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Consumer Behavior Towards Use of Immersive Technologies in the Retail Sector: A Descriptive Literature Review

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Abstract

This descriptive literature review explores how immersive technologies—particularly Augmented Reality (AR) and Virtual Reality (VR)—are transforming consumer behavior in the retail sector. As digital shopping preferences evolve, immersive tools are increasingly used to provide interactive, personalized, and emotionally engaging shopping experiences. Drawing on the Value-Based Adoption Model (VAM), the study evaluates how consumers weigh perceived benefits (e.g., enjoyment, usefulness, customization) against perceived sacrifices (e.g., privacy risk, complexity, and cost). Findings highlight that immersive technologies improve decision-making, enhance emotional involvement, and drive brand loyalty. However, adoption is influenced by technological discomfort, demographic differences, and ethical concerns. By applying the PRISMA framework for systematic review, this paper identifies key research gaps and provides a future agenda to better understand immersive retail experiences and guide strategic technology deployment.

Keywords: Augmented Reality (AR); Virtual Reality (VR); Immersive Technologies; Consumer Behavior; Retail Innovation; Value-Based Adoption Model (VAM); Perceived Value; Digital Shopping; Technology Acceptance; PRISMA Review.

1. Introduction

1.1 The Retail Sector Landscape

In recent years, the retail industry has undergone significant transformations. This shift is primarily due to emerging digital technologies and how consumers shop today. In earlier times, the majority of individuals visited brick-and-mortar shops to purchase items. However, in today's world, merely owning a store is insufficient. Consumers seek quicker, simpler, and more thrilling shopping experiences. They anticipate a seamless experience whether they are purchasing online or in a physical store. A significant factor for this shift is the increase in smartphone usage, quicker internet, and the expansion of e-commerce. Individuals have become accustomed to handling nearly all tasks on their smartphones from exploring products to utilizing virtual fitting rooms. As a result, technologies such as Augmented Reality (AR) and Virtual Reality (VR) have gained popularity in the retail sector. AR and VR enable customers to experience products in a digital environment prior to making purchases.

For instance, with AR, a customer can direct their smartphone at a wall to view how various paint shades or art pieces appear in real-time, aiding them in making assured design decisions. Using VR, users can navigate a virtual showroom to examine kitchen designs and appliances as though they were actually there. These technologies transform the designing experience into a customized and interactive adventure, simplifying decision-making and making it more enjoyable.

Due to these advantages, an increasing number of retailers are beginning to adopt AR and VR. They assist brands in establishing stronger connections with customers and delivering unforgettable experiences that impact purchasing decisions. Consequently, comprehending how customers respond to these technologies is crucial for the future of retail.

1.2 Emergence of Immersive Technologies in Retail

Immersive technologies are revolutionizing the retail experience by enhancing shopping to be more interactive and captivating. These technologies assist in connecting physical and online shopping by enabling customers to see products in lifelike ways. Two primary categories of immersive technologies utilized in retail are Augmented Reality (AR) and Virtual Reality (VR). AR functions by integrating digital visuals or data into the physical environment. Customers can utilize their smartphones to visualize how a piece of furniture appears in their space or how a pair of shoes looks on their feet (Javornik, 2016).

In contrast, VR generates an entirely virtual setting that enables users to navigate and engage with products in a 3D environment, similar to their experience in an actual store (Poushneh & VasquezParraga, 2017). These tools are now widely utilized across different retail industries, such as fashion, furniture, beauty, and electronics (Hilken *et al.,* 2017). For example, AR mirrors enable users to virtually try on garments, whereas VR showrooms permit them to explore a store without being physically present (Poncin & Mimoun, 2014).

These characteristics help consumers visualize how products will appear and feel in reality, aiding them in making more assured buying choices. Research indicates that immersive technologies enhance customer involvement, decrease reluctance to purchase, and boost satisfaction following the transaction (Poushneh, 2018). They also assist retailers in providing a more individualized and unforgettable shopping experience, which significantly impacts consumer behavior (Huang & Liu, 2020).

1.3 Consumer Experience and Behavioral Transformation

Immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) are transforming the way individuals engage with shopping. These tools provide practical advantages and emotional significance, impacting customer behavior and decision-making. From a practical perspective, immersive technologies assist consumers in making more informed decisions. For instance, AR applications enable users to virtually test clothing and accessories via their smartphone or smart mirror, helping them evaluate fit, color, and style prior to purchasing. This diminishes the ambiguity tied to purchasing clothing online and assists buyers in reaching more informed choices (Poushneh & Vasquez-Parraga, 2017; McLean & Wilson, 2019). It also enhances the shopping process by reducing time spent and decreasing return rates. Emotionally, AR boosts shopping pleasure and involvement by enabling shoppers to see themselves in products instantly. This interactivity stirs feelings like enthusiasm, assurance, and contentment, as customers experience a deeper connection with the products and the brand (Huang & Liu, 2020; Hilken et al., 2017). The engaging experience changes shopping from a practical duty into a fulfilling emotional endeavor.

When individuals take pleasure in the experience, they are more inclined to recall the brand and return for future purchases. Engaging experiences also provide customers with greater control and customization. Modern consumers prefer to investigate products at their leisure, experiment with choices, and decide without feeling rushed. AR and VR provide them this autonomy, enhancing the shopping experience to be more individualized and enjoyable (Hilken et al., 2017). This more

profound involvement frequently results in enhanced brand loyalty, favorable testimonials, and increased likelihood of purchase (Poushneh & Vasquez-Parraga, 2017).

In general, immersive technologies are more than just a neat addition they are transforming customer perceptions of shopping and their expectations from retailers. Brands utilizing these tools can more effectively engage with contemporary consumers and distinguish themselves in a competitive marketplace.

1.4 Purpose of the Study

Grasping how immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) affect consumer behavior necessitates examining how individuals think, feel, and behave throughout the shopping process. From a cognitive standpoint, shoppers frequently evaluate how useful and effective the technology is in facilitating improved decisions during their purchases (Javornik, 2016). They reflect on how fun and captivating the experience is, significantly influencing their interest and satisfaction (Huang & Liu, 2020). Consumers determine their actions based on their cumulative experiences like making a purchase, suggesting the store to others, or returning in the future (Poushneh & Vasquez-Parraga, 2017). This literature review seeks to compile important findings from current research to examine how immersive technologies influence the cognitive, emotional, and behavioral dimensions of consumer behavior in retail. This review utilizes the Value-Based Adoption Model (VAM) to clarify the reasons and methods behind consumer choices in technology usage, proposing that decisions are made by assessing the perceived advantages such as enjoyment, utility, and customization against the perceived drawbacks like time, effort, or privacy issues (Kim, Chan, & Gupta, 2007). When the perceived value is significant, consumers are more inclined to embrace and persist with the technology. To guarantee a thorough and methodical review, the research adheres to the PRISMA framework (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which offers a transparent and clear protocol for gathering, evaluating, and examining pertinent studies (Moher et al., 2009). This review aims to comprehend how immersive technologies influence consumer behavior and identifies various benefits and sacrifices while also identifying gaps in existing knowledge and proposing future research directions in immersive retail settings.

2. Literature review

2.1 Retail Industry Transformation Through Technology

In the last ten years, the retail industry has quickly changed because of digital advancements, as customers seek quicker, more tailored, and convenient experiences (Verhoef et al., 2015). Retailers have adopted omnichannel approaches that integrate physical and digital interactions, incorporating immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR). These tools enable users to see, engage with, and assess products in lifelike settings, tackling issues like the difficulty of physically examining goods online (Huang & Liu, 2020; Poushneh & Vasquez-Parraga, 2017). AR and VR enhance customer satisfaction and lower return rates while also offering important insights for refining marketing and pricing strategies (Flavián et al., 2019). Studies indicate that consumers who engage with AR experience greater involvement and are more inclined to buy, leading

to enhanced brand loyalty and favorable responses (McLean & Wilson, 2019).

2.2 Consumer Behavior in the Context of Technology Adoption

In the realm of retail technology adoption, consumer behavior is shaped by both logical reasoning and emotional responses. Established models such as the Technology Acceptance Model (TAM) emphasize the significance of perceived usefulness and usability in the adoption of technology (Davis, 1989). When a customer perceives a new feature as useful and easy to grasp, their likelihood of using it increases. Recent studies indicate that emotions are also crucial particularly enjoyment, engagement, and trust (Pantano & Servidio, 2012). Numerous consumers favor engaging tools that are enjoyable and easy to use, like AR makeup applications or virtual fitting rooms. These experiences not only enhance the thrill of shopping but also aid in alleviating uncertainties or hesitations regarding a purchase (Yim *et al.,* 2017).

Research also highlights that social influence is essential. Individuals frequently rely on the views of friends, influencers, or internet evaluations when considering the adoption of a new technology (Grewal *et al.,* 2020). Feedback from the community and peer usage significantly influence attitudes and intention to buy. Additionally, immersive technologies resonate with the habits of contemporary consumers who appreciate self-service, customization, and engaging content. As individuals grow more accustomed to digital tools, their expectations rise, making them more inclined to embrace technologies that improve their control and pleasure throughout the shopping experience (Javornik, 2016).

Consumers' perceptions of a technology significantly influence their usage of it. Favorable attitudes typically arise when technology offers something novel, entertaining, or beneficial. Engaging retail tools such as 3D product displays, virtual fitting rooms, and gamified shopping applications foster a fun and captivating experience that draws in users and encourages them to remain longer (Flavián *et al.,* 2019). These captivating experiences foster deeper emotional ties with the brand. When customers experience excitement and satisfaction, they are more inclined to trust the brand, share it on social media, and return for future purchases. Research indicates that positive emotions during AR shopping experiences enhance customer loyalty and promote wordof-mouth marketing (Poushneh, 2018). Customers can browse items, evaluate attributes, and decide based on their own experiences, rather than solely on product details. Assuming this active position enhances their bond with the brand and creates a more unforgettable shopping experience (Chylinski *et al.,* 2020)

Immersive technologies offer numerous advantages that enhance and optimize the shopping experience. They assist customers in visualizing products more clearly, experimenting with various styles or features, and minimizing uncertainty prior to making a purchase (Hilken *et al.,* 2017). These advantages enhance customer trust and contentment, while decreasing return rates and boosting overall shopping effectiveness. Nonetheless, these technologies possess certain limitations as well. Certain research indicates that substantial costs associated with development and implementation may pose a significant obstacle for small and medium-sized retailers (Bonetti *et al.,* 2018). Some individuals indicate that users occasionally have difficulties with complex interfaces or insufficient understanding of how to effectively utilize AR/VR tools (Hinsch *et al.,* 2020).

Furthermore, worries regarding privacy and data security particularly when personal information or facial recognition is at stake can lead consumers to feel reluctant to participate (Pantano & Gandini, 2017). To address these difficulties, retailers should emphasize intuitive design, provide easy tutorials, and convey clear data policies. Enhancing digital literacy via training and customer assistance is crucial for making immersive technologies more inclusive and broadly accepted (Cowart *et al.,* 2021).

2.3 Research Gaps in Current Literature

Despite the growing interest in immersive technologies, numerous areas still need further investigation. The majority of existing research is focused on the short term and fails to investigate how consumer behavior evolves over time with continual use of AR/VR (Huang & Liu, 2020). Longitudinal research is essential for comprehending how trust and familiarity with these tools develop over time. Research is also insufficient regarding the effects of immersive technologies on various consumer segments based on age, gender, culture, or purchasing behaviors (Dwivedi *et al.,* 2021). Given that global retailers cater to varied customers, understanding how distinct groups react to immersive experiences and identifying required customizations is essential. Another overlooked domain is ethics. Concerns such as user consent, data ownership, and the psychological effects of immersive environments require increased focus in upcoming research (Kaplan & Haenlein, 2019). Finally, the majority of studies concentrate on either AR or VR exclusively. Comparative research analyzing the distinct effects of AR, VR, MR (Mixed Reality), and the metaverse on consumer engagement and decision-making remains uncommon yet critically necessary (Pizzi *et al.,* 2020).

3. Research Methodology: PRISMA Model

3.1 Database and Search Strategy

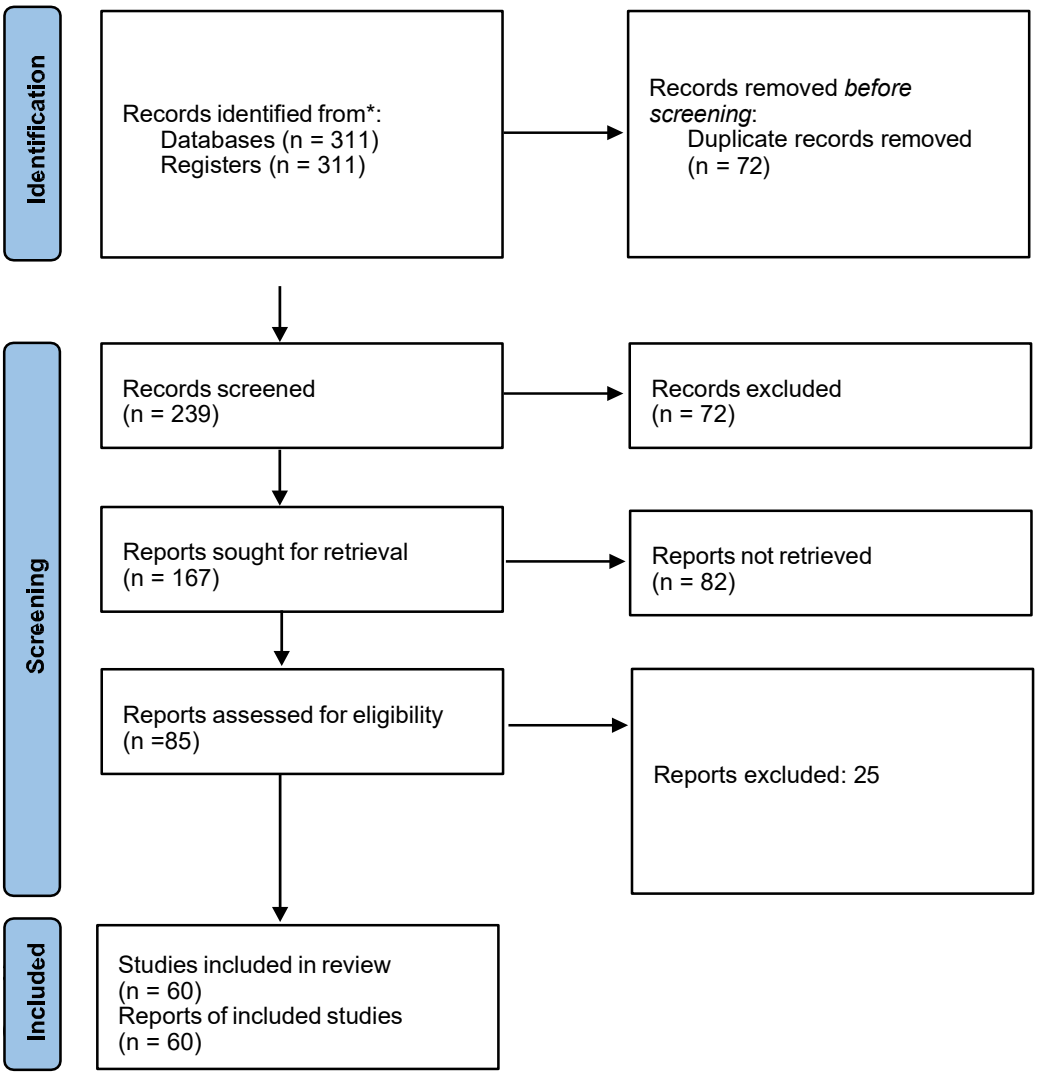
This research employs the PRISMA approach to systematically analyze scholarly works regarding immersive technologies in the retail sector. PRISMA guarantees a clear, repeatable, and thorough review procedure. The databases utilized for the literature review consist of Scopus, Web of Science, and Google Scholar. Keywords were meticulously chosen to encompass a broad spectrum of pertinent subjects, including “Augmented Reality in Retail,” “Virtual Reality Shopping Habits,” “Consumer Acceptance of Immersive Technologies,” and “Value-Based Adoption in Retail.” The review focused on studies published from 2015 to 2025, guaranteeing the incorporation of current and pertinent research criteria for Inclusion and Exclusion.

To maintain quality and relevance, only peer-reviewed journal articles published in English from 2015 to 2025 were considered. The articles needed to concentrate specifically on the application of immersive technologies (AR, VR) within retail settings and address consumer-related results like perceptions, behavior, or acceptance. Research that excluded consumer viewpoints or lacked empirical evidence was omitted to preserve the review's focus and integrity.

3.2 PRISMA Flow Representation

Stage	Count
Records identified	311
Duplicates removed	72
Abstracts screened	239
Full-text articles reviewed	85
Articles included in review	60

PRISMA Model



3.3 Theoretical Framework: Value-Based Adoption Model (VAM)

The Value-Based Adoption Model (VAM) provides a thorough framework for comprehending how consumers assess and choose to embrace new technologies. First introduced by Kim, Chan, and Gupta (2007), VAM suggests that people evaluate new technologies by balancing the perceived advantages and the perceived costs. This evaluation of costs and benefits is crucial in the decision-making process. Within the realm of immersive retail technologies like Augmented Reality (AR) and Virtual Reality (VR), this framework holds significant importance as these technologies go beyond functional purposes they offer engaging, experiential interactions. Consumers assess not only the usefulness of a technology but also if it provides significant experiences that warrant any associated effort, cost, or risk of using it.

Perceived advantages within the VAM framework denote the favorable results that users anticipate achieving from utilizing a technology. In immersive retail settings, these advantages encompass perceived usefulness, indicating how significantly the technology assists consumers in making improved, quicker, or more assured purchasing choices (Davis, 1989). A notable advantage is perceived enjoyment, reflecting the emotional fulfillment and pleasure gained from using technologies such as AR mirrors or VR fitting rooms (Childers *et al.,* 2001). Immersive experiences provide visual appeal, customization, and a feeling of uniqueness that enhance the shopping experience, making it more enjoyable and fulfilling (Hilken *et al.,* 2017). These experiences can enhance convenience by allowing customers to browse products from any location, thus conserving time and removing limitations of in-store shopping (Pantano & Gandini, 2017).

Conversely, VAM emphasizes the significance of perceived sacrifices factors that consumers consider as expenses. These encompass the time and effort needed to master new interfaces, especially when the technology is not user-friendly or necessitates extra devices (Hinsch *et al.,* 2020). Financial issues might emerge if immersive technologies require costly smartphones, VR headsets, or significant internet consumption. Privacy and data protection are significant issues, particularly when users must allow camera access or share personal information (Kaplan & Haenlein, 2019).

Moreover, certain users might face cognitive strain or unease while engaging with intricate virtual settings, diminishing the perceived worth of the experience (Poushneh, 2018). In retail environments, the VAM framework provides important understanding of how customers assess immersive technologies and choose to incorporate them into their shopping habits. For instance, a consumer employing an AR application to see how a new couch looks in their living room might recognize significant value because of the tool's role in enhancing decision-making and boosting satisfaction (Hilken *et al.,* 2017). Nonetheless, if the app is hard to use or asks for intrusive permissions, the user might feel negative emotions or distrust. Such negative views can lessen the overall worth of the experience, despite the technology providing considerable practical advantages. Consequently, adoption relies on a intricate interaction between what consumers receive and what they believe they have to forfeit. When the perceived advantages surpass the perceived costs, the technology is regarded as worthwhile, leading consumers to form positive attitudes. These perspectives have a beneficial impact on intentions to act, including the desire to keep using the technology, interact with the brand, and conduct repeat purchases.

Moreover, favorable experiences can result in heightened customer loyalty, deeper emotional connections to the brand, and recommendations through word-of-mouth (Yim, Chu, & Sauer, 2017). On the other hand, if consumers perceive that the sacrifices outweigh the benefits, they might completely reject or steer clear of the technology, no matter its innovative aspects or possible usefulness (Pizzi, Scarpi, & Pantano, 2020). The power of VAM resides in its capacity to include both functional and experiential elements of technology usage. It transcends conventional models that concentrate solely on usability or efficiency, integrating emotional and psychological aspects that are becoming more vital in contemporary consumer experiences. As immersive technologies keep transforming retail, grasping the subjective perception of value becomes essential. Retailers and developers can utilize this approach to enhance technology design, lower adoption barriers, and create marketing strategies that emphasize emotional advantages while minimizing perceived expenses (McLean & Wilson, 2019).

By doing this, they can guarantee that immersive tools not only engage users but also deliver enduring value that fosters long-term consumer involvement. Consequently, the VAM model functions as an essential theoretical framework for analyzing consumer behavior in immersive retail settings. It offers an organized method to evaluate the elements affecting technology acceptance while permitting adaptability to consider emotional, situational, and cultural differences in consumer choices. As researchers and professionals keep investigating the incorporation of AR, VR, and mixed reality in retail, the VAM framework provides a solid, yet flexible, method for comprehending how consumers view, assess, and react to immersive experiences.

3.4 Conceptual Framework

This theoretical structure, based on the Value-based Adoption Model (VAM), investigates how the perceived advantages and costs of immersive technologies (AR/VR) affect consumer actions in retail. It emphasizes the impact of these value perceptions on user attitudes, intentions to adopt, and buying choices.

Conceptual Model

Q1. In what ways do interactivity and immersion in AR and VR affect consumers' views on realism and utility in retail experiences?

Q6.How do demographic factors (such as age and digital literacy) moderate consumer adoption of immersive retail technologies?

Perceived Benefits

1. Perceived Usefulness
2. Perceived Enjoyment
3. Perceived Shopping interface
4. Perceived visual appeal
5. Perceived immersion
6. Perceived aesthetic appeal
7. Perceived novelty
8. Perceived flow state
9. Perceived convenience
10. Perceived social presence
11. Perceived personalization

Perceived Sacrifices

1. Perceived Technicality/ technological discomfort
2. Perceived fee/financial cost
3. Perceived Privacy risk
4. Perceived complexity
5. Perceived discomfort
6. Perceived cognitive load
7. Perceived time consumption
8. Perceived social disapproval

Perceived Value

Perceived Value = Benefits – Sacrifices

Adoption Intention

Q2. How do perceived customization and perceived personalization affect emotional involvement in immersive retail settings?

Q5. In what ways does the immersive environments stimulate impulse purchases in virtual shopping contexts?

Q3. In what ways do immersive experiences (AR/VR) influence brand loyalty?

Q4How do AR and VR differently influence cons umer behavior at various points in the shopping jo urney (pre-engagement, during experience, post-engagement)?

Perceived usefulness denotes how much consumers think that utilizing AR or VR aids them in making improved shopping choices through enhanced product comprehension or comparisons (PaRUS, 2023). Perceived enjoyment reflects the pleasure, entertainment, or emotional fulfillment that consumers gain from participating in immersive experiences, enhancing the shopping experience (PaRUS, 2023). The perceived shopping interface emphasizes the ease and intuitiveness of using the AR/VR platform; a smooth interface boosts customer satisfaction and minimizes frustration (PaRUS, 2023). The perceived attractiveness of visuals pertains to the quality and authenticity of product images displayed in immersive formats; realistic, high-quality visuals enhance trust and engagement (PaRUS, 2023). Perceived immersion refers to the sensation of being wholly engaged or "present" in the virtual setting, enhancing emotional connection (PaRUS, 2023). Perceived aesthetic appeal denotes the general attractiveness and design excellence of the technological environment, impacting the consumer's perception and involvement (PaRUS, 2023). Perceived novelty indicates how fresh or creative the experience seems; innovative technology frequently grabs attention and encourages users to delve deeper into it (PaRUS, 2023). The perceived flow state is a mental condition in which users are highly engrossed and become unaware of time while interacting, usually linked to pleasurable and absorbing experiences (PaRUS, 2023). Perceived convenience refers to the ability to shop at any place and time, providing benefits that save time and reduce effort (PaRUS, 2023). Perceived social presence is the feeling of engaging with actual individuals—be it fellow shoppers or digital sales associates— in the immersive environment, potentially boosting trust and satisfaction (PaRUS, 2023). Perceived personalization denotes how much the system customizes experiences and content to match a person's preferences, enhancing relevance and user satisfaction (PaRUS, 2023).

Conversely, perceived technicality or technological unease encompasses any challenges or annoyance encountered when utilizing the technology, particularly for users with limited tech skills (PaRUS, 2023). Perceived financial charges or costs relate to worries regarding the expenses of devices, applications, or data use necessary for engaging in AR/VR experiences (PaRUS, 2023). Perceived privacy risk relates to concerns about the collection, use, or potential misuse of personal data in immersive experiences (Hadan et al., 2025). Perceived complexity refers to the mental or functional challenge of maneuvering through the interface or grasping how the system operates (PaRUS, 2023). Perceived discomfort denotes physical discomfort resulting from technology, including eye strain or motion sickness from headsets (PaRUS, 2023). Perceived cognitive load refers to the mental effort needed to operate the technology, potentially overwhelming users (PaRUS, 2023). Perceived time consumption refers to the notion that engaging with AR/VR consumes more time than conventional approaches, potentially diminishing its perceived effectiveness (PaRUS, 2023). Finally, perceived social disapproval indicates anxiety or embarrassment concerning the use of advanced technology in social or public situations, particularly among older or more conservative user demographics (PaRUS, 2023).

When shoppers contemplate utilizing immersive technologies such as AR and VR in retail, they assess various perceived advantages that improve their shopping experience. A significant advantage is practicality, as users perceive these technologies assist them in making improved, faster choices by clearly visualizing products (Huang & Liao, 2015). They appreciate the engaging aspect of these platforms, which makes shopping more enjoyable and interactive (Javornik, 2016).

The layout of the shopping interface is important as well a seamless and user-friendly interface enhances satisfaction and usability (Flavián, Ibáñez-Sánchez, & Orús, 2019). The visual charm and

aesthetic value of these technologies draw consumers in, enhancing the realism and attractiveness of products (Hilken *et al.,* 2017). The feeling of being "present" in a digital setting, or perceived immersion, together with sensations of novelty and flow state (intense engagement), significantly enrich the experience (Li, Daugherty, & Biocca, 2019).

Immersive retail tools provide convenience by enabling customers to shop at any time and from anywhere, while also offering a sense of social engagement through interactions with other users or virtual sales assistants (Pantano & Gandini, 2017). Moreover, several platforms provide customization, adapting experiences to personal tastes, thereby enhancing satisfaction and commitment (Verhagen, Vonkeman, & Feldberg, 2015). Nevertheless, in addition to these advantages, consumers also recognize several trade-offs that may hinder acceptance. Certain individuals experience unease due to the technical intricacy or perceive the technology as challenging, resulting in technological uneasiness (Poushneh & Vasquez-Parraga, 2017). The expense of devices or applications can serve as an obstacle (Dwivedi et al., 2021). Concerns about privacy emerge when individuals are apprehensive regarding the collection and utilization of their personal data (privacy risk) (Kaplan & Haenlein, 2019).

Some people perceive immersive tools as too complicated or experience unease from using VR headsets or prolonged screen exposure (Hinsch *et al.,* 2020). Certain individuals encounter cognitive overload, where excessive information or interaction surpasses their capacity to process it efficiently (Pizzi, Scarpi, & Pantano, 2020). The time required to learn and utilize the technology, or the perceived time expenditure, can discourage consumers (Huang & Liao, 2015). Finally, social disapproval—worries about how their use of these technologies is perceived by others might hinder adoption (Flavián *et al.,* 2019). Retailers must thoughtfully weigh these perceived advantages and trade-offs to effectively motivate consumers to embrace immersive shopping tools.

The table below details the primary perceived benefits and perceived sacrifices linked to immersive technologies in retail. These elements are essential for grasping how consumers assess the value of these technologies, which ultimately influences their readiness to embrace and interact with AR and VR applications throughout the shopping experience.

Table No. 1.4: Perceived Benefits & Perceived Sacrifices identified from literature.

Category	**Factors**	**Description**	**Reference**
	Perceived Usefulness	The degree to which a person believes that using a particular system would enhance their job performance.	Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008

Perceived Benefits	Perceived Enjoyment	The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system usage.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Shopping Interface	The user's perception of the design and usability of an online shopping platform's interface, influencing ease of navigation and satisfaction.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Visual Appeal	The aesthetic quality of a website or application, including design elements like color schemes, typography,	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x

		and layout, affecting user engagement.	
	Perceived Immersion	The extent to which a user feels deeply engaged or absorbed in an online environment, often enhanced by interactive or	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x

	multimedia elements.	
Perceived Aesthetic Appeal	The visual attractiveness of a digital platform, influencing first impressions and overall user experience.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x

	Perceived Novelty	The degree to which a technology or feature is perceived as new or innovative, potentially attracting users seeking new experiences.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Flow State	A psychological state where users experience deep focus and enjoyment during interaction with a system.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Convenience	The ease and effortlessness with which users can complete tasks using a technology, often leading to increased adoption.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Social Presence	The sense of being with others in a virtual environment, enhancing communication and social interaction.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Personalization	The degree to which a system tailors its content and functionality to individual user preferences and behaviors.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x

Perceived Sacrifices	Perceived Technicality/Technological Discomfort	The discomfort or difficulty users experience when interacting with complex or unfamiliar technology.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
	Perceived Fee/Financial Cost	The monetary expense associated with using a technology, including subscription fees, transaction costs, or hidden charges.	Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008
	Perceived Privacy Risk	Concerns about the security and confidentiality of personal data when using a technology.	Lee, Y., Kozar, K. A., & Larsen, K. R. T. (2003). The technology acceptance model: Past, present, and future. *Communications of the Association for Information Systems*, 12, 752–780. https://doi.org/10.17705/1CAIS.01250
	Perceived Complexity	The perceived difficulty in understanding or using a technology, which can deter adoption.	Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7(3), 101–134. https://doi.org/10.1080/10864415.2003.1104427 5
	Perceived Discomfort	The physical or emotional unease experienced by users during or after technology use.	Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.

	satisfaction and performance.	
Perceived Time Consumption	The amount of time users perceive they must invest in learning or using a technology.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x
Perceived Social Disapproval	The fear of negative judgment from others regarding the use of a particular technology.	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2
Perceived Cognitive Load	The mental effort required to use a technology, which can impact user	Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315. https://doi.org/10.1111/j.15405915.2008.00192.x

4. Discussion

4.1 In what ways do interactivity and immersion in AR and VR affect consumers' views on realism and utility in retail experiences?

Interactivity and immersion are central to the value proposition of immersive technologies in retail environments. Augmented Reality (AR) and Virtual Reality (VR) allow consumers to engage with products in dynamic, lifelike settings, fostering a stronger sense of realism. AR enables users to visualize products within their own physical spaces—such as placing a virtual sofa in their living room—bridging the gap between online and offline shopping (Javornik, 2016; Hilken et al., 2017). VR, on the other hand, offers fully immersive environments, simulating in-store experiences and promoting deeper exploration and engagement (Poushneh & Vasquez-Parraga, 2017).

The interactive features of these technologies contribute to perceived utility, empowering consumers to make informed decisions. When users actively engage—through rotating, customizing, or testing products virtually—they develop greater confidence in their choices. This interactive capability supports the perceived usefulness dimension within the Value-Based Adoption Model (VAM), ultimately influencing technology acceptance and intention to adopt (Kim et al., 2007; Huang & Liu, 2020). Moreover, the immersive characteristics of AR and VR boost emotional involvement by triggering positive emotions like joy and curiosity, which further reinforce consumer-brand connections (Flavián et al., 2019). These technologies diminish the perceived risk linked to online shopping by offering more precise product depictions, thereby reducing uncertainty and enhancing purchase intention (Javornik, 2016; McLean & Wilson, 2019). Additionally, the capacity to customize and adapt virtual experiences addresses increasing consumer expectations for personalization, improving overall satisfaction and loyalty (Hilken et al., 2017; Poushneh & Vasquez-Parraga, 2017).

4.2 How do perceived customization and personalization affect emotional involvement and brand loyalty in immersive retail settings?

Personalization and customization play a crucial role in shaping the emotional resonance of immersive retail experiences. Tailored content—such as customized product recommendations or virtual fittings based on user preferences—heightens emotional engagement by making experiences feel relevant and personally meaningful (Hilken et al., 2017; PaRUS, 2023).

These features contribute to a sense of perceived personalization, which enhances not only consumer satisfaction but also emotional involvement, a key factor in prolonged interaction and positive brand association. Within the VAM framework, the perceived enjoyment of immersive technologies, bolstered by personalization, significantly raises the overall perceived value, thus motivating adoption behavior (Poushneh, 2018; Verhagen et al., 2015). Additionally, personalization within immersive technologies allows retailers to collect important consumer data, which facilitates the ongoing enhancement of marketing strategies and better user experiences (Flavián et al., 2019). This agile responsiveness not only enhances the significance of interactions but also cultivates trust and loyalty by showing regard for personal needs (McLean & Wilson, 2019). Consequently, shoppers tend to view immersive retail experiences as significant and valuable, strengthening their desire to interact continuously with the technology (Huang & Liu, 2020).

4.3 In what ways do immersive experiences (AR/VR) influence brand loyalty?

Immersive technologies are increasingly recognized for their potential to cultivate brand loyalty. When consumers experience pleasure, engagement, and novelty through immersive formats, these emotional reactions lead to stronger brand attachment. Virtual experiences that evoke aesthetic appeal, flow states, or a sense of presence reinforce positive associations with the brand (Huang & Liu, 2020; Li et al., 2019).

Furthermore, immersive technologies enable brands to move beyond transactional interactions toward creating memorable brand experiences. These emotionally fulfilling interactions foster trust, increase satisfaction, and prompt repeat purchase intentions. As suggested by the VAM, when the emotional and functional benefits of immersive tools outweigh the perceived sacrifices, consumers are more likely to develop long-term loyalty (Yim et al., 2017; McLean & Wilson, 2019). Immersive technologies enhance community building and social sharing, enabling consumers to bond over common brand experiences, which in turn reinforces brand loyalty (Flavián et al., 2019). This social aspect boosts the overall perception of value and fosters advocacy, increasing the beneficial effects on enduring consumer relationships (Verhagen et al., 2015).

4.4 How do AR and VR differently influence consumer behavior at various points in the shopping journey (pre-engagement, during experience, post-engagement)?

AR and VR influence consumer behavior differently across the various stages of the shopping journey. During the pre-engagement phase, AR proves particularly effective by providing easily accessible tools for product discovery and visualization. Consumers can explore options using their smartphones, allowing for low-barrier entry and enhanced product understanding (Pantano & Gandini, 2017).

In contrast, during the experience phase, VR takes precedence by offering deeply immersive virtual environments that mimic real store layouts or curated brand worlds. These experiences enhance consumer presence and can trigger emotional responses such as excitement or curiosity (Poushneh & Vasquez-Parraga, 2017; Hilken et al., 2020).

Post-purchase, AR continues to support consumer engagement through features like virtual tutorials or interactive guides, while VR's influence tends to decline due to its hardware dependency and limited post-use interaction (Huang & Liu, 2020). This staged approach highlights the importance of aligning technology types with specific consumer touchpoints to maximize impact.

4.5 In what ways does the immersive environments stimulate impulse purchases in virtual shopping contexts?

Immersive retail environments, particularly those enabled by AR and VR, are uniquely capable of stimulating impulse purchasing behaviors. The emotional intensity of immersive experiences—driven by rich visual aesthetics, interactive elements, and gamified interfaces—lowers cognitive defenses and increases susceptibility to spontaneous decisions (Beck & Crié, 2018; Wang et al., 2022).

Features such as real-time promotions, virtual product placements, or limited-time offers embedded within immersive platforms can create a heightened sense of urgency and enjoyment. These cues mirror traditional in-store impulse triggers but are amplified through digital immersion, encouraging emotion-driven purchases without extensive deliberation (Pizzi et al., 2020; Poushneh, 2018).

4.6 How do demographic factors (such as age and digital literacy) moderate consumer adoption of immersive retail technologies?

Demographic characteristics, such as age and digital literacy, significantly moderate the adoption of immersive technologies in retail. Younger consumers, particularly those familiar with gaming and digital tools, often report higher perceived ease of use and lower technological discomfort, making them more receptive to AR and VR-based experiences (Dwivedi et al., 2021). Conversely, older individuals or those with restricted digital abilities may face heightened perceived costs, like complexity and privacy issues, that can impede adoption (Venkatesh et al., 2012). Moreover, variables such as income status and cultural heritage affect the accessibility and perceptions of immersive technologies, thereby influencing usage trends (Poushneh & Vasquez-Parraga, 2017). Grasping these demographic variations is crucial for retailers seeking to customize immersive experiences for various consumer groups and enhance adoption rates (Kim & Forsythe, 2008).

5. Conclusion

Immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) are redefining the retail landscape by creating shopping experiences that are not only more interactive and personalized but also emotionally engaging. These technologies enable consumers to visualize products within realistic contexts, explore options more intuitively, and make informed purchase decisions with greater confidence. Drawing on the Value-Based Adoption Model (VAM), existing literature emphasizes that consumers evaluate these technologies by balancing perceived benefits—such as enjoyment, usefulness, convenience, and personalization—against potential drawbacks, including complexity, cost, and privacy concerns. Importantly, the successful integration of AR and VR in retail goes beyond technical implementation; it requires a thoughtful focus on usability, accessibility, and trust-building across diverse consumer groups. When immersive technologies are deployed strategically—aligned with different stages of the customer journey and adapted to varying levels of digital literacy—they have the potential to significantly enhance perceived value, encourage adoption, strengthen brand loyalty, and ultimately elevate overall consumer satisfaction.

6. Limitations and Future Research Directions

Although this review offers important perspectives, it has its limitations. It solely comprises peerreviewed articles in English published from 2015 to 2025 and excludes grey literature, dissertations, or reports from industries. Furthermore, it does not conduct a meta-analysis to statistically aggregate the results of the studies. Future studies should carry out long-term research to monitor how consumer behavior evolves over time with immersive technologies. Comparisons across cultures and demographics are essential to customize strategies for various consumer groups. Increased focus is needed on post-purchase behavior, loyalty, and ethical concerns like data protection, user consent, and the psychological effects of immersive environments.

References

1. Alimamy, S., & Kim, M. J. (2021). Examining augmented reality in retail: A customer perspective. *Sustainability, 13*(2), 834. https://doi.org/10.3390/su13020834
2. Beck, M., Pizzi, G., & Scarpi, D. (2022). Crossing the reality-virtuality border: Exploring consumer engagement with mixed reality. *Journal of Business Research, 140*, 316–330. https://doi.org/10.1016/j.jbusres.2021.11.062
3. Choi, Y. K., & Taylor, C. R. (2022). The impact of immersive technology on advertising: A meta-analytic review. *Journal of Advertising, 51*(1), 9–27. https://doi.org/10.1080/00913367.2021.2007023
4. Dwivedi, Y. K., et al. (2020). Future of digital/social media marketing research.

   International Journal of Information Management, 59, 102168. https://doi.org/10.1016/j.ijinfomgt.2020.102168
5. Dwivedi, Y. K., et al. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives.

   International Journal of Information Management, 57, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002
6. Gajanan, V., & Venkatesh, U. (2021). Role of augmented reality in enhancing consumer experience. *International Journal of Retail & Distribution Management, 49*(5), 579–600. https://doi.org/10.1108/IJRDM-04-2020-0133
7. Ghosh, S., et al. (2021). Consumer perception toward AR advertising: Role of interactivity and novelty. *Journal of Consumer Behaviour, 20*(4), 1002–1017. https://doi.org/10.1002/cb.1901
8. Hammerschmidt, M., Zahay, D., & Terho, H. (2021). Enhancing brand experience in virtual settings: A research agenda. *Journal of Business Research, 134*, 829–841. https://doi.org/10.1016/j.jbusres.2021.06.008
9. Hilken, T., et al. (2020). Touching the untouchable: Exploring multi-sensory augmented reality. *Journal of Retailing, 96*(3), 295–309. https://doi.org/10.1016/j.jretai.2019.11.004
10. Huang, T. L., & Liu, F. (2020). Engaging consumers through AR interactive technology.

    Journal of Retailing and Consumer Services, 54, 102082. https://doi.org/10.1016/j.jretconser.2019.102082
11. Kondo, K., & Okada, H. (2021). Attitudes toward AR try-on apps and purchase intention.

    Computers in Human Behavior, 123, 106873. https://doi.org/10.1016/j.chb.2021.106873
12. Lee, H. J., et al. (2021). Why consumers use augmented reality in shopping: The role of sensory experience. *Journal of Retailing and Consumer Services, 59*, 102359. https://doi.org/10.1016/j.jretconser.2020.102359
13. Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on VR and AR.

    Computers in Human Behavior, 110, 106384. https://doi.org/10.1016/j.chb.2020.106384
14. McLean, G., et al. (2020). Augmented reality in retail: A systematic review. *Computers in Human Behavior, 101*, 102041. https://doi.org/10.1016/j.chb.2019.01.006
15. Meißner, M., Pfeiffer, J., & Pfeiffer, T. (2020). How VR enhances retail experiences.

Journal of Retailing and Consumer Services, 54, 102034. https://doi.org/10.1016/j.jretconser.2019.101967

16. Rauschnabel, P. A., et al. (2022). What is XR? Towards a framework for augmented and virtual reality. *Computers in Human Behavior, 133*, 107289. https://doi.org/10.1016/j.chb.2022.107289
17. Wang, Y., et al. (2022). Exploring the effect of augmented reality on online impulse buying in retail. *Computers in Human Behavior, 128*, 107125. https://doi.org/10.1016/j.chb.2021.107125
18. Beck, M., & Crié, D. (2018). I virtually try it… I want it! *Journal of Retailing and Consumer Services, 40*, 279–286. https://doi.org/10.1016/j.jretconser.2017.03.006
19. Bonetti, F., Warnaby, G., & Quinn, L. (2018). AR & VR in retail: A review and agenda. In *Augmented Reality and Virtual Reality* (pp. 119–132). Springer. https://doi.org/10.1007/9783-319-64027-3_9
20. Fiore, A. M., et al. (2015). Affective processes in AR retail. *Psychology & Marketing, 32*(7), 675–690. https://doi.org/10.1002/mar.20808
21. Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). XR's impact on customer experience.

Journal of Business Research, 100, 547–560. https://doi.org/10.1016/j.jbusres.2018.10.050

22. Heller, J., et al. (2019). Transforming the retail frontline. *Journal of Retailing, 95*(2), 94–

114. https://doi.org/10.1016/j.jretai.2018.12.005

23. Hilken, T., et al. (2017). Strategic potential of AR for services. *Journal of the Academy of Marketing Science, 45*(6), 884–905. https://doi.org/10.1007/s11747-017-0541-x
24. Javornik, A. (2016). Impact of AR on consumer behaviour. *Journal of Retailing and Consumer Services, 30*, 252–261. https://doi.org/10.1016/j.jretconser.2016.02.004
25. Kim, J., & Forsythe, S. (2008). Adoption of virtual try-on technology for online apparel shopping. *Journal of International Marketing, 22*(2), 45–59.
26. Klein, L. R. (2003). Creating virtual product experiences: The role of telepresence. *Journal of Interactive Marketing, 17*(1), 41–55.
27. Koller, M. (1988). Risk as a determinant of trust. *Basic and Applied Social Psychology, 9*(4), 265–276.
28. Lee, H.-H., Fiore, A. M., & Kim, J. (2006). The role of the technology acceptance model in explaining effects of image interactivity technology on consumer responses. *International Journal of Retail and Distribution Management, 34*(8), 621–644.
29. Lombard, M., & Snyder-Duch, J. (2001). Interactive advertising and presence: A framework.

Journal of Interactive Advertising, 1(2), 56–65.

30. Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on VR and AR.

Computers in Human Behavior, 110, 106384. https://doi.org/10.1016/j.chb.2020.106384

31. Makransky, G., & Lilleholt, L. (2018). Emotional value of immersive VR in education. *Educational Technology Research and Development, 66*(5), 1141–1164. https://doi.org/10.1007/s11423-018-9581-2
32. McLean, G., et al. (2020). Augmented reality in retail: A systematic review. *Computers in Human Behavior, 101*, 102041. https://doi.org/10.1016/j.chb.2019.01.006
33. Meißner, M., Pfeiffer, J., & Pfeiffer, T. (2020). How VR enhances retail experiences. *Journal of Retailing and Consumer Services, 54*, 102034. https://doi.org/10.1016/j.jretconser.2019.101967
34. Pantano, E., & Gandini, A. (2017). Exploring the forms of sociality mediated by innovative technologies in retail settings. *Computers in Human Behavior, 77*, 367–373.
35. Pantano, E., & Servidio, R. (2012). Modeling innovative points of sales through virtual and immersive technologies. *Journal of Retailing and Consumer Services, 19*(3), 279–286.
36. Pizzi, G., Scarpi, D., & Pantano, E. (2019). Virtual try-on in retailing. *Journal of Retailing and Consumer Services, 49*, 35–42. https://doi.org/10.1016/j.jretconser.2019.03.017
37. Poncin, I., & Mimoun, M. S. B. (2014). The impact of "e-atmospherics" on physical stores. *Journal of Retailing and Consumer Services, 21*(5), 851–859.
38. Poushneh, A. (2018). AR in retail: Trade-off of data control. *Journal of Retailing and Consumer Services, 41*, 169–176. https://doi.org/10.1016/j.jretconser.2017.12.010
39. Poushneh, A., & Vasquez-Parraga, A. Z. (2017). AR impact on satisfaction and purchase. *Journal of Retailing and Consumer Services, 34*, 229–234. https://doi.org/10.1016/j.jretconser.2016.10.005
40. Rauschnabel, P. A., & Ro, Y. K. (2016). Smart glasses and AR acceptance. *International Journal of Technology Marketing, 11*(2), 123–148. https://doi.org/10.1504/IJTMKT.2016.075687
41. Rese, A., et al. (2017). How AR apps are accepted. *Technological Forecasting and Social Change, 124*, 306–319. https://doi.org/10.1016/j.techfore.2016.10.010
42. Resnick, M. L., & Montague, E. (2015). Role of technology in consumer behavior. *Ergonomics in Design, 23*(4), 4–9. https://doi.org/10.1177/1064804615599782
43. Scholz, J., & Duffy, K. (2018). AR in mobile marketing. *Journal of Retailing and Consumer Services, 44*, 11–23. https://doi.org/10.1016/j.jretconser.2018.05.004
44. Smink, A. R., Frowijn, A., & van Herpen, E. (2020). AR displays vs print displays. *Journal of Retailing, 96*(3), 411–425. https://doi.org/10.1016/j.jretai.2019.11.002
45. Syrdal, H. A., & Briggs, E. (2018). Engagement with mobile apps. *Journal of Retailing and Consumer Services, 44*, 229–238. https://doi.org/10.1016/j.jretconser.2018.06.009
46. Tussyadiah, I. P., Wang, D., & Jia, C. H. (2021). Virtual reality and attitudes toward tourism destinations. *Tourism Management, 87*, 104324. https://doi.org/10.1016/j.tourman.2021.104324
47. Van Esch, P., et al. (2019). Consumer emotional intelligence and mobile apps. *Journal of Retailing and Consumer Services, 47*, 303–311. https://doi.org/10.1016/j.jretconser.2018.12.004
48. Verhoef, P. C., et al. (2015). Customer experience creation. *Journal of Retailing, 85*(1), 31–

44. https://doi.org/10.1016/j.jretai.2014.10.001

49. Weismueller, J., et al. (2020). Let's get phygital: AR's effect on customer engagement. *Journal of Interactive Marketing, 52*, 51–66. https://doi.org/10.1016/j.intmar.2020.04.001

50. Yim, M. Y. C., Chu, S. C., & Sauer, P. L. (2017). AR in e-commerce. *Journal of Interactive Marketing, 39*, 89–103. https://doi.org/10.1016/j.intmar.2017.04.001
51. Zheng, X., et al. (2017). E-loyalty and AR in online shopping. *Internet Research, 27*(3), 449–473. https://doi.org/10.1108/IntR-06-2016-0166
52. Chung, N., Han, H., & Joun, Y. (2015). Tourists' intention and AR heritage sites. *Computers in Human Behavior, 50*, 588–599. https://doi.org/10.1016/j.chb.2015.02.068
53. Bulearca, M., & Tamarjan, D. (2010). Augmented reality: A sustainable marketing tool. *Global Business and Management Research: An International Journal, 2*(2), 237–252.

54. Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing, 77*(4), 511–535.
55. Verhagen, T., Vonkeman, C., & Feldberg, F. (2015). Understanding consumers' showrooming behavior: A mixed-method study. *Journal of Retailing and Consumer Services, 32*, 261–273.
56. Kim, H. W., Chan, H. C., & Gupta, S. (2007). Value-based adoption of mobile internet: An empirical investigation. *Decision Support Systems, 43*(1), 111–126.
57. Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing, 77*(4), 511–535.
58. Huang, T. L., & Liao, S. (2017). AR and multisensory flow. *Internet Research, 27*(2), 449–475. https://doi.org/10.1108/IntR-06-2016-0177
59. Li, H., Daugherty, T., & Biocca, F. (2019). Impact of 3-D advertising on product knowledge, brand attitude, and purchase intention: The mediating role of presence. *Journal of Advertising, 31*(3), 43–57.
60. Poncin, I., & Mimoun, M. S. B. (2014). The impact of "e-atmospherics" on physical stores. *Journal of Retailing and Consumer Services, 21*(5), 851–859.
61. PaRUS. (2023). *PaRUS: A virtual reality shopping method focusing on context between products and real usage scenes*. https://arxiv.org/abs/2306.14208