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A Study on the VR Interface Design for Children Products and its Influence Towards China's Consumerism

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ABSTRACT

The present study intended to evaluate the impact of the virtual reality store interface, which comprised of two dimensions, virtual spatial cues (VR) and interactivity (INT), on Chinese customers' purchase decisions which included the preference for product hedonic attributes (HD) and purchase intention (PIP). Secondly, the mediating role of perceived product design which encompassed aesthetics (PRAS), functionality (PFUN), and symbolism (SYMM), was investigated. A quantitative approach was implemented, combined with a survey-based strategy for data collection. The criteria for respondents included parents having children who are VR game users, and the age range of the children was between 10 to 16 years. A sample of 312 respondents was analysed with the use of statistical software. The researcher employed the prominent methodology of structural equation modelling to evaluate the proposed hypotheses. The findings demonstrated that INT positively and significantly impacts HD, whereas INT and PIN were found to have an insignificant association. VR was found to impact HD and PIN positively and significantly among virtual Chinese consumers. In terms of the mediation analysis, PRAS significantly mediated the association between INT and PIN and VR and PIN, whereas the negative mediation of PRAS in the association between INT and HD and VR and HD was not validated. Regarding the mediation effect of SYMM, it was revealed that SYMM played a significant mediating role in the four proposed associations. Lastly, the mediation effect of PFUN was found to be significant in the association between INT and HD and VR and HD, whereas PFUN was an insignificant mediator in the association between INT and PIN and VR and PIN. The study offers substantial and valuable insights into virtual consumer perception regarding product design and purchase decisions for theoretical and practical applications.

Keywords: Product design, Purchase intention, Hedonic attributes, Virtual reality, Virtual reality games

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INTRODUCTION

China has been recognized as the leader in many industries associated with technology. The credit for it goes to the rapid adoption by companies in different industries. The key cause behind its success is that the Chinese are extensively enthusiastic regarding emerging technologies (Ma et al., 2011; Shan, 2019). Contrary to this, Chinese investors are assured that the majority of the users in future are likely to access VR through their smartphones instead of googles 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. Children these days are becoming increasingly addicted to VR wearable products such as goggles or gloves. This combination makes the children feel like an avatar or image (similar to a digital representation of an individual) (Ahmadpour et al., 2020; Rendon et al., 2012). Taking it into the context of children's consumerism, VR toys and gaming have grasped the attention of numerous children as Chinese kids are increasingly getting addicted to these games. Parents are more supportive of their children when they play VR games because of the numerous benefits of such games for Children (Kaimara et al., 2022). There are many Chinese companies that specialize in VE these include Alibaba, Baidu, Ten Cent, Huawei, Meitupic, HTC, and IQIYO etc. 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 everybody is addicted to smartphones these days. Children even find VR gaming even more fascinating. Furthermore, a key factor for any company in China is its e-reputation (Goyal et al., 2022; Muravevskaia & Gardner-McCune, 2023). To gain the advantage of the increasingly prevailing VR market, one needs to understand and know Chinese consumers. As the VR industry is rapidly flourishing in China and children are also prominently getting addicted to VR games, so to investigating virtual reality design interfaces in children regarding their enthusiasm for VR gaming is an interesting and contemporary research topic particularly in China (Cruz-Neira et al., 2018).

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 of children's products because education may increasingly depend on virtual reality for children. Different companies such as National Geographic have developed VR surroundings that enable children to explore around the globe virtually (Oyelere et al., 2020). Children who are comfortably exposed to VR

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would be capable of adapting to technology-enabled learning environments. VR is also effective for teaching things that may otherwise feel abstract to children, such as exploration and space travel. Most importantly, when going outside is not an option, VR systems can help encourage physical activities. Based on the increasing number of benefits of VR games, children are more addicted and attracted towards such VR games. The purchase decision of such children is also dependent on the quality-oriented characteristics of VR gaming. Most of the existing research studies have been conducted regarding the consumers of developed nations only and such kinds of studies are lacking for developing countries and emerging economies. To close this gap in research, the current study is aimed at trying to which some of those key factors that could be identified related to the product design interface due to which the purchasing intentions of Chinese consumers are influenced in the country of China. Moreover, the mediation impact of perceived product design has also been undertaken in this research study to develop a deep understanding of all the things and other factors. This is because the research studies regarding the topic of characteristics of product design interfaces are lacking in the previous literature. The factor of "willingness to pay" also plays a critical role in determining the intentions and attitudes of consumers for purchasing particular products (Chen et al., 2022). The present study intends to find out the association between the factors associated with virtual reality gaming of children's store interface and perceived product design and purchase intention. Moreover, it aims to analyze the impact of the perceived product design of VR gaming for children on consumer purchase intention.

2. Literature Review

2.1. Theoretical Background

This study is supported by the "Theory of Reasoned Action (TRA)." In 1975, this theory was developed by Lcek Ajzen and Martin Fishbein to examine the connection and relationship between behavior and attitudes accurately. 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

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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, which is 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.

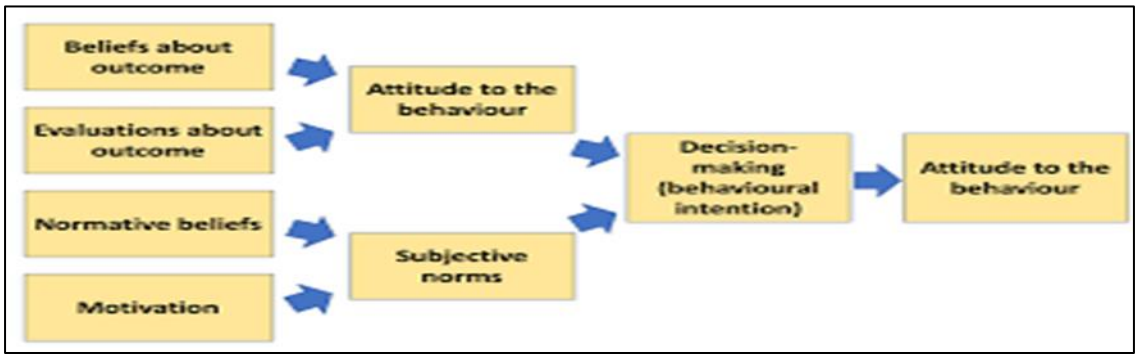

Figure 2.1. Theory of reason action as an approach for understanding the decision-making of customer

2.2. Impact of interactivity on preference for product hedonic attribute

The literature on interactivity and hedonic attributes of a product is not directly quoted in 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 evaluated on primary school students. The results were drawn through two experiments, showing that in the case of high interactivity, explicit instruction should precede problem-solving (Ashman et al., 2020). Furthermore, another study attempts to find the impact of immersion and interactivity on virtual reality learning. The paper described that immersive and interactive technology facilitates learning (Petersen et al., 2022). A study, *website usability, website interactivity, and website*

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personality as drivers of online purchaser, defines the digital economy and the challenges and variations it faces. Online shopping has emerged as the new normal for the world which is being inter-linked to websites. The study attempts to describe three features of websites: website usability, website interactivity, and website personality. Website design is now more responsive and efficient (Akrimi & Khemakhem, 2022). The literature has not discussed the impact of interactivity over hedonic attributes directly rather the literature predicted the relationship by using different variables.

2.3. Impact of Virtual spatial cues on preference and product hedonic attributes

Alzayat and Lee (2021) 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 haptically explore products. In multiple studies, it has been 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 that are perceived as an extension of the body. Crofton et al. (2021) reported that VR had a significant effect on participants' hedonic responses to food products. Beef was rated significantly higher in terms of liking for all sensory attributes when consumed in the VR restaurant. While for chocolate, the VR countryside context generated significantly higher hedonic scores for flavor and overall liking in comparison to the sensory booth. Taken together, both studies demonstrate how specific contextual settings can impact participants' sensory response to food products when compared to a traditional sensory laboratory condition. On the other hand, the impact of virtual reality on retail stores has been studied by Sina and Wu (2022). The study shows a positive and direct relationship of virtual reality stores through different attributes of consumers.

2.4. Impact of Interactivity on Purchase Intention

Jee and Lee (2002) found that consumers' purchase intention was influenced by their attitude toward the website, but not by the perceived interactivity of the site. This relationship was found for two of the three websites evaluated. Competition has grown in online sales for which website interactivity plays a very 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

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intention link is high at a high website-interactivity level (Islam et al., 2021). Another study claims that both quantity and quality of interactivity influence the purchase behaviour of consumers. A case study of Airbnb has been conducted. The study examines the guest's reviews, and intentions of guests to repurchase from Airbnb. The author argues that "online commerce companies often use information systems to promote interactive communication between sellers and buyers (Kim et al., 2021).

2.5. Impact of Virtual spatial cues on purchase intention

There is a lack of research on the impact of virtual spatial cues and purchase intention. The literature which is present discusses both variables differently. Kim et al. (2022) investigated how VR tourism affected behavioral intention to travel to a physical destination depicted in the virtual world and people's willingness to pay for travel in the context of destination advertising. Poushneh (2021) revealed that VR tourism led to greater spatial presence, enjoyment, destination image, intentions to travel, and willingness to pay compared to reading an e-brochure. Perceived proximity to virtual products enhances perceived measurement feedback and, thereby, perceived generality. In contrast, perceived measurement feedback directly influences perceived purchase intention in the near future in AR applications. Huang et al. (2019) investigated the role of online reviews' tactile cues in consumer's purchase intention. Four empirical studies were used by the researchers. The results revealed that tactile cues in online reviews had a significant influence on consumers' purchase intention. Second, the purchase intention of consumers was easily influenced by the reviews of holistic tactile cues of the search product, which affected the final purchase intention through the way of outcome simulation. Consumers' purchase intention was also easily influenced by concrete tactile cues of the experience product, which affected the final purchase intention through the way of process simulation.

2.6. Mediating role of aesthetics between virtual reality store and customer purchase decision

The aesthetics help play a connection between virtual reality products or services and the customers' buying behavior (Tavinor, 2022). Big labels and brands like Apple spend millions of dollars each year to come up with new and innovative designs with every new model (Tofighi et al., 2019). According to a statistical analysis, 58% of women and 35% of men choose a newer-looking car over a better-functioning one (Seymour, 2019). This highlights the importance of aesthetics when it comes to purchasing and investing in any product (Tavinor,

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2022). Aesthetics influence the duration people spend in a shop, the way people perceive the products and the will to buy that product as well (Wang & Hsu, 2019). Every product, however, contains both extrinsic and intrinsic properties. Every person has his aesthetic taste and chooses the product according to that particular taste (Chonpracha et al., 2020). But for most products and the majority of consumers, intrinsic properties play the key selling point. Thus, aesthetics is a mediating factor between consumers' buying behavior and the store. Given the fact that aesthetics is so important, they should be in accordance with the consumer's buying preference and taste. Both aspects, extrinsic and intrinsic should reflect consumer behavior for the product to be a success.

2.7. Mediating role of functionality between virtual reality store and customer purchase decision

A stated preference method of finding the preference of consumers has revealed that often consumers are willing to pay more for a product or good with better utility and quality (Ben-Akiva et al., 2019). The product should be worth the difference, and it should be advertised as such. Several other factors affect this characteristic including the significance of the product, added benefits of the product, as well as the demographic location of the target audience (Bettiga et al., 2020). The functional attributes of the product should be so strong that it overweighs these factors. So that the consumers are willing to overlook other similar products but with less utility. In terms of functionality, there are two types of products or services, first is the introduction of a new function and second is the product following an existing function (Di Francesco et al., 2018). When an entirely new function is introduced in a product and there is no pre-existing version of that, the product has greater chances of success (Engberg & Bolter, 2020). As there is no standard to compare it with and such products have a huge margin of growth. Virtual Reality is a relatively new and emerging field (Templeton & Kessinger, 2020). Thus, the functionality of the goods and services is the main mediating factor between virtual reality shops and their consumers.

2.8. Mediating role of symbolism between virtual reality store and customer purchase decision

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 the form of symbolic purchase behavior (Peng, 2019). Advertising and other marketing communications can be as effective as vehicles for this process of conveying symbolic

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meaning. Significance of symbolism and symbolic interaction have been significant 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). In the process of 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 and to the group members who will be present (Appiah & Ozuem, 2019). The team then evaluates the behavior of these members of the real or interested group and applies rewards or sanctions based on the brand's acceptance status (Wang et al., 2020). There are times when symbolism takes over the designs and functions of the product as well. This case is well observed in big names and brands, which tend to neglect their taste and conform to buy the brand's name (Bockholdt et al., 2020).

2.9. Hypothesis Development

H1: Interactivity significantly impacts preference for product hedonic attributes.
H2: Interactivity significantly impacts the customer's purchase intention.
H3: Virtual spatial reality significantly impacts preference for product hedonic attributes.
H4: Virtual spatial reality significantly impacts customer's purchase intention.
H5: Aesthetics of product design significantly mediate the relationship between interactivity and preference for product hedonic attributes.
H6: Aesthetics of product design significantly mediate the relationship between interactivity and customer's purchase intention.
H7: Aesthetics of product design significantly mediate the relationship between virtual spatial reality and preference for product hedonic attributes.
H8: Aesthetics of product design significantly mediate the relationship between virtual spatial reality and consumer's purchase intention.
H9: Symbolism of product design significantly mediates the relationship between interactivity and preference for product hedonic attributes.
H10: Symbolism of product design significantly mediates the relationship between interactivity and customer purchase intention.
H11: Symbolism of product design significantly mediates the relationship between virtual spatial reality and preference for product hedonic attributes.
H12: Symbolism of product design significantly mediates the relationship between virtual spatial reality and the customer's purchase intention.

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H13: Functionalism of product design significantly mediates the relationship between interactivity and preference for product hedonic attributes.

H14: Functionality of product design significantly mediates the relationship between interactivity and customer's purchase intention.

H15: Functionality of product design significantly mediates the relationship between virtual spatial reality and preference for product hedonic attributes.

H16: Functionality of product design significantly mediates the relationship between virtual spatial reality and the customer's purchase intention.

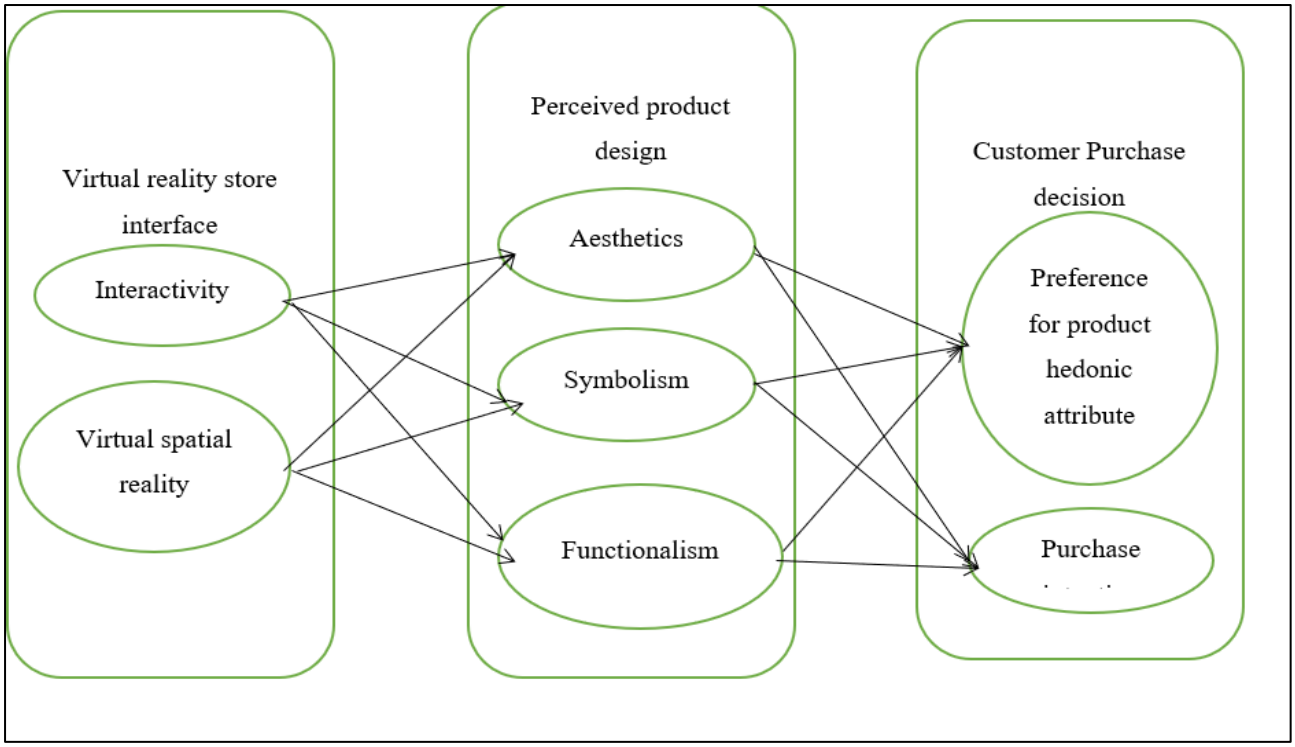

Figure 2.2. Theoretical model

3. METHODOLOGY

3.1. Research Design

The present study is based on the quantitative research method to conduct research. There are different sub-methods in quantitative research. In this research survey technique for data collection has been used. This technique involves the distribution of questionnaires to attain the desired response. This study is based on measuring the impact of interface design characteristics of various products in affecting Chinese consumers' purchase decisions. The questionnaire technique would be used by the researcher to collect responses from Chinese

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consumers. The design of the questionnaire would be divided into various sections. In the first and initial section, the demographic characteristics of participants will be explained including age, gender, work experience, and qualification if needed. The second section of the questionnaire contained questions regarding the concerned variables such as interactivity and visual-spatial cues that fall under the virtual reality store interface. The variables under perceived product design such as aesthetics, functionality, and symbolism. The third domain of customer purchase decision is relevant to the preference for product hedonic attributes and the purchase intention. The variables stated were all present in objective section 2 of the questionnaire. The respondents were asked to fill out the questionnaires and they presented their own opinions regarding the constructs. More than 350 questionnaires were distributed to Chinese consumers of virtual stores and their response was later analyzed. In this study, the researcher has chosen a cross-sectional research study, and there are various justifications to go with this time-frame approach. The first and foremost important reason is that it enables the researcher to gain the required results in a specific period as not continued like a longitudinal study.

3.2. Population and Sample

The target population of this study is the Chinese consumers of virtual shopping. But as there are a large number of consumers who shop online, out of that total population a relatively specific sample needs to be drawn based on which further research would be carried out through a survey. The targeted population of virtual consumers was excessive and access to the population was not possible at all. So, to make this convenient a sample of 350 Chinese virtual consumers will be drawn. These consumers would be the targeted audience that would be used to conduct the study. However, for data collection, it would be assured that these respondents would be parents having children within the age group of 10-16 years and are VR game users. Samples are used to make inferences about the populations. Samples are convenient to gather data from because they are practical, cost-effective, easy, and practicable. In this study, the researcher has used the purposive sampling technique. According to Campbell, purposive sampling is the basis of thoughtful sample choice (Campbell, 2020).

3.3. Research Instrument

Table 3.1: Measures

Variable	Number of items	Source
Virtual spatial reality	5	(Held & Durlach, 1991)

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		(Babin et al., 1994)
Interactivity	3	(Coyle & Thorson, 2001)
Product aesthetics	3	(Homburg et al., 2015).
Product symbolism	3	(Homburg et al., 2015).
Product functionality	3	(Homburg et al., 2015).
Hedonic attributes	6	(Diefenbach & Hassenzahl, 2011)
Purchase intention	3	(Chang & Wildt, 1994)

3.4. Data Collection and Analysis

Data has been collected by providing online survey links along with practical questionnaires that were distributed to around 500 Virtual Chinese consumers who were parents of children within the age category of 10-16 years and are VR game users. The target population has been selected corresponding to the research objective. The reason for disbursement of these questionnaires to the parents is that they can adequately fill the questionnaire by keeping in mind the virtual reality gaming their children are addicted to. For analysis of data, the obtained responses were analyzed through different software such as AMOS and SPSS. The validity, reliability, and descriptive tests were run along discriminant and convergent validity. The rotated component matrix test was also performed to confirm whether there is some sort of cross-loading in this research or not. The discriminant analysis to assess the mean, maximum and minimum averages of data has also been performed. After these analyses, the structural equation modeling has been done so that the status of the hypothesis could be confirmed i.e. accepted or rejected along with the indirect effects of a mediator such as present in this study. Moreover, confirmatory factor analysis has also been performed.

4. RESULTS

4.1. Descriptive Statistics

After the initial testing for missing values and outliers, the collected data was analyzed in terms of descriptive statistics. Table 4.1 presents the summary of the descriptive statistics in the current study data set for all the variables. From the table, it has been observed that the values of minimum and maximum are between the range of one and five for all the variables because the study has used a “5-point Likert scale”; therefore, these values confirm that all the responses

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are in the given range. Hence these values confirm that the mean score for each construct is within the moderate range.

Table 4.1: *Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
HD	312	1.00	5.00	3.5203	1.08793
VR	312	1.00	5.00	3.4994	1.09439
INT	312	1.00	5.00	3.4882	1.13151
PRAS	312	1.00	5.00	3.4850	1.08703
PFUN	312	1.00	5.00	3.3900	1.00446
SYMM	312	1.00	5.00	3.3910	1.03746
PIN	312	1.00	5.00	3.3184	1.17089
Valid N	312				

"HD = Hedonic attributes, VR = Virtual spatial reality, INT = Interactivity, PRAS =, Product aesthetics, PFUN = Product functionality, SYMM = Product symbolism, PIN = Purchase intention"

4.2. Measurement Model

4.2.1. Cronbach Alpha Reliability

Cronbach alpha reliability confirms the measurement instrument is reliable, and an internal consistency exists between the test items, adding a set of scales (Charette et al., 2020; Jaarsma et al., 2009). Therefore, the researcher has used this method to measure the reliability of the variables of the study. According to Hair et al. (2011), the threshold value of α must be greater than 0.7, which shows that there is reliability in the variables of the study. Table 4.2 presents the results of Cronbach alpha reliability.

Table 4.2: *Cronbach Alpha Reliability*

Variable	Items	A
HD	3	.873
VR	5	.905
INT	3	.855
PRAS	3	.819
PFUN	3	.701
SYMM	3	.804
PIN	3	.869

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"HD = Hedonic attributes, VR = Virtual spatial reality, INT = Interactivity, PRAS = Product aesthetics, PFUN = product functionality, SYMM = Product symbolism, PIN = Purchase intention"

4.2.2. KMO and Bartlett's Test

According to Eyduran et al. (2010), the KMO and Bartlett test ensures data collected data is appropriate regarding the number of constructs in the study and with the assurance that the factor loading of the items would produce significant results. In the present study, the result of the KMO and Bartlett test is presented in Table 4.3 below. The threshold value of this test is that it must be greater than 0.7 and equal to 1 (Shrestha, 2021). From the table, it can be seen that the value of KMO is 0.918, which shows that the result is significant; thus, the factor-loaded analysis can be implicated further.

Table 4.3: *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.918
Bartlett's Test of Sphericity	5009.243	14399.656
	253	325
	Sig.	.000

4.2.3. Rotated Component Matrix

The summary of the analysis of factor loadings is presented in the rotated component matrix in Table 4.4 below. According to Hadi et al. (2016), the threshold value for the factor loading is greater than 0.4; therefore, only those values that appear in the table below, are above 0.4. Moreover, from the table, it can be seen that the items of each of the constructs are presented in separate columns, which ensures that there are no cross-loadings between the items. In addition, this representation also ensures that duplicating loading values does not exist.

Table 4.4: *Rotated Component Matrix*

	1	2	3	4	5	6	7
HD1						.741	
HD2						.747	
HD3						.693	
VR1			.746				
VR2			.791				

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VR3			.704							
VR4			.680							
VR5			.593							
INT1					.813					
INT2					.859					
INT3					.835					
PRAES1		.765								
PRAES2		.821								
PRAES3		.806								
PFUN1									.790	
PFUN2									.759	
PFUN3									.792	
PSYM1	.848									
PSYM2	.799									
PSYM3	.667									
PI1				.751						
PI2				.720						
PI3				.573						

"HD = Hedonic attributes, VR = Virtual spatial reality, INT = Interactivity, PRAES = Product aesthetics, PFUN = Product functionality, PSYM = Product symbolism, PI = Purchase intention"

Initially, the researcher assessed the hedonic attributes with the six factors, but after conducting a factor loading analysis, three items were dropped due to low factor loading values, so the researcher kept only three items for further conducting statistical equational modelling to evaluate the study's hypotheses.

4.2.4. Convergent and Discriminant Validity

According to Hanafiah (2020), the threshold value of the average variance extracted must be more than 0.50, which ensures that the data is valid. In the current study, the researcher has used conversion validity to assess the measurement model of the study. Table 4.5 presents the validity results for each variable. From the table, it can be seen all the values are greater than 0.50; hence the data is valid. Another subcategory of construct validity is discriminant validity. According to Rojas and Widiger (2014), discriminant validity is a test which demonstrates how

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efficiently and accurately a test measures the concept that it was projected to measure. From Table 4.5 below, the value of discriminant validity for the current study can be observed.

Table 4.8: *Validity Results*

	CR	AVE	MSV	Max R(H)	SYM	AES	VSR	INT	INTER	HED	FUN
SYM	0.839	0.637	0.949	0.862	**0.798**						
AES	0.851	0.655	0.316	0.856	0.411***	**0.810**					
VSR	0.896	0.634	0.658	0.898	0.676***	0.479***	**0.796**				
INT	0.893	0.737	0.607	0.901	0.714***	0.494***	0.779***	**0.858**			
INTER	0.875	0.700	0.243	0.882	0.407***	0.376***	0.481***	0.415***	**0.836**		
HED	0.878	0.706	0.658	0.885	0.624***	0.413***	0.811***	0.719***	0.493***	**0.840**	
FUN	0.754	0.513	0.949	0.793	0.974***	0.562***	0.686***	0.716***	0.476***	0.656***	**0.716**

"HED = Hedonic attributes, VSR = Virtual spatial reality, INTER = Interactivity, AES = Product aesthetics, FUN = Product functionality, SYM = Product symbolism, INT = Purchase intention"

4.3. Assessment of Model Fit

Numerous fit indices allow researchers to validate whether there is a deviation from the perfect model fit. Among these fit indices, five are displayed in Table 4.6. A model that has poor fitness is unreliable. Table 4.6 indicates that all the fit indices were within the threshold range. Therefore, it was proven that the model fits well. With a good fit, the model presented in the study was acceptable. Figure 4.1 displays the model, showing the influences between the factors.

Table 4.6: *Confirmatory Factor Analysis*

	CMIN/df	GFI	IFI	CFI	RMSEA
Threshold Value	≤5	≥0.8	≥0.9	≥0.9	≤0.08
Observed Value	3.04	.864	.918	.917	0.081

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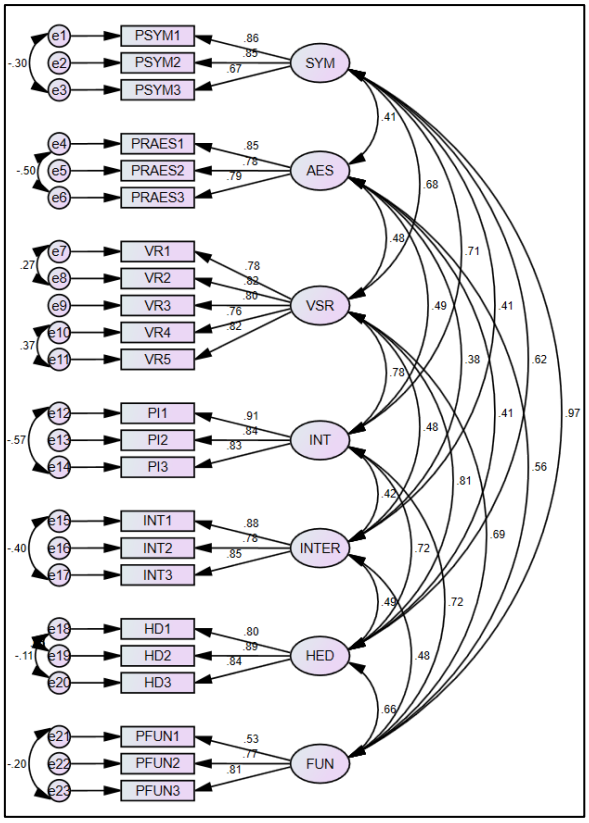

Figure 4.1: Confirmatory Factor Analysis

4.4. Hypothesis Testing

One of the prominent methodologies in the current research stream is structural equation modeling (SEM) which extends factor analysis and is primarily utilized to investigate substantive theories with the use of empirical data. According to the estimate in the table below, INT positively impacts the preference for HD (β= .137). Furthermore, the p-value shown in the table is 0.006, which implies that the INT significantly impacts consumers' preference for HD, and the hypothesis was validated at a 1% significance level. The result revealed a positive association between INT and PIN among Chinese virtual consumers, with a standard estimate of 0.006. Nevertheless, the positive association was found to be insignificant as the p-value exceeded 0.05. Thus, no evidence to support H_2 was found, with a p-value of 0.899.

The impact of the second variable, virtual spatial reality, was evaluated on the product's HD and PIN, as demonstrated in the table below. According to the table values, VR has a positive impact on preference for HD. With a p-value of 0.01, the association between VR and HD was found to be significant, demonstrating that H_3 could not be rejected. It was discovered that VR has a positive influence on PIN among Chinese virtual consumers, as the standard estimate

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value was 0.419. The table shows that the p-value for the association is 0.01; hence, it was proven that VR significantly impacts PIN, providing support to H_4.

Table 4.7: Direct Effect

Parameter			Estimate	Lower	Upper	P
HD	<---	INT	.137	.057	.233	.006
PIN	<---	INT	.006	-.058	.068	.899
HD	<---	VR	.538	.434	.631	.001
PIN	<---	VR	.419	.331	.508	.001

"VR= Virtual spatial reality, PRAS= Product aesthetics, HD= Hedonic attributes, INT= Interactivity, PIN= Purchase intention"

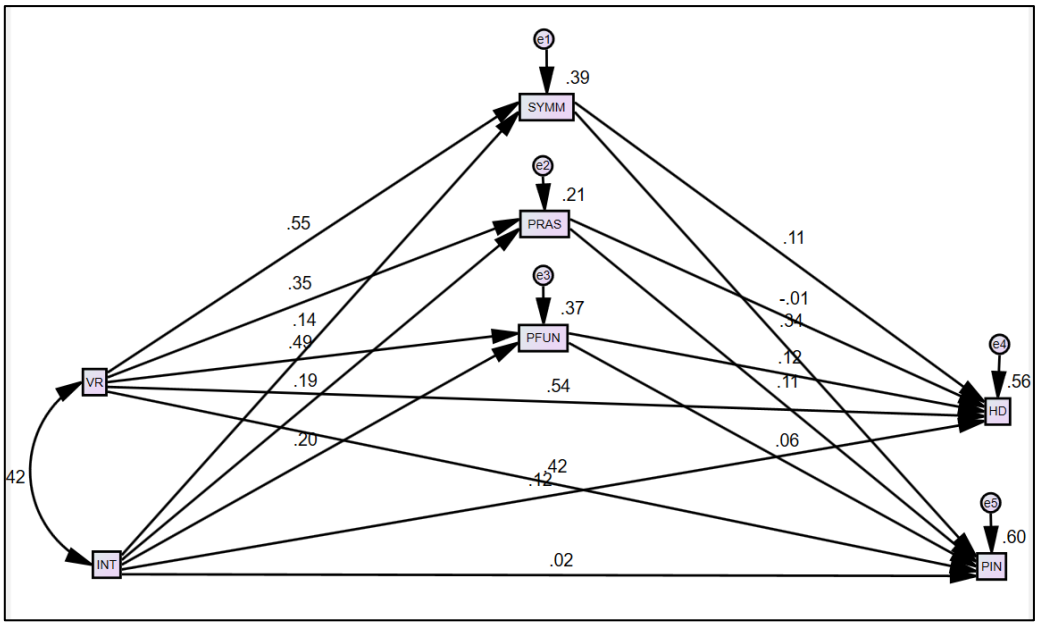

Figure 4.2: Path Analysis

The role of three aspects of product design, namely aesthetics, symbolism, and functionality, were included as mediators in the theoretical framework of the present study The path diagram is displayed in Figure 4.2, which shows the causal associations among the constructs in the present study. The results for the indirect effects are shown in Table 4.11. With a p-value of 0.642, it was deduced that PRAS is not a significant mediator between the association of INT and HD, and H_5 could not be supported. The outcome in the table below confirms that PRAS plays a significant role in mediating the relationship between INT and PIN with a p-value of 0.028. Hence, at a significant level of 5%, H_6 was supported. With a p-value of 0.688, the negative mediation of PRAS in the relationship between VR and HD was found to be

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insignificant; therefore, there was no evidence to accept H_7. The last mediation effect concerning the aesthetics of product design was H_8 claiming that PRAS significantly mediates the relationship between VR and PIN.

The second mediator in the study was the symbolism of product design. The findings showed a p-value of 0.051 relationships between INT and HD is significantly mediated by SYMM at a low level of significance ($p < 0.1$). It was found that SYMM plays a significant mediating role in the association between INT and PIN with a p-value of 0.008, and therefore, the hypothesis was accepted at a 1% significance level ($p < 0.01$). The findings revealed a p-value of 0.067 which is below 0.1; hence it was deduced that H_{11} is supported at a 1% significance level. The outcome displayed in the table below validated the proposed indirect effect of SYMM, and it was confirmed that SYMM significantly mediates the association between VR and PIN at a high level of significance ($p < 0.001$). Hence, H_{12} was validated. The result confirmed that INT affects HD through PFUN, as the association was found to be significant with a p-value of 0.044 ($p < 0.05$). However, the result contradicted the proposed hypothesis 14, as with a p-value of 0.328, H_{14} was not supported. With a p-value of 0.057, the analysis revealed that PFUN significantly mediates the association between VR and HD at a 5% significance level, leading to the acceptance of H_{15}. The last hypothesis regarding the mediation of product design's functionality claimed that PFUN significantly mediates the relationship between VR and PIN. Nonetheless, the p-value shown in the table below is 0.379, indicating that PFUN is an insignificant mediator in the relationship between VR and PIN; thus, there was no evidence to support H_{16}.

Table 4.8: Indirect Analysis

Indirect Path	Unstandardized Estimate	Lower	Upper	P-Value	Standardized Estimate
INT --> PRAS --> HD	-0.003	-0.021	0.010	0.642	-0.003
INT --> PRAS --> PIN	0.022	0.005	0.049	0.029	0.021*
VR --> PRAS --> HD	-0.005	-0.033	0.021	0.688	-0.005
VR --> PRAS --> PIN	0.042	0.010	0.082	0.040	0.040*
INT --> SYMM --> HD	0.015	0.002	0.044	0.051	0.016†
INT --> SYMM --> PIN	0.049	0.017	0.097	0.008	0.048**
VR --> SYMM --> HD	0.061	0.007	0.121	0.067	0.062†
VR --> SYMM --> PIN	0.196	0.136	0.276	0.000	0.186***
INT --> PFUN --> HD	0.023	0.005	0.051	0.044	0.024*
INT --> PFUN --> PIN	0.013	-0.010	0.044	0.328	0.013
VR --> PFUN --> HD	0.057	0.009	0.112	0.057	0.058†
VR --> PFUN --> PIN	0.032	-0.028	0.097	0.379	0.030

Significance of Estimates: *** $p < 0.001$, ** $p < 0.010$, * $p < 0.050$, † $p < 0.100$

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"VR= Virtual spatial reality, PRAS= Product aesthetics, HD= Hedonic attributes, SYMM= Product symbolism, PFUN= Product functionality, INT= Interactivity, PIN= Purchase intention"

5. DISCUSSION

The researcher proposes that 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 enable the consumers to enjoy and feel pleasure, enabling their positive energy vibes (Shao & Li, 2021). The current study imposes great stress on the incorporation of interactivity while designing various products because the researcher believes that interactivity will enhance the purchasing intentions of Chinese customers. This means that interactivity positively enhances Chinese consumers' purchase decisions and intentions, but the research findings cannot support the significant impact of interactivity (INT).

In addition, the current study has also proposed the significant and direct impact of virtual spatial reality on hedonic attributes. It has been observed that Chinese consumers prefer to buy products that have virtual reality implemented within their designs. The researcher believes virtual reality will enhance the industry's competency because it fulfils the consumer's specifications leading to successful and profitable organizational outcomes, thus operating within China. A recent study by Alzayat and Lee (2021) has also determined the influence of virtual reality on the hedonic attributes of the products. Based on the results for the third and fourth hypotheses, it could be discussed that Chinese industries should implement virtual reality while designing their products because it will allow Chinese children to prioritize and buy hedonic products as well and their purchase decisions will also be enhanced by using virtual reality as an amusement technology within the games thus designed for the Chinese children who will prove to be an ultimatum for the successful and profitable organizational outcomes.

Moreover, the findings regarding the mediation of aesthetics suggest that Chinese industries should notice that if they aim to enhance the purchase intentions of Chinese consumers, they should considerably focus on the aesthetics of their product design because it will allow the consumers to buy Chinese products repeatedly. Despite the aesthetics of the products thus

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designed by Chinese organizations, the symbolism of the products is another significant mediator that can mediate the direct correlations of virtual spatial reality and interactivity with hedonic product attributes and purchase intentions of Chinese consumers. Chinese organizations should consider symbolism and symbolic interaction as valuable construct to flourish consumer preferences when buying hedonic products and also to enhance the purchase decisions of Chinese purchasers in support of the Chinese products, which eventually improve the economic status of the country and also pave the way to success for Chinese organizations. In addition, the research findings show that the functionalism of product design is quite attractive for Chinese consumers regarding hedonic products, where interactivity directly influences the hedonic attributes of the consumers, but still, functionalism does not considerably correlate with the nexus between interactivity and purchase intention of Chinese customers. So, Chinese industries should actively focus on providing proficient and quality functions within the hedonic products to achieve competency and generate profitable outcomes for the organization.

5.1. CONCLUSION

The focus of the research was to comprehend how Chinese consumers' purchasing intentions may be predicted by two independent variables (product quality and interface design). Despite the damaged reputation that Chinese goods have worldwide, they are commonly purchased there. To comprehend how characteristics of interface design and product quality affect consumers' purchase decisions, research was conducted. The purpose of the current study was to determine how Chinese consumers' preferences for product hedonic attributes (HD) and purchase intention were affected by the virtual reality store interface, which had two components: virtual spatial cues (VR) and interactivity (INT). The objective of this study was to find out the association between the factors associated with virtual reality gaming of children's store interface and perceived product design to purchase intention and to analyze the impact of the perceived product design of VR gaming of children on consumer purchase intention. The mediating effect of perceived product design, which included symbolism (SYMM), functionality (PFUN), and aesthetics was also examined. A survey-based approach to data collecting was used in conjunction with a quantitative technique. The results provided valuable findings regarding the observed correlations.

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5.2. Implications

5.2.1. Theoretical Implications

The study 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 offer a theoretical understanding of how media influences and child development interact. It can shed 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 behaviours by offering insights into consumer decision-making.

5.2.2. Practical Implications

The results can offer creators and producers of VR products for kid’s useful insights. The development of captivating and efficient virtual experiences that hold children's interest, improve satisfaction with users, and encourage healthy consumer behaviors can be influenced by a comprehension of the impact of VR interface design on consumerism. The study 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.

5.3. Limitations and Future Directions

Several limitations should be taken into consideration while researching the VR interface design for children's products and its influence on China's consumerism. It was not possible to use a high sample size in the research because of time and budget limitations. The findings' generalization to the entire population of Chinese children was impacted by this limitation. A larger number of samples can produce more accurate results for evaluating hypotheses in future studies. The study was restricted to one age group or area of China, which limits the applicability of the findings to other age groups or areas. The results might not accurately reflect varying consumer preferences and behaviors across China. It was challenging to isolate

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the impact of VR interface design alone on consumerism because additional variables also have an impact on how consumers behave.

To determine the long-term consequences of VR interface design on children's consumerism, longitudinal research should be conducted. Future research should examine the impact of parents on their children's consumer behavior in VR environments. When employing VR interfaces, they should investigate how parents' mindsets, punishments, and actions affect children's product preferences, buying decisions, and general consumer behavior. Enhancing diversity and ensuring that all students have equitable access to education, as well as to all learning opportunities and surroundings, are the goals of inclusive education.

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