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THE ROLE OF VIRTUAL TRY-ON TECHNOLOGY IN ONLINE APPAREL SHOPPPING

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Abstract

Purpose - The research study aims to determine the influence of Virtual try-on technology on customer's attitude towards shopping online especially with apparels category. The new technology usage in the online platform has brought tremendous changes in the buying behaviour of customer's shopping for clothing online. The present study concentrates to determine the impact of this new technology on the attitude of customers shopping apparels online. **Design/methodology/approach** - This study applied a web-based survey approach for data collection from online apparel customers. The survey instrument was developed by adapting previously validated measurement items. The valid data collected were analyzed using PLS with multi-group analyses. **Findings** - Virtual try-on technology is increasingly becoming a must-have for fashion retailers as they strive to meet their aims of inclusion and sustainability while improving their bottom line. VTO allows customers to see how products look on their bodies in real time, but it ignores a key function of the fitting room determining whether a garment will fit properly. Manual measuring introduces the risk of human error, resulting in avatars that do not accurately reflect the customers' bodies. **Originality/value** – This study enhances the understanding of the roles that VTO technology plays in consumers' online purchase intention by providing an integrative view of its utilitarian value, hedonic value and risk. This study demonstrates the feasibility of applying advanced PLS techniques to investigate online consumer behaviour, particularly in the field of VTO application in online retailing. Implications for online retailers and designers of VTO technology are also derived from the findings.

Keywords: Online retailing, Purchase intention, Partial least squares, Virtual try-on

INTRODUCTION

E-commerce has revolutionized the manner in which people lead business in India. The Indian e-commerce industry is expected to develop from $46.2 billion out of 2020 to $188 billion by 2025. It is expected to reach $350 billion by 2030. By 2022, the e-commerce industry is expected to become India. 21.5% to $74.8 billion. The e-commerce business in India is estimated to be US$111 billion by 2024 and US$200 billion by 2026. The biggest driver for the development of the business is the use of internet and other computerized phones. The commercialization of "Computerized India" has resulted in a huge expansion in the number of internet connections, reaching 830 million by 2021. 55 percent of all metropolitan broadband Internet services are opted in, which is 97 percent of wireless connections.

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Online shopping has filled in India and is expected to overtake the United States as the nation's second largest e-commerce sector by 2034. The Indian e-commerce sector is expected to develop at a build yearly rate of 19.24 percent. From $46.20 billion out of 2020 to US$111.40 billion of every 2025, and food and apparel is likely to be a significant driver of future development. The Indian internet market segment is expected to develop from $3.95 billion to $26.93 billion between FY21 and 2027 at a build yearly development rate of 33 percent. The e-commerce business is estimated to be valued at $350 billion by 2030. The efficiency hole is projected to increase from $52.57 billion of every 2020 to $67-84 billion by 2021. The e-commerce value in India is US$111. Billion by 2024, and US$200 Billion by 2026. For the 2021 Christmas season, Indian e-commerce devices generated sales of US$9.2 billion in gross merchandise value (GMV) (gross merchandise value), a 23 percent increase over the previous year. $7.4 Billion in the United States. Violet-Street, an online boutique marketplace, has added a 'Made-to-Measure' feature, which allows customers to enter their dimensions into a grey 3D model. Users can't 'try on' the clothing right now, but the platform's in-house team plans to offer this option soon. Plans are also in the works, according to co-creator Ankur Gupta, to make the model more lifelike by precisely picturing the user's face and physique. While the clothing stores ET spoke with were tight-lipped about their plans to invest in such technology, those who already provide virtual try-on’s said demand is high.

Virtual try-on garments that not only look like their real-life counterparts but also suit their bodies' idiosyncrasies are not popular with most buyers. Marketers must invest in technologies that use landmark points from the physical object and data from the body to generate digital twins of both the garment and the client. Customers may see not just if clothing resembles their fashion, but also how simple it will come up, how that will lie on their thighs, and whether it would be too firm around the waist.

REVIEW OF LITERATURE

Jiyeon Kim and Sandra Forsythe, 2008, in their study developed research model based virtual try-on technology, which is based on a research model, offers commodity knowledge alike to the product received from immediate assessment. Virtual Try-on and user involvement can also contribute to the online purchasing experience's entertainment value. They investigated how online clothes customers used Virtual Try-on to reduce possibility and boost online purchasing enjoyment through focus group interviews. They also looked at the effect of two significant external characteristics that aren't although that is not in the electronic Technology Acceptance Model, these factors are believed to impact Virtual Try-on acceptance, as well as whether gender inequalities occurred during the process. VTO technologies include "website elements that allow the creation and manipulation of environmental images to simulate the actual experience with the product." VTO believes that technology will be fashionable and the future of online clothing sales **(Tingting Zhang, William Yu Chung Wang, Ling Cao Nanjing and Ling Cao Nanjing, 2018).** There are numerous types of virtual experiences that aid shoppers in evaluating clothes online to help solve this challenge **(Aurélie Merle, Sylvain Senecal, and Anik St-Onge , 2012)**.Virtual experiences made possible by

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image interaction technologies are particularly noteworthy (IIT). The introduction of technology that may include 3D whole-body imaging technology, 3D CAD systems for customising existing fashion, virtual-try-on imagery, and other new system consisting techniques has now made the merging of these new services viable. E-TAILOR intends to build a unique pattern for tailored clothing virtual retailing services that addresses associated issues **(G. A. Kartsounis, N. Magnenat-Thalmann, and Hans-Christian Rodrian, 2013). J. Gasós et al., Springer-Verlag Berlin Heidelberg (2003)** developed research in their study. Three-dimensional virtual design and also try-on technologies were studied by utilising 3D body-scan avatars in this exploratory work (virtual human bodies). Such technology has the potential to allow consumers to participate in the design process as co-designers, which could have long-term repercussions for how clothing is valued and used. The device has grown in popularity in recent years since it allows users to digitally try on numerous outfits without having to physically try them on. Users can swiftly determine their likes/dislikes, fit, and size in terms of garments, as well as compare the aesthetics **(Dr. Pawan Kumar Patodiya,PrityBirla,Asso. Prof., Biyani, 2017).** New features has been tested and implemented to pay back for restriction by no means spare to instantly wear clothes in an online mall because the scope of online shopping malls grows **(HyunwooHwango, Eun Hie Kim, So-Hyun Lee, and Young Jae Jang, 2020).** I had the pleasure of working with **Sean Kim and Hyejun Park (2021)** and the purpose of the study was how to integrate 'virtual experience' and '3D virtual store' technology into purchase intentions on a retailer's website. **Jiyeon Kim (2006)** In his research examines online buyers' adoption of visual sensing enabled technology, finds that the sensational experience enables to have a twofold function in boosting the internet clothes purchasing by (a) lowering perceived risk of product and (b) raising the process's of entertainment morals. Present Virtual Fit platform can evaluate by the shape guidance approach and buyer interconnection. The methods they interact with online shopping are changing as a result of digital data, online technology and interaction with the Virtual Fit platforms having a lot of promise to enhance retail arrangement and accumulation (**Monika Januszkiewicz, Christopher J. Parker, Steven G. Hayes, and Simeon Gill, 2017).**

RESEARCH DESIGN AND METHODOLOGY

Many unique elements of the textile and garment sectors make electronic commerce difficult to deploy. The challenge of accurately describing a thing on the internet. Virtual try-on technique is being used to improve many of the characteristics of a garment that are important to the consumers to make decision process, such as color, feel, and fit. Instead of making direct transactions through VTO, online consumers use Online buying sites to gather product information. The study was undertaken in order to determine the VTO technology impact on customer’s attitude to purchase apparels online as there were very few studies considering all the variables, which are presented in the current study. The study was conducted in Bengaluru city as the statistics shows that the city tops second position when it comes to purchase of apparels online.

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OBJECTIVE OF THE STUDY

- To identify factors influencing consumer's attitude towards VTO technology.
- To analyze the factors influencing consumer's attitude towards utilizing VTO while shopping apparels online.

HYPOTHESES DEVELOPMENT

H1. Perceived risk factors will have significant impact on attitude towards using VTO in online shopping

According to the literature, online consumers' attitudes towards VTO technology are related to its perceived usefulness and perceived enjoyment **(Childers et al., 2001).**

H2. Perceived benefit factors will have significant impact on attitude towards using VTO in online shopping

The enjoyment of interactive shopping is found to be a strong predictor of attitude in an online shopping context. In addition to assisting with product evaluation, enjoyment of shopping online can be enhanced by the interactive nature of the VTO application **(Kim, 2016; Pantano et al., 2017).**

H3. Attitude will have significant impact on consumer intention towards using VTO in online shopping

Some prior studies suggest that the age of a person affects the adoption of internet technologies and the individual's online purchase decision related to those technologies. For example, younger people have higher abilities and levels of acceptance in using technological devices and are major online buyers **(Law and Ng, 2016).**

H4. Consumer intention will have significant impact on decision making towards using VTO while shopping online.

Prior studies also found that men's behaviors are more inclined to be based on benefit and utilitarian motivation than women, while female consumers with hedonic orientation are likely to be attracted by perceived social features of the VTO application since they are more concerned about social relations and like web technologies that allow them to socialize more **(Dennis et al., 2010; Law and Ng, 2016).** With regard to this controversy, this study examines whether there are any differences between male and female online consumers in terms of their perceived values and risks of VTO application, attitude towards it and online purchase intention.

H5. Consumer decision will have significant impact on preference to use VTO while shopping online.

RESEARCH METHODOLOGY

The study mainly concentrates on virtual try on technology in online shopping. Where all the data was collected from students and employees who purchase apparels online and

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at least having an experience once in virtual try on technology. The study gives a clear understanding on how the role of virtual try on technology affects the consumer behavior in online shopping of apparels. Simple random sampling technique was used determine the opinion towards using VTO technology while purchasing apparels online. Structured questionnaire was used to collect data from around 208 respondents who have used VTO at least once while shopping for apparels online.

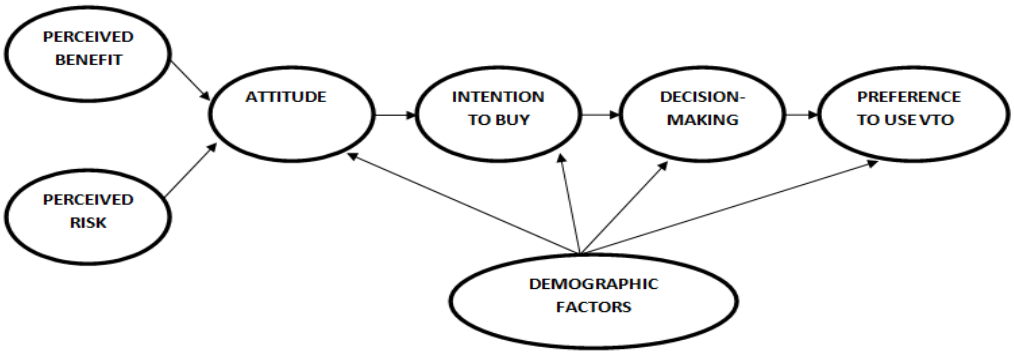

Figure 1: RESEARCH MODEL

DATA ANALYSIS AND RESULTS

Structural Equation Modeling is used in research as it has the ability to test the theoretical constructs which are complex. The major approaches used for SEM is through covariance based method and Partial Least Square method. PLS based structural Equation Model is used to a larger extent in the recent times after the development of software named SMART-PLS by Ringle et al. (2005). The major advantage of this software is that, results can be obtained using a smaller sample size (Benaroch, Lichtenstein, & Robinson, 2006) which is difficult in co-variance based structural equation model software. Using SMART-PLS, along with the model testing, reliability and validity of the instruments can be checked. In this study the constructs namely.

PATH COEFFICIENTS FOR THE INNER MODEL

	Attitude	Consumer preference	Decision making	Intention to buy
Attitude				0.520
Consumer preference				
Decision making		0.523		
Intention to buy			0.462	
Perceived benefit factors	0.479			
Perceived risk factors	0.231			

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Path coefficients are always standardized and it varies from -1 to +1. Weights closest to 1 reflects the strong paths. Weights close to 0 represents weakest path. Above the path weight of 0.520 shows attitude have a positive effect on Intention to buy. Decision making at o.523 has positive effect on Consumer preference, Intention to buy at 0.462 has positive effect on decision making, perceived benefit factors at 0.479 has positive effect on attitude and perceived risk factors at 0.231 has positive effect on attitude. These path coefficients show that absolute magnitude of the one latent variable on the other which is also represented in the graphical model shown below.

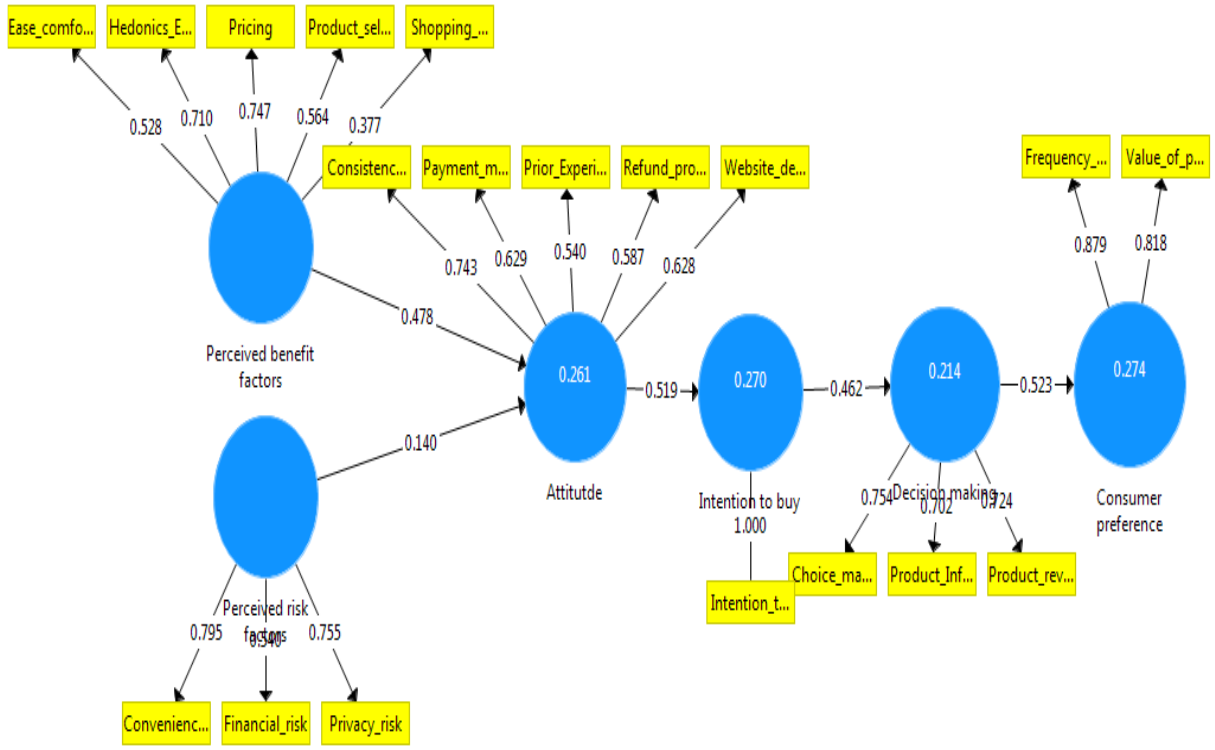

Figure 2: Evaluation of Measurement Model

CONSTRUCT RELIABILITY AND VALIDITY

Factors	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Attitude	0.625	0.763	0.394
Consumer preference	0.616	0.838	0.721
Decision making	0.566	0.771	0.529
Intention to buy	1.000	1.000	1.000
Perceived benefit factors	0.575	0.727	0.360
Perceived risk factors	0.691	0.744	0.204

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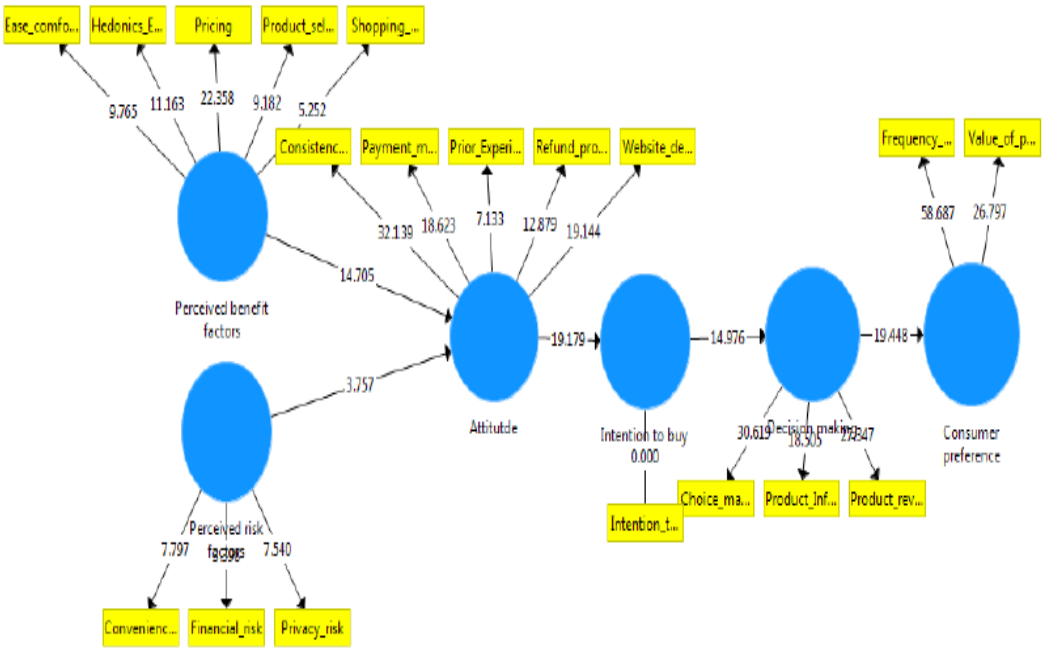

Figure 3: Evaluating Structural Model

STRUCTURAL MODEL CONFIRMATION OF PATH THROUGH BOOTSTRAPPING

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P value
Attitude -> Intention to buy	0.519	0.522	0.027	19.179	0.00
Decision making -> Consumer preference	0.523	0.525	0.027	19.448	0.00
Intention to buy -> Decision making	0.462	0.463	0.031	14.976	0.00
Perceived benefit factors -> Attitude	0.478	0.487	0.032	14.705	0.00
Perceived risk factors -> Attitude	0.140	0.142	0.037	3.757	0.00

The above table shows the t-value which is represented for the structural (inner) model. Through bootstrapping where sub-samples were derived from the actual sample, which provides the respective t-test results for accepting or rejecting the structural path. The significance was referred at 5% level, where the calculated t-value, should be above critical t-values of 1.96. It is observed that, the path between Perceived benefit factors and attitude, perceived risk factors and attitude, attitude and intention to buy, decision making and consumer preference and intention to buy and decision making are significant at 5% level.

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CONCLUSION

Product information obtained using virtual try-on technology is equivalent to that resulted from immediate quality testing. Virtual try-on and consumer participation can contribute to the online buying experience's entertainment value. The perceptions of online consumers toward VTO technology have a considerable impact on their decision to make an online transaction. Virtual Try-On modules are designed to alleviate this hesitancy by making the online purchasing experience closer to that of in-store shopping. Virtual try-on solutions come in a variety of shapes and sizes, but they all work on the same principles. Clothing retail sales dropped by 43.5 percent during the pandemic, the most of any industry. Due to worldwide shut downs, customers have been unable to consider buying commodities in-store. Even after the retail stores reinstated, customers were scared to try on clothing, fearing that doing so would increase their chance of transmitting the infection. Virtual try-on technology, on the other hand, reduces risk significantly. People cannot connect the virtual objects they are trying on, and even though they can see how a product appears according to their own physical form. As a result of fast technical improvements over the previous decade, innovative scaling solutions have developed. Virtual try-on technology is increasingly becoming a must-have for fashion retailers as they strive to meet their aims of inclusion and sustainability while improving their bottom line. VTO allows customers to see how products look on their bodies in real time, but it ignores a key function of the fitting room determining whether a garment will fit properly. Manual measuring introduces the risk of human error, resulting in avatars that do not accurately reflect the customers' bodies.

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