaverse marketing significantly influences the purchasing behavior of university students. The correlation and multiple regression analyses indicate that all four dimensions Immersion, Interactivity, Personalization, and Digital Trust positively affect purchasing behavior, with Digital Trust showing the strongest impact. The coefficient of determination ($R^2= 0.56$) suggests that 56% of the variance in purchasing behavior can be explained by these dimensions, demonstrating the robustness of the model. Overall, enhancing the features of virtual marketing environments, particularly by increasing trust, personalization, and engagement, effectively drives purchasing decisions among digitally active students.

5.2 Research Limitations

Despite providing valuable insights, this study has several limitations. First, the sample is limited to university students in Baghdad, which may restrict the generalizability of the findings to other populations or regions. Second, the study focuses on self-reported purchasing behavior, which may be influenced by respondent perception rather than actual transactions. Finally, the research examines only four dimensions of Metaverse marketing, leaving other potential factors such as social influence, gamification, or brand reputation unexplored.

5.3 Suggestion and Directions for Future Research

Future research should expand the sample to include a broader and more diverse population to enhance generalizability. Studies could also track actual purchasing data within Metaverse platforms to verify self-reported behavior. Additionally, incorporating other potential influencing factors, such as social interaction, gamification features, and brand engagement, would provide a more comprehensive understanding of the mechanisms through which Metaverse marketing shapes consumer behavior. Practically, marketers should prioritize building Digital Trust and personalization while maintaining interactive and immersive experiences to maximize consumer engagement and purchasing behavior.

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