An analysis of the effects of interactive experiences in virtual changing rooms on consumers' purchasing intentions

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Abstract:

The public is increasingly embracing and acknowledging the virtual era as society develops, and more and more virtual technologies are appearing. Through virtual technology, a virtual fitting room replicates a real fitting setting. Virtual fitting rooms have given people far more convenience than conventional fitting rooms. The use of virtual changing rooms is expanding rapidly along with society's rapid growth. This paper investigates and validates the effect of interactive experience in virtual fitting rooms on customer purchase intention using a combination of questionnaire surveys and experimental research. However, shopping confidence is directly associated with purchase intention and does not influence buy intention through the mediator. The research findings demonstrate that the association between shopping enjoyment and purchase intention is mediated by perceived VDR information content. The study's findings can help online clothing retailers improve their use of new technologies for online marketing, and they may even experience rapid growth as they transition from online to new retail, which will ensure the industry's long-term viability.

Keywords:shopping online, virtual dressing room, shopping enjoyment, shopping confidence, purchase intention.

1. Introduction and Literature Review

The percentage of people who purchase online on their mobile devices is rising. By 2020, there will be 782 million online shoppers overall; 780 million of them will be using mobile devices, and the percentage of online purchases will have surpassed 99%. In comparison to other categories, the online clothes sector has a higher sales volume. The market for virtual changing rooms is expected to increase from US4.03 billion in 2022 to US14.87 billion in 2029.

Three categories might be made based on the research's subject matter. The design of 3D and interactive technology is covered in the first topic, followed by the commercialization and value of virtual fitting rooms, and finally, virtual fitting rooms and customers. An investigation into consumer intentions. One of them [1], Dai Feifei, 2020, used a questionnaire survey method to explain the detrimental effects of three-dimensional dynamic modeling, including the authenticity of the human body and fitting environment in the virtual fitting room, where perceived value and perceived risk hurt consumption. The effect on future purchasing intent is the reverse. He also emphasized the importance of virtual fitting room technology for apparel retailers looking to increase their online sales. According to certain experts, the primary customer experience is connected to satisfaction [2]. The desire of consumers to make purchases is influenced by a variety of personal basic information characteristics, including personality traits, educational attainment, income level, consumption circumstances, etc. Additionally, experiential sales allow customers to intuitively encounter the goods, which improves their comprehension of the product and ultimately their consumption. Consumer opinion of the product influences their propensity to buy. Another group of researchers discovered that interactive and 3D technology is targeted at businesses and merchants and is mostly used to design and manufacture pattern patterns more effectively [3]. An example of this is the Style3D program created by China Lingdi Technology Company. The other type is aimed at average consumers and is mostly used to satisfy consumers' virtual try-on experiences, such as My Virtual Model and Fits. Me Abroad, Fitiquette, HM Virtual Fitting website, domestic Uniqlo digital matching app, Taobao virtual fitting room website, Daily New APP, Haochanbox APP, etc.

Foreign research is more advanced, whereas domestic research started later, according to other experts' studies on the interaction and 3D design of virtual changing rooms. To provide customers with a more intuitive sense of how items will fit them, several retailers have experimented with using virtual fitting rooms that integrate face recognition technology with the wearing

effect of clothing. Jiang and Benbasat discovered through empirical study that in the context of online purchasing, vibrant product displays may better communicate product awareness to customers, and virtual fitting rooms can successfully assist in communicating product awareness. Meanwhile, according to the factors that influence consumer purchase intention, researchers from Gallayanee Starwind Yaoyuneyong demonstrated through the results of a large number of questionnaire surveys that shopping pleasure, economic motivation, and shopping confidence are not directly related to purchase intention; furthermore, there is no indirect relationship between clothing shopping confidence and purchase intention [4]. However, while consuming VDR media, perceived stimulation and informativeness both mediate links between enjoyment of shopping, economic incentive, and purchase intention. Research by Frijda has demonstrated that the atmosphere of a store has an impact on the emotional responses of shoppers [5].

Based on this, the influence of interactive experiences in virtual fitting rooms on customers' purchase intentions is examined in this work using a combination of questionnaire surveys and experimental research based on prior research.

Virtual fitting rooms are increasingly valued and used globally, and research on virtual fitting rooms and consumer willingness demonstrates that virtual fitting rooms are a viable business model. 3D technology and interactive technology design are both advancing steadily, according to research. The atmosphere in the dressing room will influence customers' buying intentions, and the perceived volume of VDR information acts as a mediating factor, influencing both two the customers' variables (shopping confidence and enjoyment) and purchase intention.

2.Theoretical

According to U&G theory, audiences actively engage with diverse media and derive satisfaction from them based on distinct wants, motives, and goals [6]. They provide users with a variety of advantages [7]. The U&G hypothesis has been applied to analyze consumer online behavior. Incentives for utilizing media, such as online games, information services, social networks, and certain virtual media [8].

The extended U&G theory puts out a hypothetical model for how VDR technology influences the results of online purchases. By examining how shopping pleasure, shopping assurance, and perceived VDR informativeness affect purchase intention, this study expands on prior research.

A hypothesis based on environmental psychology called the S-O-R (stimulus-sensory-response) model was put out by Mechrabian and Russell in 1974. The S-O-R theoretical model is a useful tool for examining how purchase intention, shopping enjoyment, and shopping confidence relate to the interactive experience in the virtual fitting room's effect on consumers' buy intentions. Shopping pleasure, shopping confidence, and purchase intention are employed as the dependent variables. A follow-up study was done to confirm the effect of the interactive experience in the virtual fitting room on customers' purchase intentions using the independent variable as the consumer's intention to buy and the mediating variable as the perceived amount of VDR information.

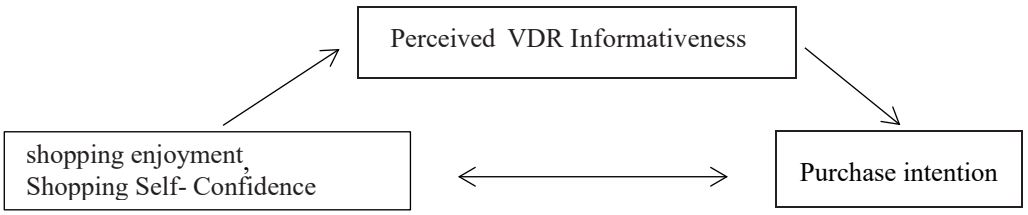

Figure 1

3. Research Design and Methods

Data collection for this study combines experimental techniques with surveys. Four variables (dependent variable: purchase intention, independent variable: shopping delight, shopping confidence, mediating variable: perceived VDR information quantity) will be used in an experimental design utilizing a questionnaire survey approach. The four experimental groups will be distributed to the participants at random. Additionally, individuals between the ages of 18 and 45 who buy online and have access to virtual changing rooms or have not but wish to test them are the study's target audience. The survey was completed by 206 people. According to demographic data, respondents' ages varied from 18 to 45; the majority (83.4%) had college degrees or above, and there were significantly more female respondents (71.5%) than male respondents (28.5%).

Online forums and social media platforms were contacted through email invitations that included a link to the study questionnaire. Participants will receive a 200 incentive for their voluntary participation. The email includes the pre-questionnaire (gender, age, education level, financial situation, and knowledge of virtual fitting rooms), the experimental design (buy decisions for experimental web pages and virtual fitting rooms), and the post-questionnaire (virtual fitting rooms). (Research that enables people to feel more confident and enjoy their shopping by providing them with greater knowledge about apparel.)

Once the participant has agreed, following the official start, the participant must initially respond to a few questions, including some basic personal information about certain subjects and other questions that may have an impact on the experiment's outcomes. The individuals were then divided into several groups by chance and given our experimental information manipulation in turn [9]. The subjects must respond to a series of questions on the dependent variable after reading the experimental materials. A five-point Likert scale with 1 being strongly agree and 5 being strongly disagree is always used in the survey. Clothing buying assurance while shopping for clothes: Three objects were used to measure the heart. Four elements were used to gauge the perceived value of VDR information. Four items were used to gauge purchase intention. Questions on demographics, VDR media awareness, and usage, as well as general internet purchasing for clothing, were also included.

The virtual fitting room (VDR) utilized in this experiment replicates a genuine fitting room in a physical store, but it differs in that it can switch between different scenarios to give consumers a more accurate sense of what it's like to be wearing clothes. Additionally, the shopping area that consumers enter mimics a genuine virtual store. They choose their preferred outfit from 10 similar outfit options before entering the virtual dressing room.

Upload a full-body photo of yourself after logging into VDR and make any necessary changes (to your haircut, body form, face, etc.). Following that, participants can choose based on a wealth of information provided on the page (color, style, brand, etc.). Try on ensemble scenarios, then direct the avatar to zoom in/out or rotate to see the whole outfit. The item vanishes and is put in the participant's virtual shopping basket if they want to buy it (by tapping a key on the virtual page). By pressing a different key, the participant can choose to remove it. If the item returns to the virtual purchasing page, it will return to its original position.

The virtual shopping cart is only a 2D graphical user interface window that displays a list of every item in the current purchasing basket, together with its overall cost. The researcher has the option to join the experimental shopping webpage or the virtual 3D page after arriving through the experimental link, depending on their preference for the differences between the experimental webpage and the virtual fitting. The experimental webpage is shown as 2D images and is identical to standard shopping software. Ten similar clothing items are available for selection on the page, and users may examine more information about each item before making a purchase [9].

4.Positive Analysis

4.1 Reliability Analysis

To determine the consistency of the questionnaire measurement data, we first performed a reliability study of the questionnaire.

Consequently, the reliability analysis result achieved in this study is 0.898, showing that the data are extremely acceptable and reliable (see Table 2); in the validity analysis, the data of each variable are more than the minimal variance (=0.5), suggesting that the variables are valid. All of the elements are legitimate and proven (Table 3). These analyses verified the accuracy and precision of the study's measurements.

Table 1. Case Processing Summary.

Cases	Valid	205(N)	99.5(%)
	Excluded	1(N)	0.5(%)
	Total	206(N)	100.0(%)
Reliability analysis			
Cronbach's	N of Items		
.898	14		

a. Listwise deletion based on all variables in the produre.

Table 2. Rotated Component Matrix(a.Rotation converged in 5 iterations.)

When purchasing goods, do you think the virtual fitting room can help you shop more conveniently?	819
The virtual fitting room provides related clothing product information.	807
Recommend family members or friends.	779
The virtual fitting room allows users to have a better understanding of clothing.	747

The virtual fitting room be a good source of product information.	730
You will buy more types of goods when using the virtual fitting room.	689
You will often use the virtual fitting room and purchase products.	589
You'll feel confident creating your own look by using a virtual fitting room.	855
You have the ability to choose the right clothing for yourself.	775
You feel confident when choosing clothing using a virtual fitting room.	636
Online shopping is a great way for you to relax.	872
Online shopping will make you feel happy when you are bored.	814
I enjoy online shopping more than most people.	717

5. Descriptive Statistical Analysis

206 questionnaires in all were issued for this paper, and 183 of them were valid, for an effective rate of 89%.

Table 3.Statistical description of the study sample(n=183)

sample characteristics	standard of classification	account	proportion
gender	male	58	28.2
	female	147	71.4
age	18-24	108	52.4
	25-34	54	26.2
	35-44	13	6.3
	over 45	30	14.6
academic career	high school	32	15.5
	college	124	60.2
	master	45	1.8
	doctor	4	1.9
income	under3000	82	39.8
	3000-5000	54	26.2
	5000-8000	34	16.5
	80000-10000	19	9.2
	over10000	16	7.8
Frequency of online shopping	Less than once a month	22	10.7
	Two or three times a month	84	40.8
	once a week	33	16
	two or three times a week	37	18
	once a month	21	10.2
	everyday	8	3.9

The respondents were primarily between the ages of 18 and 45, according to the chart above. The ratio of men to women is 28.2:71.8. 60.2% of the sample had a bachelor's degree or above, followed by 21.8% of the population with a graduate degree or higher, while those with only a high school diploma came in third.

Data indicate that of total monthly revenue, less than 3,000 yuan accounted for 39.8% and between 3,000 and 5,000 yuan for 26.2%.

Online buying frequency: According to research, people shop online between two and three times per month, which accounts for 40.8% of all online purchases. One to three times per week accounts for 16 to 18% of all online purchases.

6.Correlational Analysis

6.1 regression analysis

Examining the connections between purchase intent, shopping pleasure,shopping assurance, and perceived VDR information quantity.

Table 4. Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig.F Change
1	.534[a]	.285	.278	.65001	.285	40.349	2	202	.000
2	.756[b]	.586	.579	.49630	.300	145.501	1	201	.000

(a.Predictors:(Constant),shopping confidence,shopping enjoyment
b.Predictors:(Constant),shopping confidence,shopping enjoyment,Perceived VDR Informativeness)

Purchase intention is the dependent variable in Model 1, and shopping confidence and satisfaction are the independent variables. Table 5 shows that the statistic F has a value of 40.349, P=0.0000.01, passing the F test and showing A substantial level was attained by the regression effect.The online virtual fitting room's defining characteristics may be used to account for 27.8% of perceived risk, according to the modified R square, which is 0.278. Model 2 combines mediating factors (perceived VDR information quantity) and dependent variables (buy intention), as well as independent variables (shopping enjoyment and shopping confidence). Table 6 shows that the statistic F has a value of 145.51, P=0.0000.01, passing the F test and demonstrating that the regression effect has grown to a substantial level. The online virtual fitting room's defining characteristics account for 57.9% of perceived risk, according to the modified R square, which is 0.579. The R-square indicates an increasing trend once the intermediary variable (perceived VDR information quantity) is added, which suggests that the intermediary variable contributes positively to the model and influences the other variables in some way.

6.2 Correlation Analysis

In this study, Pearson analysis was used to examine the correlation between the variables in the study model. In general, the correlation coefficient can be used to represent a relationship between two variables if there is one. Typically, Pearson correlation is used to express it. The stronger the correlation, the more noticeable the association. The Pearson correlation coefficient indicates how closely connected two variables are when it is near to 1.

Three elements were identified in this study as influencing consumers' purchase intentions in the virtual fitting room: shopping delight, shopping confidence, and the perceived quantity of VDR information. This section primarily investigates whether there is a clear causal link between the three factors mentioned above and customer purchase intention.

Table 5. Coefficientsa.

Model	Unstandardized B	Coefficient Std. Error	Standardized Coefficients Beta	t	Sig.
1 (constant)	1.365	.269		5.065	.000
shopping enjoyment	.195	.070	.187	2.790	.006
shopping confidence	.411	.065	.421	6.277	.000
2 (constant)	-.079	.238		-.332	.740
shopping enjoyment	.037	.055	.036	.679	.498
shopping confidence	.215	.053	.220	4.087	.000
Perceived VDR Informativeness	.697	.058	.626	12.062	.000

a. Dependent variable:Purchase Intention.

The relationship between perceived VDR information content, shopping enjoyment, shopping confidence, and

purchase intention is shown in Table 6 by the model. The findings demonstrate that shopping pleasure and shopping confidence have a positive impact on purchase intention; additionally, by increasing the amount of perceived VDR information, shopping pleasure changes from significant to insignificant (0.006-0.498), indicating that shopping pleasure is through the mediating effect (perceived information amount). As a result, the amount of perceived information has a positive impact on shopping pleasure; however, the results also demonstrate that shopping pleasure and shopping confidence have a positive impact on purchase intention. The explanations for Hypothesis 1 (H1), Hypothesis 2 (H2), and Hypothesis 3 (H3). Hypotheses: H1 Shopping pleasure influences how information material is seen.

H1 Shopping enjoyment has a positive impact on perceived information.

H2 Shopping confidence has little effect on how information content is viewed.

H3 Perceived information quality influences purchasing intent favorably (mediation effect)

7. Conclusion and Recommendation

In the interactive setting of a virtual fitting room, this study investigates the effects of shopping fun, shopping confidence, and perceived information content on purchase intention. The perceived information content has a mediating impact. The findings demonstrate that one of the consumer traits indirectly influences purchase intention when users interact with the virtual changing room. The findings also show that interactions in the virtual fitting room experience and customers' purchase intentions vary and impact distinct consumer variables. According to research, there is a stronger correlation between purchase intention and shopping delight when the perceived information richness of the virtual dressing room (VDR) is high. Customers interact in the virtual fitting room and receive a wealth of pertinent product information as a result of the trial. This encounter completely improves customers' shopping intentions.

Additionally, shoppers' trust in their purchases directly influences their intention to make a purchase rather than having any effect on the intermediary effect. It demonstrates that customers could buy goods out of interest in the virtual fitting room technology. Another possibility is that customers like the efficiency and quickness of virtual fitting rooms and utilize them to make direct purchases. It's also possible that customers are confident and do not need to make a straight purchase using the VDR's services. Even though there are presently few research studies on shopping confidence, this study found that it only directly affects purchase intention.

In conclusion, we have learned from this research that we need to work with more companies and that the popularity of virtual fitting rooms in China needs to be increased. However, it is also important to improve interactive experience technology and provide customers more reasons to appreciate and feel confident about their purchases. To attract customers and increase their desire to purchase, it should either design more inventive functions or offer more comprehensive VDR information. To fulfill customers' intentions to make purchases, merchants may also increase the promotion of VDR interaction, suggest tailored marketing techniques, and take into consideration customers' own influencing characteristics.

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