



# Web 3.0: the impact of virtual spokesperson generation characteristics on consumer brand attitudes

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**Abstract.** Against the backdrop of increasing entertainment demand and the continuous iteration of AI and other technologies, the development of generative virtual spokespersons promotes the deep integration and development of the Internet, big data, artificial intelligence and the real economy. Generative virtual spokespersons have become the spokesperson strategy of more and more brands, showing great commercial value and research value. In order to help enterprises choose or establish suitable generative virtual spokespersons, it is important to study the marketing audience of generative virtual spokespersons and obtain preference data of generative virtual spokesperson characteristics. In this paper, we explore the characteristics of generative virtual spokespersons - matching characteristics and interactivity characteristics, and thus construct a theoretical model of generative virtual spokespersons' characteristics and consumers' brand attitudes, and empirically analyse that the matching characteristics and interactivity characteristics of generative virtual spokespersons have a significant positive impact on consumers' brand attitudes. This study provides a new perspective for brand spokesperson research in the context of digital technology and the Internet, and provides enterprises with applicable suggestions for the creation and application of generative virtual spokespersons from the perspective of enhancing digital marketing.

**Keywords:** digital marketing, generative, virtual spokesperson, brand attitude, marketing management

## 1 INTRODUCTION

Under the background of increasing demand for entertainment and continuous iteration of AI and other technologies, the generative avatar industry is developing at a high speed, and the meta-universe boom is accelerating the upgrading of the avatar industry. Data show that in 2021, China's virtual human driven industry market size and core market size, respectively, 107.49 billion yuan and 6.22 billion yuan, is expected to reach 640.27 billion yuan and 48.06 billion yuan respectively in 2025, showing strong growth trend. China's State Administration of Radio and Television released the "14th Five-Year Plan for the Scientific and Technological Development of Radio, Television and Audiovisual Networks", which has been clearly proposed to "promote virtual anchors and animated sign language to be widely used in the production of news broadcasting,

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weather forecasting, and variety arts, science and education programmes, so as to innovate programme forms, improve the efficiency of production and broadcasting and enhance the level of intelligence". Intelligent level of production and broadcasting". The Chinese government has also shown a high degree of attention to this phenomenon, encouraging the development of virtual human-related three-dimensional graphics, modelling and other technologies in the vision plan, followed by a number of policy proposals<sup>[1]</sup>. In the age of the internet and digital technology, new technologies - especially artificial intelligence (AI) - have become prevalent in different industries. It is now possible to digitally create "virtual internet celebrities" based on their desired image and use them in advertising and social media campaigns<sup>[2]</sup>. In this era of the rise of the meta-universe, it is an excellent choice for brands to incorporate virtual images in their marketing, and in the future, more companies and brands will surely launch their own virtual spokespersons, and the way of virtual image marketing will be more diversified and personalised, and virtual spokespersons will also play an increasingly important role in marketing communication<sup>[3]</sup>. Review of the literature found that the generation of virtual spokesperson related research in the theoretical community has gradually developed, but the "generation of virtual spokesperson on the brand's impact" of the academic community is still less involved. This paper presents an empirical study on the relationship between the characteristics of generative virtual spokespersons and consumers' brand attitudes, with a view to enriching the research on generative virtual spokespersons and brand attitudes, and providing theoretical guidance and references for enterprises to use generative virtual spokesperson strategies to build a lasting relationship between brands and consumers.

## 2 LITERATURE REVIEW AND RESEARCH HYPOTHESIS

### 2.1 Literature Review

**Virtual spokesperson.** In recent years, a large number of empirical studies on the characteristics of generative virtual spokespersons have appeared in academia. Zhang Ning et al. proposed that virtual spokespersons are different from traditional celebrity spokespersons, and that brand-generating virtual spokespersons have the advantages of security, stability, and plasticity in the process of participating in brand activities and delivering brand information to build and maintain a positive brand image<sup>[4]</sup>. Callcott argued that generating virtual spokespersons bring consumers a broader imagination with their virtual identity qualities, and at the same time, they enrich the image and behaviour of generating virtual spokespersons by providing consumers with a broader imagination. Callcott believes that generative virtual spokespersons bring consumers a broader imagination with their virtual identity qualities, and at the same time enrich the image and behavioural recognition of the generative virtual spokespersons, which enhances the emotional connection between the consumers, the spokespersons and the brands, and fully demonstrates the advantages of the generative virtual spokespersons with higher

plasticity<sup>[5]</sup>. Combined with relevant literature and the observation and analysis of existing virtual image cases, it can be found that generative virtual spokespersons have unique advantages that distinguish them from traditional brand spokespersons.

The associative network memory model suggests that consumer knowledge about a brand is presented in the form of an associative network containing many interconnected brand nodes representing various associations. A brand-generating virtual spokesperson is a node in the brand network, and a spokesperson who matches the brand can contribute to brand building. In the spokesperson context, fit refers to the degree of appropriateness of a virtual spokesperson to the product he or she endorses in a promotional campaign. It was found experimentally that the effect of virtual spokesperson fit on a brand is influenced by the purpose for which the consumer processes the information. Social network celebrities posting appropriate marketing and testimonials on social platforms positively influence their followers, who are emotionally attached and close to them, to make decisions about purchasing these products and services. Therefore, even if the virtual spokesperson is not a real person, consumers can still interact with them to enhance positive perceptions of the brand<sup>[6]</sup>. Chang Wanqin's study proved that brand virtual spokespersons can have a positive effect on consumers' purchase intention by influencing the advertisers' sensory, emotional, cognitive, and associative experiences through their characteristics<sup>[7]</sup>.

To sum up, this paper can initially derive the typical characteristics of the born-formed virtual spokesperson, mainly in the matching degree and interactivity of the two aspects, the follow-up will carry out a more comprehensive and in-depth study to verify and determine.

**Consumer brand attitudes.** JL Freedman et al. pointed out that from the perspective of psychology, the formation of attitude is a persistent system containing three factors: cognition, affective factors, and behavioural tendencies, and it is the result of the joint action of the three factors<sup>[8]</sup>. The results of existing studies have shown that brand attitude has a close relationship with consumer brand purchase behaviour, the better the consumer's attitude towards a brand, the greater the likelihood of using the brand<sup>[9]</sup>. Combining theoretical research and practice, this study defines brand attitude as a psychological state that includes cognition, emotion and purchase intention of consumers towards a brand.

## 2.2 Research Hypothesis

Margaret and Garretson argue that generative virtual spokespersons are intangible brand assets that not only increase brand recognition, but also differentiate the brand and increase consumers' brand awareness and willingness to buy. Pounders argues that consumers can indeed use celebrity endorsement to extend their love of the celebrity to the product and the brand, and ultimately create emotional awareness and positive attitudes towards the product. Pounders argues that consumers can indeed use celebrity endorsement to extend their love for the celebrity to the product and the brand, ultimately creating emotional awareness and positive attitudes towards the product, which in turn inspires purchase desire. Brown, on the other hand, analyses the interaction between the celebrity and his fans by exploring endorsement advertisements posted by

virtual celebrities on social media platforms, and similarly finds that the presence of virtual spokespersons can enhance consumers' purchase intention. Brands can narrow the distance between them and consumers through anthropomorphic communication, which enhances consumers' sense of familiarity and ultimately leads to an increase in consumers' goodwill towards the brand. Domestic and foreign related studies show that generative virtual spokespersons can not only enhance the credibility of advertisements and expand brand awareness, but also improve consumers' recall of brand information, enhance consumers' recognition of the brand, improve consumers' attitudes towards low-involvement products, and thus enhance the relationship between consumers and brands. Zhang Ning et al. argue that generative virtual spokespersons can not only enhance consumers' attention to the advertisement, recognition and identification of the brand, but also improve consumers' trust in the brand, which in turn generates positive brand attitudes. This study thus proposes that generative virtual endorser characteristics can positively influence consumer brand attitudes. Based on this, the study hypothesised that.

Hypothesis 1a: Virtual endorsers' fit characteristics will have a positive impact on consumers' perceived brand attitudes.

Hypothesis 1b: The fit characteristics of virtual spokespersons will positively influence consumers' affective brand attitudes.

Hypothesis 1c: The fit characteristics of virtual spokespersons will have a positive impact on consumers' affective brand attitudes.

Hypothesis 2a: The interactivity characteristics of virtual spokespersons will have a positive effect on consumers' cognitive brand attitudes.

Hypothesis 2b: The interactivity characteristics of virtual spokespersons will have a positive effect on consumers' affective brand attitudes.

Hypothesis 2c: The interactive features of virtual spokespersons will have a positive impact on consumers' brand attitudes towards affectivity.

### **3 RESEARCH DESIGN**

In this study, the main keywords included are: generative virtual spokesperson characteristics, consumer brand attitudes. A total of five variables are included, match characteristics, interactivity characteristics, cognitive, affective, and intentionality. The scale for this study was a seven-point Likert scale with modifications to incorporate industry examples of virtual endorsers. A total of 274 questionnaires were distributed and 245 were returned. Among them, excluding invalid questionnaires, 215 valid questionnaires were finally adopted in data analysis, with an effective recovery rate of 78.5%.

## 4 DATA ANALYSIS

### 4.1 Descriptive Analysis of the Sample

**Table 1** Basic information of the sample

variant	measurement item	quantities	percentage
distinguishing between the sexes	women	133	61.9 per cent
	male	82	38.1 per cent
(a person's) age	Under 18	9	4.2 per cent
	18-25 years	145	67.4 per cent
	26-30 years	26	12.1 per cent
	31-35 years	16	7.4 per cent
	36 and over	19	8.8 per cent
academic qualifications	High school and below	6	2.8 per cent
	polytechnic	14	6.5 per cent
	undergraduate (adjective)	107	49.8 per cent
	bachelor's degree	74	34.4 per cent
	PhD and above	14	6.5 per cent
careers	student at school	85	39.5 per cent
	self-employed person	8	3.7 per cent
	government employee	3	1.4 per cent
	Medical, Educational Workers	1	0.4 per cent
	business employee	50	23.3 per cent
	Other freelancers	41	19.1 per cent

Based on 215 valid questionnaires, a basic overview of the sample information is shown in Table 1.

### 4.2 Reliability Analysis

The variables of the questionnaire measured items to reach the indicators and the results are as follows. Cronbach's Alpha value: 0.915 for the matching feature, 0.924 for the interactivity feature, 0.924 for the cognitive, 0.91 for the affective, and 0.953 for the intentionality, all of them are greater than the standard value of 0.7, which meets the criterion. CITC value: the lowest value is 0.546, all of them are greater than the standard value of 0.4, and all of them meet the criterion. Therefore, the reliability of the formal questionnaire scale about this virtual spokesperson characteristics on consumer brand attitudes meets the requirements.

### 4.3 Reliability Analysis

The KMO value for virtual spokesperson characteristics is 0.721 (greater than 0.7), with a significance of 0.000 (less than 0.05), all of which meet the criteria. The KMO value of consumer brand attitude is 0.689 (between 0.6 ~ 0.7, the data is more suitable for

extracting information), the significance is 0.000 (less than 0.05), all of them meet the standard.

#### 4.4 Correlation Analysis

**Table 2.** Results of correlation analysis

<b>Pearson Related</b>					
	<i>match</i>	<i>each other</i>	<i>cognitively</i>	<i>move (emotionally)</i>	<i>be moved by an idea</i>
compatibility	1				
interactivity	0.877**	1			
cognitively	0.875**	0.857**	1		
move (emotionally)	0.884**	0.859**	0.957**	1	
be moved by an idea	0.740**	0.769**	0.823**	0.879**	1

\* p<0.05 \*\* p<0.01

Using Pearson's correlation analysis, the correlations between virtual spokesperson characteristics (match characteristics, interactivity characteristics), and consumer brand attitudes (cognition, emotion, intentionality) were analysed, so as to confirm whether further regression analyses could be carried out accordingly. As can be seen from Table 2, the correlations are all relatively significant and the values are all positive, showing a positive correlation. Therefore, virtual spokesperson characteristics are positively correlated with consumer brand attitudes.

#### 4.5 Regression Analysis

**Table 3.** Regression analysis of virtual endorser characteristics on consumer brand attitudes

<b>Linear regression analysis results</b>							
	<i>Unstandardised coefficient</i>		<i>Standardised coefficient</i>	<i>t</i>	<i>p</i>	<i>Covariance Diagnostics</i>	
	<i>B</i>	<i>Standard Error</i>	<i>Beta</i>			<i>VIF</i>	<i>Tolerance</i>
a constant (math.)	-0.368	0.207	-	-1.776	0.077	-	-
Match characteristics	0.59	0.08	0.478	7.372	0.000**	4.331	0.231
Interactivity features	0.444	0.065	0.442	6.81	0.000**	4.331	0.231
R 2				0.794			
Adjustment R 2				0.792			
F				F (2,212)=408.802, p=0.000			
D-W value				2.308			

\* p<0.05 \*\* p<0.01

Regression analysis is used to determine whether the hypotheses proposed in the previous section are valid. In this paper, the characteristics of virtual endorsers are used as

independent variables, including match characteristics and interactivity characteristics, and consumer brand attitudes (cognitive, emotional, and intentional) are used as dependent variables. From the Table 3, it can be seen that the significance of the regression analysis of virtual spokesperson characteristics on consumer brand attitudes is 0.000 (i.e., the p-value is less than 0.05), which passes the test of the significance level; regarding the value of standardised coefficients, the matching degree characteristic is 0.478, and the interactivity characteristic is 0.442, which indicates that they have a positive influence on consumer brand attitudes respectively, and the VIF values are both 4.331, which are less than 10, indicating that the covariance between the two independent variables, matchability characteristic and interactivity characteristic, and the dependent variable is not strong.

From the above, it can be learnt that hypotheses H1a, H1b, H1c, H2a, H2b, H2c hold.

## 5 CONCLUSIONS AND IMPLICATIONS

The test results of this study show that generative virtual spokesperson characteristics have a significant positive effect on consumer brand attitudes. This study concludes that generative virtual spokespersons can attract consumers' attention because they are empowered by technology, have exquisite appearance and unique feeling, generative virtual spokespersons have high plasticity, and generative virtual spokespersons with high match can influence consumers' perception of brand-related information when endorsing the brand, and enhance consumers' goodwill and trust in the brand. And through AI technology, generated virtual spokespersons can have positive interaction with consumers, which is also a more important part of the shopping process. Compared with the real spokesperson, the generative virtual spokesperson has a high degree of participation and freedom in the process of development, and is different from the labelled character role, which can connect the user with the user and continuously output content, thus making the relationship between the brand and the user closer, thus forming a strong sense of immersion. Enterprises should follow the trend of the times and improve their virtual images to create rich and distinctive characters, making them vibrant and lifelike virtual characters. However, when adopting the generative virtual spokesperson endorsement strategy, it should be noted that there are many factors affecting the effectiveness of generative virtual spokesperson endorsement, and it is still necessary for enterprises to consider the characteristics of the brand in an integrated manner, and to select or design spokespersons that are perfectly matched with the brand, so as to achieve the maximisation of the utility of their brand endorsement. With the growth of Generation Z and the emergence of new generations, generative virtual spokespersons will become more diverse and have a broader market outlook.

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