

## SYSTEMATIC REVIEW AND META-ANALYSIS OF AUGMENTED REALITY IN CONSUMER MARKETING STUDIES

---

Neeti Nagar\*  
Gaurav Rana\*\*

### ABSTRACT

*Combining the digital technology with the real environment has strengthened the aspects of marketing practices and the rapid changes in the interactive technology environment have made technologies like AR and VR to give a competitive edge to organisations using these technologies. The applicability of VR and AR has been present in online retail platforms of fashion apparels, cosmetics, accessories and jewellery through virtual mirrors or an animated avatar with the availability of modifications as per the individual customer's age, gender, and physical features. With the opportunities of growth globally and in the Indian market, the use of AR technology in the consumer facing sectors is attracting many researchers and academicians to understand this phenomena better. For the purpose of study, more than 100 research articles were systematically reviewed and a combined meta-analysis is done. Further, the study end with future scope of action in the field of Augmented Reality.*

---

**Keywords:** Meta-Analysis, Consumer Marketing, Digital Technology, Real Environment.

---

### Introduction

Combining the digital technology with the real environment has strengthened the aspects of marketing practices and the rapid changes in the interactive technology environment have made technologies like AR and VR to give a competitive edge to organisations using these technologies (Thomas, 2021). The technological trend that has grabbed a lot of attention in consumer markets is the use in marketing of AR especially during these two years of global pandemic. Application of AR as a tool for Marketing for various purposes like product promotion, customer service, and product demonstration has attracted a lot of eyes in the COVID-19 scenario, which can be seen from the huge spike in number of studies of AR and VR related to the period from 2020 to 2022. To reach a global community of consumers it has become a necessity for making the marketing process convenient for the customers and the various industries (Modak & Sinha, 2019). The arrival of Augmented-Reality technologies has created a new space for virtual objects and real space to get integrated in new ways. Online retail and digitisation growth coupled with the increased use of interactive technology has allowed the consumers to try and test the product virtually. (Thomas, 2021) Also the development and availability of portable devices which are highly engaging, with great physical-virtual connection, the expectations of different experience for customers has evolved into unique type of hybrid experiences. (Flavian et al., 2019) The literature suggest for AR to be one of the highly promising technology that are expected to create a new concept of physical and digital store to co-exist. Also together with the use of other interactive technologies, such as VR and MR and Extended Reality (XR), AR is creating a new space where real and digital elements/virtual objects are combined for use in different and unique ways for the customer. (Flavián et al., 2019) The applicability of VR and AR has been present in online retail platforms of fashion apparels, cosmetics, accessories and jewellery through virtual mirrors or an animated avatar with the availability of modifications as per the individual customer's age, gender, and physical features (Moriuchi et al., 2020). Also for online furniture and home goods by giving a 3D facility to see how the furniture will look with different designs, different colour themes and how it can be placed in different corners of the house (Alimamy & Nadeem, 2021).

---

\* Assistant Professor, Department of Commerce, Shaheed Bhagat Singh College, University of Delhi, Delhi, India.

\*\* Assistant Professor, Department of Commerce, Shri Ram College of Commerce, University of Delhi, Delhi, India.

AR is one of the highly promising technologies with tremendous opportunities in the online retail. AR as an interactive technology can be classified into different categories of wearables (Microsoft HoloLens), mobile (applications) and stationary (virtual mirror), among them mobile (applications) augmented reality (MAR) has received major attention (Rauschnabel, 2019).

The global market of AR/VR technologies stood at US\$ 28 billion in 2021 and is projected to reach US\$ 250 billion by 2028, according to Statista. AR/VR technology is widely used in retail, education, gaming, and healthcare and India is expected to play a very significant role in immersive technologies including Metaverse, as per market information (The Hindu, 2022). The total market size of AR/VR in India is expected to advance at a CAGR of 38.29% to US\$ 14.07 billion by 2027, driven by increased smartphone penetration and widespread internet connectivity, and this trend is expected to grow. Smartphone penetration in India was 54% in 2020 which is expected to reach 96% by 2040, further improving AR/VR-based technology accessibility. As of 2021, India had 1.2 billion mobile subscribers out of which 750 million were using smartphone. Majority of the young population in Tier 2 and Tier 3 cities of India have high technical literacy, which has enabled companies and app providers to offer AR-based experiences (IBEF, 2022).

As per the Techsci Research report the VR/AR technology is expected to dominate the consumer segment due to rise in applications technology and rising awareness about AR/VR coinciding with the roll out of 5G technology and other emerging technologies will fuel the growth of AR/VR in Indian Market. (Dataquest, 2021). This is also supported by a global survey conducted by Accenture which suggest that this growing use of immersive technologies such as augmented and virtual reality has inspired the consumer-facing companies, such as those in retail, consumer goods and travel, to increase investment in these new capabilities and experiences to blend physical and virtual worlds else they may take the risk of being left behind and this recent presence of Metaverse has further pushed the boundaries to make the experience more real. (Business Standard, 2022). The different applications of AR/VR in Indian Market can be prominently seen in the education (Byju's), retailing (Myntra, IKEA, Lenskart, Tanishq), gaming (Pokemon go, Knightfall), healthcare sectors (Diagnostics and Surgeries), Construction (for designing and 360 degree view of property). AR/VR technology use in the ed-tech, , healthcare ,manufacturing and retail sectors (online and offline) is huge and it can be soon expected to expand to sectors such as tourism(other than 360 view), hospitality and media & entertainment.

With the opportunities of growth globally and in the Indian market, the use of AR technology in the consumer facing sectors is attracting many researchers and academicians to understand this phenomena better. The body of research is growing in this domain but at the same time we can also say on the basis of literature available that the knowledge concerning definitions of AR, its difference with other realities (Virtual Reality, Mixed Reality and Extended Reality) is inconsistent and conflicting (Rauschnabel et al., 2022) and studies understanding consumer behaviour have been concentrated on adoption, AR media characteristics, customer experience, attitude towards AR and VR tools and the brands using them, cultural aspect of consumers towards AR/VR in retail (Wedel, Bigne & Zhang, 2020) and despite of the growing interest for interactive technologies like VR/AR being applied in business practices, the extant literature concerning use of AR in discipline of marketing is somewhat less, incoherent, and lacks significant research frameworks which are over-arching, body of generalizable and replicable findings and consensus measurement instruments(Wedel, Bigne & Zhang, 2020) and it fails to provide an all-inclusive understanding of consumer behaviour particularly in the Indian Context.

### **Theoretical Background**

The term Augmented Reality was first seen in the 1990s in scientific research and later on this concept was very well explained by Milgram and Kishino (1995) in the continuum of virtuality where they explained AR as enriched image of the real environment with some virtual objects or elements. The body of research in AR use has been majorly conducted in the areas of human-computer interaction and computer-science technology.

As it becomes clear from the literature that in the last few years, researchers, academicians and practitioners have been focussing on the use and application of interactive technology like AR in the retail as the form of mobile application, in-store settings or web based experience to find new and unique ways to create more attractive and interactive store environments for the customers (Pantano et al., 2017). With the growth opportunities it promises to deliver it has become imperative for the marketers and the practitioners to analyse the importance of digital and interactive technologies like AR for physical stores as well be cause they will play a big role in creating a new future and for defining the future of physical retailing (Grewal et al., 2017).

It is a technology that alters the real environment which is overlaid virtual content and digital objects. The new level of virtuality that exists and is placed between the user and its physical space can include text information like product information or discounts, images like furniture or apparel, digital avatars or videos or any other virtual object to the users' view of physical environment. The devices that enable such superimposition can be smartphones or tablets, wearables (head-mounted displays), fixed interactive screens or projectors (Carmigniani et al., 2011).

### **Review of Literature**

The marketing literature available on interactive communications in marketing put emphasis on using Virtual Reality and Augmented Reality as combination of latest digital technology with real environment. Considering the basic difference between AR and VR technologies it is suggested that AR is more suitable in the retail marketing business where the consumers can try and test several products without actually visiting the store or trying the product in reality (Yim et al.,2017).

The existing literature on AR/VR in the consumer studies is quite fragmented because of its interdisciplinary nature (Bonetti et al., 2018). The extant literature suggest that in AR majorly three types of augmentation is found in the literature, i.e. augmentation of the product/object such as Sunglasses, shoes, jewellery (Yaoyuneyonga et al., 2015; Park et al.,2018; Baek et al,2020), augmentation of the self/body such as Sephora make-up app (Javornik et al., 2021)and augmentation of the environment e.g. Ikea app (Rauschnabel et al., 2019). Lavoye et al. (2021) reviewed the literature on the adoption of AR in retail and the study analysed the technological characteristics of AR. Similarly, Bonetti et al., (2018) also confined their study to adoption and acceptance of AR and VR in online retail. Caboni and Hagberg (2019) did a review study on AR literature and retail in terms of its features, applications and values while reviewing literature based on three technologies MAR, in-store and web-based technologies.

In the last few years a very high number of retailers have introduced different AR applications for enhancing the customer experience (Flavian et al., 2019). The categories of AR technology used that the literature points to are Mobile applications, In-store Application and Web based application. The online web based applications allows the customer to try and test the product while sitting comfortably in front of the computer like virtual mirror which is also used in mobile applications to better visualise their appearance allowing them to try many products without much hassle (Pantano et al.,2017). The In-store applications of AR are based on projection-based interface, companies like Nike, Adidas, Sephora have big virtual mirrors in store to show virtual make up and enhance the shopping experience (Yim et al.,2017). The Mobile AR (MAR) applications are becoming more common in retailing as they are easily experienced by and hand held device, many companies like sephora, L'oreal, IKEA, Ray-Ban have started using different technology of AR apps to create and provide the customer with a new customer interface with the product which will lead to increased satisfaction of customers with the help of providing them with additional information, knowledge, providing easy interaction and value (Poushneh & Vasquez-Parraga, 2017).

The literature suggests that AR technology has been predominantly used in fashion, online retail and hospitality. The AR tools are used to provide the customers with an enriching experience and information without paying an actual visit to the store. Reviewed literature included trying out the outcomes of AR through the usage of hand based cellular gadgets, inclusive of smartphones or tablets (Caboni and Hagberg, 2019). The capacity of AR to show digital items in a room and circulate them round appears to make the aggregate of the use of cellular gadgets in on line retailing eventualities the superior preference for the technology.

### **Augmented Reality**

From the different definitions found in the literature, the definition of AR given by Azuma et al., (1997, 2001)is acknowledged as the most established one as it emphasises on the co-existence of virtuality and reality in the same real-physical space providing the user with interactive orientation and mutual existence of sources which are generated digitally with real environment. It also highlights the embeddedness of AR in physical boundaries in real time and its interactive character thus creating a distinction with virtual reality.

### **Definitions of AR**

The media characteristics that are stated in the following definitions are: "interactivity" (Azuma, 1997),"virtuality" (Zhou et al.,2008) ( virtual presence of elements in real environment), "geo-location feature"(Pantano et al.,2017) / "location specificity of the device"(Craig, 2013) or "product" (Watson et al.,2018) , "mobility" (Rauschnabel et al.,2022) (in terms of portable movements and wearability of device) and "augmentation" (combination of virtual and real).

(Azuma, 1997)- "Augmented reality allows users to remain within and see the real world" thus identifying three main elements of the definition i.e. mix of real world with virtual content providing with real-time interface and the creation of content in 3-D."

Azuma et al.,(2001)- "An AR system supplements the real world with virtual (computer-generated) objects that appear to coexist in the same space as the real world."

Reitmayr & Drummond(2006)- "Augmented reality (AR) is a promising user interface technique for mobile, wearable computing and location-based systems"

Zhou et al.,(2008) "Augmented Reality (AR) is a technology which allows computer generated virtual imagery to exactly overlay physical objects in real time allowing the user to interact with the virtual images using real objects seamlessly unlike VR which is completely immersive."

Van Krevelen and Poelman(2010) " It is a technology that creates a "next generation, reality-based interface" and is reaching into industries and consumer markets from laboratories."

Carmigniani et al., (2011) "Augmented Reality (AR) is a real-time direct or indirect view of a physical real environment that has been enhanced/augmented by adding virtual computer-generated information to it."

Craig (2013) "Medium in which digital information is overlaid on the physical world that is in both spatial and temporal registration with the physical world and that is interactive in time"

Scholz and Smith (2016) "AR is an ideal technology for forging deeper relationships, as it fuses and entangles branded content with consumers' own physical space and bodies".

Javornik (2016) "AR is an interactive technology that modifies physical surroundings with superimposed virtual elements. The user can add textual information, images, videos or other virtual items to the person's view of the real/physical environment."

Pantano et al. (2017) "AR is a real-time view of the physical world augmented with virtual computer-generated information."

Yim et al. (2017) "AR is defined as the superposition of virtual objects on the real environment of the user."

Brengman et al. (2018) "AR allows for the digital overlay of content to the user's real environment."

Watson et al., (2018) "AR layers virtual elements over physical environments, and blends virtual worlds with reality. AR is a system to have these properties: combines real and virtual objects in a real environment; runs interactively and in real time; registers (aligns) real and virtual objects with each other."

Rauschnabel et al., (2022) "AR is a distinct type of VR in which digital devices are used to overlay supplementary sensory information (sounds, objects, avatars, graphics, labels, etc.) on the real world."

### **AR in Consumer Studies**

AR applications have started to appear in marketing literature in the late 2000s (Javornik, 2016), giving way to new consumer engagement opportunities to marketers (Scholz & Smith, 2016), advertising (Yaoyuneyong et al.,2016), in mobile marketing and offline retail (Javornik, 2016). Carmigniani and Furhtin their study in 2011 have defined it as a "real-time direct or indirect view of a physical environment that has been augmented by adding virtual computer-generated information to it."

A relatively high number of marketers (mostly in the fashion dress ,beauty and accessory business) have started using different kinds of AR technology since the last few years for providing the customers with an enhanced experience of shopping through AR app (Flavián et al., 2019) and three major and most used applications of AR in marketing were found to be web based AR accessible through computer screen, in-store through projection, scanning and virtual walls of screen and mobile apps.(Caboni & Hagberg, 2019)

With the high application of AR in the marketing discipline Hilken et al.,(2020) coined a terminology of ARM meaning AR marketing the focus of which is to create digital affordances for giving customer a new and unique experience.

Rauschnabel, Felix & Hinsch (2019) also defined AR marketing in their study as a new strategically important concept which will integrate the digital content or element into the user's perception of the physical world, usually in combination with other media, to expose, articulate, or demonstrate consumer benefits to achieve organizational goals. Thus, AR marketing can be applied to

technologies provided by the company (e.g. virtual mirrors in stores) or by the user (e.g. mobile devices such as tablets and smart glasses). AR Marketing can address multiple goals (e.g., branding, triggering purchases, improving after-sales service) along the customer journey for pre-purchase and post purchase activities like using an AR app in the pre-purchase stage to buy furniture for the house by looking at different options and different placements. whereas others may provide value after the purchase (playing with physical Legos that are enhanced with AR content through the Lego AR apps). Some common AR marketing activities use AR in isolation (e.g. a virtual mirror) whereas others use it in combination with other media (Yaoyuneyong et al., 2016).

Augmented reality (AR) has been increasingly used in retail contexts and often developed in formats of smart device applications (cell phones/tablets). Its ability to overlay the physical environment with virtual elements such as information or images, which can interact with the physical environment in real time, provides new possibilities for content delivery to consumers. It holds the potential to alter a large number of consumer activities like information search and product trials. As its use increases, there is an ever-growing need to better understand its impact on consumer behaviour and on the experience that it delivers (Javornik, 2016)

Latest studies on AR in an online retail setting have discussed consumers' viewpoints, aiming at how AR can assist in engagement of consumer, their experiences, and also helps and assist in raising the level of consumer awareness during the process of online shopping (Thomas, 2021). Some have studied that how AR makes the whole shopping online process a fun and happy experience for the consumers. (Huang et al., 2017; Kang 2020). Many others have studied AR from the perspective of how it can help in increasing the knowledge about different products at the same time increasing awareness of the customers for helping the rational consumers who usually visit the online website or app with a much clear understanding and thought about the product they want to buy. AR provides customers with a chance to try, see and engage with the product they want to purchase, taking care of the one of the major problem normally encountered by customers in deciding while shopping online if a specific product is a precise match to their need and expectation or not hence increasing their positive attitude toward their buying decision (Huang et al., 2017).

Rauschanbel et al., (2022) supporting the findings of Huang et al., (2017) summarizing the benefits and application of AR by the retail consumers as follows:

- AR technology is useful in reducing inconvenience in the online process of buying through online media, as it makes trying out different number of products conveniently at home (furniture, home goods) possible, allows to use the product on one's body (jewellery, apparels, beauty products, accessories), or on digital avatars (apparels, accessories, fashion), and by permitting virtual visits (hotels/resorts, real estate, museums or other historical and tourist sites).
- AR technology is also being used by companies like Nike and Sephora to assist the consumer during the fitting and trying process in offline physical stores (shoes, apparel, cosmetics) by use of digital screens, smart mirrors and also holograms.
- AR technology is being helpful for bringing improvements for the in-store visits also making the search for online product easier (home goods) with the help of image search process reversing and geo-location.
- It is also used for providing product information to consumers about new discounted collection of products, promotional schemes, reviews of products by verified customers and their recommendations either inside the store through interactive digital projector wall screen or through mobile device using the virtual signage.

AR is most commonly used by a larger public through smart electronic devices like phone or tablet and large interactive screens, either in home comfort or in public in the retail stores (Javornik, 2016). Smart devices allow a consumer using an AR app to interact with a virtual product in the required environmental setting of home or office also allowing to access some required digital content by scanning the logo of some product or QR or a representative image (such as a scanned magazine's ad that plays into a video on a mobile screen). Large interactive screens on the other hand can present a greater part of the physical surrounding on the screen, to which the virtual elements are added (as for instance an AR campaign in a shopping mall with a purpose of raising consciousness about endangered species, that showed on a large screen the threatened animals that seemed to be walking around the mall) (Javornik, 2016). Singh and Pandey (2014) suggested that the Indian audience is spending a considerable amount of time online be it on a mobile phone or computer screen and consumers nowadays do not prefer passive form of communication by the marketers rather they want to be interactive with the brand.

### AR Characteristics in Literature

Various researchers have focussed on different characteristics of AR technology in consumer studies, which are summarised in this section of review:

- **Interactivity-** “Capability of AR system to allow consumers to interact easily (Pantano et al.,2017) control(Yim et al.,2017) manipulate and be involved with the content”. ( McLean & Wilson, 2019), (Hsua& Chen,2018), (Kowalczyk, siepmann, & Adler, 2021), (Nikhashemi, Knight, Nusair, & Liat, 2021) , (Whang, Song, Choi, & Lee, 2021).
- **Augmentation-** “The extent to which the digital objects are integrated in to the real world space and its ability to allow and enable users to move the digital objects flawlessly” (Rauschnabel, Felix, Chris, Shahab, & Alt, 2022) , (Sung et al.,2021), (Hinsch, Felix, & Rauschnabel, 2020), (Fan, Chai, & Deng, 2020).
- **Informativeness-** “ The degree to which the information provided proves to be helpful in consumer decision-making” (Alimamy & Nadeem, 2021), (Rese, Baier, Geyer-Schulz, & Schreiber, 2017), (Hsua& Chen,2018), (Kowalczyk, siepmann, & Adler, 2021)
- **Vividness -**“Ability of AR to create a realistic image of a product or experience for the users by joining the sensory experience of real objects and non-sensory digital objects” ( McLean & Wilson, 2019), (Whang, Song, Choi, & Lee, 2021), (Yim et al.,2017).
- **Novelty-** “Newness (Yim& Park,2019) and uniqueness (Yuan et al.,2021) of the enriched information that consumers are presented with using AR” (McLean & Wilson, 2019), (Nikhashemi, Knight, Nusair, & Liat, 2021).
- **Aesthetics-** “It is the visual appeal of the objects that the users’ experience through AR enabled environment” (Pantano, Rese, & Baier, 2017), (Yaoyuneyong, Polлите, Foster, & Flynn, 2018).

### Theories and Concepts in AR

The reviewed literature shows that different concepts, models and theories are applied to understand and explain the adoption and uses of AR technology in the marketing literature. Technology Acceptance Theory (TAM) is an important and one of the most applied theories by the researchers to study the adoption and acceptance by the consumers followed by Unified Theory of Acceptance and Use of Technologies (UTAUT/ UTAUT2), then User Gratification Theory, Experience Economy Theory, Stimulus-Organism-Response Model, Task Media Fit Theory, Mental Imagery, Self-Referencing Theory, Elaboration Likelihood Model, Flow Theory are the ones used by many researchers. These are discussed in this section:

Theories/Models	Explanation	Study
TAM	“It explains the adoption of technology on the basis of users’ attitudes through perceived usefulness and ease of use.”(Davis, 1989)	(Pantano, Rese, & Baier, 2017), (Park, Im, & Kim, 2018), (McLean & Wilson, 2019), (Rese, Baier, Geyer-Schulz, & Schreiber, 2017)
UTAUT/UTAUT2	“This theory of acceptance of technology provides with a uniform view of determinants of technology adoption.” (Venkatesh et al.,2012)	(McLean & Wilson, 2019), (Watson, Alexander, & Salavati, 2018), (Saprikis, Avlogiaris, & Katarachia, 2020)
Uses and Gratification Theory	“It is based on the concept that individuals use a specific media for a certain need.” (Katz et al.,1973)	(Kowalczyk, siepmann, & Adler, 2021), (Zeng, Cao, Lin, & H. Xiao, 2020)
Experience Economy Theory	“This theory suggests experience which comes as a result of an individuals’ memorable interaction with some product, they can create a value proposition for the customers.” (Pine & Gilmore, 1998)	(Choi & Choi, 2020)
Task-Media-Fit Theory	It suggests that the technology should be designed in such a way that allows the user to perform the task at hand by providing them with effective opportunities.” (Mennecke et al.,2000)	(Choi & Choi, 2020)

Self-Referencing Theory	"It proposes that it is easier for an individual to process some information if they themselves are referenced in that information." (Kuiper & Rogers, 1979)	(Smink et al.,2019), (Huang et al.,2019)
Mental Imagery Theory	"It involves the understanding of the cognitive process when humans visualize something." (Lutz & Lutz, 1978)	(Pantano, Rese, & Baier, 2017), (Huang, 2019)
ELM-Elaboration Likelihood Model	"Information received through the media is processed by either central or peripheral route and based on the individuals motivation to process the information attitudes are formed which will differ on the basis of route chosen for processing."	(Park & Yoo, 2020)
SOR Theory	"It is a concept which is used to explain the process of human decision making. It states that different forms of stimuli (S) affect the evaluation process within Organism(O) and that will lead to Response(R)"	(Qin et al.,2021)
Flow Theory	"This explains the level of immersion and deep state of concentration called flow when any individual is completely busy with an activity."	(Arghashi & Yuksel, 2022)
Theory of Planned Behaviour	"It suggests that the behaviour of an individual can be explained by their intention to perform a certain action."	(Srivastava et al.,2021)
Consumer engagement, acceptance and motivation	"It seeks to Understand the multidimensional determinants which attract the customers to a brand."	(McLean & Wilson, 2019)
Big 5 Personality Trait Theory	"It consist of five dimensions of Personality i.e emotional stability, conscientiousness , Extraversion, Openness and Agreeableness."	(Srivastava et al.,2021)
Theory of Reasoned Action	"This theory helps in understanding the effect on behavioural intention and actual behaviour of an individuals' attitude."	(Lombart et al.,2020)
Hedonic and Utilitarian Value	"Hedonic and utilitarian values play an important role in forming customers' attitude and behavioural intention."	(Lau & Lee, 2019)
Task Technology Fit	"It explains that an individual will chose a technology on the basis of fit between the task requirement and technological characteristics."	(Paulo, M, Oliviera, & Moro, 2018)

### Variables of Consumer Behaviour in Literature

This section consists of the different variables studied in a number of studies which are related to period after 2010s. These variables are studies in different setting for different product categories and in different sectors. This section mentions the variables studied and the studies.

*Perceived Usefulness* (Huang & Liao, 2015 ; Hilken et al.,2017 ; Qin et al.,2021) / *Performance expectancy* (Raushnabel et al.,2019 ; Arghashi & Yuksel,2022) / *Utilitarian Value* ( Orús, Ibanez-Sanchez, & Carlos, 2021), (Do, Shih, & Ha, 2020) (Ehab, Adel, & Abdelmoaty, 2020), (Pantano, Rese, & Baier, 2017).

*Perceived ease of Use* (Misra, Srivastava, & Das, 2020), (Rese, Baier, Geyer-Schulz, & Schreiber, 2017), (McLean & Wilson, 2019), *Perceived Knowledge*(Haile & Kang, 2020), *Informativeness* (Choi & Choi, 2020), (Qin et al.,2021), *Perceived aesthetics* ( Pantano, Rese, & Baier, 2017), (Poushneh et al.,2017), *Store Attractiveness* (Baek, Choo, Wei, & Yoon, 2020).

*Perceived Privacy Risk* (Smink et al.,2019), (Saprikis, Avlogiaris, & Katarachia, 2020), *Perceived Trust*(Uhm, Kim, Do, & Lee, 2022), *Perceived ownership and owner's control*(Brenngman, Willems , & Kerrebroeck , 2019), (Poushneh, 2018), *Perceived controllability and user's control* (Javornik, 2016), (Park &Yoo, 2020), *Perceived Augmentation* (Javornik, 2016), (Javornik et al.,2016) ,*Perceived Personalisation* (Smink et al.,2020).

*Immersion* (Kowalczuk, siepmann, & Adler, 2021), (Wedel, Bigné, & Zhang, 2020), *Presence* (Smink et al.,2019), (Hilken et al.,2017), *Flow* (Javornik, 2016) (Arghashi & Yuksel, 2022), *Creativity* (Jessen, et al., 2020), *Self-Referencing* (Huang, 2019), *Enjoyment* (Yim et al.,2017), (Bulearca & Tamarjan, 2010), (Kowalczuk, siepmann, & Adler, 2021), *Playfulness* (Saprikis et al.,2021), (Qin et al.,2021), (Kang, et al., 2020), (Haile & Kang, 2020), *Hedonic Value* (Pantano et al.,2017), (Smink et al.,2019) (Lau & Lee, 2019).

*Attitude* (Choi & Choi, 2020) (Javornik, 2016), *Affection*(Misra, Srivastava, & Das, 2020), (Rese, Baier, Geyer-Schulz, & Schreiber, 2017), (Pantano, Rese, & Baier, 2017), *Overall Evaluation*(Kowalczuk, siepmann, & Adler, 2021), (Sun et al.,2022), (Brenngman, Willems , & Kerrebroeck , 2019), *Brand Love* (Huang, 2019), *Satisfaction* (Jessen, et al., 2020), (Moriuchi et al.,2020), (Poushneh & Vasquez-Parraga,2017), (Yoo, 2020).

*Purchase Intention* (Choi & Choi,2020), (Heller et al.,2019), (Park & Yoo, 2020), (Do, Shih, & Ha, 2020), *Willingness to Buy*(Xi & Hamari, 2021), (Uhm, Kim, Do, & Lee, 2022), (Whang, Song, Choi, & Lee, 2021), (Lombart et al.,2020), *Intention to visit/Revisit the AR store/App* (Javornik et al.,2016), (Jessen et al.,2021), (Yoo, 2020), *Loyalty towards AR brand/App* (Jessen et al.,2021), (Moriuchi et al.,2020), (Yoo, 2020), (Rese, Baier, Geyer-Schulz, & Schreiber, 2017), *Intention to Recommend/WOMIntention* (Hilken et al.,2017), (Park & Yoo, 2020), (Heller et al.,2019).

*Brand Engagement* (Smink et al.,2019) , (McLean & Wilson, 2019), *Willingness to share personal data* (Smink et al.,2019), *Curiosity* (Yang et al.,2020), *Nostalgia* (Hung et al.,2020), *Peer influence* (Hung et al.,2020), *Attention* (yang et al.,2020), *Adverse effects- Discomfort* (Haile & Kang,2020), *Irritation* ( Do, Shih, & Ha, 2020).

### Scope for Future Research

The study analyses the state of literature related to AR technology in the Consumer studies. The extant literature shows that there is a dearth of empirical studies concerning consumer behaviours towards marketing communication that has adopted AR as compared to other areas like, gaming, health, education and science (Yussof et al, 2019). If we speak of the methodology used in the studies belong to quantitative categories where majority of the studies are of experimental design- Field or Lab experiments followed by the recent trend of survey based studies and qualitative studies mostly comprise of review of literature of AR technology in different sectors for diverse range of products and services where it tried to understand the consumer behaviour related to consumer's adoption of AR technology, customer engagement, customer perception and customer decision making also while comparing the AR technology with the traditional form of advertising and communication with the consumer.

The review shows that retail, tourism, and advertising are the major application area of AR marketing research. Specifically, retail (offline/online) is the earliest and most researched area, advertising is the newest and least investigated application area for AR. The theme of research that were more recurring was on Customer/User Experience, Customer Engagement, Adoption of Technology by the consumers, Consumers awareness of AR, Effectiveness of AR and Non AR advertisements and simply effect of different AR characteristics on the cognitive, affective and behavioural outcomes in the consumer studies.

In the reviewed literature we have found a few gaps that can be focussed upon in the next step of research. This review summarises the role of AR marketing in consumer journey and its outcomes related to AR app or the brand that uses the AR technology.

On the basis of the literature the study suggests that:

- Future studies may focus upon different countries at the developing stage as most of the studies reviewed were conducted in developed countries where the acceptance and use of AR technology is higher than in the case of developing countries.
- We may focus on use of AR in other industries as well as its mostly in use in context of Fashion, Retail (online/offline), Medical Studies and Procedures, Engineering, Travel and Education.



- Future studies may expand the scope of applying AR in the shopping domain, for example, in terms of investigating AR in different shopping environments (e.g. location-based situational shopping, online, mobile, physical, and a combination of AR with VR).
- The impact of AR technology on Customer Brand Relationships and Brand Image may be studied.
- Since majority of the studies were experimental in nature and were conducted in universities a study with focus on older consumers and people of different cultural backgrounds may be conducted.
- Comparison studies with conventional media may be conducted for managerial implications.
- Since there are negative aspects of long time use of VR technology, study on negative aspects of feeling of detachment or sickness may be conducted.

### Conclusion

In this paper it is found that the past studies are skewed when the question of consumer related studies arise in case of sectors since most of the studies are related to retail whether online or offline in the shopping context of different products like apparel, jewellery, make up cosmetics, eye wear and in some cases furniture also. The empirical studies conducted were majorly Mobile AR based where they used some or the other kind of mobile application to assess the consumer experience of the AR app, whereas few studies conducted empirical studies on In-Store AR like IKEA store. The place of research has repeatedly come out to be USA, UK, Germany, Italy, South Korea etc with a few studies followed by Turkey, India, etc. But we did see a dearth of studies in the developing country context particularly India.

### References

1. Alimamy, S., & Nadeem, W. (2021). Is this real? Cocreation of value through authentic experiential augmented reality: the mediating effect of perceived ethics and customer engagement. *Information Technology and People*, 1-23.
2. Arghashi, V. (2022). Shopping with Augmented Reality: How wow-effect changes the equations! *Electronic Commerce Research and Applications*, 1-64.
3. Arghashi, V., & Yuksel, C. A. (2022). Interactivity, Inspiration, and Perceived Usefulness! How retailers' AR-apps improve consumer engagement through flow. *Journal of Retailing and Consumer Services*, 1-20.
4. Azuma, R. T. (1997). A Survey of Augmented Reality. *Presence: Teleoperators and Virtual Environments*, 355-385.
5. Baek, E., Choo, H. J., Wei, X., & Yoon, S.-Y. (2020). Understanding the virtual tours of retail stores: how can store brand experience promote Visit Intentions? *International Journal of Retail & Distribution Management*, 649-666.
6. Berman, B., & Pollack, D. (2021). Strategies for the successful implementation of Augmented Reality. *Business Horizons*, 621-630.
7. BERRYMAN, D. R. (2014). Augmented Reality: A Review. *Medical Reference Service Quarterly*, 212-218.
8. Bonetti, F., Warnaby, G., & Quinn, L. (2017). *Augmented Reality and Virtual Reality in Physical and Online Retailing: A Review, Synthesis and Research Agenda*. Springer.
9. Brengman, M., Willems, K., & Kerrebroeck, H. V. (2019). Can't touch this: the impact of augmented reality versus touch and non-touch interfaces on perceived ownership. *Virtual Reality, Augmented Reality and Commerce*, 269-280.
10. Bulearca, M., & Tamarjan, D. (2010). Augmented Reality: A Sustainable Marketing Tool? *Global Business and Management Research: An International Journal*, 237-252.
11. Caboni, F., & Hagberg, J. (2019). Augmented reality in retailing: a review of features, applications and Value. *International Journal of Retail & Distribution Management*, 1125-1140.
12. Carmigniani, J., Furht, B., Anisetti, M., Ceravolo, P., Damiani, E., & Ivkovic, M. (2011). Augmented reality technologies, systems and applications. *Multimedia tools and applications*, 341-377.
13. Chakraborty, S., & Gupta, D. (2017). A study of the factors impacting the adoption of augmented reality in online purchases in India. *2017 2nd IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT)* (pp. 1-4). Bangalore: IEEE.

14. Chen, R., Perry, P., Boardman, R., & McCormick, H. (2021). Augmented Reality in Retail: A Systematic Review of Research Foci and Future Research Agenda. *International Journal of Retail and Distribution Management*, 1-44.
15. Choi, U., & Choi, B. (2020). The Effect of Augmented Reality on Consumer Learning for Search and Experience Products in Mobile Commerce. *Cyberpsychology, Behavior, and Social Networking*.
16. Dadwal, S. S., & Hassan, A. (2015). *The Augmented Reality Marketing*. IGI Global.
17. Dehghani, M., Lee, S. (.), & Mashatan, A. (2020). Touching holograms with windows mixed reality: Renovating the consumer retailing services. *Technology in Society*, 1-10.
18. Do, H.-N., Shih, W., & Ha, Q.-A. (2020). Effects of mobile augmented reality apps on impulse buying behavior: An investigation in the tourism field. *Heliyon*, 1-9.
19. Ehab, M., Adel, R., & Abdelmoaty, H. (2020). The Effect of Augmented Reality Applications on Customer's Purchase Intentions. *International Journal of Advanced Scientific Research and Management*, 1-11.
20. Fan, X., Chai, Z., & Deng, N. (2020). Adoption of augmented reality in online retailing and consumers' product attitude: A cognitive perspective. *Journal of Retailing and Consumer Services*, 1-10.
21. Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research*, 547-560.
22. Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research*, 547-560.
23. Haile, T. T., & Kang, M. (2020). Mobile Augmented Reality in Electronic Commerce: Investigating User Perception and Purchase Intent Amongst Educated Young Adults. *Sustainability*.
24. Heller, J., Chylinski, M., Ruyter, K., Mahr, D., & Keeling, D. (2019). Let Me Imagine That for You: Transforming the Retail Frontline Through Augmenting Customer Mental Imagery Ability. *Journal of Retailing*, 94-114.
25. Hinsch, C., Felix, R., & Rauschnabel, P. (2020). Nostalgia beats the wow-effect: Inspiration, awe and meaningful associations in augmented reality marketing. *Journal of Retailing and Consumer Services*.
26. Hsua, C.-L., & Chen, M.-C. (2018). How gamification marketing activities motivate desirable consumer behaviours: Focussing on the role of Brand love. *Computers in Human Behavior*, 121-133.
27. Huang, T.-L. (2019). Psychological mechanisms of brand love and information technology identity in virtual retail environments. *Journal of Retailing and Consumer Services*, 251-264.
28. HUANG, Y. C., BACKMAN, K. F., BACKMAN, S., & CHANG, L. (2016). Exploring the Implications of Virtual Reality Technology in Tourism Marketing: An integrated research framework. *International Journal of Tourism Research*, 116-128.
29. Hung, S.-W., Chang, C.-W., & Ma, Y.-C. (2021). A new reality: Exploring continuance intention to use mobile augmented reality for entertainment purposes. *Technology in Society*, 1-8.
30. IANS. (2022). *Indian consumers start buying virtual products amid metaverse buzz*. Business Standard.
31. IBEF. (2022). *INDIA'S AR/VR MARKET*.
32. Javornik, A. (2016). 'It's an illusion, but it looks real!' Consumer affective, cognitive and behavioural responses to augmented reality applications. *Journal of Marketing Management*, 1-25.
33. Javornik, A. (2016). Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour. *Journal of Retailing and Consumer Services*, 252-261.
34. JAVORNIK, A., DUFFY, K., ROKKA, J., SCHOLZ, J., NOBBS, K., MOTALA, A., et al. (2021). Strategic approaches to augmented reality deployment by luxury brands. *Journal of Business Research*, 284-292.
35. Javornik, A., Duffy, K., Rokka, J., Scholz, J., Nobbs, K., Motala, A., et al. (2021). Strategic approaches to augmented reality deployment by luxury brands. *Journal of Business Research*, 284-292.
36. Javornik, A., Marder, B., Pizzetti, M., & Warlop, L. (2021). Augmented self - The effects of virtual face augmentation on consumers' self-concept. *Journal of Business Research*, 170-187.

37. Jessen, A., Hilken, T., Chylinski, M., Mahr, D., Heller, J., Keeling, D. I., et al. (2020). The playground effect: How augmented reality drives creative customer engagement. *Journal of Business Research*, 85-98.
38. Jiang, Y., Wang, X., & Yuen, K. F. (2021). Augmented reality shopping application usage: The influence of attitude, value, and characteristics of innovation. *Journal of Retailing and Consumer Services*, 1-11.
39. Kang, H. J., Shin, J.-h., & Ponto, K. (2020). How 3D Virtual Reality Stores Can Shape Consumer Purchase Decisions: The Roles of Informativeness and Playfulness. *Journal of Interactive marketing*, 70-85.
40. Kowalczyk, P., Siepmann, C., & Adler, J. (2021). Cognitive, affective, and behavioral consumer responses to augmented reality in e-commerce: A comparative study. *Journal of Business Research*, 357-373.
41. Kumar, H. (2021). Augmented reality in online retailing: a systematic review and research agenda. *International Journal of Retail & Distribution Management*, 1-24.
42. Lau, K. W., & Lee, P. Y. (2019). Shopping in virtual reality: a study on consumers' shopping experience in a stereoscopic virtual reality. *Virtual Reality*, 255-268.
43. Lau, O., & Ki, C.-W. (2021). Can consumers' gamified, personalized, and engaging experiences with VR fashion apps increase in-app purchase intention by fulfilling needs? *Journal of Fashion and Textiles*, 1-22.
44. Lavoye, V., Mero, J., & Tarkiainen, A. (2021). Consumer behavior with augmented reality in retail: a review and research agenda. *The International Review of Retail, Distribution and Consumer Research*, 1-31.
45. Li, Q., Zhu, C., & Shi, T. (2021). Augmented reality advertising in an e-commerce model with competition. *Electronic Commerce Research and Applications*, 1-21.
46. Lombart, C., Milan, E., Normand, J. M., Verhulst, A., & Labbe-Pinlon, B. (2020). Effects of physical, non-immersive virtual, and immersive virtual store environments on consumers' perceptions and purchase behavior. *Computers in Human Behaviour*.
47. M, C., Hilken T., Heller J., Keeling DI, De Ruyter K, & Mahr D. (2020). Augmented Reality Marketing: A Technology-Enabled Approach to Situated customer Experience. *Australasian Marketing Journal*, 374-384.
48. McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. *Computers in Human Behavior*, 210-224.
49. Misra, P., Srivastava, A. B., & Das, A. (2020). Augmented Reality Impact on Retailing in India: An Analysis. *GEDRAG & ORGANISATIE REVIEW*, 1967-1982.
50. Modak, K. C., & Sinha, K. (2019). A Study on Customer Awareness and Perception for Mobile based Augmented Reality (AR) Advertising. *UNNAYAN : International Bulletin of Management and Economics*, 78-91.
51. Moriuchi, E., Landers, V., Colton, D., & Hair, N. (2020). Engagement with chatbots versus augmented reality interactive technology in e-commerce. *Journal of Strategic marketing*.
52. Nikhashemi, S., Knight, H., Nusair, K., & Liat, C. B. (2021). Augmented reality in smart retailing: A (n) (A) Symmetric Approach to continuous intention to use retail brands' mobile AR apps. *Journal of Retailing and Consumer Services*, 1-21.
53. Orús, C., Ibanez-Sanchez, S., & Carlos, F. (2021). Enhancing the customer experience with virtual and augmented reality: The impact of content and device type. *International Journal of Hospitality Management*, 1-13.
54. Pantano, E., Rese, A., & Baier, D. (2017). Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets. *Journal of Retailing and Consumer services*, 81-95.
55. Park, M., Im, H., & Kim, D. (2018). Feasibility and user experience of virtual reality fashion stores. *Journal of Fashion and Textiles*, 1-17.
56. Paulo, M., M, R., Oliviera, T., & Moro, S. (2018). Understanding mobile augmented reality adoption in a consumer context. *Journal of Hospitality and Tourism Technology*, 142-157.
57. Perannagari, K. T., & Somnath, C. (2020). Factors influencing acceptance of augmented reality in retail: insights from thematic analysis. *International Journal of Retail & Distribution Management*, 18-34.

58. Poushneh, A. (2018). Augmented reality in retail: A trade-off between user's control of access to personal information and augmentation quality. *Journal of Retailing and Consumer Services*, 169-176.
59. Poushneh, A., & Vasquez-Parraga, A. (2017). Discernible impact of augmented reality on retail customer's experience, satisfaction and willingness to buy. *Journal of Retailing and Consumer Services*, 229-234.
60. Qin, H., Osatuyi, B., & Xu, L. (2021). How mobile augmented reality applications affect continuous use and purchase intentions: A cognition-affect-conation perspective. *Journal of Retailing and Consumer Services*, 1-13.
61. Qin, H., Peak, D. A., & Prybutok, V. (2021). A virtual market in your pocket: How does mobile augmented reality (MAR) influence consumer decision making? *Journal of Retailing and Consumer Services*, 1-10.
62. Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, 43-53.
63. Rauschnabel, P. A., Felix, R., Chris, H., Shahab, H., & Alt, F. (2022). What is XR? Towards a Framework for Augmented and Virtual Reality. *Computers in Human Behavior*, 1-18.
64. Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. *Technological Forecasting and Social Change*, 306-317.
65. Saleem, M., Kamarudin, S., Shoaib, H. M., & Nasar, A. (2021). Retail Consumers' Behavioral Intention to Use Augmented Reality Mobile Apps in Pakistan. *Journal of Internet Commerce*, 1-31.
66. Saprikis, V., Avlogiaris, G., & Katarachia, A. (2020). Determinants of the Intention to Adopt Mobile Augmented Reality Apps in Shopping Malls among University Students. *Journal of Theoretical and Applied Electronic Commerce Research*, 492-512.
67. Scholz, J., & Smith, A. (2016). Augmented reality: Designing immersive experiences that maximize consumer engagement. *Business Horizons*, 149-161.
68. Scholz, J., & Duffy, K. (2018). We ARE at home: How augmented reality reshapes mobile marketing and consumer-brand relationships. *Journal of Retailing and Consumer Services*, 11-23.
69. Singh, P., & Pandey, M. (2014). Augmented Reality Advertising: An Impactful Platform for New Age Consumer Engagement. *IOSR Journal of Business and Management*, 24-28.
70. Skubis, M. (2021). USERS' AWARENESS OF AUGMENTED REALITY TECHNOLOGY IN MOBILE APPLICATIONS. *MARKETING OF SCIENTIFIC AND RESEARCH ORGANIZATIONS*, 1-22.
71. Smink, A. R., Reijmersdal, E. v., Noort, G. v., & Neijens, P. (2020). Shopping in augmented reality: The effects of spatial presence, personalization and intrusiveness on app and brand responses. *Journal of Business Research*, 474-485.
72. Smink, A. R., Frowijn, S., Reijmersdal, E. v., Noort, G. v., & Neijens, P. (2019). Try online before you buy: How does shopping with augmented reality affect brand responses and personal data disclosure. *Electronic Commerce Research and Applications*, 1-10.
73. Srivastava, A., Dasgupta, S., Ray, A., Bala, P. K., & Chakraborty, S. (2021). Relationships between the "Big Five" personality types and consumer attitudes in Indian students toward augmented reality advertising. *Aslib Journal of Information Management*, 2050-3086.
74. Sun, C., Fang, Y., Kong, M., Chen, X., & Liu, Y. (2022). Influence of augmented reality product display on consumers' product attitudes: A product uncertainty reduction perspective. *Journal of Retailing and Consumer Services*, 1-12.
75. Sung, E. (. (2021). The effects of augmented reality mobile app advertising: Viral marketing via shared social experience. *Journal of Business Research*, 75-87.
76. Sung, E. (., Bae, S., Han, D.-I. D., & Kwon, O. (2021). Consumer engagement via interactive artificial intelligence and mixed reality. *International Journal of Information Management*, 1-13.
77. Taufik, D., Kunz, M., & Onwezen, M. (2021). Changing consumer behaviour in virtual reality: A systematic Literature review. *Computers in Human Behavior Reports*, 1-16.
78. Tejaswi, M. (2022). *Pandemic accelerated adoption of Augmented Reality, Virtual Reality in India: Tata Elxsi*. Bengaluru: The Hindu.

79. Thomas, S. (2021). Investigating interactive marketing technologies – adoption of augmented/virtual reality in the Indian Context. *International Journal of Business Competition and Growth*, 214-230.
80. Uhm, J.-P., Kim, S., Do, C., & Lee, H.-W. (2022). How augmented reality (AR) experience affects purchase intention in sport E-commerce: Roles of perceived diagnosticity, psychological distance, and perceived risks. *Journal of Retailing and Consumer Services*, 1-8.
81. Watson, A., Alexander, B., & Salavati, L. (2018). The impact of experiential augmented reality applications on fashion purchase intention. *International Journal of Retail and Distribution Management*, 1-19.
82. Wedel, M., Bigné, E., & Zhang, J. (2020). Virtual and augmented reality: Advancing research in consumer marketing. *International Journal of Research in Marketing*, 443-465.
83. Whang, J. B., Song, J. H., Choi, B., & Lee, J.-H. (2021). The effect of Augmented Reality on purchase intention of beauty products: The roles of consumers' control. *Journal of Business Research*, 274-284.
84. wood, L. (2021, September). Business wire.
85. Xi, N., & Hamari, J. (2021). Shopping in virtual reality: A literature review and future agenda. *Journal of Business Research*, 37-58.
86. Yang, S., Carlson, J., & Chen, S. (2020). How augmented reality affects advertising effectiveness: The mediating effects of curiosity and attention toward the ad. *Journal of Retailing and Consumer Services*, 1-11.
87. Yaoyuneyong, G. S., Pollitte, W., Foster, J., & Flynn, L. (2018). Virtual dressing room media, buying intention and mediation. *Journal of Research in Interactive Marketing*, 1-21.
88. Yaoyuneyong, G., Foster, J., & Flynn, L. (2015). Factors impacting the efficacy of augmented reality virtual dressing room technology as a tool for online visual merchandising. *Journal of Global Fashion Marketing: Bridging Fashion and Marketing*, 281-296.
89. Yaoyuneyong, G., Foster, J., Johnson, E., & Johnson, D. (2016). Augmented Reality Marketing: Consumer preferences and attitudes towards hypermedia print ads. *Journal of Interactive Advertising*, 1-54.
90. Yim, M. Y.-C., Chu, S.-C., & Sauer, P. (2017). Is Augmented Reality Technology an Effective Tool for E-commerce? An Interactivity and Vividness Perspective. *Journal of Interactive Marketing*, 89-103.
91. Yoon, S., Erdem, M., Schuckert, M., & C. Lee, P. (2021). Revisiting the impact of VR applications on Hotel Bookings. *Journal of Hospitality and Tourism Technology*, 489-511.
92. Yung, R., & Khoo-Lattimore, C. (2017). New realities: a systematic literature review on virtual reality and augmented reality in tourism research. *Current Issues in Tourism*, 1-26.
93. Yussof, F. M., Salleh, S. M., & Ahmad, A. L. (2019). Audience Engagement and Decision-Making through Augmented Reality Technology in Advertising. *International Journal of Innovative Technology and Exploring Engineering*, 1-11.
94. Yussof, F. M., Salleh, S. M., & Ahmad, A. L. (2019). *Augmented Reality: A Systematic Literature Review and Prospects for Future Research in Marketing and Advertising Communication*. Singapore: Springer.
95. Zeng, G., Cao, X., Lin, Z., & H. Xiao, S. (2020). When online reviews meet virtual reality: Effects on consumer hotel booking. *Annals of Tourism Research*, 1-12.