

The Influence of Virtual Idols on Consumer Attitudes and Purchase Intentions

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Abstract. With the development of virtual technology and cultural consumption, virtual idols continue to develop. Virtual idols are unique carriers empowered by Internet capital, idol industry and technology. This study aims to explore the impact of virtual idols on consumer attitudes and purchase intentions, taking A-SOUL as an example. This paper used the para-social interaction theory of human and technology communication to analyse the relationship between A-SOUL and consumers, obtained the objective influence factors of virtual idols on consumer behaviour, and proposed the role of virtual idols in para-social interaction. Qualitative and SWOT analysis proved the hypothesis that consumption attitude and purchase intention are positively correlated. The conclusion was obtained that the hypothesis is established. The result of this analysis was that virtual idols have the characteristics of para-social interaction and positively impact consumers' attitudes and purchase intentions. Therefore, in the process of para-social interaction, virtual idols are positively correlated with consumer attitudes and purchase intentions.

Keywords: Virtual Idols; Para-social Interaction; Consumer Attitudes; Purchase Intentions.

1. Introduction

1.1 Research Background

With the rapid development of network information technology, especially the empowerment of 5G technology, the concept of para-social interaction continues to expand. Nah (2022) found that it is now gaining greater and deeper popularity among content creators, influencers, and streamers on video-based social media platforms such as YouTube, Twitter, Instagram, and TikTok. Especially with the popularity of the metaverse concept, many technology companies have launched virtual idols. Virtual idols refer to characters that are generated through painting, animation, computer graphics and other forms, perform activities such as singers in virtual or real scenes such as the Internet, and are yielded and cultivated for specific needs such as business and culture, but they do not exist in physical form.

As a new way of information disseminators, virtual idols play the role of traditional media people in transmitting information. The factors make the communication between virtual idols and fans smoother. At the same time, the context of the study is in the post-pandemic era. Due to various restrictions during the epidemic, the face-to-face communication between people has been greatly reduced. Under such circumstances, people have pinned their emotional needs on the Internet to seek spiritual comfort. At this time, major technology companies and entertainment companies seized the opportunity to jointly launch virtual idols. It is under the banner of "never collapse" those virtual idols have attracted a large number of fans. For example, A-SOUL, a virtual idol jointly launched by Bytedance Co. and Yuehua Entertainment in 2020.

1.2 Research Gap

Although there has been some progress in para-social interaction research, there are still deficiencies. Man et.al. (2022) researching on para-social interaction mainly focused on the influence of social media content on brands, while ignoring the influence of social media itself. In addition, Yuan & Gao (2020) have studied the psychological mechanism of para-social interaction and its driving effect on marketing effectiveness, but has ignored the interaction between media communicators and fans. Wang (2022) focused on the promotion of 5G + motion capture technology for para-social interaction, but ignored its impact. Therefore, due to the emergence of the met-averse and the current post-epidemic era, a series of changes have taken place in the communicators themselves and their roles in para-social interactions, as well as their influence on consumers' attitudes. Based on this background, there is still a gap in our research on the relationship between the emerging communicator virtual idols and consumer attitudes. Why do virtual idols play an important role in para-social interactions? What is the impact of virtual idols on changes in consumer attitudes in para-social interactions? According to some previous researches, the para-social interaction between virtual idols and fans is likely to greatly affect the consumption willingness and purchase behaviour of fans, and it is likely to be positive. In the future, the operation of the above-mentioned related variables can be further refined. for further research on this topic.

1.3 Structure of The Paper

The present study investigates how virtual idols influence Chinese consumer purchase intention based on para-social interaction theory and a case study of A-SOUL. In the following, we first provide a literature review about virtual idols, consumer attitude, purchase intention, and para-social interaction theory under COVID-19 and how these variables interact with each other. Second, we will describe the methodology used in this study. Third, we summarize the results and give further discussion. The limitations and possibly future research directions will be pointed out at last. Based on the SWOT analysis method, this study analyses the relationship between virtual idols through para-social interaction and consumer attitudes and purchase intentions in the context of the met-averse, taking virtual idol A-SOUL as an example. This provides a certain reference for future research on the influence of other virtual idols in para-social interaction and the future development direction of virtual idols.

2. Literature Review

2.1 Virtual idol

Rahmi et al. (2018) mentioned that virtual idols are one of the features of Japanese popular culture. The fact that consumers can make an ideal idol is an advantage of virtual idols. Cheung and Leung (2021) found that cartoon character idols are the most popular human-likeness virtual idols among Hong Kong university students. Zhou (2021) described virtual idol as an advanced technology that shows the virtual image of the user's movement through expression and motion capture software. Wang (2022) also conducted a case study of A-SOUL from an information technology development perspective. The study found that the development of 5G and motion capture technology improve creative freedom for the entertainment industry and also provides support for the interaction of the virtual and real world.

2.2 Para-social interaction theory

PSI is concluded as a one-sided relationship between consumers and celebrities (Horton & Richard, 1956), and Grant et al. (1991) extended its description to include the interaction of users on the media platform. Recent studies investigate the PSI in the SMI (social media influencer) research area. Xu et al. (2020) found that para-social interaction can be predicted according to perceived reciprocity and intimacy positively, and the nature of the para-social interaction with micro and mainstream

celebrities on social media is changing. However, Aw and Chuah (2021) explored the para-social relationships and interaction between followers and SMIs via survey-based research. They found that para-social relationships and interaction have a negative impact on perceived endorser motive (self-serving) and decrease consumer purchase intention further. They provided an alternative view of para-social relationships and interaction influences on consumer purchase intention.

Bartikowski et al. (2019) showed that the image of the foreign brand's country of origin and the communication of a Made-in-China label are affected by the consumer-culture positioning strategies, which were conceptualized by Alden et al. 1999, on consumer attitude. Current research have also shown that online SMI influences consumer attitudes in areas such as local food, sustainable clothing, hospitality and tourism (Kumar & Smith, 2018; Lakatos et al., 2018; Hlee et al., 2018).

He et al. (2018) proposed a framework of personalized perceived intent to explore consumer behaviour in electric vehicle use. Wang et al (2019) focus on understanding the factors: subjective norms (SNs), personal attitude, and perceived behaviour control (PBC) that influence consumer purchase intention regarding organic food from the theory of planned behaviour and health consciousness as an additional factor in Tanzania and Kenya. Osei-Frimpong et al. (2019) investigated the impact of celebrity endorsement on consumer purchase intentions or attitudes to buy in emerging markets and the moderating effects of negative publicity. Chakraborty (2019) also aims to highlight the importance of brand equity dimensions, which acts as an intermediary between online reviews and a consumer's purchase intention to buy. Target Siddiqui et al. (2021) aims to identify factors that influence the stimulation of electronic word-of-mouth through social networking sites through an empirical model that provides theoretical understanding and practical impact.

2.3 COVID-19 and social media

Ahmad and Murad (2020) mentioned that most participants felt that social media had a significant psychological impact on them during the COVID-19 pandemic. Zhao et al.' (2020) research is designed to capture and analyse public interest in COVID-19 related events in China at the beginning of the novel corona-virus outbreak (December 31, 2019 -February 20, 2020) through the Sina Microblog hot search list. The subject of She et al. (2020) was a collection and analysis of posts related to COVID-19 on Sina China, a popular Twitter-like social media site. Liu (2020) assessed behaviours associated with prevention of infection with COVID-19 and tested mediation approaches that link four types of digital media consumption --social media, mobile social networking apps (MSN), online news media, and social live streaming services (SLSS) --to prevention behaviours. Purpose of Al-Dmour et al. (2020) examines the impact of social media platforms on public health protection against the COVID-19 pandemic in Jordan where Jordan public health awareness and public health behaviour change as mediating factors. Al-Amad et al. (2021) to assess the impact of social media on anxiety level among dental healthcare workers during the COVID-19 pandemic.

2.4 Important results

Para-social interaction has a positive impact on consumer attitudes. Instagram and YouTube bloggers influence consumer attitudes through trust and para-social interaction theories (Sokolova & Kefi, 2020). Through empirical analysis, they prove that Para-social interaction positively impacts consumer attitudes—especially the Gen Z crowd. Exploring the impact of Para-social interaction on radio listeners' consumption behaviour (Johnson & Woodley, 2016), some scholars concluded that Para-social interaction and para-social interaction experiences positively influence consumer attitudes and can forecast audience engagement on social media platforms.

Para-social interaction has a positive impact on consumption intentions. In online shopping, para-social interaction correlates with repeat purchase intention (Yuan et al., 2021). Through empirical analysis, it was concluded that para-social interaction significantly affects consumers' repeat purchase intention. Positive influence. Under satisfying consumers' motivation, purchase intention is positively correlated with para-social interaction; the higher the para-social interaction, the higher the consumers' purchase intention (Yang et al., 2021).

2.5 Summary

Para-social interaction in the social media environment with virtual idols positively impacts consumers' attitudes and motivations. Consumers participate in the development process of virtual idols, deepening the emotional investment in virtual idols and interpersonal connection feelings so that consumers get a sense of achievement, will be more active in the consumption of virtual idols and contribute their energy and power.

3. Method

3.1 Research Design

This paper adopts the qualitative analysis method and swot analysis method.

Qualitative analysis is the "qualitative" analysis of the explored object. The qualitative analysis method applies induction and deduction, analysis and synthesis, and abstraction and generalization to clarify and process the obtained data and to understand the essence of things from the surface to the essence. Based on the past and present status of A-SOUL, this paper makes an investigation and judgment on the nature, characteristics, development and change of A-SOUL. It forecasts the future status and development trends. Taking K/DA virtual idols as an example, in the metaphysics analysis of virtual idols based on game characters, qualitative analysis methods are applied to analyse the creative process, characteristics and significance of virtual idols, which provides a theoretical basis for the future development prospects of virtual idols (Kim & Han, 2020).

The SWOT analysis method is to enumerate various main internal strengths, weaknesses and external opportunities and threats closely related to the explored object through investigation, arrange them in a matrix form, and then apply the idea of systematic analysis to compare various factors with each other. They are matched and analysed, and a series of corresponding conclusions can be drawn from them, and the conclusions are usually decisive. Narayanan When analysing the behaviour of consumers to buy products during the festival, the method of SWOT analysis is adopted, and the retailer's sales strategy is proposed accordingly (Narayanan, 2019).

3.2 Research Object

A-SOUL was launched on November 23, 2020. Bytedance Co. provides the underlying technical support, and Yuehua Entertainment provides content planning and operation. At the same time, Bytedance Co. also acquired the A-SOUL art copyright company. A-SOUL consists of five people, Ava, Bella, Carol, Diana, and Eileen. They mainly perform live broadcast activities on two platforms, Bilibili and Douyin. A-SOUL's official account on the Bilibili platform @A-SOUL_Official mainly videos for event promotion, recording and editing, A-SOUL's new song release, high-quality secondary creation and submission. It will also dynamically release this week's live broadcast preview on this account every Tuesday and publish a weekly Q&A column to answer questions and suggestions from fans. The personal accounts on the Douyin platform are mainly short videos, live clips, customized videos or MVs.



Fig. 1 A-SOUL [1]

A-SOUL comes from 'Future Academy' (Jijiang University), five young girls with different personalities and special skills that they are good at. They meet A-SOUL because they dream of becoming an idol. Their stories are staged in this virtual city called 'Zhejiang'. On December 2, 2020, the group's first single, "Quiet", was released; on December 11, the group's first online live broadcast was conducted. On April 30, 2021, the second single, "Super Sensitive", was released, and the promotion of the second single was officially launched.

As a virtual idol group supported by capital, A-SOUL was resisted in the early stage of its launch. With the strength of A-SOUL members and the operation concepts of 'accompanying growth' and 'never collapse', it has achieved good results in virtual idols. On February 7, 2022, Bytedance Co. withdrew its shares from Yuehua Entertainment, and Bytedance Co. owned A-SOUL. In April 2022, A-SOUL was revealed to be underpaid, and then, on May 10, 2022, A-SOUL member Carol quit the group.

3.3 SWOT Analysis

3.3.1 A-SOUL Strengths

A-SOUL belongs to UGC, which requires technical blessing. First, 'anthropomorphic' digital virtual human has technological advantages in image or interaction. The foundation is a visual high fidelity (near reality) and real-time rendering that avoids the effects of 'Valley of Horrors.' Secondly, whether a digital virtual person can communicate naturally is mainly influenced by TTS technology, NLP technology and speech recognition ASR technology. Third, every user needs his or her own avatar in the future meta-cosmic digital scenario, which is the inevitable trend of the development of digital virtual human technology.

A-SOUL launched in the end of 2020, by the Bytedance Co. to provide high level technical support, Yuehua Entertainment to provide the people, content planning operations. Meanwhile, Bytedance Co. acquired the rights to A-SOUL. Bytedance Company's volcano engine has a 'Digital Man and Avatar' products that can be customizable. The fictional character 'Kano Orange' appears in the Beijing Spring Festival Evening. In June 2021, A-SOUL filed a patent for virtual character facial kneading technology and launched the Pixel Soul APP in Southeast Asia. Currently, Pixsoul offers two high-definition effects, one called Avatar, which helps users create personalized avatars that can be used for social interaction by converting photos into corresponding 3D images or virtual characters in video games. Pico is a leading domestic manufacturer of VR housewares furnishings with the third largest market share in the world, assisting build VR solutions in the training, healthcare, exhibition and other industries. Bytedance Co. provides support for emerging technologies to help A-SOUL operate in a more stable environment, enable more realistic and seamless communication and experience, as well as better para-social interaction for its target audience. Then specify one, using a comma as a separator.

A-SOUL also has great advantages in terms of professional operation team, image, design, content, etc. PGC is used to complete IP accumulation, and UGC uses software to make music, paintings and dances. Capturing core trend elements, A-SOUL has not only character sets, but also story and culture sets, creating an appealing secondary world. A-SOUL growth path for the release of songs - live - surrounding - endorsement, the capital of the A-SOUL break the solid secondary fan coil. A-SOUL is active in Douyin, Bilibili Inc. and other platforms with virtual images, mainly through the capture of live-action video production or live form of face fans, its main income from live rewards and so on.

A-SOUL has a dedicated operations team that provides members with basic introductions, itineraries, videos, fans and more. The company has tones of the songs copyright and several platforms, which can easily increase revenue and visibility of A-SOUL, their fans can interact with the virtual idols through social media platform, so as to produce a sense of direct interaction with A-SOUL. It's easy for people to interact frequently, even more than real idols, which makes them feel good about their virtual idols and increases their willingness to buy later. Figure 2 shows A-SOUL income December. 2020 to Oct. 2021, when the A-SOUL members host birthday parties or idol fan

events, revenue will soar. This means that the event will enhance the para-social interaction between A-SOUL and the audience, which will also drive net revenue growth where a healthy business environment circle has been formed.

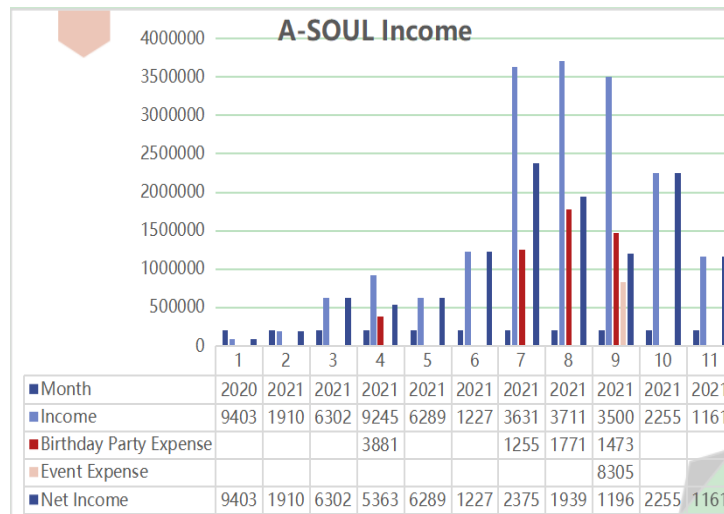


Fig. 2 A-SOUL income [2]

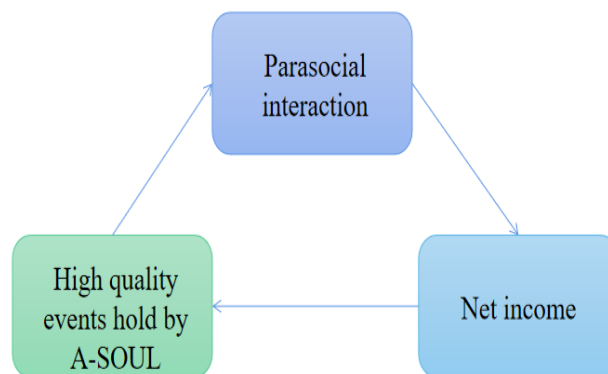


Fig. 3 Healthy operation environment circle of A-SOUL [3]

3.3.2 Weakness

On May 10, 2022, the official A-SOUL account announced that Carol, one of the members, would stop day-to-day live broadcasts and most idol activities this week and go into ‘live hibernation’ because of physical and study problems. Since the release of the statement, persistent revelations have been made that the people behind A-SOUL (‘real people who play roles’) are working intensely, underpaid, and unfairly treated, causing widespread public concern. In the morning of the 11th May, 2022, the planner of A-SOUL released an urgent reply to the fans, but the simple action still cannot stop the news about the retreat and members being searched on micro blog. On the night of the 14th May, 2022, A-soul issued a statement apologizing to fans again, disclosing the salary structure of the ‘fixed monthly income + 10% of the total stream of live broadcasts bonus’ and saying that there is no ‘bullying and squeezing’ in A-SOUL working team. After the news coming out, the fans number of A-SOUL on Bilibili station has a significant drop, which is 10 thousand (in Table 1). Many people mistakenly assume that the life cycle of a virtual idol is infinite if it doesn't collapse with negative news like a real idol, but the para-social interaction with fans ends abruptly once the idol changes. This also means that from the business model point of view, virtual idol planning there are more unstable factors, costs will continue to rise, if the virtual idol image heavily depends on the actor/actress behind the screen. This shows the fact may be different from the beginning forecasting

of the virtual idol project, which is the virtual idol is not to collapse, easy to control risk, infinite life cycle, lower human costs and so on.

Table 1. Weekly fans change of A-SOUL on Bilibili Inc. [1]

Weekly fans change in Accounts on Bilibili station			
Account Name	Number of fans up	Number of fans drop	Total fans number
A-SOUL_OFFICIAL	0	10 thousand	329 thousand

3.3.3 Opportunities

Meta cosmos is a virtual world based on virtual reality (digital twins), which can also be understood in the real world while building a larger world. Virtual reality technology is becoming mature: the entry barriers of operation technology is lowered and the window of marketization is coming. The technology can enable people to see their virtual identities, virtual scenes, virtual lives and so on in the meta-universe. Virtual reality technology is becoming more and more mature and integrated with all aspects of people's lives. Emerging technologies provide the technological foundation and support for A-SOUL to build para-social interaction with more customers.

The idol industry has dual attributes, it was born in the period of rapid economic development and erupted in the period of economic recession, the cultural industry ushered in the rapid development when the per capita GDP reached US \$10,000. It has the nature of mental compensation, and the product content is mainly based on spiritual comfort effectiveness, which is mainly reflected in the demand for young students and white-collar groups to release life and spiritual pressure. A-SOUL can spread quickly on social media platforms and establish para-social interactions with target audiences because it satisfies the psychological needs of target audiences.

The state's support for the development of meta-cosmic technology provides strong foundation for the development of virtual reality industry, optimization of industrial development environment and promotion of industrial collaborative development in China. The integration of the Internet and the cultural industry meets the above conditions, and its development potential is sufficient to promote technological innovation and rapid growth, thus having a positive pulling and promoting effect on other industries. The emerging Internet enterprises, represented by Douyin and Kuaishou platform, will become the consumption trend and hotspots in the future. The development, innovation and further development of A-SOUL products will be supported by both national and regional policies.

3.3.4 Threats

As a cooperative product of Bytedance and Yuehua entertainment, A-SOUL has driven the development of the virtual idol industry and provided enlightenment for the subsequent virtual idols on Douyin. Virtual idols is an entry point for the meta universe, which is the connection between the real world and the virtual world. A-SOUL is pushed out of the circle on a large scale by the meta-universe, and its success marks the arrival of the virtual idol patriarch. In the first half of 2020 only, there were about 4000 virtual anchors on Bilibili every month. Compared with Bytedance and Bilibili is currently the most powerful competitor in the platform of the virtual idol industry.

According to Monita research (2020), Douyin and Bilibili have a direct competitive relationship. As a cultural and entertainment gathering place for young people based on the second dimension, Bilibili has formed a core competition mode of 'creator content user', which is deeply loved by generation Z (born in 1995-2009). According to the research of Dongxing Securities Research Institute (2020), the first and second favourite pan entertainment apps of generation Z are Bilibili and Douyin.



Fig. 4 Main social media platform competition in China (Monita Research, 2020) [4]

In 2012, a number of two-dimensional virtual singers emerged in Bilibili, such as Luo Tianyi, who is the first generation of virtual idols. A-soul has taken a step closer in technology and design, opening the era of virtual idols 2.0. Bilibili has always been a pioneer in the technology and design of bi-variate. The bi-variate game 'love and producer' launched in 2018 is deeply loved by a large number of female players, and its characters have also laid the foundation for the development of virtual idols. The emergence of the new generation of virtual idols such as Liu Yexi has accelerated the accumulation of cultural capital and technological breakthroughs, making the mainstream market begin to accept the creative products of the two-dimensional universe. At the same time, it is also facing the challenge that the 'two-dimensional' atmosphere is diluted by new users, as well as the struggle and resistance between users. It reduces the para-social interaction between a-soul and fans.

Through TIANYANCHA, the investment of Bilibili Inc. can be divided into technology Internet, tourism services, games and cultural entertainment. Bilibili Inc. is expanding its territory. At the same time, a large number of non-quadratic users swarmed into Bilibili, and these users may also be users of Douyin Kuaishou, Iqiyi, etc. While various platforms provide opportunities, they also pose competition and threats to the para-social interaction established by A-SOUL.

4. Result & Discussion

4.1 Result

This study analyses the current development trend of virtual idol A-SOUL by using SWOT method. At present, the virtual idol A-SOUL fits the ideal image in the hearts of fans, can better establish a good interactive relationship with fans, has strong initiative and participation, and has a high degree of character recognition. In addition, A-SOUL is similar to the business model of real idols and anchors. It can induce fans to consume, and interact with real idols to attract potential customers. It cooperates with various brands to stimulate consumers' desire to consume. However, A-SOUL still has its own shortcomings in the process of development. Its technical difficulty and development cost are huge, making it impossible to popularize well; and there are certain problems in the management behind it, especially the people behind A-SOUL. The salary issue has been criticized. Of course, due to the rapid development of the Metaverse, the Internet industry is more and more catering to the needs of the public's spiritual consumption, and the relevant national policies also provide a certain guarantee for its development. However, due to the culture shock, A-SOUL is also faced with the conflict of ideas between new and old users, so A-SOUL's consumer positioning is still a problem that needs to be discussed. At the same time, China's current industrial chain development and weak capital accumulation are also important reasons for hindering the development of virtual idols.

4.2 Discussion

Even though the development of virtual idols in China is still facing many obstacles, it can still be found that virtual idols using para-social relationships promote consumers' consumption attitudes and purchase intentions, that is, the emergence of virtual idols has improved consumer purchases.

Willingness drives consumer buying behaviour. Therefore, in response to the problems analysed above, this study puts forward the following suggestions:

The current profits are mainly live broadcast rewards and peripheral sales. However, in the future, we can continue to optimize the technology and hold more realistic offline concerts and handshake meetings, but at the same time, we also pay attention to the continuous improvement of fans' feedback, so that the idols and fans can interact closely and enhance the stickiness of fans. Promote activities on major platforms, not limited Douyin, Bilibili, to maintain the popularity of fans.

Subdivide the direction of bringing goods, cooperate with various brands, listen to the opinions of fans, improve favourability and consumption desire, and implement 'integration of product and effect'

At present, A-SOUL has performed relatively well in developing and creating together with fans, but it is still capable of deep development. Fans can participate in the production of content, including the production of music videos, derivative products, etc., and even put forward their own ideas about the character of the virtual idol.

Execute special development in vertical fields, such as the development of the same fashion industry, game industry, and film and television industry. Drain traffic for the complete industrial chain service and build an industrial empire similar to Disney princesses and Marvel heroes.

Improve A-SOUL's character design and story line, and create a new world view by relying on animation and other forms, which has had a negative impact on the omission of ASOUL's members' salary issues. In this regard, the A-SOUL member management system should be improved to realize openness and transparency.

This research is similar to the Yuan & Gao (2020) 's study on the impact of para-social interaction in social media on marketing effectiveness. By focusing on the impact of virtual idols on consumers' specific behaviours in para-social interactions derived from the emergence of the emerging industry metaverse, it is found that the appearance of virtual idols improves consumers' purchase intention and promotes consumer purchase behaviour. It is of great significance for the future development direction of virtual idols.

5. Conclusion

With the emergence of the met-averse and the rapid development of media, this article studies the impact of virtual idols on consumer behaviour in the process of para-social interaction. The virtual idol applies the SWOT method to analyse its strength, weakness, opportunity and threat. Finally, this study concluded that virtual idols can improve consumers' willingness to buy and promote consumer consumption in the process of para-social interaction. This conclusion is basically similar to the previous conclusion, which is in line with the hypothesis put forward in this study. However, the current development of virtual idols is still immature, and the communication process with fans has not exerted its value potential. Therefore, the main development direction of virtual idols at present is to strengthen the interaction with fans, reduce communication barriers, and form a benign information transmission with fans. cycle. In this way, fans get satisfaction, and virtual idols can also tap their value as much as possible to realize realization.

This article scientifically evaluates the objective impact of virtual idols on consumer behaviour. This is conducive to clarifying the differences in consumer behaviour between traditional idols and virtual idols, because the cost of packaging idols and the benefits obtained are very different. At the same time, using the theory of para-social interaction, the interaction between virtual idols and consumers is fully explained.

Finally, this study also has shortcomings. This study is primarily based on the author's summary analysis, influenced by subjective, personal opinions and assessments. At the same time, this article only studies the case of A-SOUL, and the conclusion is not universal. Therefore, in the future research, several more cases can be studied to draw general conclusions, so as to facilitate the in-depth study of this topic.

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