

# VR Interface Design for Children's Products and Chinese Consumerism: A Concept Paper

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## Abstract

The potential of smart technologies like virtual reality (VR) in developing products for children remains underexplored. This concept paper explores the possibility of using VR to develop engaging products like toys and other gadgets that provide immersive experiences to the young consumers of China. The justifications and inspirations for the conceptual framework proposed in this study are based on previous literature. Basic design considerations include interactivity, spatial reality interface, perceived product design characteristics, and their collaborative effect on consumer purchase decisions. Based on previous studies, the factors identified as consumers' purchase intention influencers. This study recommends contemporary determinants of consumer purchase decisions, highlighting the importance of VR attributes in association with consumer behavior in the context of Chinese children in VR gaming. The practical applications of the framework are discussed as well, and future usage of the recommended model could result in important practical and theoretical implications.

**Keywords:** *Virtual Reality, Gaming Products, Consumerism, Purchase Intention, China.*

## 1. Introduction

China has one of the largest tech industry in the world. With the continuous technological advancements, China has also taken important steps to promote new technologies, such as VR technology, which has become very popular among adults and children (Ma et al., 2011; Shan, 2019). VR technology is also largely utilized in China's education sectors to improve children's learning capability. In 2020, the number of VR users rapidly increased to 20.07 million in China (Qianzhan, 2020). VR education is rapidly growing in China, especially in Chinese public schools. In 2018, the total sum of VR education projects were estimated around RMB 2.4 billion and is still growing (Alhadeff, 2018). Figure 1 shows the use of VR technology in Chinese schools in a science class, highlighting children's increased engagement in using this technology. Chinese investors are assured that the majority of users in the future are likely to access VR through their smartphones instead of goggles attached to a computer or a console.

It has been projected that the Chinese are more likely to become the global leader in the virtual reality industry. Although established long ago, companies like Meta and Oculus have made VR more famous. Such companies are mainly targeting children. These days, children can hang out in virtual chat rooms, tour various parts of the world without leaving their homes, and play their favorite virtual reality games. Children are becoming increasingly addicted to VR wearable products such as goggles or gloves. This combination makes the children feel like an avatar or image, which is similar to a digital representation of an individual (Ahmadpour et al., 2020; Rendon et al., 2012). Today's VR is extraordinarily responsive to children or other human actions, making gaming feel even more personal, immersive and intense. The increased usage of VR goggles or other games and toys has exerted a prominent and sharp influence on consumerism in China. A wide range of toys is included in VR headset games for children. Some systems, such as Xbox or PlayStation, have developed VR headsets that directly work with the game consoles. The other VR systems include the usage of smartphones as software where a special screen is used for the development of 3D images that does an extraordinary job of replicating the "normal field of vision" for children (Rahmadiva et al., 2019). Some VR gaming for Children also incorporates the same category of handheld controller that enables the children to take actions in the games they are playing.



Figure 1. Students learning science via VR devices in Hunan Province, China  
Source: (Alhadeff, 2018).

Taking into the context of children's consumerism, VR toys and gaming have grasped numerous children's attention as Chinese kids increasingly become addicted to these games. Parents are more supportive of their children when playing VR games because of the numerous benefits of such games for children (Kaimara et al., 2022). Many Chinese companies specializing in VR include Alibaba, Baidu, Ten Cent, Huawei, Meitupic, HTC, IQIYO, etc. In China, children are provided with many options for VR games, the most famous of which include Xbox games (Figure 2), VR theme parks by Movie Power, and others (Artashyan, 2023). As virtual reality design interface in different products has made their way into numerous giant technology companies and development platforms, it can likely be the most effective way to develop a business as almost everybody is addicted to smartphones. Children even find VR gaming even more fascinating. Therefore, certain factors are considered while designing a VR interface for children. Such user-interface must be simple and easy to understand. Moreover, in the children's VR products, the content should be age-appropriate

to ensure the children's safety, focusing on the children's education and development (Rahmadiva et al., 2019).

Furthermore, a key factor for any company in China is its e-reputation (Goyal et al., 2022; Muravevskaia & Gardner-McCune, 2023). One needs to understand and know Chinese consumers to gain an advantage in the increasingly prevailing VR market. As the VR industry is rapidly flourishing in China and children are also prominently getting addicted to VR games, investigating virtual reality design interface in children regarding their enthusiasm for VR gaming is an interesting and contemporary research topic, particularly in China (Cruz-Neira et al., 2018).



Figure 2. A Chinese kid playing games. Source: [equityarcade.com](http://equityarcade.com)

The children's parents also focus on the functionality of products, and it is regarded as one of the critical factors in the purchasing decisions and habits of repurchasing the products (Budiman et al., 2022). On the other hand, sociability is also an essential component of any product, which impacts the "consumer interactions, levels of engagement, beliefs, and decision making" (Budiman et al., 2022). Companies who do not recognize the importance of the "usability, functionality, and sociability" of products and thus do not understand its effects on the decision-making processes of consumers encounter different challenges when they try to make social commerce websites because the previous consumers had already shared their experience with other people (Chen et al., 2022; Duong, 2021).

With the increased technological advancements, virtual reality has taken over almost every industry. Similarly, when considering children, the VR industry in China also has gained greater attention from children and increased consumerism concerning VR gaming. Getting familiar with VR technology is beneficial for children in many ways. Many children above the age of 12 years are more indulged in VR gaming in China. VR gamings include a more private experience than conventional games. Famous classic games such as *Call of Duty* and *Mario Kart* entail a shared gameplay experience as other children in the room react, watch, and usually follow along with what is happening on the screen (Jang & Park, 2019; Lu et al., 2023). Family members can also play these VR headsets apart from children as an entertaining shared indoor activity. Previous studies have investigated virtual reality and the associated concepts in other industrial settings, which indicate a scarcity of academic research concerning the virtual design interface of children's products and its influence on consumerism (Singh et al., 2020; Wohlgenannt et al., 2020; Xiong et al., 2021). It is important to explore this concept concerning children's products because education may increasingly



depend on virtual reality for children. Different companies, such as national geographic, have developed VR surroundings to enable children to virtually explore the globe (Oyelere et al., 2020). Children who are comfortably exposed to VR could adapt to technology-enabled learning environments. VR is also effective for teaching children things that may otherwise feel abstract, such as exploration and space travel.

Most importantly, when going outside is not an option, VR systems can help encourage physical activities. However, the persistent use of VR technology by children might also result in certain side effects such as technostress, anxiety, physical inactivity, fatigue, and others; therefore, continuous monitoring of the children is required by their parents (Sajeev et al., 2021). The purchase decision of such children also depends on the quality-oriented characteristics of VR gaming. Thus, this study focuses on exploring the factors that can lead to the purchase of such products by parents or pre-teens and teenagers. The rest of the study includes a brief methodology, evidence from the literature, the conceptual framework, and a conclusion.

## **2. Methodology**

A review was conducted to explore the related studies to explore the publications on consumer behavior related to children's VR products in China and to identify the factors that could lead to the purchase of such products, especially among children. Queries were designed and were used to collect data using different search terms and keywords. Data was collected from accredited databases like SCOPUS, ScienceDirect, Wiley, etc. Keywords and search queries like "hedonic attributes," "customer purchase behavior," "virtual spatial cues and consumer behavior," "interactivity and consumer behavior," and "perceived product design and consumer behavior." The search terms were combined with Boolean operators like AND, OR, and wildcards ("") to ascertain that all related studies were found and retrieved. The researcher limited the search period from 2010 to 2021 to identify and include all related studies, and all documents that didn't classify as research articles, i.e., theses, book sections, books, and discussions, were excluded from the review.

To understand better consumer behaviorism, the article reviews psychological model known as Theory of Reasoned Action (TRA), then discusses key factors that affect consumer's perspectives; from appealing interface standpoint, product design to customer purchase decision. We take note of how digital interactivity and virtual spatial cues determine and help predict hedonic attributes and purchase intention. From the above considerations, we offer a modest conceptual framework for the relationship between VR interface, product design and customer purchase decision.

## **3. Theory of Reasoned Action: Explaining consumer purchase behavior**

The interface design characteristics of the product can influence the consumer purchase decision. Reality store interfaces such as interactivity and visual-spatial cues with perceived product design can influence customer purchase decisions. This study is supported by the *Theory of Reasoned Action* (TRA). In 1975, this theory was developed by Lcek Ajzen and Martin Fishbein to accurately examine the connection and relationship between behavior and attitudes. Rather than attitude, the theory of reasoned action mainly focused on behavioral intention as the main predictor of behavior. Customer behavior can be determined by using the theory of reasoned action (TRA) through customer intention to perform its behavior, in turn, the attitude toward subjective norms and behavior. Beliefs and intentions are the best predictors of behavior that can lead toward intended outcomes (Silverman et al., 2016).

Instrumentally, it is determined by three things. These are their subjective norms, attitudes toward specific behavior, and perceived behavioral norms. The perceived control can be more significant; attitude and subjective norms are more favorable with a more robust customer's intention to perform the behavior. The intention model was considered a great reference model when analyzing individual behavior, which claims that behavioral intentions are more related to behavioral manifestation than affection, beliefs, and attitude (Mi et al., 2018).

Every market and store must understand the customer's behavioral intention, a prerequisite for predicting the customer's behavior or reason. From marketing to information systems, the theory of reasoned action has been applied to different fields of social behavior. The theory of reasoned action (TRA) has been extensively used to examine the customer's ethical behavior and purchasing intention. The reasoned action theory is widely applied to different populations, contexts, and multiple behaviors. TRA mainly focuses on customer beliefs concerning the performance of a given behavior, with their roots in social cognitive tradition and attitude theory. To predict a person's intention to engage them at a specific place and time, the theory of planned behavior started with the theory of reasoned action in 1980. Behavioral control is the only difference between them, as the theory of planned behavior consists of it. This theory has also been effective in understanding the attitude and behavior of children towards VR games. Studies have shown that the entertainment value of different VR games, including Xbox and others, largely influences the purchasing behavior of children, encouraging them to persuade their parents to buy them the relevant VR games.

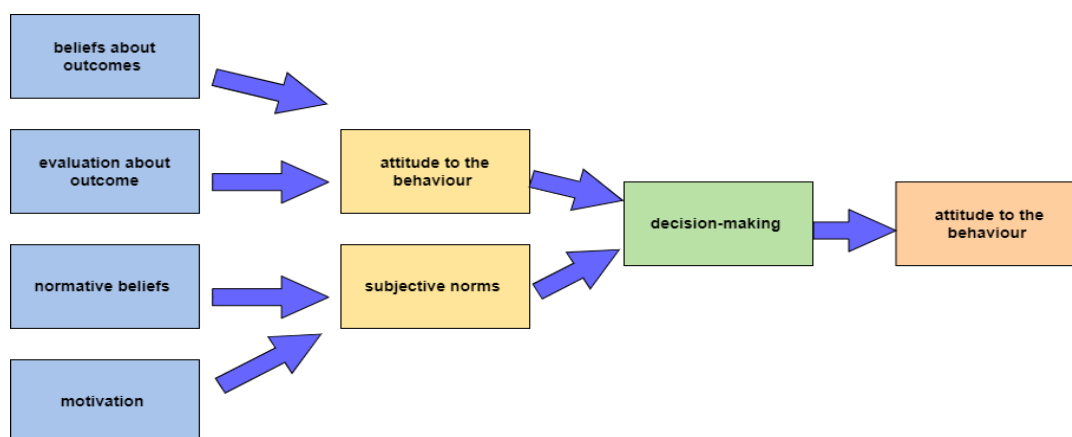


Figure 3. Theory of reason action as an approach for understanding the decision-making of customer. Adapted by author.

#### 4. Overview of Key Factors

##### 4.1. Virtual Reality Store Interface

Virtual reality is a technology that gives customers a clear picture of an item, making them feel like they are holding it in their hands (Xi & Hamari, 2021). There are several key characteristics when designing virtual reality (VR) interfaces for children (López-Faican & Jaen, 2020; Oranç & Küntay, 2019). Simplicity and intuitiveness are crucial, as it has been elaborated that easy-to-use and simple collaborative designs encourage children to communicate and coordinate (López-Faican & Jaen, 2020). The interface should be straightforward, with intuitive controls that children can easily understand and operate. Easy-to-use and easy-to-learn design must be a priority (Fan et al., 2020). The VR interface design should avoid any content that may be overwhelming, inappropriate, or challenging for children to comprehend (Le May et al., 2021; Segura et al., 2020). Children's privacy is a critical

component of virtual reality design (Van Mechelen et al., 2020). Virtual reality offers connected play, such as the sandbox game *Minecraft* (Mojang Studios, 2009), which allows players from another server to interact; therefore, it is significant to build a community for all children where collaboration and facilitation foster an inclusive play environment free from bullying and harassment (Du et al., 2021). *Minecraft's* intuitive interface and control dynamics, according to Colin Gallagher (2015), makes the game a fun tool to teach children about creativity.

Developers and designers of virtual worlds should consider the dynamics of adult-child interaction when creating inclusive and prosocial activities online (Richard & Gray, 2018; Yip et al., 2017). Lu et al. (2022) discussed the essentials of VR interface design and stated that visual appeal and engaging design play a significant role in capturing children's attention and maintaining their interest. Vibrant graphics, fun characters, and interactive elements can make the interface visually appealing and immersive, enhancing the overall experience for children. In addition, VR design be designed in a way to limit exposure to potentially harmful or distressing content. Adjustable settings for comfort, such as preventing motion sickness, should be included (Anua et al., 2023). Kaimara et al. (2022) discussed that the use of VR applications could lead to sleep disorders, internet gaming disorders, and anxiety. Therefore, it has been suggested that parents must understand VR applications before making a purchase decision. Parental controls can also be integrated to ensure appropriate usage and protect children from potential risks (Du et al., 2021). Visual cues, sound effects, or verbal instructions can be employed to guide children's navigation and interactions effectively, particularly for children with special needs (Teoh et al., 2021). This helps them engage with the virtual world confidently and independently. VR interfaces provide an opportunity for children to learn and foster their cognitive development (Fan et al., 2020). Therefore, educational and learning aspects must be incorporated into VR interfaces that enhance children's engagement.

#### **4.2 Perceived Product Design**

Everything customers perceive about how innovative a product design is has a long-term positive impact on customer value (Ding et al., 2016). Per Sharma (2016), perceived product design is a term that shows customers that a company can come up with new things to make customers happier. Experts explained that the market orientation and customer-based brand equity of a company's products or services could only be built if the manager and the customer were willing to be innovative in their perceived product designs. Children are creative and innovative; therefore, the product design must be associated with the perceived level of fun, interestingness, and ease of playing the games (Law et al., 2016). Market orientation means that a company must be able to adapt to changing customer needs and come up with new marketing strategies and methods. As a result, the product design quality and its overall performance improved. They represent the phenomenon of a belief that better design-based product success depends on thoroughly studying customer rates.

Ares et al. (2016) showed that children's preferences toward products are significantly impacted by product design. The study showed that children are positively influenced by the inclusion of cartoons and the benefits of products incorporated into product design. Similarly, Arrúa et al. (2017) elaborated that children associate labels such as fun and boring with product designs, and it was confirmed that product design significantly impacts children's choice of product. In terms of virtual reality and advanced technologies, studies have assessed children's perceptions of robots and virtual reality spaces (Maloney et al., 2020; Tung, 2016).

Researchers have elaborated that children are inclined toward VR spaces due to the design characteristics such as “face-to-face” interactions. This direct correlation between the real and virtual selves, combined with the potential for face-to-face interactions from a first-person perspective, creates an environment that elicits heightened emotions and feelings of presence (Maloney et al., 2020). Perceived product design plays a crucial role in influencing children’s perception, and characteristics such as bright colours, creativity, and ease of use affect children’s perception of software (Kraleva, 2017).

### **4.3 Customer Purchase Decision**

A customer’s purchase decision can be demonstrated by explaining how they feel about a particular product and how much money they are willing to spend. This simple explanation shows how shoppers perform the most fundamental tasks when shopping. The Theory of Reasoned Action (TRA) model mentioned above can effectively forecasts what buyers desire to purchase. However, the concept may not be applicable in all social and economic contexts (Zhang et al., 2020). Research has demonstrated customer purchase decisions regarding the degree of happiness related to technological advances are a big part of whether or not they will use them. At the same time, another finder argues about customer purchase decisions that the most attention has been paid to e-commerce, online training, blogs, mobile apps, virtual games, online payments, and many other things (Rouibah et al., 2021). The amount of customer purchase decisions, especially those that sell online, can be measured by how much consumers want to buy things online (Peña-García et al., 2018). It can be demonstrated by the consumer’s financial situation, personality, and way of life (García-Salirrosas et al., 2022), and studies have shown that family members and children affect parents’ purchase decisions (Arora & Diwan, 2022). So, an online purchase intention can be defined as a consumer’s long-term propensity to do particular shopping through an electronic device, considering their personality. Children engage in three distinct behaviors within the market: direct spending of their own money, influencing other family members' purchasing decisions, and serving as the future market (Kline, 2022). Bamfo et al. (2019) discuss that children’s purchase decisions and behavior can be impacted by advertisements. It is crucial to acknowledge that while children may not possess the financial means to make purchase decisions themselves, they exert substantial influence on their parents to buy products on their behalf. According to researchers, digital advertising, interactive media, and smart technologies can influence children’s purchase attitudes (Yousif et al., 2021). It has been found that children acknowledge and connect with an endorsed product (Kraleva, 2017). Studies have shown that despite parents making decisions on behalf of their children, they are significantly influenced by their children’s own purchase intentions and decisions (Gupta et al., 2022).

According to researchers, stores must stand out and make the best first impressions to get customers (Xia et al., 2020). In addition, paying attention to how they look while purchasing items is essential. Therefore, children can connect with the product, emotional experiences with products are formed (Kline, 2022), and a purchase decision is made (Mo et al., 2020).

### **5. Interactivity as a determinant of hedonic attributes and purchase intention**

The literature on interactivity and hedonic attributes of a product is not directly quoted in the past. To start with interactivity, it has been used in several dimensions. First of all, interactivity has been considered a problem-solving element. This prediction was tested on primary school students. The results were drawn through two experiments, showing that “contradictory

predictions and results of a productive failure approach and cognitive load theory are discussed using the concept of element interactivity. Specifically, for learning where element interactivity is high, explicit instruction should precede problem-solving (Ashman et al., 2020). Longoni and Cian (2022) define artificial intelligence's rapid increase and spread in their research. The literature has not discussed the impact of interactivity over hedonic attributes directly; rather, the literature predicted the relationship by using different variables. Above discussed papers from the past on interactivity and hedonic attributes show that if interactivity in online platforms is introduced and enhanced with time, it positively affects a product's hedonic attributes of products.

Therefore, with the persistently increasing presence of children online, they are largely influenced by the information provided on different social media platforms. Competition has grown in online sales, in which website interactivity plays an important role. An experimental-based investigation into the effects of website interactivity on customer behavior in an online purchase context explores the effects of website interactivity on online consumers' perceptions of online retail sites using laboratory-based experiments (semi-online field experiments). Website interactivity enhances customer perceptions of usefulness and ease of using retail websites. Interestingly, the ad hoc test results indicate that the effects of involvement in online shopping on PU purchase intention link are high at a high website-interactivity level (Islam et al., 2021). Thus, in China, the use of technology in schools has also encouraged children to create other social media accounts, which has largely impacted their perceptions regarding VR gaming.

Another study examines the pattern of purchase and online virtual interactivity. The research on the impact of self-congruity and virtual interactivity on online celebrity brand equity and fans' purchase intention has studied celebrity brand equity and the willingness of fans to purchase those brands. Online competition has emerged with a new concept of celebrities building their brand equity to attract fans to buy their brands. This relationship between a celebrity brand and a fan purchaser and his pattern has not been studied in the previous iteration. A survey was conducted in China to study the purchasing patterns. The paper "reveals that customers' perceived self-congruity with online celebrities' image and virtual interactivity positively impact the brand equity of online celebrities brand equity of online celebrities thereby driving followers' purchase intentions" (Liu et al., 2020, pp. 783-801). Therefore, children on social media are influenced by their idols which largely influence their purchase intention.

Similarly, social media has become a major tool for marketing and promotion. It has also played an important role in improving the conversational skills of the children. A study by Ke and Moon (2018) has shown that online VR gaming has helped improve children's social skills, encouraging them to communicate with other people without any hesitation. Therefore, such significant outcomes of VR gaming also influence the children's parents to buy them effective VR games.

## **6. Virtual spatial cues as predictors of purchase intention and hedonic attributes**

The present literature on the virtual spatial cues and hedonic attributes has a direct impact on each other. Alzayat and Lee (2021), in their paper, *Virtual Products as an Extension of my body: Exploring Hedonic and utilitarian shopping value in a virtual reality retail environment*, examine the significance of touching the product, which is the main component of shopping "Virtual Reality (VR) platforms may provide a simulated medium for consumers to explore products haptically. Multiple studies have discovered that a Virtual Reality retail environment



(vs. an online retail website) positively impacts hedonic shopping value. VR retail environment is more suitable for products perceived as an extension of the body” (Alzayat & Lee, 2021). On the other hand, the impact of virtual reality on retail stores has been studied by Sina and Wu (2022). They found out that consumer attributes, like emotion and perception, work as hedonic. The study shows a positive and direct relationship between virtual reality stores through different attributes of consumers, “study provides insights into how retailers strategically plan their use of biophilic design to improve the 3D Virtual Reality (VR) shopping experience” (Sina & Wu, 2022). The studies mentioned above used different attributes as the hedonic characteristic, for instance, communication, purchase, food shape, and color, etc. the research has shown that varying attributes contribute to the impact of the relationship between virtual spatial cues and hedonic attributes in a direct pattern; for instance, each attribute that worked as hedonic has a direct impact on the virtual spatial cues and vice versa. So, the conclusion can be drawn that virtual spatial cues significantly influence hedonic attributes in different situations.

According to Meyns et al. (2018), VR games provide not only hedonic entertainment but also possess utilitarian benefits as it helps improve children's social interactions and physical activity. This helps in improving the psychological and physical well-being of the children. Therefore, in China, many people use VR and other motion-sensing games to develop important social and physical skills in their children. There is a lack of research on the impact of virtual spatial cues and purchase intention. The present literature discusses both variables differently, so this paper will attempt to study these variables separately and try to connect them as per the hypothesis claimed. To continue the idea further, Lau and Lee (2019) studied the augmented reality application in new dimensions, “three underlying processes (spatial presence, perceived personalization, and perceived intrusiveness) that could explain the persuasiveness of Augmented Reality apps” Moreover, the results in shopping in augmented reality: The effects of spatial presence, personalization and intrusiveness on the app and brand responses show could manifest perceived *negative* intrusiveness. There is not a single study that attempts the direct role of spatial cues and purchase intention. Still, the distinctive literature on virtual spatial cues and purchase intention shows the relationship between spatial cues and intention, which is to be studied. Thus, the conclusion from the above literature can be described through the direct impact of virtual spatial cues on purchase intention. This association is also considered effective in determining the interests of the children regarding the VR games they want to play or buy.

### **7. Product design attributes as predictors of purchase intention and hedonic attributes**

Every industry relies on its consumer's perception of their products. Quality, functionality, and pricing are among the most important factors affecting product perception (Xue et al., 2017). A stated method of finding consumers' preferences has revealed that consumers are often willing to pay more for a product or good with better utility and quality (Ben-Akiva et al., 2019). In a study on eggs, Dixon and Shackley states that *customers were willing to pay twice the amount when they found that fortified foods had more health benefits* (Relawati et al., 2021). This proves how consumers signify functional aspects of a product. If the product or service has functions and utility that benefit consumers, they will prefer it over similar, lower-priced products (Biswas & Roy, 2016). The product should be worth the difference and advertised as such. Several other factors affect this characteristic, including the product's significance, added benefits, and the target audience's demographic location once (Bettiga et al., 2020). The product's functional attributes should be so strong that it outweighs these

factors. Therefore, the functional utilities in the studies could be understood also in the context of VR games for children.

Studies by Bennett and Zournazi (2020) have shown that aesthetics affect consumers' decisions, including product perception, purchase intention, satisfaction, and product selection. Big labels and brands like Apple spend millions of dollars yearly to develop an innovative design with every new model (Tofighi et al., 2019). Keeping these terms in mind, a VR based store should also market its products as aesthetically pleasing, even more so as virtual reality products are mostly about aesthetics and visuals. The VR games with unique, beautiful, colorful backgrounds, characters, etc., focus on intrinsic characteristics to attract more children. VR retailers like IKEA, eBay, and so many more beautifully present their products and make their websites as user-friendly as possible to attract consumers and increase their sales (Regt & Barnes, 2019). Virtual reality rides are also marketed for their aesthetically pleasing experience, allowing people to visit beautiful places worldwide virtually.

The hedonic aspects of virtual reality stores should be top-notch (Akdin et al., 2022). The choice of colors, music, style, and fonts directly impacts the success and liking of their products. As the French philosopher Blaise Pascal stated: "Beauty is a harmonious relation between something in our nature and the quality of the object which delights us" (Nichols, 2021). The various elements that make up the interface of VR combine, overlap and interact with one another to enhance an attractive and uniting experience. The use of VR to customize products has also attracted several consumers. Consumers can customize a product's aesthetics according to their liking to some extent, for example, customization of a character in a virtual game and customization of a tee shirt, etc., in virtual shopping (Zhang et al., 2019). Fictional characters, visualizations, animations, and imaginary projections are the main element of any virtual reality store or product. These features are part of aesthetics. In fact, virtual reality's entire gaming world is based on aesthetics (Rogers et al., 2019). These attributes are also considered while designing a VR game for children. In this regard, the incorporation of entertainment is also largely focused on encouraging children to play such games. Studies have also shown that the design interface of VR games also plays an important role in influencing children to play and buy the game. Within this context, important factors are needed to be considered, such as the entertainment value, animated characteristics, simplicity of content and others, to provide an effective VR gaming experiences for the children.

Factors like aesthetics and symbolism are important for determining consumer behavior, but the most important is the functionality of goods or services. Like any other industry, virtual reality shops and their products should also give importance to the functionality of the products for the consumers to buy them (Turner et al., 2016). The products should be high functioning, practical and convenient. They should be in accordance with the latest innovation and technology trends (Alzayat & Lee, 2021). Virtual shops, like online shopping platforms, should be well-organized, user-friendly, and authentic for consumers to buy from and trust them. Online shops should also give good testing and refund opportunities to consumers. These functions of the shops will help them gain loyal consumers (Arora et al., 2022). Then the virtual reality games should incorporate the latest technology and have great displays and fast reaction speed. All the game functions should be top-notch

to give the players the best experience and gain an audience. Thus, the goods and services' functionality is the main mediating factor between virtual reality shops and consumers.

Symbolism is significant for both product selling and consumer buying (Han et al., 2016). The functionality of the products is important, but symbolic interactionism also helps determine the consumer's buying behavior. The symbolic interaction is reflected in the consumer's behavior in symbolic purchase behavior (Peng, 2019). This type of purchase occurs when consumers receive a good product or service based on socially connected brands. Such services or goods serve as communication tools in that they serve as symbolic communication between the individual and their cultural, social, or moral judgments (Candi et al., 2017). For example, blue jeans generally symbolize casualty, but different individuals use different brands of blue jeans as symbols.

Similarly, in VR games, incorporating the communication feature has also been effective in improving its functionality and social value among children. This also helps in improving self-autonomy among children, leading to effective outcomes. Advertising and other marketing communications can be as effective as vehicles for conveying symbolic meaning. Representation and symbolic interaction has an important role in branding and marketing since the early 1950s (Allen et al., 2018). The concept of symbolic collaboration assumes that consumers are most often influenced by their interaction with the community or key reference groups (Machiels et al., 2019). Once a consumer has chosen to associate with a particular group, they must decide what certain products mean to the group members. When a consumer discovers that a brand is important, he or she will tend to behave in a way that is considered acceptable in the eyes of the appropriate party references (Jain, 2017). In conveying a symbolic meaning, the group is thought to convey the tags attached to the products and indicate the related importance of these symbols to present to the group members who will be present (Appiah & Ozuem, 2019). The team then evaluates the behavior of these real or interested group members and applies rewards or sanctions based on the brand's acceptance status (Wang et al., 2020). In order to understand how symbolic interactionism works, think of a person who wishes to be accepted into a particular country. This aspiring member may have noticed that many current citizens of the country all drive luxury cars. Because he wants to become a member, he may purchase one so that members of the group can see that he shares their symbolic values and will accept him as a member of the group (Shaikh et al., 2017).

## 8. Conceptual Framework

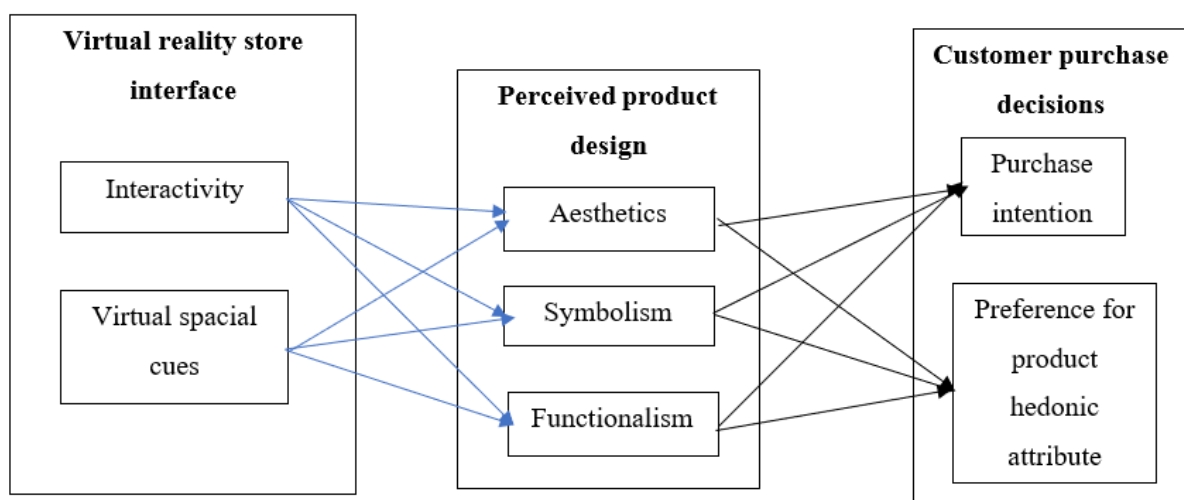


Figure 4: Conceptual framework for relationship between VR interface, product design and customer purchase decision.

Based on the discussion and the theoretical evidence, albeit limited, presented above, the following conceptual framework is proposed. It is suggested that the interface of the virtual reality stores would influence the customer purchase decisions; specifically, the interactivity and virtual spacial cues of the AR stores would influence customer purchase decisions. Moreover, it has also been suggested that perceived product design attributes like the products' symbolism, aesthetics, and functionality would mediate between the virtual reality store interface and customer purchase decision-making.

### **9. Concluding Remarks**

The utilization of VR technology is rapidly increasing among children in China. Many Chinese educational sectors are also using VR technology to teach children. This has encouraged many children to opt for VR games as they help them improve their self-autonomy and other social skills. As it is obvious from the literary descriptions that interactivity refers to the activities that are necessary for solving different problems and is considered a problem-solving element, so the Chinese manufacturing industries must impose interactivity as a problem-solving element while designing gaming products or websites for Chinese children based on virtual reality because it will promote the hedonic attributes of the customers and will considerably enhance the purchase intention of the consumers to buy the products thus based on the virtual reality (VR). Besides this, various studies have also claimed that consumers mostly prefer the best choices of hedonic products. The reason behind prioritizing hedonic products to buy is that they provide a wide range of effective involvement (Kim & Kim, 2016) and enable the consumers to enjoy and feel pleasure, enabling their positive energy vibes (Shao & Li, 2021).

It can be said that not only Chinese children but children worldwide will prefer to buy hedonic products as they are a source of amusement for them, and the products having some problem-solving elements will significantly alter their attributes toward purchasing such Chinese products and games. A recent study by Alzayat and Lee (2021) also determined virtual reality's influence over the products' hedonic attributes. Moreover, another study by Pizzi et al. (2019) illustrated VR's significant influence on consumers' purchase orientation. It has been illustrated that consumers prefer to buy hedonic products as they are a source of enjoyment and relief. Still, it is proposed that the inclusion of virtual reality within hedonic products enhances consumers' preferences for buying these products. Other studies have suggested that features like aesthetics and functionality of the products have played a role in influencing consumer focus, especially of the younger population (Eytam et al., 2021). Li & Li (2022) reminds again how design aesthetics could also influence the purchase intention of consumers. Despite the aesthetics of the products thus designed by Chinese organizations, the symbolism of the products is another significant factor that can influence the direct correlations of virtual spatial reality and interactivity with hedonic product attributes and purchase intentions of Chinese consumers. In addition, other findings from recent research suggest that aesthetics, symbolism, and functionality of product design influence the satisfaction of consumers (Sabir, 2020) and it can be understood that a satisfied consumer will stick to its satisfied brand when shopping. All of these factors, will therefore contribute to the purchase decisions of consumers.



Despite the possible damaging reputation that Chinese goods have worldwide, they are still amongst the largest industries of technological products globally. This concept paper sought to propose a framework for the evaluation of the purchase decisions of customers, especially from the perspective of younger consumers. The study has outlined and explained several factors influencing customer purchase decisions and proposed new associations. The framework suggests that the virtual reality store interface will affect Chinese consumers' preferences for product hedonic attributes and purchase intention, including virtual spatial cues and interactivity. The factors have been selected in association with consumers' preference for virtual reality gaming of children's store interfaces.

This study and future studies based on this framework can help to comprehend how children's consumption in China is influenced by the design of VR displays. It can shed light on the psychological processes, thought processes, and sociocultural elements that influence kids' purchasing decisions in virtual settings. The study can theoretically understand how media influences and child development interact. It can give light on the effects of virtual experiences on the mental, emotional, and interpersonal aspects of child development by examining how VR interface design affects children's consumerism. This study helps to gain a greater awareness of the disparity between attitudes and behaviors by offering insights into consumer decision-making. The study can further the theoretical understanding of technology-mediated consumer behaviour by exploring the particular impact of VR interface design on children's consumerism. It could add to the knowledge about how virtual settings influence consumers' views, choices, and purchasing decisions. By combining the distinctive features of VR interface design for children's consumerism, the research can help improve existing consumer behavior models. However, the excessive use of VR technology might also impact the physical and psychological health of the children; therefore, the continuous monitoring of parents is crucial in this regard.

The results from testing this framework will offer insights for creators and producers of VR products for children and teenagers. Future studies based on this framework may have useful applications for encouraging children's responsible consuming behaviors. Understanding how consumer behavior is influenced by VR interface design can help create instructional materials, interactive elements, and feedback systems for VR experiences that promote thoughtful and responsible consumption. The findings may contribute to enhancing kids' VR interface usage. The usability, engagement, and general user pleasure of VR experiences may be improved by finding design features that benefit consumers. Additionally, this research can serve as a model for future technological advancements for developers and creators of AR and VR technology. The critical reviews and findings can point toward business opportunities for businesses in the VR sector that respond to children's consumerism. Knowing how VR interface design affects customer behavior can help businesses create novel products, services, and company structures that respond to the changing desires and tastes of young Chinese consumers.

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