Analyze the Impact, Reasons, and Optimization Strategies of the Image of AI Anchors on Consumer Purchase Intention in Live Streaming E-commerce

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Abstract: The importance of live streaming e-commerce in online shopping is increasing with the continuous development of live streaming technology. Artificial intelligence (AI), as a disruptive force, has introduced virtual anchors in the live streaming field, replacing live anchors for product introduction and interaction. The virtual anchor image, with its anthropomorphic appearance, interacts with the audience in real-time and is gradually being applied in various fields such as e-commerce, advertising, and social platforms. This study reviews how the image of AI anchors in live streaming e-commerce affects consumer trust and personalized experience, and further explores its impact on consumer purchase intention. Research has found that virtual anchor images can be divided into human and animal images based on their appearance, and different images have different impacts on consumer purchasing intentions. Humanized virtual anchors establish trust relationships and stimulate purchase intentions through rich expressions and actions; Personalized and customized design enhances the attractiveness and sense of identity of virtual anchors. Finally, regarding the application of enterprises in the field of virtual anchors, this article proposes anthropomorphic design, personalized image, and 'cultural adaptability strategies to improve the commercial efficiency and brand image of virtual anchors.

Keywords: Artificial intelligence live streaming, virtual anchor image, live streaming e-commerce

1.   Introduction

Live streaming is a technology for real-time recording and broadcasting of video streams over the Internet. It utilizes one or more communication technologies to provide viewers with an immersive experience. Live streaming has been widely applied in multiple fields, including e-commerce, such as online shopping [1]. The popularity of live streaming has driven significant growth in the market economy, bringing abundant business, entertainment, and employment opportunities to global consumers.

Live streaming e-commerce is a new form of online shopping. Through live streaming, anchors can directly showcase products and promote them, while promptly answering consumer questions. Customers can learn about products through live streaming and make purchases through advertisements through the links in the live streaming [2]. Since 2017, live streaming e-commerce has

become an important means of e-commerce. This trend is constantly expanding globally, attracting numerous retailers and brands to participate and compete for consumers through live streaming e-commerce [3].

Artificial intelligence, as the latest technology in recent years, has been widely recognized as a force that can completely change multiple industries. In the field of e-commerce, AI has also brought significant business changes [4]. In live streaming, some companies have begun to use virtual AI anchors to replace human anchors in introducing products and engaging in intelligent interaction with consumers. The virtual image in AI live streaming is a virtual digital representation that has multiple appearances and can interact with the audience, such as a virtual singer or virtual IP [5]. In recent years, the application of AI virtual anchors has made significant progress, widely used in entertainment, education, brand promotion, online services, marketing advertising and other fields, greatly improving the efficiency and interactive experience of related industries. AI virtual anchors have become an important component of the live streaming industry.

The combination of live streaming and e-commerce, as well as the development of AI technology, have brought new possibilities and opportunities for virtual anchors. By integrating the advantages of live anchors and the intelligence of AI technology, virtual anchors are playing an increasingly important role in live streaming e-commerce, providing consumers with innovative shopping experiences and driving the development of the global market.

The image of AI anchors is divided into two types based on design: humanoid design and animal design [6]. AI virtual anchors with different images have different impacts on consumer purchasing intentions.

The previous research on the image of AI or virtual anchors mainly involved two research directions: The first is how the images of virtual anchors extends to the offline behavior of consumers, thereby improving the brand's offline sales performance. The second is the positive effect of different images of AI anchors on improving consumer online shopping experience and satisfaction, brand attitude, and purchase intention. Related studies have found that the anthropomorphic features, personalized diversity, flexibility, and consumer perception (such as satisfaction, trust, and identification) of images are crucial for the use of virtual images in live commerce. This study is the second research direction, exploring the impact of the image of AI virtual anchors on consumer purchase intention.

The research method of this study is literature review. Firstly, this study will introduce previous relevant studies. Through the method of literature review, systematically review and summarize existing literature, analyze the impact of virtual anchor image on trust, attractiveness, and cultural adaptability. This research summarizes academic papers, industry reports, and empirical research in related fields, aiming to comprehensively understand the research status and development trends of virtual anchor images. Finally, this research will propose suggestions for enterprises to apply in the fields of AI live streaming and virtual anchors. The goal is to provide theoretical guidance and practical suggestions for the design and commercial application of future virtual anchor images.

2. AI Live Streaming and Virtual Anchor Image

With live streaming becoming increasingly popular among consumers, it is gradually being widely used in various fields such as retail and consumer services [1]. The popularity of live streaming has driven significant growth in many market economies, bringing abundant business, entertainment, and employment opportunities to global consumers. Since 2017, live streaming e-commerce has become an important means to promote social interaction, enhance shopping experience, and improve sales efficiency. This trend is constantly expanding globally, attracting numerous retailers and brands to participate and compete for consumers through live streaming e-commerce [3].

Artificial intelligence, as the latest technology widely recognized to completely change multiple industries in recent years, has been widely cited in the e-commerce industry [4]. In the field of live streaming, some companies (such as Alibaba) have developed AI live streaming, using virtual anchors to replace human anchors.

The specific applications of AI in live streaming include content generation and optimization, interaction and feedback, video processing and data analysis, etc. These contents improve the efficiency and audience experience of live streaming. In live commerce, AI virtual anchors provides live streaming services comparable to human anchors. Essentially, they are a dialogue agent with a digital appearance [7]. Compared to other AI agents used in e-commerce, such as chatbots, AI virtual anchors can better meet the utilitarian and social needs of consumers. In terms of utilitarianism, virtual anchors can enhance customers' perception of product value. For example, compared to chatbots, AI anchors provide consumers with more detailed and accurate information on the advantages of products, thereby improving customer understanding of products and helping to complete transactions. In terms of social interaction, virtual anchors convey social presence, personalized interaction, and emotional expression through facial expressions, voices, and gestures, surpassing intangible dialogue agents such as voice assistants.

Virtual anchors exist in various forms, such as holographic projection, 2D animation, 3D models, virtual assistants, social media virtual anchors, etc. Overall, the image of AI anchors is divided into two types based on design: humanoid design and animal design [6]. The diversity of anchor images enriches live streaming content and enhances audience interaction. Virtual anchors with different images have different impacts on consumers. The combination of these technologies and forms has promoted the development of live streaming in fields such as entertainment, education, and commerce, providing broad prospects for future innovative applications.

3.   The Impact and Analysis of 3AI Anchor Image on Consumer Purchase Intention

3.1. Trust

Compared with human anchors, the virtual image of AI anchors has a significant negative impact on the psychological distance of customers, reducing their trust in the anchor and thus lowering their purchase intention [8].

The virtual image and unfamiliarity of AI anchors can easily increase customer psychological distance and perceived uncertainty. Compared to real person interaction, the image of AI anchors is more flat and tends to give people a sense of mechanization. When customers interact with AI anchors, it is difficult to generate emotional resonance due to the significant differences in facial expressions, images, or voices between AI anchors and real people. In addition, the virtual image of AI anchors makes viewers aware that it is computer-generated, which can easily lead to doubts about its authenticity and intention.

However, the virtual image of AI anchors does not only have a negative impact on customer trust. The flexible and versatile image of AI anchors enhances their reliability in terms of information credibility. In live streaming e-commerce, information asymmetry can affect customers' trust in the host, which in turn affects their purchase intention. Researchers have found that if customers can have more relevant information before purchasing a product, their perceived uncertainty and psychological distance will be reduced [9]. The uncertainty perceived by customers can have a negative impact on their willingness to make online purchases.AI anchors can flexibly adjust their image to adapt to virtual demonstrations in different scenarios, and transform their own image into user roles, providing customers with accurate usage demonstrations and improving the credibility of information. Through this approach, AI anchors can effectively alleviate information asymmetry and enhance customer trust.

Overall, the virtual image of AI anchors leads to a decrease in customer trust, thereby reducing their willingness to purchase. Although AI anchors can to some extent adapt their image to products and improve information credibility, the positive impact they bring is still lower than the negative impact of increased customer psychological distance and perceived uncertainty.

3.2. Personalized Experience

With the increasingly widespread application of AI virtual anchors in the field of live streaming e-commerce, the attractiveness and sense of identity of AI virtual anchors are gradually becoming key factors affecting customer purchase intentions.

Previous studies have shown that personalized services have stronger appeal and novelty to consumers, thereby increasing their willingness to purchase [10]. Compared to traditional live streaming, AI virtual anchors can provide diverse personalized designs and customized images. Virtual anchors can customize different appearances, sounds, and personality traits according to the preferences and needs of the audience, to meet the aesthetic and individual needs of different audiences. Viewers can choose their preferred type of virtual anchor to watch and interact with, thus obtaining a more personalized experience. These personalized experiences can enhance customers' sense of presence and belonging, making them feel more integrated into the live broadcast environment, and generating more interaction with the anchors, so that customers can fully enjoy the live broadcast process and improve customer satisfaction. Therefore, diverse personalized designs and customized image features significantly enhance the attractiveness of AI virtual anchors to customers, thereby increasing their purchase intention [11].

In addition, virtual anchors can enhance the audience's viewing stickiness and enhance customer identification and engagement through unique personality and image design. Unlike human anchors, virtual anchors are not affected by physiological or emotional changes, and can continuously and stably broadcast. They can also adjust their performance style based on audience feedback at any time. This flexibility not only ensures the continuous innovation of live streaming content, but also significantly improves the viewing experience of the audience. As a part of brand image, virtual anchors can strengthen the brand's sense of technology and innovation, further enhancing consumer identification with the brand. Besides, virtual anchors can also endow the brand with unique technological attributes and personalized elements through deep cooperation with the brand, making the brand image more deeply rooted in people's hearts.

3.3. Cultural and Group Preferences

AI live streaming can help multinational corporations or global brands promote products across cultural differences [12]. Virtual anchors, with their virtual images, can break through cultural barriers and interact with audiences, thus generating diverse influences among audiences from different cultural backgrounds. Virtual anchors in AI live commerce demonstrate significant influence among cross-cultural groups, mainly reflected in cultural adaptability of image design, language and culture adaptability, content creation strategies, and audience interaction methods.

In cross-cultural communication, image design needs to fully consider the preferences of different cultures. Due to differences in cultural backgrounds, the business strategy of virtual anchors needs to be adjusted according to the cultural background of the target audience [12]. In the international market, the lack of rigor in image design may lead to misunderstandings and conflicts, while traditional live streaming is difficult to quickly respond to unexpected situations, making problem-solving extremely difficult. However, AI virtual anchors can quickly adjust their image design based on audience feedback when attracting international audiences, solving problems from the source and making it easier to attract and retain audiences from different cultural backgrounds.

In addition, although virtual anchors have human or animal characteristics, they do not directly correspond to any person or thing in the real world, but rather the image created by enterprises through software or technology [13]. This virtual image not only avoids conflicts with specific groups in reality, but also easily meets the needs of different cultural backgrounds or people with different hobbies. In the international market, the image of the anchor can be modified for audiences with different cultural backgrounds, such as incorporating local cultural elements, clothing, and appearance into the live broadcast. By planning content that aligns with different cultures, virtual anchors can effectively increase audience engagement and loyalty.

4. Suggestions

4.1. Humanize the Image of AI Anchors

Humanized virtual anchors can better establish trust relationships with consumers by simulating the emotional expression of real humans, thereby stimulating their purchasing intentions. In addition, humanized virtual anchors can alleviate audience anxiety caused by anchor identity and credibility, and improve anchor credibility by reducing perceived uncertainty and shortening psychological distance. This can have a better effect on some more cautious or demanding customers. During the live streaming, a humanized virtual anchor image can enhance the human touch of online services, allowing consumers to feel more social presence, trust, and the pleasure of shopping.

The humanized virtual anchors enhances the audience's sense of participation and presence through rich expressions and actions, thereby bringing consumers a stronger social experience. The humanized features and rich emotional expression of virtual anchors create a strong sense of presence among consumers, thereby forming a powerful marketing effect. By imitating human emotions, humanized virtual anchors can convey warmth and affinity similar to humans, making consumers feel as if they are in the live streaming room of virtual anchors and experiencing the purchasing experience in the real world.

When the characteristics of virtual anchors stimulate consumers' social presence, consumers are infected by the warm image and friendly interaction of virtual anchors, and trust the anchors, believing in their recommendations and product quality. Consumers are more likely to shop in live streaming rooms that stimulate their social presence.

4.2. Provide Personalized and Likable Images

In live streaming, the audience generates different stimuli for different anchor images due to their personal preferences. Therefore, platform should design personalized anchor images to meet the needs of audiences with different optimal levels of stimulation. Everyone has their own optimal level of stimulation. At higher levels of stimulation, user interactivity will increase, participation will increase, thereby enhancing emotional dependence and identification, and promoting consumption [10].

In addition, viewers may develop a common or similar sense of identification with the anchor, forming emotional dependence and identification with other viewers. When the audience develops a sense of identification with the anchor, they will share their love and support for the anchor with other viewers. This will increase the cohesion of the audience and promote social interaction between the anchor and the audience, as well as between the audiences. Therefore, identification may be an important emotional factor for viewers to purchase during live streaming [11].

When the image of a virtual anchor is likable, they will convey a friendly feeling to consumers similar to in the real shopping process. This allows consumers to have more interaction and a more authentic shopping experience, allowing more customers to have similar experiences, thereby creating a similar sense of identification between different customers and anchors. When the anchor

stimulates customer identification, it can reduce consumer distrust, stimulate consumer social presence, and increase consumer intention to purchase in the live broadcast room [6].

Enterprises can adjust the image of virtual anchors based on different scenarios, such as consumer preferences and product types. For example, research has shown that virtual anchors with animal images can attract consumer attention and enhance their engagement and attachment during certain live streaming processes [14]. Therefore, enterprises should set different virtual anchor images according to different scenarios to better meet consumer needs.

4.3. Design Diverse and Cross-cultural AI Anchor Images

Designing diverse and cross-cultural AI anchors can promote widespread acceptance and participation among global audiences. In the process of designing the image of AI anchors, multiple factors can be integrated, such as cultural sensitivity, language diversity, and representativeness. This design of AI anchors can not only better serve a diverse audience worldwide, but also promote cross-cultural understanding and communication, enhance the inclusiveness and influence of global media platforms.

In the process of cross-cultural live streaming, designing diverse virtual anchor images for audiences from different regions and cultural backgrounds can achieve localization effects and solve potential conflicts and risks caused by cultural differences [12]. Based on the cultural background of the target market, customize the appearance characteristics, clothing style, and language use of virtual anchors, and adjust their facial expressions and body movements to conform to social etiquette and expression methods of different cultures. Viewers from different cultural backgrounds have unique preferences for aesthetics, clothing, and behavior. Respecting and integrating local cultural elements can bring viewers closer, enhance their sense of identity and belonging.

5. Conclusion

The widespread application of AI live streaming and virtual anchor images indicates that technology is profoundly changing the live streaming field, creating new opportunities and challenges for consumers and businesses. By combining AI technology with live streaming, virtual anchors not only promote the development of live streaming e-commerce, but also expand the influence of live streaming globally, improving consumer shopping experience.

Firstly, as a core element of AI live streaming, the image of AI virtual anchors has a significant impact on consumer purchasing intentions. Humanized virtual anchors can establish trust relationships with consumers and stimulate purchasing intentions by simulating human emotional expression. In addition, the diverse design of virtual anchors meets the aesthetic needs of different audiences, enabling them to better integrate into the live broadcast environment and create an immersive feeling. The diversified personality design and customized image have enhanced the attractiveness of virtual anchors to customers and promoted their willingness to purchase.

Secondly, AI virtual anchors demonstrate excellent adaptability in cross-cultural communication. By flexibly adjusting image, language, and content strategies, virtual anchors can attract audiences from different cultural backgrounds on a global scale, and eliminate cultural barriers through customized image design, enhancing audience participation and loyalty. This diversity and flexibility not only broaden the market scope of live streaming e-commerce, but also provide brand with new marketing channels, strengthening the brand's sense of technology and innovative image.

In the future, the development prospects of AI live streaming and virtual anchors are broad. Enterprises need to attach importance to the humanized design of virtual anchor images, so that they can establish closer emotional connections with consumers through rich expressions and actions. Humanized virtual anchors can alleviate the psychological distance of consumers, enhance their

social presence and trust, and thus promote consumption. At the same time, enterprises should also customize virtual anchor images based on different cultural backgrounds and scenarios, and provide friendly, friendly, and personalized services to improve customer identification and satisfaction.

To sum up, AI live streaming and virtual anchor image, as important innovative means of live streaming e-commerce, will continue to promote the development of the industry. Through humanized, diversified, and flexible virtual anchor image design, enterprises can better meet the needs of consumers from different cultural backgrounds, enhance brand image and commercial efficiency, and bring a new shopping experience to global consumers.

This study provides theoretical guidance and practical suggestions for the application of AI live streaming and virtual anchors in enterprises, especially how to design and optimize the image of AI virtual anchors to enhance consumer trust, personalized experience, and cultural adaptability. This has important reference value for enterprises hoping to use AI virtual anchors to enhance brand image and sales performance.

This study has certain limitations. This study lacks detailed empirical analysis on the specific design and application of virtual anchor images. Future research should further explore the specific effects of different virtual anchor images in various scenarios, in order to gain a more comprehensive understanding of their mechanisms of influence on consumer behavior.

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