


CONSUMER BEHAVIOUR IN THE METAVERSE: A SYSTEMATIC REVIEW
Metaverse’de Tüketici Davranışı: Sistematik Bir Derleme

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Abstract

Consumer behaviour on Metaverse platforms has become an increasingly important topic. This study aims to examine the reasons why consumers purchase virtual products or real products through the Metaverse. For this purpose, Web of Science and Scopus databases were scanned, and 31 articles were examined according to elimination process following the PRISMA 2020 protocol. As a result of the research, it was observed that the most examined variables were value and self-concept. One common finding across the articles is that consumers who view their avatars as extensions of themselves are more likely to purchase items for their avatars.

Keywords: Consumer Behaviour, Metaverse, Purchase Intention, PRISMA 2020.

Öz

Metaverse platformlarında tüketici davranışları konusu gittikçe önem kazanan bir konu olmuştur. Tüketicilerin için sanal ürün satın alma ya da Metaverse aracılığı ile gerçek ürünler satın almalarının nedenlerini incelemek amaçlanmıştır. Bu amaçla veri tabanları taranmış ve PRISMA 2020 protokolü izlenerek yapılan eleme sonucunda 31 makale incelenmiştir. Araştırma sonucunda en çok incelenen değişkenlerin değer ve benlik konsepti olduğu gözlemlenmiştir. Avatarlarını kendi uzantıları olarak gören tüketiciler avatarlarına item (nesne) satın alma noktasında daha olumlu eğilim göstermekte ve ayrıca hissedilen telepresence (farklı bir yerde olma hissi) ne kadar iyiyse o derece Metaverse aracılığı ile ürün satın alma eğilimleri de pozitif yönde etkilenmektedir.

Anahtar Kelimeler: Tüketici Davranışı, Metaverse, Satın Alma Niyeti, PRISMA 2020.



INTRODUCTION

For marketers, consumer behaviour continues to be an area that is always being researched, and new topics are constantly being discovered. The environment we live in is continually changing, developing, and the differences between generations are also becoming visible also affects consumer behaviour. We see one of the latest developments of technology in the virtual universe which is called Metaverse. The Metaverse is a platform that offers to users a three-dimensional (3D) virtual world experience by combining the physical world and the virtual universe using Augmented Reality (AR), Virtual Reality (VR), and blockchain technologies (Dwivedi et al., 2022: 2; Arya, et al., 2024: 556). Metaverse offers users an interactive environment with other users and offers economic participation opportunities such as shopping experiences (Oh et al., 2023: 1).

By utilizing technological tools such as virtual reality glasses on this platform, a feeling of entering the virtual universe is created in users. Users involved in the virtual universe create avatars for themselves, reflecting their physical characteristics or their ideal selves. Various items such as clothes, weapons, non-fungible-tokens, are also offered for these avatars created. Additionally, by using this virtual universe, companies make advertisements and offer their brands' products in this virtual universe. Therefore, consumer behaviour has become a key focus in the Metaverse field. Consumer behaviour can be influenced by various factors, and in the real world, it has been studied from multiple perspectives, including cultural, ethnic, demographic, psychological, and social. Numerous studies have provided evidence to explain these influencing factors. Are the same factors valid for the virtual world or are there new structures? To answer this question, examining articles that approach the subject from different perspectives and using different research materials will provide a broader perspective.

In order to find a solution to the research question, it is aimed to compile the studies in the literature in a systematic way. Systematic compilation will facilitate staying within the scope by providing a target-oriented result. In addition, examining a review study method while examining a specific research problem will enable the detection of more than one variable in the context of consumer behaviour. For this reason, the author has preferred the systematic review method in this study.

1. METHODOLOGY

Studies on the Metaverse cover a broad range of topics (e.g., blockchain, NFTs, avatars, etc.). However, this study focuses specifically on research aimed at understanding consumer behaviour in the Metaverse. To achieve this, a search was conducted using Boolean operators ((consumer OR customer OR consumption) AND Metaverse) in the Web of Science and Scopus databases (covering all years), following the PRISMA 2020 protocol (Page et al., 2021). The PRISMA 2020 protocol refers to screening relevant literature through four main steps (identification, selection, relevance, and inclusion). Thanks to this method, relevant studies can be distinguished and compiled in a systematic way without going beyond the scope. (Attaoui and Gaber, 2024: 6492). As a result of this process initially, 1,201 (Web of Science: 581, Scopus: 620) articles were reached (Figure 1).

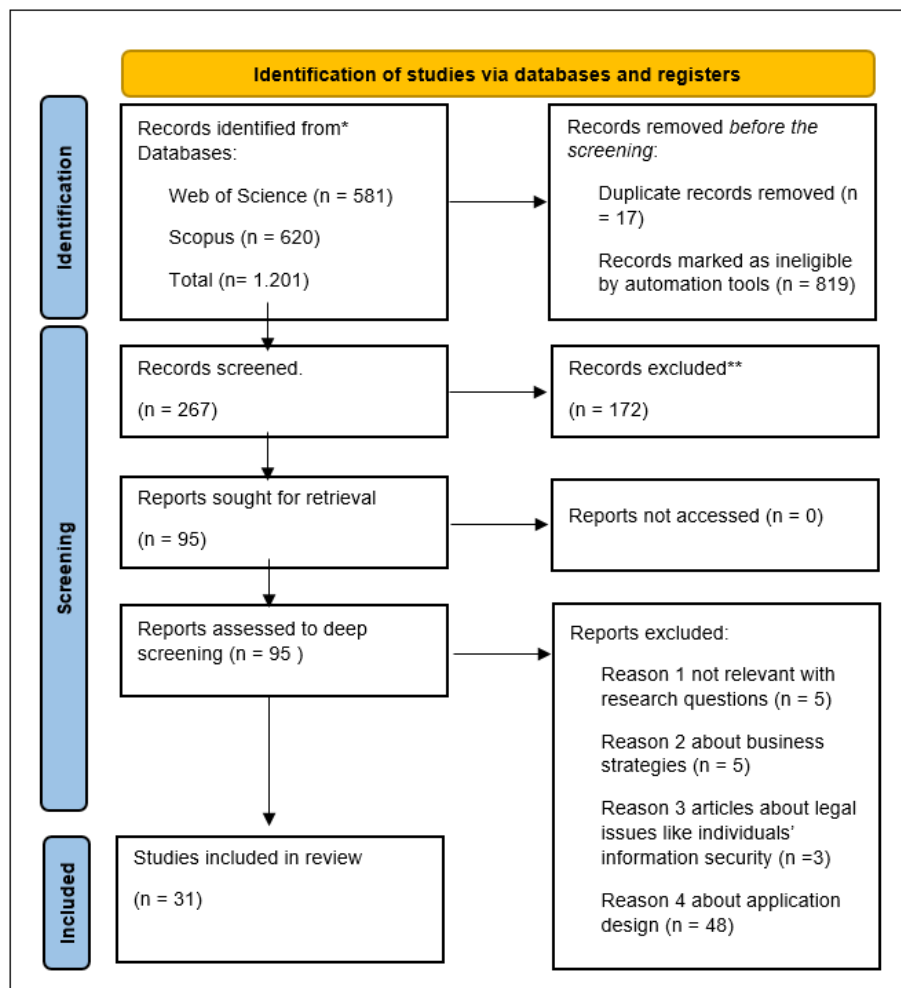


Figure 1. Prisma flow diagram of the study (n = number of studies)

Later, review articles and early access articles were excluded from the scope. Due to the difficulty in accessing the full texts of studies published in the early view, they were excluded from the scope. Open publisher-invited articles and meeting abstracts, book chapters, editorial material or works in letter format are also excluded from the scope. Studies in English and Turkish were selected. As a result, 267 articles were reached. Then, these studies were examined in terms of content (In order to determine the variables affecting the purchase decision, only empirical studies are discussed) and 31 studies that conducted for applied research on consumers were included in the scope of the study.

Since users who prefer to use these platforms are also referred to as consumers or customers in studies conducted on the use of the Metaverse, these articles can also be reached because of a search made as “Metaverse AND consumer OR customer”. However, since the focus of this review article covers other areas of consumer behaviour such as the intention or interest of consumers who currently use the Metaverse platform to purchase products offered on or through these platforms, articles written on application preference were excluded from the review.

2. RESEARCH FINDINGS

After elimination process, 31 articles were included in the study. The studies discussed within the framework of the research are summarized in Table 1.

Table 1. Articles Information

N	Article Names	Authors (Pub. Year)	Theories
A1	Metaverse Users' Purchase Intention In Second Life	Demirci et al. (2024)	Technology Acceptance Model
A2	The Genesis Effect: Digital Goods In The Metaverse	Yang (2024)	
A3	How Metaverse Can Enhance Customer Awareness, Interest, Engagement And Experience: A Practical Study	Alshurideh et al. (2024)	No theory mentioned
A4	Assessing The Determinants Of Metaverse Adoption For E-Commerce Retailing	Pillai et al. (2024).	Theory of Acceptance and Use of Thecnology
A5	Does Luxury Fashion Shape Consumers' Perception Differently In The Real World Versus The Metaverse? A Comparative Study On Wearer Evaluation	Um et al. (2024)	No theory mentioned
A6	Unlocking Impulsive Buying Behaviour In The Metaverse Commerce: A Combined Analysis Using Pls-Sem And Ann	Duc et al. (2024)	The SOR (Stimulus-Organism-Response) model
A7	Metaverse Servicescape: Emotional Response To Virtual Retail Design	Warden et al. (2024).	The SOR (Pleasure Arousal Dominance Model Uses and Gratification Theory
A8	Metaverse Meets Branding: Examining Consumer Responses To Immersive Brand Experiences	Wongkitrungrueng, A., & Suprawan, L. (2024)	Behavioural Reasoning Theory
A9	Factors Influencing Customers' Apparel Shopping Intention In Metaverse	Pillai et al. (2024).	No theory mentioned
A10	The Effect Of Avatar Self-Integration On Consumers' Behavioural Intention In The Metaverse	Oh et al. (2023)	Multi-attribute Utility Theory (MAUT)
A11	What Drives User Interest And Purchase Of Virtual 3d Assets? An Empirical Investigation Of 3d Model Attributes And Pricing Dynamics	Korbel et al. (2024)	Social Impact Theory
A12	How The Presence Of Employee Avatars Affects Metaverse Shopping Behaviour: Can I Help You Buy Condoms? Virtual Sales Promotions In Embarrassing Shopping Settings	Frank et al. (2024)	Construal Level Theory
A13	The Role Of Temporal Distance, Conspicuous Consumption, And Multisensory Interfaces On Consumer Judgments In Metaverse	Nunkoo et al.(2024)	Technology Acceptance Model
A14	From E-Commerce To The Metaverse: A Neuroscientific Analysis Of Digital Consumer Behaviour	Fici et al. (2024)	Self-Determination Theory
A15	A Holistic Framework For Consumer Usage Modes Of Augmented Reality Marketing In Retailing	Caboni et al. (2024)	Uses and Gratification Theory
A16	Consumers' Continuance Intention Towards Metaverse-Based Virtual Stores: A Multi-Study Perspective	Chakraborty et al. (2024)	Elaboration Likelihood Model
A17	Informative And Peripheral Metaverse: Which Leads To Experience? An Investigation From The Viewpoint Of Self-Concept	Balakrishnan et al. (2024)	The SOR (Stimulus-Organism-Response) model
A18	Metaverse In Human Behaviour: The Role Of Telepresence And Flow Experience On Consumers' Shopping Behaviour In The Metaverse	Jafar et al. (2024)	No theory mentioned
A19	Phygital Customer Experience In The Metaverse: A Study Of Consumer Sensory Perception Of Sight, Touch, Sound, Scent, And Taste	Batat, W. (2024)	

A20	Why Do People Interact And Buy In The Metaverse? Self-Expansion Perspectives And The Impact Of Hedonic Adaptation	Ahn et al. (2024)	Self-expansion Theory
A21	Does Metaverse Fidelity Matter? Testing The Impact Of Fidelity On Consumer Responses In Virtual Retail Stores	Frank et al. (2024)	No theory mentioned
A22	Telepresence In Live-Stream Shopping: An Experimental Study Comparing Instagram And The Metaverse	Barta et al. (2023)	Theory of Planned Behaviour (TPB) and Expectation Confirmation Theory (ECT)
A23	Examining Consumers' Perceptions Of And Attitudes Toward Digital Fashion In General And Purchase Intention Of Luxury Brands' Digital Fashion Specifically	Zhang et al. (2023)	Attitude Theories, Customer Value Theory, and Consumer Involvement Theory
A24	Paying Attention In Metaverse: An Experiment On Spatial Attention Allocation In Extended Reality Shopping	Chen et al. (2023)	The Biased Competition Theory of Attention
A25	Fashioning' The Metaverse: A Qualitative Study On Consumers' Value And Perceptions Of Digital Fashion In Virtual Worlds	Venturini, A., & Columbano, M. (2024)	Theory of Consumption Values
A26	The Perceived Value Of Digital Fashion Product And Purchase Intention: The Mediating Role Of The Flow Experience In Metaverse Platforms	Park et al. (2023)	Theory of Consumption Values
A27	Unfolding The Impacts Of Metaverse Aspects On Telepresence, Product Knowledge, And Purchase Intentions In The Metaverse Stores	Jafar et al. (2023)	The SOR (Stimulus-Organism-Response) model
A28	Impact Of Delightful Somatosensory Augmented Reality Experience On Online Consumer Stickiness Intention	Huang et al. (2024)	Embodied Cognition Theory
A29	The Impact Of Trust-Building Mechanisms On Purchase Intention Towards Metaverse Shopping: The Moderating Role Of Age	Zhang et al. (2024)	Media Reachness Theory
A30	Motivation In The Metaverse: A Dual-Process Approach To Consumer Choices In A Virtual Reality Supermarket	Saffari et al. (2023)	No theory mentioned
A31	Motivations For Consuming Avatar-Specific Virtual Items On The Zepeto Gaming Platform	Aris et al. (2023)	Theory of consumption

As a result of the examination conducted for this purpose, it was observed that the most used theory to make sense of consumer behaviour in the Metaverse is Stimulus-Organism-Response (the SOR). The SOR model explains the decision-making processes of an organism under different scenarios. In other words, the organism makes inferences by observing the environment where it is in and makes a decision depending on these inferences (Nguyen et al., 2023: 999). Studies based on this theory have examined how consumers make decisions under such conditions as social presence and telepresence (Duc, et al., 2024; Warden et al., 2024; Jafar et al, 2023; Jafar et al., 2024).

Uses and Gratification theory suggests that “individuals actively seek media” that can meet their specific needs and desires. In this context, consumers are drawn to virtual stores in the Metaverse and seek fulfilment such as convenience, fun, social interaction, and innovation (Chakraborty et al. 2024; Wongkitrungrueng and Suprawan, 2024).

In Table 2 author showed variables used in searched articles for understanding consumer behaviour.

Table 2. Research Variables used in Articles

Research variables	Method	Frequency	Articles
Purchase intention/shopping exp.	QTT	14	A1, A5, A8,A10, A11, A12, A13, A14, A18, A20, A23, A26, A27, A29
	QLT	2	A19, A31
	Mix	3	A17, A21, A30
Attitude	QTT	2	A9, A23
	QLT	-	
	Mix	-	
Motivation	QTT	4	A5, A4, A20
	QLT	1	A15
	Mix	1	A16
Possession	QTT	1	A2
	QLT	-	
	Mix	-	
Awareness	QTT	1	A4
	QLT	-	
	Mix	-	
Social influence	QTT	1	A4
	QLT	-	
	Mix	-	
Social presence/Telepresence	QTT	5	A6, A18, A22, A26, A27
	QLT	-	
	Mix	-	
Security concerns/Trust	QTT	1	A29
	QLT	-	
	Mix	-	
Impulsive buying	QTT	1	A6
	QLT	-	
	Mix	-	
Value/Perceived Value (Hedonic, Utuliterian, Symbolic)	QTT	4	A8, A22, A23, A26
	QLT	2	A25, A31
	Mix	-	
Satisfaction/Delight	QTT	1	A22
	QLT	-	
	Mix	1	A28
Self-Concept	QTT	1	A20
	QLT	-	
	Mix	2	A13, A17

* QTT: Quantitative, QLT: Qualitative, MIX: Both Method

Due to the scope of this study, most of the studies we have examined focus on purchasing behaviour. However, the theories and variables based on this purpose vary. In the following section, these variables are grouped into categories and explained.

Avatars; When the issue of purchasing in the Metaverse universe is examined, it is observed that one of the most emphasized issues in the studies is the avatars representing the user. An avatar is described as a virtual version of a person that carries physical or behavioural features similar to the person who represents and mediates interactions in a virtual environment. In this way, avatars influence the perception of others and the interpretation of their behaviours, which in turn affects the social relationships between users (Kim et al., 2023: 2). Studies show that individuals generally create avatars that are either similar to themselves or reflect an idealized version of themselves. In a virtual social

environment, an avatar that represents its owner also represents the owner's social status (Alshurideh et al., 2024: 1908). In connection with these consumers with high levels of self-monitoring have higher avatar-user similarities and identify more psychologically with their avatars, and the higher this identification, the more likely they are to purchase items (clothing, etc.) for their avatars (Oh et al., 2023: 8).

Social Influence: Social influence positively affects consumers' tendency to shop on the Metaverse. Social influence refers to the degree to which individuals are affected by their surroundings. Studies examining how social influence affects shopping intentions on Metaverse platforms suggest that people who have friends or relatives who shop on Metaverse platforms are more likely to use the Metaverse. (Pillai et al., 2024: 9).

Social Presence and Telepresence: Social presence is about how much a medium transmits the communication of its participants, in other words, how much it can transmit individuals' presence. (Rice, 1993: 452). On the other hand, telepresence is defined as the feeling of being in a virtual environment (Nowak et al. 2000: 27) or "the feeling of being far away" (Slater and Wilbur, 1997:11). Despite the differences in definition, the components that feed these two concepts in the virtual universe are similar. These are the effectiveness, vividness, and interactivity of the media presented. The more a media meets expectations in terms of these three features, the more individuals' social presence and telepresence increase. Users who feel more in the virtual universe have an increased intention to purchase (Jafar et al., 2023; Park et al., 2023; Jafar et al., 2024) impulsive purchasing behaviour is observed (Duc et al., 2024), and their intention to revisit retail stores increases.

Motivation: Another topic that the studies focused is the motivations that lead consumers to purchase virtual items. The most prominent of these has been observed as hedonic motivation. Users do not only experience the store to buy items for their avatars, but they also see it as a leisure activity and enjoy it. (Chakraborty et al., 2024; Pillai et al., 2024).

Besides the hedonic motivation factors, another factor that motivates individuals to purchase items in the Metaverse is self-expansion. Playfulness, which expresses the pleasure getting from the Metaverse, is a hedonic motivation source and its high level increases the participants' self-expansion tendencies. Consumers with an increasing self-expansion tendency are also more likely to purchase items. (Ahn et al., 2024).

Considering that consumers use AR-based platforms to obtain information about products, Caboni et al. (2024) conducted a study and examined the factors that motivate people to use these platforms and buy products from them from two perspectives: extrinsic and intrinsic. The motivation to meet the need for information is expressed as extrinsic, and the motivation that includes any kind of pleasure to be obtained from the process is expressed as intrinsic (Caboni et al. 2024:3).

Possession; As we mentioned before, one of the reasons why individuals buy items in the Metaverse is that they help them in reflecting their identity. For this reason, when it comes to branded products or rare products, their tendency to buy increases. In other words, the products they own reflect their status. Interestingly, used products are also sold in the Metaverse. Yang (2024) concluded in his study that consumers prefer products to be unused, even if

they are digital, because unused products are seen as a status symbol. Even if the products are virtual, they perceive a used product as dirty (Yang, 2024: 5).

Self-Concept: Self-concept is a central factor in symbolic interaction. Individuals shape and reflect their thought structures and behaviours within the framework of self-concept (Gecas, 1982: 1). When studies examined, it is stated that individuals tend to create avatars that reflect themselves in the Metaverse. According to the self-expansion theory, which refers to the tendency of individuals to reflect their own selves as a central motivational factor, individuals have a more developed self-extension through the Metaverse (Ahn et al., 2024: 5). Oh et al. (2023) investigated the interaction between avatar-user resemblance and physical identification and the mediating role of self-monitoring variable in this interaction and found that the more avatar-user resemblance increases, the more physical identification increases, and self-monitoring strengthens this effect. The higher physical identification, the higher the tendency to purchase items (Oh et al., 2023: 8). In other words, the consumer shows purchase intention to the extent that he/she can reflect himself/herself to the avatar.

Value: One of the most frequently encountered concepts in the studies we have addressed within the framework of analysis has been the concept of value. It has been observed that the concept of value is addressed in various ways: instrumental value, experiential value (Barta et al., 2023), social value (Aris et al., 2023; Venturini and Columbano, 2024; Zhang et al., 2023), emotional value, epistemic value, conditional value (Venturini and Columbano, 2023), hedonic value (Aris et al. 2023; Wongkitrungrueng and Suprawan, 2024), pleasure value, self-expression value, economic value (Park et al., 2023), symbolic value, and utilitarian value (Wongkitrungrueng and Suprawan, 2024). Park et al. (2023) in their study where they examined the effects of pleasure value, self-expression value, and economic value on purchase intention, found that while pleasure value and economic value affect purchase in the Metaverse, self-expression value did not have an effect. Barta et al. (2023) in their study where they considered the presence of telepresence in live-stream shopping as Low telepresence (Instagram) and High telepresence (Metaverse), examined the effects of experiential value and instrumental value on satisfaction. As a result of the study, telepresence influenced experiential value, while it had no effect on instrumental value. However, they observed that both value concepts were effective on satisfaction (Barta et al., 2023: 29). In another study on the effect of utilitarian value, hedonic value, and symbolic value variables on brand image and virtual purchase intention, hedonic value positively affects the brand image by affecting utilitarian and symbolic value (Wongkitrungrueng and Suprawan, 2024: 2915). Social value has been examined in two different studies. While the first study concluded that perceived social value has a positive impact on purchase intention of luxury brands' digital fashion, the other study examined social value together with hedonic value and concluded that both variables positively affect purchase intention. While social value affects purchase through the motivation of belonging to a group, hedonic value affects purchase through fun and feeling good (Aris et al., 2023: 1254).

Attitude: Pillai et al. (2024) in their study examining consumers' attitudes towards shopping in the Metaverse, they grouped the variables affecting attitude into two categories as "*reasons for*" ("*RFR*"; *Perceived enjoyment*,

interactivity, imagination, sense of immersion) and “*reasons against*” (“*RAS*”; *traditional barrier, perceived risk image barrier, technological anxiety*). As a result of the study, RFR positively affects shopping intention in Metaverse, while RAS negatively affects it (Pillai et al., 2024: 10). In contrast to Pillai et al. (2024), Zhang et al. (2023) examined the effect of attitude on purchase. At the same time, the authors who examined the effect of social value on general attitudes concluded that this interaction was also positive. In the same study, the effect of consumer environmental involvement as another variable influencing general attitude was also examined, but it was found to have a weaker effect than AA and AP (Zhang et al., 2023, p. 1984).

Awareness: Metaverse marketing positively impacts consumers' brand awareness (Alshurideh et al., 2024). Chen et al. (2023) observed that consumers' attention in stores supported by VR shifted, as they were focused on navigation and unable to notice differences. They also found an inattention effect when AR was applied in a physical environment, though this effect decreased when combined with VR. In other words, VR and AR can create inattention on their own, but when used together, they can offer more physical reality than their alternatives (Chen et al. 2023: 271)

Purchase Intention: Demirci et al. (2024) examined consumers' purchasing intentions within the framework of the Technology Acceptance Model. They concluded that perceived ease of use, trust and enjoyment positively affect consumers' attitudes. We see that few studies focus on the price effect. Korbel et al. (2024) studied 3D assets and observed that as the price increases, purchase intention decreases. However, as consumers' interest grows, their purchase intention increases (Korbel et al., 2024, p. 11).

In her study, Batat (2024) focuses on the sensory qualities perceived during the shopping experience and notes that while some consumers find such applications expensive and troublesome, they still intend to use this shopping channel again due to its entertainment value. This suggests the presence of a hedonic value effect.

Virtual platforms are not only used for purchasing virtual items but also real items from the real world. In other words, they also use the virtual environment to obtain information about the product (size, color, fitting etc.). Recently, consumers have had the opportunity to see how clothing will look on them before purchasing through AR. These applications not only make it easier to gather information but also enhance the enjoyment of the shopping process. As a result, purchase intention can be positively influenced (Caboni et al., 2024, p. 7). Studies have shown that consumers' social presence and telepresence affect their impulsive buying decisions (Duc et al., 2024).

2.1. Resistance Factors

Studies have shown that various factors influence consumers' shopping behaviour in the Metaverse. However, some research has also focused on the reasons why consumers avoid in using the Metaverse for shopping. For example, technology anxiety suggests that consumers may feel anxious about using new technologies, even if they are generally comfortable with technology and have experience with online shopping. Additionally, concerns about sharing personal information and becoming a member increase security worry, with the potential leakage of credit card or bank information during payments being another significant obstacle to using these platforms (Pillai et al., 2024).

DISCUSSION CONCLUSION AND SUGGESTIONS

Although the first mention of the Metaverse was almost 30 years ago (Weinberger, 2022: 1), it has just begun to spread to the masses with developing computer technologies. Most studies on consumer behaviour in the field are related to the interface used. However, with the recent increase in Metaverse users, companies have started to sell both virtual items and real products using the virtual environment. Within the scope of this study, the author conducted a systematic review of the existing literature to examine consumers' perspectives and purchasing behaviours regarding products offered in this virtual universe. As a result of this research, it has been observed that the majority of the studies collected data using the survey method, and individual interviews and neuroscientific methods were also used. The primary topics addressed in the studies are the concepts of value and self-concept. The emphasis on self-concept is primarily due to users creating their own avatars and reflecting their personal characteristics onto them. A review of the studies reveals that this behaviour positively influences factors such as social presence and telepresence. In other words, the more an individual projects their own characteristics onto the avatar, the stronger their sense of telepresence, which in turn affects their purchasing behaviour, attitude, and perception of the virtual universe.

However, only one of the articles reviewed in the research focuses on the price variable. The limited attention given to price—a key factor influencing consumer behaviour—highlights a gap in the literature. Some studies suggest that consumers also show a positive inclination toward digital products from well-known brands (Lee and Jeon, 2022; Catherine et al., 2024). Future research could conduct a comprehensive study that includes brand and brand-related concepts.

In this study, database searches were conducted using only the Web of Science and Scopus databases. Only empirical studies were included in the search, using Boolean operators. As a result, some relevant studies may have been excluded due to their presence in other databases or overlooked through automatic filtering. These limitations should be considered. Future research could expand the scope of this topic. This area of research is dynamic and growing, presenting numerous conceptual and empirical opportunities for future academic inquiry. Key concepts to prioritize and further develop include:

- 1-What are the reflections of self-perception and personality factors on the Metaverse?
- 2- Resistance factors
- 3- Value concept with different dimensions

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