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

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ABSTRACT

Purpose: this research is tried to to explore the effect of metaverse marketing on the purchasing behavior of students in Baghdad Universities

Methodology: Due to the type of research, Descriptive – Analytical design was employed. The data were gathered by an electronic questionnaire, which was distributed to a representative sample of 400 students from some universities in Baghdad through random sampling method, Pearson correlation and multivariate linear regression was used in SPSS v.28 to test the proposed hypotheses.

Results: It is confirmed that the use of Metaverse Marketing has a significant influence on With the virtual space being more engaging, customized and trustworthy, consumers can be encouraged to do more in the virtual which ultimately translates to real-world sales.

Conclusions The digital consumer behavior is affected by the of the Metaverse marketing Leveraging trust, individualization and immersion may help to increase consumer engagement levels in a virtual enviroment.

Limitations:this study was performed on students of a University in Baghdad, the results may not be generalized to other settings and populations.

Contribution: This study adds empirical evidence from an emerging market context and offers practical implications for organizations that want to create successful marketing strategies in the metaverse.

Keywords: *Digital Consumers, Digital Trust, Metaverse Marketing, Purchase Behavior, University Students*

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1. Introduction

The digital transformation has transformed the way consumers interact with products, services and brands. The Metaverse is a persistent and immersive digital environment that cannot be achieved by any traditional digital platform in the last decade, and the convergence of virtual reality, augmented

reality, artificial intelligence, and blockchain technologies has contributed to the rise of the Metaverse ([Dwivedi, Hughes, Wang, Alalwan, Ahn, Balakrishnan, & Wirtz, 2022a](#); [Lee, Braud, Zhou, Wang, Xu, Lin, & Hui, 2021](#)). Over the past few years, there has been a tremendous surge in investments in metaverse technologies, particularly by large technology firms and retail brands, who have built virtual storefronts, avatars, and immersive brand experiences, making metaverse a reality, not just a speculative idea ([Hennig-Thurau, Aliman, Herting, Cziehso, Linder, & Kübler, 2023](#); [Park, & Kim, 2022](#)).

In the digital age, digital transformation is changing the way business's function, and the metaverse is emerging as a new marketing, customer engagement and brand interaction channel ([Ajzen, 1991](#)). The essential values of digital marketing (immersion, interactivity, personalization, and digital trust) are carried over to the field of metaverse marketing, aiming to impact consumer attitudes and purchase decisions by creating a brand experience that is interactive and embodied ([Kim, 2021](#); [Shin, 2023](#)). The perceptual and emotional qualities of virtual environments could influence measurable outcomes, such as consumer engagement and brand attitudes, as well as purchase intentions, as evidenced by a growing stream of research ([Flavián, Ibáñez-Sánchez, & Orús, 2021](#); [Jin, & Shin, 2021](#)).

Despite this increasing trend of interest, there is still less empirical research on metaverse marketing especially in developing economies. Previous studies have focused on conceptual discussion, the adoption of technology, or purchase intention, but not purchase behaviour ([Hennig-Thurau et al., 2023](#); [Buhalis, Leung, & Lin, 2023](#)). This is important since in consumer research, purchase intention and purchase behaviour are not strongly connected. Further, evidence from the Arab world is even more limited and this represents a significant gap in understanding the extent to which metaverse marketing dimensions affect consumer behavior in emerging digital markets that have unique cultural, economic and infrastructural traits.

2. Literature Review and Hypothesis/es Development

2.1 Metaverse Marketing

Today the Metaverse is viewed as a virtual space that persists and is made possible by the synergy of Virtual Reality (VR), Augmented Reality (AR), Extended Reality (XR), Artificial Intelligence (AI), and blockchain technologies, which offer users the opportunity to interact and communicate, to work and operate, and to engage in commercial transactions within an immersive digital environment ([Lee et al., 2021](#); [Mystakidis, 2022](#)). The current metaverse is interoperable, with digital identities (avatars) that are persistent, and digital economies that are economically valuable, resulting in a more seamless and more economically rewarding user experience ([Dwivedi, Hughes, Wang, Alalwan, Ahn, Balakrishnan, & Wirtz, 2022b](#)). The metaverse has been embraced as a means to engage consumers through a more active and immersive experience, as opposed to passive exposure to marketing messaging in the past several years.

Metaverse marketing involves marketing activities in virtual environments that provide customers with more immersive experiences and enhance their interactions with brands ([Kim, 2021](#)). Unlike conventional digital marketing, which is mostly one-way communication, metaverse marketing provides consumers with an opportunity to experience brands in the metaverse, interact with products using avatar technology and be an active part of a co-created experience. The changes from passive to active exposure are believed to make consumers more engaged and also present opportunities for highly personalized and experiential marketing approaches ([Hennig-Thurau, Aliman, Herting, Cziehso, Linder, & Kübler, 2023](#)). Some of the key elements of metaverse marketing have been identified, such as providing immersive brand experiences, virtual commerce, avatar-to-avatar interaction, and the implementation of Non-Fungible Tokens (NFTs) to facilitate digital asset ownership ([Park & Kim, 2022](#); [Shin, 2023](#)). All these elements are used together to build up realistic and emotional experiences that can influence consumer attitudes and, ultimately, purchase behaviour.

2.2 Dimensions of Metaverse Marketing

Metaverse marketing is segmented into four parts: immersion, interaction, personalization and digital trust. The four dimensions were chosen as they have been repeatedly mentioned in the metaverse marketing literature as the main ways that virtual environments impact consumer attitudes and behavior ([Dwivedi, Hughes, Wang, Alalwan, Ahn, Balakrishnan, & Wirtz, 2022a](#); [Hennig-Thurau, Aliman, Herting, Cziehso, Linder, & Kübler, 2023](#)), and validated measurement scales exist for each of these constructs so that they can be empirically tested. Immersion is the psychological and emotional state of the user when entering into the virtual world, and may be referred to as the sense of presence, which is the feeling that the user is physically present in the virtual space, rather than just watching from the outside ([Flavián, Ibáñez-Sánchez, & Orús, 2021](#)). The higher the level of immersion, the greater emotional engagement is found, and the stronger the sense of involvement with the brands and products that are "experienced" within this immersion context. Interactivity includes the amount of control, modification, and responsiveness users have over elements in the virtual environment ([Kim, 2021](#)). The concept of highly interactive environments posits the idea of going beyond a static digital representation of the product to a space where the consumer can interact, create an avatar and influence the content and experience, or the commercial result ([Baptista, Oliveira, & Santos, 2022](#)). Personalisation is also related to customer satisfaction and customer perceived value, and can involve the tailoring of features in virtual environments, such as the creation of an avatar to which a customer can log in to shop online, as well as providing them with an adaptive product recommendation and a virtual storefront that adapts to their context. Digital trust is the level of confidence customers have in the security, reliability and credibility of virtual environments and digital interactions in them ([Ghazalle & Lasi, 2021](#)).

2.3 Digital Consumer Purchasing Behavior

The following are some definitions associated with purchasing behaviour that suggest that purchasing behaviour is a sequence of processes and activities that consumers undergo in their decision to select, purchase and evaluate a product or service ([Kotler & Keller, 2016](#)). In digital environments, technological, psychological and social issues such as online trust, perceived value, user experience and social interaction all impact this process ([Chaffey & Ellis-Chadwick, 2019](#)). In this context, immersive technologies and virtual environments can have a significant and statistically significant impact on consumer attitudes and purchasing behavior ([Jin & Shin, 2021](#); [Hollensen et al., 2023](#)). The influence is thought to occur in two ways: firstly, by improving the sensory experience of the brand, thus making the experience more vivid and memorable; secondly, through the social interaction that avatars can provide, which can mimic some of the social dynamics of the retail environment ([Huang & Liao, 2017](#)). The impact of such attitudinal effects, however, on actual buying behavior beyond purchase intention is still relatively little studied and is the focus of this study.

2.4 Research Gap

While there are several papers focusing on various aspects of metaverse marketing, most of these have been conceptual based studies ranging from framing towards technology adoption to metaverse marketing theory towards consumer's intention to buy products or services in the metaverse, but not so many studies have observed consumer purchase behavior. The relationship between the metaverse marketing dimensions and consumers' buying behavior has not been extensively explored, particularly in other markets, including Asia-Pacific. With regards to the attitudes of university students towards purchasing behavior, few studies have been conducted in Arab countries, particularly regarding the interaction of the immersion of the Arab academic community with interactivity, personalization, and digital trust. This is particularly due to the fact that the literature on metaverse marketing has rarely explored the overall effect of these factors on purchasing behavior, when it does, it has largely neglected interactions between them and how these variables affect purchasing behavior in a context, such as Iraq, where students are highly digitally engaged but the purchasing context is very different from that of most studies included in the metaverse marketing literature.

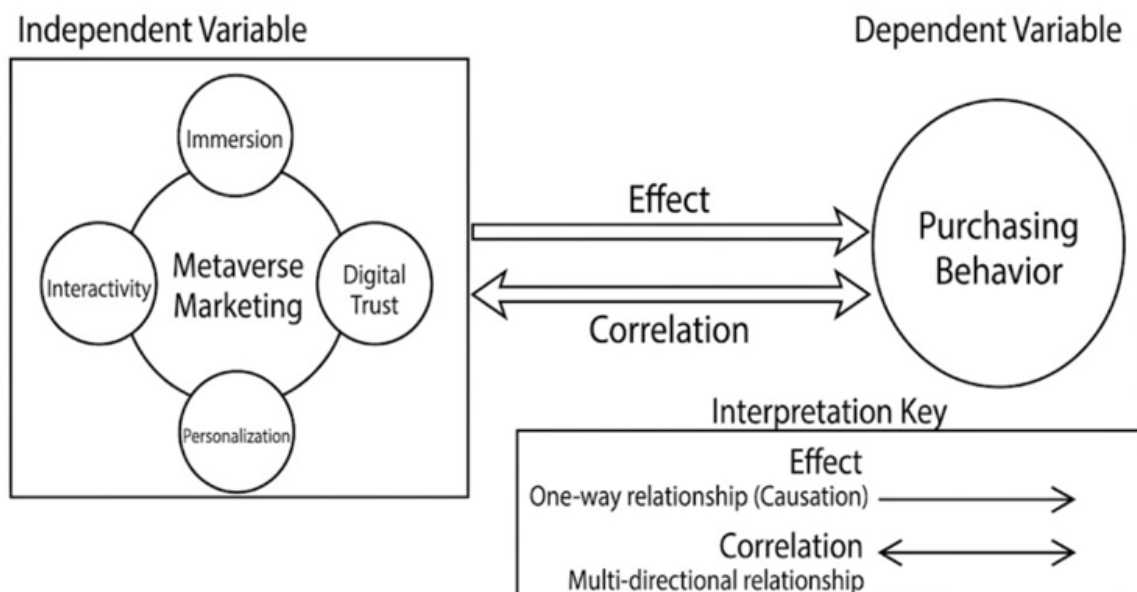


Figure 1. Hypothetical research model

Figure 1 show this study has the following objectives: It aims to provide empirical information from a context specific perspective and it aims to test the direct effect of these four dimensions on purchasing behavior, Baghdad University as a case study, through the correlation and multiple regression analysis.

2.5 Hypothesis Development

Based on the theoretical foundations cited above and previous empirical studies in the field of marketing and consumer behavior in the metaverse, the following hypotheses were formulated. The first set of hypotheses ($H_{1a} - H_{1d}$) focuses on the correlational relations between each dimension and the purchasing behaviour, and the second set of hypotheses ($H_{2a} - H_{2d}$) focuses on the direction of the relations that are tested by regression analysis.

H_1 : University students' buying intentions have a strong correlation with metaverse marketing

H_{1a} : There is a strong relationship between Immersion and Purchase behavior

H_{1b} : There is a significant relationship between interactivity and purchasing behaviour

H_{1c} : Personalization is correlated at a high level with purchasing behavior

H_{1d} : Digital trust is highly related to buying behaviour. The effect of H2 is a significant positive effect on the buying behavior of University Students

H_{2a} : Immersion significantly influences the purchasing behaviour

H_{2b} : The interactivity significantly positively influences the purchasing behaviour.

H_{2c} : Personalization positively impacts on buying behavior.

3. Methodology

3.1 Research Design

The study used descriptive-analytical research design and the survey method was used in quantitative approach. The descriptive part aimed to describe the study variables and the demographic composition of the sample, while the analytical part explored the relationships and predictive effect between the study variables by using inferential statistical tests. A cross-sectional design was used as the main goal was to examine the relationship between the metaverse marketing dimensions and purchasing behavior at one specific point in time, rather than look for changes over time. This study examined four dimensions of metaverse marketing namely immersion, interactivity, personalization, and digital trust and its impact on buying behaviour among university students.

3.2 Population and Sample

The population in this study consisted of students of the university in the public and private universities in Baghdad in the academic year (2025-2026). The chosen target group of the study were university students, as they are one of the most digitally active segments of the society since they are avid users of social media, ecommerce websites, and even new virtual environments. Since the sampling frame for the total number of students in the university in Baghdad is not precise, the minimum number of students needed to be sampled was determined by [Krejcie and Morgan \(1970\)](#) table for an unknown/large population at 95% confidence level and 5% margin of error which recommended a minimum sample of around 384. The obtained sample size of 400 valid respondents is thus more than the minimum sample size, and is regarded to be adequate for the multivariate analysis used in this study. The electronic questionnaire link was sent to a number of universities to minimize single-institution sampling bias, with stratified random sampling used to ensure the sample of both gender, academic specialization (administrative/business, technical/IT, and scientific/humanities), and academic level (third and fourth year) was proportional.

3.3 Measurement Instrument

A structured questionnaire from previous validated scales from the metaverse marketing and consumer behavior literature was used. The instrument consisted of three parts: demographic information, the metaverse marketing scale (20 items, 4 dimensions: immersion, interactivity, personalization, digital trust, 5 items each), and the purchasing behavior scale (5 items). Each item was assessed using a 5-point Likert scale (Strongly Disagree = 1; Strongly Agree = 5). The operational definitions, dimensions, number of items, and sources of the various constructs are summarized in Table 1.

Table 1. Measurement scales and operational definitions

Variable	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. (2019)
Metaverse Marketing	Interactivity	The level of a student's ability to interact and exercise control within the virtual environment.	5	Kim (2021) ; Dwivedi et al. (2022a)
Metaverse Marketing	Personalization	The extent to which digital content and offerings align with the student's personal interests.	5	Baptista et al. (2022)
Metaverse Marketing	Digital Trust	The level of a student's sense of security and credibility during digital interaction.	5	Dwivedi et al. (2022a)
Purchasing Behavior	—	The actions and decisions taken by an individual when purchasing products or services.	5	Jin and Shin (2021)

Table 1 show the questionnaire was pretested by a panel of academic experts in the fields of marketing and business administration for face and content validity and the wording was slightly modified to enhance clarity for the student test sample. A pilot test was then carried out with a smaller group of respondents outside the target population to check the clarity and reliability of the items prior to the mass distribution [Flavián, Ibáñez-Sánchez, & Orús, 2021](#); [Kim, 2021](#); [Baptista, Oliveira, & Santos, 2022](#); [Dwivedi, Hughes, Wang, Alalwan, Ahn, Balakrishnan, & Wirtz, 2022a](#); [Shin, 2023](#); [Lim, Radzol, Cheah, & Wong, 2020](#); [Jin, & Shin, 2021](#)).

3.4 Data Collection Procedures

The data were collected through an electronic questionnaire distributed via Google Forms and university communication channels to students from public and private universities in Baghdad over a six-week period. A total of 400 valid responses were analyzed after data screening, representing an 88.9% response rate. The data were analyzed using SPSS v.28 through descriptive statistics, Pearson correlation analysis, and multiple linear regression to examine the relationship and predictive effects of metaverse marketing dimensions on purchasing behavior. Statistical significance was determined at the 0.05 level.

3.5 Research Model

This study took the following regression model as its basis to investigate the effect of four dimensions of metaverse marketing on purchase behavior using the following regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad (1)$$

Formula (1) explanation:

Y = Purchasing Behavior

X₁ = Immersion

X₂ = Interactivity

X₃ = Personalization

X₄ = Digital Trust

β₀ = Constant β₁–β₄ = Regression Coefficients ,ε = Error Term

4. Results and Discussion

The findings reveal statistically significant positive correlations between the four dimensions of the metaverse marketing and purchasing behavior (p<0.01), which leads to the acceptance of the metaverse marketing hypotheses H1a to H1d. All four relationships were large in magnitude (small ≈ 0.10, medium ≈ 0.30, and large ≈ 0.50; [Cohen, 1988](#)), indicating a relationship with purchasing behavior that is not only statistically significant, but also practically meaningful for this sample. Personalization, immersion, and interactivity were correlated with digital trust, with the highest correlation being with purchasing behavior (r = 0.69) and the lowest with interactivity (r = 0.58). Before regression testing, the overall correlation between metaverse marketing and purchasing behavior (r = 0.73) to support the first main hypothesis (H1) was also large.

4.1 Demographic Profile of Respondents

A total of 450 questionnaires were distributed, of which 421 were returned. After screening for incomplete responses, 21 questionnaires were excluded, yielding 400 valid questionnaires for statistical analysis a response rate of approximately 88.9%. Table 2 presents the demographic characteristics of the respondents.

Table 5. Sample distribution according to demographic data

Variable	Category	Frequency	Percentage %
Gender	Male	218	54.5%
	Female	182	45.5%
Age	18–20 years	96	24.0%

Variable	Category	Frequency	Percentage %
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 show the respondents were 400 valid respondents, which is relatively balanced in terms of gender (54.5% male and 45.5% female). Most respondents (53.5%) were between 21 and 23 years old representing the typical age of third and fourth year undergraduate students, and this age range is in line with the study's focus on more digitally mature student consumers with more likely independent purchasing experience. The sample also showed a meaningful difference in academic disciplines with administrative/business students being the largest (39.5%), followed by technical/IT students (31.0%) and scientific/humanities students (29.5%). This distribution confirms that the results are not affected unduly by students of a particular academic discipline which enhances the generalizability of the results on the university students within the city of Baghdad as a whole.

4.2 Correlation Analysis

The Pearson correlation analysis was performed to explore the relationships among the dimensions of metaverse marketing and purchasing behavior.

Table 2. Results of correlation analysis

Variable	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 all five variables show statistically significant positive relationships with purchasing behavior ($p = 0.000$). Digital Trust has the strongest influence ($\beta = 0.69$), followed by Personalization ($\beta = 0.64$), Immersion ($\beta = 0.62$), and Interactivity ($\beta = 0.58$). At the aggregate level, Metaverse Marketing as a whole demonstrates the strongest association ($\beta = 0.73$), indicating that the combined effect of these dimensions is a robust predictor of consumer purchasing behavior. The double asterisks confirm significance at the 1% level across all variables.

4.3 Regression Analysis

Multiple linear regression was performed to analyze the predictive effect both of the four metaverse marketing dimensions and of their combination on buying behavior.

Table 3

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

Table 4 show the R value was found to be 0.75 and the R² value was found to be 0.56, this means that the four dimensions of metaverse marketing collectively explain 56% of the variance in the

purchasing behavior on the sample of university students. By the standard of conventions of behavioral and marketing research ([Cohen, 1988](#)) defining R^2 values above 0.26 as substantial, it is a significant amount of explanatory power. The difference between R^2 (0.56) and Adjusted R^2 (0.55) is small and the model is not significantly overfitting the data for the number of predictors used. The overall model was statistically significant ($F = 125.84$, $p = 0.000$), which means that the regression model as a whole is valid for predicting purchasing behavior based on the four metaverse marketing dimensions, further supporting the hypothesis H_2 .

4.4 Regression Coefficients

Table 4. 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 show the four dimensions of metaverse marketing were found to have statistically significantly positive impact on a buying behavior, thereby supporting H_{2a} to H_{2d} . The strongest predictor ($\beta = 0.31$, $t = 6.12$, $p < 0.001$) was digital trust, followed by personalization ($\beta = 0.27$), immersion ($\beta = 0.24$), and interactivity ($\beta = 0.19$), which was the weakest but still statistically significant predictor among the four dimensions. This hierarchy of effects aligns well with recent research that highlights the importance of trust, personalization, and immersive engagement in influencing consumer actions in virtual settings ([Baptista et al., 2022](#); [Shin, 2023](#)).

4.5 Discussion

The results of this study can be considered as strong empirical evidence that the metaverse marketing has a significant effect on the purchasing behavior of digital consumers, namely students in the university, Baghdad, with a statistically significant value. The results of the correlation and regression analysis are all consistent, indicating that the four dimensions of metaverse marketing were positively and significantly correlated with the purchase behavior, with the dimension of digital trust showing the highest influence ([Nunnally, 1978](#)). It is worth mentioning that digital trust is the most significant predictor ($\beta = 0.31$; $r = 0.69$). This is in line with previous theoretic research indicating that trust serves as a prerequisite for consumer involvement in e-commerce and online environments, specifically in cases of emerging payment methods, weak government intervention and limited tangible inspection of goods ([Gefen et al., 2003](#)). This result could be particularly interesting in the context of the university students' population in Baghdad, as metaverse commerce is still relatively new in the Iraqi market and consumers may have fewer reference points to assess the authenticity and safety of virtual transactions, than consumers in markets with more mature digital commerce systems. This implies that creating digital trust might be a more pressing strategic goal for metaverse marketers than achieving the highest level of sensory immersion in emerging markets, at least ([Schiffman & Wisenblit, 2019](#)).

The relatively larger impact of personalization ($\beta = 0.27$) aligns with the digital marketing literature that clearly indicates that personalized content and experiences positively influence perceived value and customer satisfaction ([Baptista et al., 2022](#); [Hennig-Thurau et al., 2023](#)). In virtual settings in particular, personalization can be more significant due to interactions in the metaverse can be avatar-driven, meaning there are also opportunities for personalization in the appearance of avatars, virtual storefronts, and personalized product suggestions that may not be as easily achieved in traditional ecommerce environments. This could be the reason for personalization being the best predictor in this sample compared to immersion and interactivity ([Hoyer, Kroschke, Schmitt, Kraume, & Shankar, 2020](#)).

The impact of immersion ($\beta = 0.24$) is substantial but comparatively low, which aligns well with the study conducted by [Flavián et al. \(2021\)](#) and [Jin and Shin \(2021\)](#), who also found immersive experience as an important but not the most prominent factor influencing consumer attitudes and behaviour in virtual environments. This implies that sensory and psychological immersion can play an important role in the buying process, but the role may be mediated or moderated by trust and personalization, which is a potential avenue for future research that should employ a mediation or moderation analysis ([García-Salirrosas & Rondon-Eusebio, 2022](#)).

Interactivity showed the weakest effect (though statistically significant) of the four dimensions ($\beta = 0.19$). A potential reason is that the technological enablers that make highly interactive metaverse experiences a reality (such as the hardware and software supporting VR/AR, high bandwidth connectivity, platform interoperability, etc.) are not as well developed or accessible in the Iraqi market compared to more technologically "mature" markets such as South Korea, the United States, and Western Europe, from where most of the existing metaverse marketing literature is derived ([Cialdini, 2021](#)). In the context of studies in more well-established digital ecosystems, the impact of interactivity might be dampened when it comes to the behavior of university students in Baghdad who are using the metaverse via lower-immersion interfaces (smartphone as opposed to dedicated VR headsets). Some of these contextual explanations are plausible but have not been fully tested in this study and are offered as an interpretation for further research rather than a finding ([Bin, Al-Wardat, & Ab, 2025](#)).

Combined, these results contribute to the metaverse marketing corpus of knowledge in a significant manner. First, they offer empirical evidence not just conceptual argumentation that metaverse marketing dimensions affect actual purchases and not just purchase intentions as distinct from past marketing literature ([Hennig-Thurau et al., 2023](#); [Buhalis et al., 2023](#)). Second, they provide context specific evidence from an emerging market in the Arab world, which is under represented in previous studies and literature, and which have been dominated by studies carried out in East Asian and Western markets. The sequential appearance of these effects (trust and personalization before immersion and interactivity) may be specific to the market context in terms of the maturity of digital infrastructure and the familiarity of consumers with virtual commerce, while it provides a valid comparative indicator for future comparative studies across countries on the effectiveness of marketing in the metaverse ([Al-Qahtani, 2023](#)).

5. Conclusions

5.1 Conclusion

The purpose of this study was to explore the impact of metaverse marketing on the purchasing behavior of digital consumers among Iraqi university students (public and private) in Baghdad, totaling 400 participants. All the four dimensions of metaverse marketing immersion, interactivity, personalization and digital trust had positive and significant correlation with the purchasing behaviour, and all of them had statistically significant positive predictive power in the regression model, the results of which showed that the proposed research model had a good empirical foundation. Of these dimensions, digital trust turned out to be the most powerful, followed by personalisation, immersion and interactivity. The four dimensions accounted for 56% of the variance in purchasing behaviour ($R^2 = 0.56$), which is a considerable portion of the variance and thus demonstrates that metaverse marketing is a substantial cause of consumer purchasing behaviour in this population group, not a marginal or theoretical influence.

5.2 Research Limitations

The present study has a number of limitations that should be considered when interpreting the results of the study. First, the sample consisted of only students attending universities in Baghdad, and the cross sectional research design only examined purchasing behavior at one point in time, thus limiting the generalizability of the results across other populations of consumers (e.g., older consumers, working consumers, and non-student online consumers) and across other geographical and cultural locations within Iraq as well as the region. Third, the study focused only on four dimensions of metaverse marketing: immersion, interactivity, personalization and digital trust, and

excluded other potential factors that may be relevant to the metaverse, such as perceived risk, digital literacy, consumer innovativeness, and perceived value, which have been identified by previous studies as relevant to the digital consumer behavior and that may explain the remaining 44% of the variance in purchasing behavior.

5.3 Suggestions and Directions for Future Research

Future research should address the limitations identified in this study by expanding the sample beyond university students in Baghdad to include diverse consumer demographics such as working adults, older consumers, and non-student online shoppers across multiple regions within Iraq and the broader Middle East, thereby enhancing the generalizability of the findings. Subsequent studies should also incorporate additional metaverse marketing dimensions, including perceived risk, digital literacy, consumer innovativeness, and perceived value, to more comprehensively explain the variance in purchasing behavior that remains unaccounted for in the current model.

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