The Perceived Value-driven Mechanism of AR Virtual Try-on Technology for Fashion Consumption Decisions

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ABSTRACT

This article mainly talks about how AR virtual try-on technology works by feeling whether it is worth it or not when we make a decision to buy clothes. First of all, we will talk about what AR virtual try-on technology is and what its characteristics are. Then, we will analyze what we consider when we decide to buy clothes. Next, we will see how AR virtual try-on technology makes these things more worthwhile. For example, it can help us reduce our worries, make shopping more interesting and make decisions faster. Finally, we will point out some difficulties encountered by this technology now and how it can develop in the future. This article is intended to provide some theoretical references for the fashion industry to use this technology.

Keywords: AR virtual try-on technology; Fashion consumption decision-making; Perceived value; Driving mechanism.

1. INTRODUCTION

Driven by the digital wave, the field of fashion consumption is undergoing profound changes. Consumers' pursuit of shopping experience has changed from simply obtaining goods to pursuing personalized and immersive experience. In the traditional fashion consumption decision-making, consumers will encounter problems such as unable to accurately predict the upper body effect of goods, inappropriate size, and mismatched style, resulting in high return rate and low decision-making efficiency. The appearance of AR virtual fitting technology provides a new way to solve these problems. It uses computer vision, image processing, deep learning and other cutting-edge technologies to accurately obtain the user's figure data and build a virtual model, and superimpose the virtual clothing on the user's real image in a highly realistic way, so that consumers can intuitively feel the upper body effect of the product before buying, as if they were in the fitting room of a physical store [1]. This technology breaks the restriction that traditional online shopping can't try on clothes and brings consumers a brand-new shopping experience. For example, when consumers choose a skirt, by using AR virtual try-on technology, they can see the overall effect of the skirt on the mobile phone screen, including the length of the skirt, whether the style fits, whether the color matches their skin color and so on.

2. FEATURES OF AR VIRTUAL TRY-ON TECHNOLOGY

The AR virtual try-on technology has many remarkable features. Firstly, high fidelity is one of its core features. With the aid of precise 3D modeling and high-fidelity texture rendering technology, the material, color, style and other details of virtual clothing can highly restore the real effect. During the virtual try-on process, consumers can hardly distinguish the differences between virtual clothing and real clothing, thus obtaining a try-on experience close to the real one [2]. Secondly, strong interactivity is also an important feature of this technology. Consumers can not only freely adjust the size, color and style of virtual clothing, but also interact with the virtual try-on scene in real time through natural interaction methods such as gestures and voice. For instance, consumers can zoom in and out of virtual clothing through gestures to view the try-on effects from different angles. Or change the style of the clothing through voice commands to enhance the sense of participation and control. Thirdly, personalized customization is a major highlight of AR virtual try-on technology. Combining users' physical data and consumption preferences, this technology can provide users with personalized clothing recommendations and try-on plans [3]. For instance, based on the user's height, weight, measurements and other data, recommend clothing of the appropriate size for them. Based on users' style preferences, display fashionable designs that suit their tastes, satisfying consumers' pursuit of unique fashion. Fourthly, cross-platform compatibility makes AR virtual try-on technology have broad application prospects. It can run stably on a variety of operating systems and devices,

including smart phones, tablets, smart glasses, etc., making it convenient for consumers to use it anytime and anywhere, breaking the limitations of time and space [4].

The development of AR virtual try-on technology has gone through a process from concept proposal to gradual maturity. In the early days, due to technical limitations, the effect of AR virtual try-on was rather rough. It could only achieve simple clothing superimposition and was unable to accurately simulate the material and dynamic effect of the clothing. With the continuous advancement of computer vision and image processing technologies, AR virtual try-on technology is gradually being able to achieve more accurate body data capture and more realistic clothing rendering. In recent years, the application of deep learning technology has further promoted the development of this technology, making the simulation effect of virtual clothing more natural and the interactive functions more abundant [5]. Meanwhile, with the popularization of smart phones and the improvement of network bandwidth, AR virtual try-on technology has been widely applied on mobile devices, providing consumers with a more convenient shopping experience. Nowadays, an increasing number of fashion brands and e-commerce platforms are beginning to introduce AR virtual try-on technology to enhance consumers' shopping satisfaction and loyalty [6].

3. ELEMENTS OF PERCEIVED VALUE IN FASHION CONSUMPTION DECISIONS

3.1 Functional Value

Functional value means that we think those fashionable clothes can meet basic needs and practical functions. When buying clothes, we will pay attention to the style, quality, comfort and durability of clothes. Whether the style of clothes conforms to the current fashion trend and can show personal style and taste is one of the important factors we consider. Quality is related to how long clothes can be worn and how effective they are. We hope that the clothes we buy will last longer and will not deform or fade easily. Comfort is also the key factor that affects whether we buy or not. Whether the fabric and tailoring of clothes are fit, breathable and soft will directly affect our feeling of wearing them. Durability reflects the cost performance of clothes. We all hope that the clothes we buy can last longer and we don't have to change them all the time. With AR virtual try-on technology, we can intuitively see whether the pattern, tailoring and material of the clothes fit or not before buying, so that we can judge whether something is practical or not more accurately and reduce the risk of buying something wrong. For example, when we choose sportswear, we can try it on with AR to feel whether the elasticity and breathability of the clothes are suitable for sports, so that we can make smarter purchase decisions.

3.2 Emotional Value

Emotional value refers to the emotional satisfaction and pleasant experience that consumers get in the process of fashion consumption. Fashion goods are not only material products, but also carriers for consumers to express themselves, pursue individuality and gain social recognition. Consumers can show their unique taste and attitude towards life by wearing fashionable clothes, and gain self-confidence and satisfaction. In the process of buying fashionable goods, consumers are often attracted by novel and unique designs, resulting in a pleasant emotional experience. AR virtual try-on technology provides a novel and interesting try-on experience, which stimulates consumers' curiosity and desire to explore [7]. It allows consumers to have fun and feel satisfied during the virtual fitting process, so that they like the brand more and are more willing to buy it all the time. For example, some fashion brands have launched AR virtual try-on activities, which have many different virtual scenes and interactive links. Consumers can show their try-on effect in the virtual fashion show, and they can also chat and interact with other consumers to get special emotional experience.

3.3 Social Value

Social value is embodied in promoting our social status, reputation and social opportunities through fashion consumption. In the era of social media, we are willing to share our fashion wearing and shopping experiences, and gain the attention and recognition of others by showing our fashion taste. Fashion consumption has become a social way. We can expand our circle of friends and enhance our social influence by participating in fashion activities and buying fashion items. The realistic try-on pictures and videos generated by AR virtual try-on technology enable us to conveniently show our fashion taste on the social platform, gain the attention and recognition of others, and thus enhance our feelings about social value. For example, when we share the fashion clothes selected by AR virtual on social media, we may receive praises and comments from our friends, which will enhance our social identity and sense of belonging.

3.4 Cognitive Value

Cognitive value refers to the knowledge, information and aesthetic improvement we have learned in the process of buying clothes. The fashion industry has been changing, and new trends, design ideas and matching methods have emerged one after another. By buying clothes, we can know the latest trends in the fashion circle, learn the knowledge of wearing, and improve our aesthetic level. AR virtual try-on technology can not only let us know the basic information of clothes, but also help us learn the knowledge of fashion collocation, broaden our understanding of fashion and increase our feeling of cognitive value through matching recommendation and style interpretation. For example, some AR virtual try-on apps will recommend related accessories and matching schemes according to the clothes you try on, and also explain the current fashion trends and give style suggestions to help us enhance our sense of fashion.

4. THE DRIVING PATH OF THE PERCEIVED VALUE OF AR VIRTUAL TRY-ON TECHNOLOGY IN FASHION CONSUMPTION DECISIONS

4.1 Reduce Perceived Risks and Enhance the Perception of Functional Value

In the traditional fashion consumption, consumers often encounter the problems of inappropriate size and style because they can't try on clothes in advance, which leads to a high return rate. AR virtual try-on technology allows consumers to clearly see the effect of wearing clothes before buying by accurately capturing body data and virtual clothing collocation, and reduces the risk of return caused by size and style problems. For example, when consumers choose pants, AR virtual try-on can accurately show whether the pants length, waist circumference and hip circumference are appropriate, and can also see whether the pants version can modify the leg shape, so that consumers can more accurately judge the functional value of goods and improve their purchasing confidence.

4.2 Enhance the Shopping Experience and Improve the Perception of Emotional Value

AR virtual try-on technology has brought consumers a brand-new shopping experience and improved their emotional value perception [8]. On the one hand, its realistic try-on effect and rich interactive functions make consumers feel as if they are in a virtual fashion world and enjoy immersive shopping fun. Consumers can freely try on different styles and designs of clothes, satisfy their desire to explore fashion and stimulate their shopping enthusiasm. On the other hand, AR virtual try-on technology can also combine social elements. Consumers can share the virtual try-on effect on social platforms, interact with friends, get praises and suggestions from others, enhance their sense of social belonging and self-identity, and further enhance their emotional value.

4.3 Enhance Decision-making Efficiency and Optimize Cognitive Value Perception

In the era of information explosion, consumers are faced with a lot of fashion product choices, and making decisions is complicated and time-consuming. AR virtual try-on technology helps consumers make decisions efficiently through rapid screening and accurate matching. Consumers can use the screening function of AR virtual try-on technology to quickly find clothes styles that meet the requirements and reduce browsing time according to their own needs and preferences. At the same time, the collocation recommendation and style interpretation provided by this technology can help consumers understand the collocation methods and application scenarios of different clothes, improve their fashion awareness level, optimize their feelings about product value, and enable consumers to make more informed purchase decisions in a short time.

4.4 Expand Consumption Scenarios and Enrich the Perception of Social Value

AR virtual try-on technology breaks the time and space limitation of traditional fashion consumption, expands consumption scenes and enriches social value perception. Consumers don't have to go to a physical store, they can use their mobile phones at home, office or other places to virtually try on shopping, saving time and effort. In addition, AR virtual try-on can also be used in online fashion shows, virtual fashion communities and other scenes. Consumers can participate in virtual fashion activities, interact with global fashion lovers, show their fashion tastes, gain wider social recognition and attention, and enhance their sense of social value.

5. CHALLENGES AND FUTURE DEVELOPMENT DIRECTIONS OF AR VIRTUAL TRY-ON TECHNOLOGY

5.1 Challenges Faced

Although AR virtual try-on technology has many advantages, it still faces some challenges in its development process. From a technical perspective, there are still deficiencies in the material simulation and dynamic pleat restoration of virtual clothing, which have certain gaps compared with the real try-on effect and affect the consumer experience. Data security and privacy protection are also important issues. AR virtual try-on needs to collect consumers' physical data. If the data is leaked, it will bring security risks to consumers. At the market level, some consumers have a relatively low acceptance of new technologies and are accustomed to traditional shopping methods. Their trust and willingness to use AR virtual try-on technology need to be improved. In addition, industry standards are not uniform, and the AR virtual try-on functions and quality of different brands and platforms vary greatly, which affects the healthy development of the market.

5.2 Future Development Direction

In the future, AR virtual try-on technology will develop in a more realistic, intelligent and personalized direction. Technically, with the continuous advancement of computer vision, deep learning and other technologies, the simulation effect of virtual clothing will become more realistic, achieving more accurate body data capture and a more natural interaction experience. Meanwhile, AR virtual try-on technology will be deeply integrated with artificial intelligence, big data and other technologies to achieve more intelligent personalized recommendation and customization services. Based on consumers' physical characteristics, consumption habits and fashion preferences, it will provide them with exclusive virtual try-on solutions. In terms of market application, AR virtual try-on technology will not be limited to the clothing field, but will also expand to fashion-related fields such as jewelry, shoes and hats, and accessories, achieving virtual try-on of all types of fashion products. In addition, with the rise of the metaverse concept, AR virtual try-on technology will play a significant role in the virtual fashion world, creating more immersive and interactive fashion consumption experiences for consumers and promoting the transformation and upgrading of the fashion industry towards digitalization, intelligence, and personalization.

6. CONCLUSION

As an emerging technology in the field of fashion consumption, AR virtual try-on technology has a significant impact on the perceived value of fashion consumption decisions through driving paths such as reducing perceived risks, enhancing shopping experiences, improving decision-making efficiency, and expanding consumption scenarios, bringing multi-faceted value improvements to consumers in terms of function, emotion, society, and cognition. Although this technology faces challenges such as technical issues, data security and market acceptance, with the continuous advancement of technology and the gradual maturation of the market, its future development prospects are broad. Fashion enterprises should actively embrace AR virtual try-on technology, optimize its application, enhance consumers' perceived value, so as to gain an advantage in the fierce market competition and promote the innovative development of the fashion industry.

REFERENCES

[1] Alzamzami, O., Ali, S., Alkibsi, W., Khan, G., Babour, A., & Bitar, H. (2023). Smart fitting: an augmented reality mobile application for virtual try-on. Romanian Journal of Information Technology and Automatic Control, 33(2), 103-118.

[2] Lavoye, V., Tarkiainen, A., Sipilä, J., & Mero, J. (2023). More than skin-deep: The influence of presence dimensions on purchase intentions in augmented reality shopping. Journal of Business Research, 169, 114247.

[3] Feng, L., Ma, L., & Ng, G. (2021). Personalized customization system solution using augmented reality technology. In MATEC Web of Conferences (Vol. 336, p. 05017). EDP Sciences.

[4] Xue, L. (2022). Designing effective augmented reality platforms to enhance the consumer shopping experiences (Doctoral dissertation, Loughborough University).

[5] Akram, S. V., Malik, P. K., Singh, R., Gehlot, A., Juyal, A., Ghafoor, K. Z., & Shrestha, S. (2022). Implementation of digitalized technologies for fashion industry 4.0: Opportunities and challenges. Scientific Programming, 2022(1), 7523246.

[6] Jiang, Q., Sun, J., Yang, C., & Gu, C. (2021). The impact of perceived interactivity and intrinsic value on users' continuance intention in using mobile augmented reality virtual shoe-try-on function. Systems, 10(1), 3.
[7] Watson, A., Alexander, B., & Salavati, L. (2020). The impact of experiential augmented reality applications on fashion purchase intention. International Journal of Retail & Distribution Management, 48(5), 433-451.
[8] Koppens, R. (2021). E-Commerce Retail & Augmented Reality. An Exploratory Study about Virtual Fitting Room Technologies and Online Customer Experiences (Master's thesis, Erasmus University Rotterdam).