TẠP CHÍ KHOA HỌC VÀ CÔNG NGHỆ ĐẠI HỌC DUY TÂN
DTU Journal of Science and Technology 5(72) (2025) 161-175

ĐẠI HỌC DUY TÂN
DUYTAN UNIVERSITY

PRISMA-based systematic review of immersive experiences and consumer behavior: Theoretical perspectives and models

Tổng quan hệ thống dựa trên phương pháp PRISMA về trải nghiệm nhập vai và hành vi người tiêu dùng: Các góc nhìn lý thuyết và mô hình

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(Date of receiving article: 12/07/2025, date of completion of review: 17/09/2025, date of acceptance for posting: 06/10/2025)

Abstract

Current studies lack general theoretical frameworks that aim to deeply explore immersive experiences and consumer behavior. Therefore, it is difficult to explore the impact of VR/AR/MR on cognition and inconsistent purchase decision - making. This overview research adopts PRISMA method in order to screen and categorize theoretical frameworks, specify the effective mechanisms of immersive experiences on cognition, purchase decision-making and brand engagement. Based on PRISMA method, data sources such as Emerald, Scopus, Google Scholar, ProQuest and Web of Science (2010 - 2025) are used for this research data with keywords as "Immersive", "Virtual Reality", "Augmented Reality", "Consumer", and "Theory". The screening process of PRISMA includes four steps (Identification, Screening, Eligibility, Inclusion) which are all implemented to choose studies that meet appropriate criteria. There are 168 papers suitable for this study. The main theoretical frameworks consist of S-O-R, Technology Acceptance Model (TAM) and theories like UTAUT2, TPB, Flow, Narrative Transportation, along with Diffusion and Signaling. These studies are mainly published in prestigious journals such as Elsevier and Emerald. This overview paper emphasizes the role of psychological factors (presence, flow, personalization, interactivity) in recognizing brand and purchase decision. The research fills in the gap of general frameworks and distinguishes models corresponding to each technology (VR, AR, MR). Future research should develop integrated model and standardize measuring key concepts.

Keywords: immersive experiences; consumer behavior; VR/AR/MR technology; theoretical models; PRISMA-based systematic review; metaverse.

Tóm tắt

Nghiên cứu về trải nghiệm nhập vai và hành vi người tiêu dùng thiếu khung lý thuyết chung, khiến việc giải thích tác động của VR/AR/MR lên nhận thức và quyết định mua sắm không nhất quán. Bài tổng quan áp dụng phương pháp PRISMA để rà soát và phân loại các khung lý thuyết, làm rõ cơ chế tác động của trải nghiệm nhập vai lên nhận thức, quyết định mua và gắn kết thương hiệu. Dựa trên phương pháp PRISMA, nghiên cứu tìm kiếm trên các cơ sở dữ liệu Emerald, Scopus, Google Scholar, ProQuest và Web of Science (2010 - 2025) với từ khóa "Immersive", "Virtual Reality", "Augmented Reality", "Consumer", và "Theory". Quy trình sàng lọc PRISMA gồm bốn bước (nhận biết, sàng lọc, đánh

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giá chi tiết, bao gồm) được áp dụng để chọn các nghiên cứu đáp ứng tiêu chí. Có 168 công trình đáp ứng tiêu chí được phân tích. Khung lý thuyết chủ đạo bao gồm S-O-R, Lý thuyết Chấp nhận Công nghệ (TAM) và các lý thuyết UTAUT2, TPB, Flow, Narrative Transportation, cùng các lý thuyết Đổi mới (Diffusion) và Tín hiệu (Signaling). Các nghiên cứu này chủ yếu được công bố trên các tạp chí uy tín của Elsevier và Emerald. Bài tổng quan này nhấn mạnh vai trò của các yếu tố tâm lý (hiện diện, dòng chảy, cá nhân hóa, tương tác) đối với nhận thức thương hiệu và quyết định mua sắm. Nghiên cứu lấp đầy khoảng trống về khung lý thuyết chung và phân biệt các mô hình ứng với từng công nghệ (VR, AR, MR). Hướng nghiên cứu tương lai nên phát triển mô hình tích hợp và chuẩn hóa đo lường khái niệm chủ chốt.

Từ khóa: trải nghiệm nhập vai; hành vi người tiêu dùng; công nghệ VR/AR/MR; mô hình lý thuyết; nghiên cứu hệ thống PRISMA; metaverse.

1. Introduction

Immersive experiences strongly impact consumer behavior, especially in virtual reality - VR, augmented reality - AR and mixed reality - MR contexts. These technologies create an environment where consumers can interact with brands, products and services in a more realistic and vivid way than traditional approach methods [30]. When the participation of feeling and cognition are enhanced, brand awareness and decision-making process can take place in a more engaging way [6]. In metaverse environment, consumers use avatar to conduct social interactions and make purchases, thereby forming the relationships with brands [18].

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method is a tool that is often implemented in researching consumer behavior. It aims to summarize results systematically and prevent bias in data evaluation process [31]. This method allows announcing the transparency about screening method, selection and data analysis, and creating conditions for reproducibility at the same time when examining aspects such as presence, flow, emotional engagement in digital world [27]. However, summarizing diverse theoretical models and exploring psychological mechanisms regarding immersive experiences in a more comprehensive way still needs to be focused.

1.1. Research gap

Some studies on immersive experiences in consumer behavior nowadays are still lack of consistency in theoretical frameworks, leading to inconsistent analysis of the effects of VR, AR or MR on cognition and purchasing decisions [1]. Many analyses only focus on observing short-term impacts, and do not deeply explore the steady level of the relationship between consumers and brands in digital worlds [30]. The implementation of PRISMA method in this field also has some limitations regarding study selection, quality assessment, and result standardization, which makes the comparison ability among studies difficult [1]. In metaverse context and the expansion of e-commerce, it is necessary to have a more general perspective of factors like presence, flow, personalization and interactivity which are combined into a theoretical framework. Currently, there is no consistent measure of immersive experiences, especially with methods like questionnaires or behavioral tracking technologies, which makes result summary difficult [14]. Besides, there are not enough proofs about personalization level that is suitable to enhance both consumer engagement and prevent information overload [24]. The absence of multi-disciplinary evaluations also limits identification of complex psychological mechanisms related to decision - making process in digital environments [21].

1.2. Research objective and research questions

The overview of this system aims at screening, categorizing and assessing theoretical perspectives used to study immersive experiences and consumer behavior. The research objective is to analyze how current theoretical models explain interactions between

immersive technologies and psychological - social factors, thereby affecting awareness, purchase decision-making process and brand engagement. Three research questions include: (1) Which theories are applied to study immersive experiences of consumers (RQ1), (2) How do these theories explain consumer behavior in immersive environments (RQ2), and (3) What is the gap of current theoretical frameworks of immersive experiences (RQ3). This study adopts PRISMA - based systematic review of immersive experiences and consumer behavior: Theoretical perspectives and models to identify core factors such as presence, flow, personalization and interactivity, thereby anticipating the changes in responding brand or multi-channel interactive form [4; 24]. Through screening process, evaluation and summary according to PRISMA standard, the study expects to create an overall picture of how immersive technologies transform consumer behavior. Moreover, it suggests new research directions in order to enhance marketing effectiveness and to ensure sustainability in digital contexts.

2. Literature review

2.1. Defining immersive experiences in consumer research and key attributes of immersive experiences in consumer contexts

Immersive experiences have been studied in consumer behavior field through the development of virtual reality - VR, augmented reality - AR, mixed reality - MR. These technologies create a digital environment where consumers can interact with products, services and brands in a vivid and visual way. The studies focus on setting the nature, characteristics and the impact of immersive experiences on purchase decision-making process of consumers.

Immersive experiences can be identified through some main attributes. One of the most important attributes is presence, means feeling "being there" in a digital environment and augmented reality. The state helps consumers experience digital content more practical, boost consumer engagement in digital world [30]. Interactivity refers to the extent to which consumers can manipulate and interact with technical factors in immersive environments. The control and response ability of system with consumers' actions can significantly affect their relation with immersive content [3].

Another crucial attribute of immersive experiences is immersion, expressing the cognitive and emotional concentration that consumers experience in digital environments. When consumers reach this state, they tend to forget the existence of real world and completely immerse into that [8]. Especially, in the e-commerce and retail context, the immersion level can affect purchase decision and customer satisfaction with brands [29].

On the other hand, personalization also plays an important role in immersive experiences. When immersive content can be regulated according to hobbies, behavior or real-time data of consumers, the experience can become more suitable and attractive [24]. Personalization can be implemented through suggestive system based on artificial intelligence - AI or through interfaces that can adapt based on customer demand. In marketing and e-commerce world, personalization in VR and AR can significantly improve the engagement and loyalty of customers with brands [4].

2.2. Prior systematic reviews on immersive consumer behavior

Systematic reviews about immersive experiences in consumer behavior field often focus on analyzing how virtual reality - VR, augmented reality - AR and mixed reality - MR affect motivation and responses of consumers in commercial contexts. Some studies explore

theoretical frameworks as Stimulus - Organism - Response (S-O-R) or presence concept and flow, in order to explain the mechanism influence of virtual stimuli on emotions and purchase trend [11]. Many researches also clarify the role of avatar and embodiment process in digital environment, especially when consumers experience retail space or virtual market [1; 6].

Other research directions focus on the affection of immersive experiences on food industry, especially when VR or AR are used to simulate flavor, image or food environment [2]. The initial results show that the presence can reinforce the awareness of product quality or increase the willingness to pay higher prices. However, those studies primarily apply different measurement methods such as questionnaires, behavioral observations or motion tracking, making comparison process and result summary become more complicated [28].

Some overview systems do not provide consistent methodological framework to classify and assess the quality of studies about VR, AR and MR. This leads to the difficulty when comparing the relative results with presence level, interactivity and psychological effects in immersive context [14]. Data about long-term experience of consumer in virtual environment is also not clarified, especially in terms of brand engagement and maintaining loyalty [11]. In addition, few researches deeply discuss the influence of personalization in attracting or maintaining the interest of consumers, especially when considering risks related to personal information and information overload [24].

The current overviews still have some limitations under the perspective of multi-disciplinary, making the integration of psychology, computer science and marketing knowledge is not comprehensive. Some studies use S-O-R or ontology-based user experience framework to explain the process between consumer interaction and virtual environment. But they do not completely connect with economic-social factors, as well as mention cultural - geographical motivation [1]. These gaps show the necessity of a new system that has a widen screening scale, adopting PRISMA to ensure transparency and reproducibility. At the same time, it should build consistent measurement criteria in order to compare and assess the efficiency of immersive experiences on consumer behavior.

2.3. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) in consumer behavior

The PRISMA method in consumer behavior shows transparency, reproducibility and comprehensiveness in collecting, screening and synthesizing data [1; 6]. Compared with other review methods, PRISMA provides a systematic review process that has tight structure, clarifies the process of choosing studies and helps identify bias during collection [27]. This approach allows fully describing steps when seeking proofs, evaluating data quality and synthesizing results in order to optimize objectivity as well as reinforce theoretical foundation in highly advanced research context, including studying immersive experiences. Adopting the PRISMA - based systematic review of immersive experiences and consumer behavior: Theoretical perspectives and models supports researchers to screen diverse models, theories and empirical evidence from many sources, and to constantly update results through PRISMA version 2020 or Living Systematic Reviews (LSRs) [1; 31]. PRISMA method shows the appropriateness in analyzing the complex interactivity between psychological factors, perception and new technology, thereby fostering the ability to evaluate about how consumers respond with virtual environment,

advanced marketing script or interactive experiences [25].

In recent years, PRISMA methodology was widely adopted in order to enhance the rigorousness and the transparency for systematic review studies in different fields, including the immersive technology sector. Combining PRISMA protocol with bibliometric analysis enables a systematic evaluation of metaverse research trends in many industries and customer groups, thereby significantly increasing the implication of AR, MR and VR in business operation [22]. Another paper using PRISMA to consider the impact of VR/AR on self - regulated learning, showed that the frequency of publication has increased significantly from 2012 to 2021, especially in medical, computer science, and education fields [16]. Moreover, this method is applied to analyze how to use immersive VR in foreign language education [17]. Concurrently, the author confirmed the positive correlation between the immersive VR level and the academic performance compared to traditional methods. Recently, a report has implemented PRISMA to synthesize and categorize 77 types of research about immersive technologies in affective computing during the period of 2000 - 2024, thereby identifying primary trends related to emotion evocation, presence [12]. It also fosters the empathy in VR, AR and MR, as well as indicates the research gaps that still exist in AR and MR implications.

PRISMA guidelines became primary reporting standards for systematic reviews, which contribute to improve the transparency and standardizing research [15]. Several studies show that PRISMA has potential to adapt to different fields. For example, PRISMA methodology adopted in the education field [19], used it for studying based on adaptive games [5], and implemented to evaluate immersive technologies in tourism industry [20]. Apply PRISMA, however, also has some limitations and risks. In the healthcare sector, a report explored that a total of 701 systematic overviews, only 17% of epidemiologic reviews that cited MOOSE guidelines (Meta - analyses Of Observational Studies in Epidemiology), meanwhile, 40% of diagnostic systematic reviews used QUADAS tools [9]. This demonstrates that researchers "are blinded by PRISMA" and neglect specialized reporting standards. In addition, a research paper pointed out 18 main limitations of PRISMA in the environmental management, thereby developing ROSES (RepOrting standards for Systematic Evidence Syntheses) as an alternative method [10]. Nonetheless, recent studies like this research still proved the efficiency of PRISMA in evaluating the immersive technology and customer behavior system [1].

3. Methods

3.1. Research design

The PRISMA method is applied to systematic review about immersive experiences and consumer behavior. This approach helps to increase the transparency and reproducibility in selection process and data analysis.

3.2. Research subjects and scope of the research

Research subjects include scholarly academic works from various types of materials (research papers, books, conference reports, theses and dissertations), which are all published in English in 2010 - 2025. All of these focus on contents related to VR (Virtual Reality), AR (Augmented Reality), MR (Mixed Reality) and the interaction of consumers with those technologies.

Scope of the research covers five databases, including Emerald, Scopus, Google Scholar, ProQuest and Web of Science. The objectives are to create diverse database, thereby clarifying

theoretical perspectives and empirical findings in consumer behavior when participating in immersive experiences.

3.3. Search strategy and results

Boolean search technique is applied to identify keywords; for example: (“Immersive” OR “Immersive Experience” OR “Virtual Reality” OR “Augmented Reality”) AND (“Consumer” OR “Customer” OR “User”) AND (“Theory” OR “Theories” OR “Model” OR “Framework”). According to the data presented in Table 1, the search using the keywords “Immersive,” “Consumer/Customer,” and “Theories” yielded a total of 103,861 collected records, including 50 from Emerald, 25,817 from Scopus, 27,300 from GG Scholar, 46,523 from ProQuest and 4,171 from Web of Science.

Table 1. Summary of searches and results for keywords: immersive; consumer/customer and theories

Keywords	Database	Boolean search	Time	No. of results
Immersive + Consumer/ Customer + Theories	Emerald	("Immersive" OR "Immersive Experience" OR "Virtual Reality" OR "Augmented Reality") AND ("Consumer" OR "Customer" OR "User") AND ("Theory" OR "Theories" OR "Model" OR "Framework")	2010-2025	50
	Scopus	("Immersive" OR "Immersive Experience" OR "Virtual Reality" OR "Augmented Reality") AND ("Consumer" OR "Customer" OR "User") AND ("Theory" OR "Theories" OR "Model" OR "Framework")	2010-2025	25,817
	GG Scholar	("Immersive" OR "Immersive Experience" OR "Virtual Reality" OR "Augmented Reality") AND ("Consumer" OR "Customer" OR "User") AND ("Theory" OR "Theories" OR "Model" OR "Framework")	2010-2025	27,300
	ProQuest	("Immersive" OR "Immersive Experience" OR "Virtual Reality" OR "Augmented Reality") AND ("Consumer" OR "Customer" OR "User") AND ("Theory" OR "Theories" OR "Model" OR "Framework")	2010-2025	46,523
	Web of Science	("Immersive" OR "Immersive Experience" OR "Virtual Reality" OR "Augmented Reality") AND ("Consumer" OR "Customer" OR "User") AND ("Theory" OR "Theories" OR "Model" OR "Framework")	2010-2025	4,171
Total				103,861

3.4. PRISMA workflow

PRISMA workflow includes four main steps: Identification, Screening, Eligibility and Inclusion. Figure 1 PRISMA diagram for selection and screening process for studies illustrating this process.

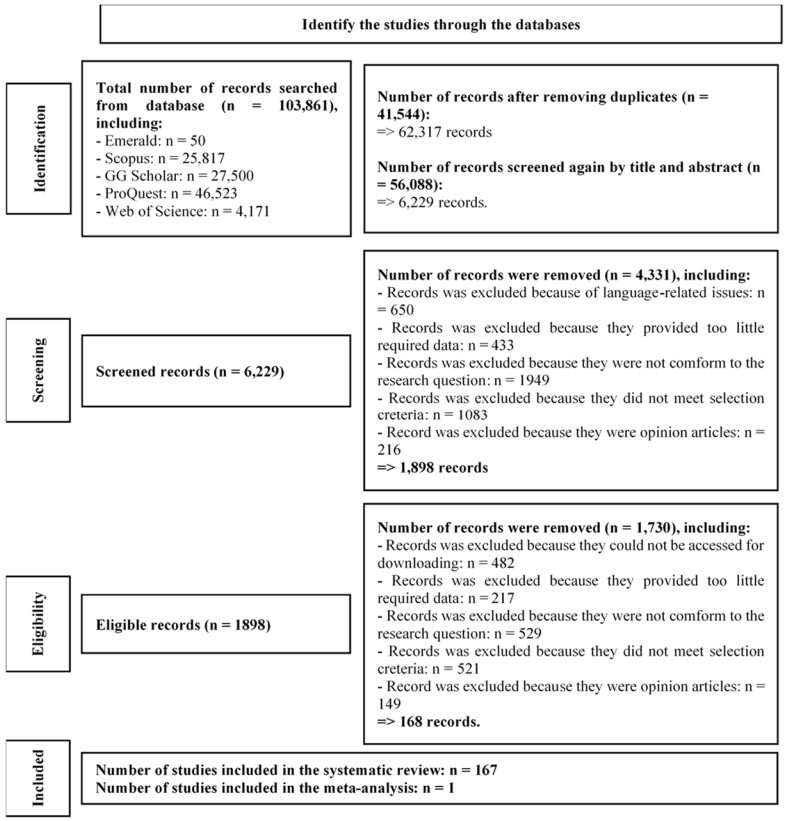

Figure 1. PRISMA workflow for selection and screening process for studies

Step 1: Identification

The identification phase involves finding and retrieving records from five databases with the previously applied search criteria to achieve a high degree of completeness in the identification of eligible studies. The identification phase yielded a total of 103,861 records.

Step 2: Screening

The screening involved the removal of the 41,544 duplicate records, with the remaining 62,317 records screened again by title and abstract. This produced the preliminary selection of 6,229 potential relevant documents from the remaining 56,088 records. There were then excluded the records with language - related, availability-related, or relevance - related issues totaling 4,331 records, with the result that the next stage then dealt with the 1,898 records.

Step 3: Eligibility

A full-text search produced 1,898 documents. After excluding 1,730 that could not be accessed for downloading, provided too little required data, did not conform to the research questions, or were ineligible with the original data, the remaining 168 papers satisfied their content and methodological inclusion criteria and therefore became eligible for analysis.

Step 4: Inclusion

With these adaptations, a total of 168 studies were incorporated into the review systematically. From the pool, only one study met eligibility for meta - analysis as it contained a wealth of quantitative data. The other 167 were incorporated into a qualitative synthesis analysis to support the evidence for the immersive experiences and consumer behavior literature.

4. Results

After synthesizing results of 168 international studies, this research aims to clarify the publishing trend and academic interest levels in immersive experiences in metaverse context.

4.1. Publication outlets and journal quality

The analysis results show that two big publishers mainly contribute to above studies. The top publisher is Elsevier with 42 articles (25,00%) and the second is Emerald with 39 articles (23,21%) on total of 169 articles. These two publishers both account for half of researches, proving their core role of reputable platforms in research consumer behavior field and immersive experiences (related to Metaverse, tourism and hotels).

Other publishers like Wiley (15 articles, 8,93%) and Taylor & Francis (14 articles, 8,33%) also considerably contribute. Similarly, Springer, MDPI and Nature, each one has 8 articles (4,76%). SAGE has 5 articles (2,98%). Many smaller publishers such as Nature, PLOS, Routledge, APA, Frontiers, each on has 2 articles (1,19%). Others have 19 articles (10,71%), reflecting the contribution part from many different publishers.

The overall trend indicates that the topic research about Metaverse and multichannel consumer experiences are mainly published on highly reputable platforms and top publishers like Elsevier, Emerald are leading academic flow in this field.

In addition, an evaluation based on Quartile Standard indicates that:

Q1: 142 articles (84.52%) - These articles are published in group of the highest quality journals, top 25% of the rankings.

Q2: 19 articles (11.31%) - These articles are published in group of journal in the top of 25% to 50% of the rankings.

Q3: 3 articles (1.79%) - These artiles belong to group of journal in the top of 50% to 75% of the rankings.

Q4: 1 articles (0.60%) - This article belongs to group of journal in the top of 75% to 100% of the rankings.

Unspecified: 3 articles (1.79%) - These articles have no information about quartile or don't classify in the quartile system.

The overwhelming ratio of Q1 indicate that Immersive and Multi - channel Consumer Experience studies are primarily published in the top reputation journal. It reflects the high academic quality of studies and priority announcement of results in great influence research forum. Contrast, there is a small number of studies in Q3-Q4. The result shows that most of studies in this fields focuses on high quality journals, empazing seriousnes and importance of this topic in scientific comunity

4.2. Journal information

Table 2. Articles according to journals

Research Domain	Journals	Frequency	Description
Business and Marketing	Journal of Retailing and Consumer Services	12	Analysis of consumer behavior, digital marketing strategies, brand interactions, and approaches to enhancing omnichannel customer experience.
	Psychology & Marketing	6	
	Journal of Consumer Behaviour	6	
	Journal of Business Research	6	
	Asia Pacific Journal of Marketing and Logistics	3	

Tourism, Hospitality and Services	International Journal of Contemporary Hospitality Management	6	Evaluation of tourist experiences, modern hospitality service management, trends in tourist behavior, and the application of technology in service delivery.
	International Journal of Retail & Distribution Management	3	
Technology, Innovation, and Digital Experience	Scientific Reports	8	Research on the impact of interactive technologies, digital innovation, and the application of immersive technologies (VR/AR) to enhance consumer experiences and interactive marketing.
	Journal of Research in Interactive Marketing	5	
	Computers in Human Behavior	3	

There are 168 research papers which are synthesized from 105 different journals, including business and marketing, tourism, hotel and service, technology, digital experience, showing the diversity and interdisciplinarity in studying immersive experiences.

In total 105 journals, Table 2 lists 10 journals that have above 3 papers about the research topic. Journal of Retailing and Consumer Services is on the first place with 12 papers, account for highest rate, demonstrating the strong interest in consumer retail and service problems in researching immersive experiences. Next, Scientific Reports falls in the second place with 8 papers, showing this journal - even though interdisciplinarity - is also an important channel for publishing relative studies. Four journals have same 6 papers each one including Psychology & Marketing, International Journal of Contemporary Hospitality Management, Journal of Business Research and Journal of Consumer Behaviour, reflecting the popularity of journals about marketing, hotel management and behavior research. Besides, Journal of Research in Interactive Marketing has 5 papers, others such as Asia Pacific Journal of Marketing and Logistics, Computers in Human Behavior, International Journal of Retail & Distribution Management have 3 papers each one.

This distribution indicates that the research field about consumer research and immersive experiences are mainly published in journals focusing on customer behavior, business and digital technology. The remarkable one is Journal of Retailing and Consumer Services and some leading business and marketing journals are playing center role in promoting research findings and at the same time proving they are important forums to share new findings.

4.3. Ten authors with the most research

Table 3. Statistics of 10 authors with the most relevant research

Ten authors with the most research	No. of articles
Rana Muhammad Sohail Jafar	3
Harish Kumar	2
M. Claudia tom Dieck	2
Juan Francisco Prados	2
Francisco Liébana-Cabanillas	2
Yilong Zheng	2
Eugene Cheng-Xi Aw	2
Wasim Ahmad	2
Amit Shankar	2
Yiru Wang	2

4.4. Yearly analysis

2024 has the largest number of articles with 90 articles (53.57%), this reflects the significant increase of researches regarding immersive consumer experience. 2023 and 2022 also have considerable articles, correspond to 33 (19,64%) and 19 (11,31%), showing the constant interest in this topic. Other years like 2021 and 2020 also contribute, but fewer can indicate the development and growth of recent trend in this field.

Table 4. Statistics of articles by year and frequency

Year	Frequency	Percentage	Year	Frequency	Percentage
2024	90	53,57%	2019	1	0,60%
2023	33	19,64%	2016	1	0,60%
2022	19	11,31%	2010	1	0,60%
2021	16	9,52%	**Total**	**168 (articles)**	**100%**
2020	7	4.17%			

From 2010 to 2020, the number of publications was still very modest (mainly only 1-7 articles per year). However, from 2021 onwards this number increased dramatically: in 2021 there were 16 articles (11,31%), in 2022 there were 19 articles (11,31%), in 2023 there were 33 articles (19,64%). Especially 2024 dominated with 90 articles (53,57%) - although the 2024 data may be incomplete. It also shows the explosive trend of the topic. Overall, more than half of the studies were published in the last 2 years. This trend reflects the growing and rapidly evolving interest of scientific community in Metaverse, VR/AR and immersive consumer experience after 2020. This surge may also be reflected to the new technological landscape, making the topic a hot trend and attracting many researchers to participate.

4.5. Most cited articles

Checking the citations contained in 168 articles, the researcher found that the most cited articles are as follows:

Table 5. Statistics of most cited articles

Most cited articles		
Personalization in personalized marketing: Trends and ways forward	[4]	This cite appears many times in researches related to core topics of personalization in marketing.
Immersive technology: A meta-analysis of augmented/virtual reality applications and their impact on tourism experience	[7]	This cite appears many times in researches related to the implication of immersive technologies (AR/VR) in tourism.
Immersive netnography: a novel method for service experience research in virtual reality, augmented reality and metaverse contexts	[13]	This cite appears many times in researches related to service experience in immersive technology, Augmented Reality and some concepts regarding Metaverse.

4.6. Used research methods

Table 6. Statistics of used research methods

Research method	No.
Quantitative Approach - Experimental Research	53
Quantitative Approach - Survey-Based Study	49
Secondary Research Approach - Literature Review	12
Mixed-methods Approach	9
Qualitative Approach - Grounded theory	8
Design-Oriented & System Design Research	5
Qualitative Approach - Narrative research	5
Qualitative Approach - In-depth Interviews	4
Qualitative Approach - Phenomenological Research	4
Qualitative Approach - Conceptual Framework	3
Qualitative Approach - Thematic Literature Review	3
Quantitative Approach - Observational	3
Qualitative Approach - Systematic Literature Review	2
Bibliometric Review	1
Unspecified	6

4.7. Theories

The results demonstrate that the S-O-R model is most commonly used thanks to its thorough explanation of the relation between stimuli technology (VR/AR) and consumers' response through psychological states like presence or satisfaction. Theories such as TAM, UTAUT2 or TPB contribute to anticipate technology usage intension but they do not fully reflect the immersion and typical emotional factors of immersive experiences. Meanwhile, theories like Flow, Narrative Transportation or Self-Determination well concentrate on subjective psychological state and internal motivation, yet lack of connection with technical characteristics of immersive environment. Theories about Diffusion, Signaling also provide strategic perspective but not specify consumer experience mechanism. Overall, each theorical framework has its strong point, however the combination of multi-theories can be an effective to synthesize technical factors, psychology and society in researching immersive consumer behavior.

5. Discussion

5.1. Key findings

The overview shows that most studies adopt Stimulus - Organism - Response theory to explain consumer behavior in digital environments. In this framework, stimuli is a technological factor and systematical characteristics (interactivity, virtual authenticity); they influence on Organism like presence, satisfaction and finally lead to response like purchase intention. For example, the implication of AR “YouCam Makeup” [26] is considered as a typical stimuli; designing the interactivity of the app can create interesting purchasing experience and rise purchase trend of customers.

Additionally, other studies focus on presence/telepresence theory and flow. In augmented reality context, authors like [11] emphasize that "flow" experience and satisfaction are two core factors affecting decision to use VR. Evidence from AR studies suggests that spatial presence and perceived

personalization contribute to explain the positive responses (for example, purchase intention) of consumers. At the same time, [23] indicated that in high immersive level, factors such as flow, finding information and novelty contribute to feel "immersion", and factors like pleasure and personalization strongly relate to presence; Meanwhile, in low immersive level, flow is the core factor for immersive experiences and other factors add to presence feeling.

Therefore, all theories above unanimously emphasize on the role of immersive experiences and positive emotion in AR/VR environment, but there is still a distinction in focused aspect: S-O-R highly concentrate on the relationship between technology stimuli and consumers' response, whereas Presence/Flow focus on subjective state of consumers and personalization deeply explores into content customizability for personal users. Many studies show results that are similar with this research in terms of this findings: highly immersive level leads to more positive attitude and behavior (increase satisfaction, brand engagement, purchase intention). However, there is a distinction about how to explain mechanism (for example between VR and AR or among different AR implications).

5.2. Limitations

This research has several limitations. Much of the evidence is still based on survey and experiment is conducted in small scale, lack of empirical field validation or long-term survey. It is rare to have studies comparing directly between AR and VR, regardless of the distinction in operation mechanism.

Research methodology and criteria measurement among studies are not consistent. For instance, immersive level scale, presence or flow are used diversely, make it hard to compare and synthesize. The majority of studies evaluate immediate impacts (satisfaction or immediate purchase intention) without considering long-term effects.

The research lacks multi-disciplinary and comprehensive integrated model. Few studies simultaneously adopt crucial theories to explain behavior; for example, or considerably combine S-O-R with presence, flow and satisfaction. This leads to possibility of missing the complex effects of immersive experiences. There are findings that are inconsistently or highly context-dependent, for example, the effect of presence only occurs under selected AR scenarios.

5.3. Recommendations

Through synthesizing research overview, this study suggests some of next research directions for future. Firstly, the research should build a model that summarizes and connects simultaneously four core theories - S-O-R, presence/telepresence, flow and personalization- in order to thoroughly explain consumer behavior in immersive contexts. This model needs to clarify the relation between digital stimuli and multi-dimensional psychology of organism, including immersion, emotion and social presence, thereby foreseeing exactly final behavior.

Besides, longitudinal and field studies are essential to track the effect of AR/VR experience on long-term criteria of customers, for instance, brand engagement, loyalty and re-purchase behavior; The reality shows that after experiencing VR, customers often prefer to come back, implying the potential of enhancing consumer retention.

On the other hand, expanding the inspection of immersive technology in industries such as retail or tourism through measuring specific business criteria as revenue and conversion rate - will clearly help to identify strategic value of immersive experiences. Future research should also fill in the theorical gap regardless of current

articles like the difference of effect of distinctive AR factors [23]. Approaching multi-disciplinary, combining media psychology and marketing management, as well as using common measurement standards will contribute to set consistent and systematical understandings about immersive experiences and consumer behavior.

6. Conclusion

The system overview that is based on PRISMA method provides a completely new perspective about the relationship between immersive experiences and consumer behavior through systematizing and categorizing important theorical models. The research identifies core psychological components such as presence, flow, personalization and interactivity. Simultaneously, it clarifies the impact of those components on brand awareness and purchase decision-making process. These academic contributions not only help fill the previous theorical gap but also create foundation for future researches in terms of deeply exploring psychological mechanism behind immersive experiences. Moreover, this overview can also clearly distinguish theoretical models for each technology (VR, AR, MR), thereby highlighting the distinction of how immersive technologies affect consumers' behavior and experience.

In terms of practical implication, research findings indicate obvious directions for business to link marketing strategies with customer engagement. The implication of augmented reality (AR), virtual reality (VR), and mixed reality (MR) creates richer multisensory experiences. Therefore, they help customers to vividly interact with products and services. For example, VR tools allow consumers to visit virtual purchase space or try products in virtual world, meanwhile the implication of AR helps customer check products in a lively way. Thus, it enhances customer satisfaction and remember the brand. These immersive experiences not only increase satisfaction level and customers' eagerness but also have potential to boost conversion rate and customer retention.

Eventually, the study suggests a wide range of direction in the future. At first, there is a need to build integrated models, synthesize current theories (S-O-R model, Technology Acceptance Model, and psychological motivation theories) to explain thoroughly the effect of immersive experiences on consumer behavior, and at the same time, establishing a standard measurement system for core concepts such as the liveliness of experience, presence and emotional engagement, which are all necessary to ensure consistency and research comparison. Additionally, multi-disciplinary research combining media psychology and marketing management is encouraged to develop a comprehensive understanding of immersive phenomenon in business context. Ultimately, long-term experiments and surveys in practical business environment need to be implemented to evaluate the sustainable efficiency of VR/AR/MR technology to business indicators such as brand engagement and customer loyalty.

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