Modelling the Impacts of Brand Image on WOM for Virtual Idols

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Virtual idols can replace real people in advertising endorsement without any moral problems, which is one of the feasible spokespersons. The purpose of this study is to explore the current status of brand image, brand awareness and word-of-mouth perceived by consumers to virtual idols, their correlation, the mediating effect of brand awareness and the moderating effect of involvement. In this study, a questionnaire survey was used to collect data, and 425 valid samples were obtained through online survey. The results show that the relationship between brand image, brand awareness and word-of-mouth presents a significant and positive correlation; brand image has a significant and positive impacts on word-of-mouth and brand awareness; brand awareness has a significant and positive impacts on word-of-mouth. In addition, the mediating effect of brand awareness on brand image-word-of-mouth relationship and the moderating effects of involvement among those variables used in this study have been confirmed. Finally, this study suggests that enterprises should be committed to improving the brand image of virtual idols, so that consumers can perceive the characteristics and highlights of virtual idols. Moreover, future studies can try to compare the effects of different virtual idols' endorsement, and compare the differences in their brand image, brand awareness and word-of-mouth.

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1. INTRODUCTION

In the context of the gradual maturity of computer technology and artificial intelligence, the concept of metaverse was put forward in 2020, and virtual idols were carried out. Later, China Artificial Intelligence Industry Development Alliance released the 2020 White Paper on the Development of Virtual Idols, which pointed out that virtual idols refer to virtual characters with digital appearance. In addition to the appearance, behavior and thought of the owner, virtual idols also have the ability to recognize the external environment and communicate with people. The appearance of virtual characters seems to share the role of traditional spokesmen.

In the past, enterprises used traditional entertainers to endorse commodity advertisements, which brought positive endorsement effect to the improvement of enterprise and brand image. Fans, as a consumer group extended by idols, can broaden the audience of the brand and represent a huge potential market [1]. However, once the artist's private life defects or immoral behavior was met, the corporate image and brand image could be damaged by those events. This phenomenon of bad artists damaging the image of enterprises and brands makes enterprises more willing to use virtual idols endorsement.

Idol endorsement has always been an important way to show the brand image. The setting of the icon selected by the brand reflects the consumer positioning and brand image of the brand, which can make consumers understand the brand more intuitively. However, virtual idol is a very new field, and some problems have been analyzed in the existing literature, such as technical limitations, which will lead to relatively simple IP image and weak interaction [2]. The scope of publicity still depends on the popularity of the brand itself, and the role of virtual idols is more icing on the cake [3]. Virtual idols are not completely "never collapse", the management behind them is still human, and the supervision of the people behind them is not mature [3]. Although the virtual idol is not the real person, but it also cannot escape the real problem. Moreover, how much brand image can be improved, how much brand awareness can be improved, how much word of mouth can be increased, and whether brand awareness plays an intermediary role through the endorsement of virtual idol were unknown. The

existing research on virtual idol is relatively lacking, so it is necessary to clarify these theoretical gaps.

In addition, virtual idol endorsement is a new concept, which is less recognized by consumers. In other words, consumers' involvement in virtual idol endorsement may have an impact on the relationship between brand image, brand awareness and word-of-mouth, but existing studies are relatively lacking. Clarifying the above questions will help enterprises to use virtual idol endorsement more accurately and also benefit the development of virtual idol industry.

Therefore, the purpose of this study is to sort out consumers' perception of brand image, brand awareness and word-of-mouth to virtual idol; to analyze the correlation among the three variables; to analyze the mediating effect of brand awareness; and to clarify the moderating effect of consumer involvement on the three variables.

2. LITERATURE REVIEW

2.1 The Concept of Brand Image

In the era of advertising explosion, a brand must create and maintain its image in order to maintain the existing market performance [4,5]. Therefore, brand image plays a virtual and key role in deciding marketing strategies and empowering managers to change or update future marketing work [6].

Brand image is the representative process of branding. It is the brand association held in individual memory and the brand perception reflected in the memory [7], and consumers' perception of the memory in network association [8]. This definition, like consumers' perception of the image of a particular store, can be formed by a combination of tangible and intangible factors, such as visible physical facilities and invisible services [9]. In other words, when consumers see brand symbols, characters and logos of enterprises, they can quickly associate with products and services of enterprises, including product functions, attributes, product or brand positioning, price orientation and service quality. Therefore, consumers have a better perception of the brand image of a specific product, and

they have higher purchase intention to give a positive evaluation and recommendation [10-12].

In this study, the virtual idol, Axi, represents young, fashion and lifestyle, and the products of Axi represented also require young, fashion and lifestyle. When consumers have a better perception of the brand image of Axi (virtual idol), they may be more willing to give a higher positive evaluation of the products endorsed by Axi and have a higher recommendation intention. Accordingly, hypothesis 1 is proposed in this study:

Hypothesis 1: In the relationship between the products endorsed by the virtual idol Axi and consumers, consumers' perceived brand image of the virtual idol may significantly affect its word of mouth.

Furthermore, the purpose of brand image is to arouse brand association, which has cognitive and emotional components [13]. That is to say, when consumers can identify the functional attributes of products of a specific brand, or have a certain degree of emotional preference for products, it can be called that consumers have a certain degree of brand image perception for the brand [14]. In this case, consumers have a reasonable understanding of the functional attributes of a specific product and can identify the differences between this brand and other brands. Moreover, consumers have developed an emotional attitude preference for this brand, and it is easier to distinguish this product among various brands. Empirical studies also show that the brand image perceived by consumers will significantly enhance their brand awareness [9]. For this study, when consumers have a higher perceived image of the virtual idol, they are more likely to distinguish the difference between the virtual idol and other virtual idols. Accordingly, hypothesis two is proposed in this study:

Hypothesis 2: In the relationship between the products endorsed by the virtual idol Axi and consumers, consumers' perception of the brand image of the virtual idol may significantly affect its brand awareness.

2.2 The Concept of Brand Awareness

Brand awareness refers to customers' and potential customers' familiarity with an enterprise's products and brand name recognition [15]. If customers are unable to recognize the differences between brands, their purchase decisions may appear random. It is important for customers to recall and recognize brands. Such brand recognition and memory of customers also become the basic restriction of customers to brands under different circumstances [16,17].

Consumers are sometimes hesitant to make purchase decisions and tend to buy brands they know or even know well. He/she may conduct a data search or ask others for their opinion on a particular product before making a purchase decision. When the brand name of the product is higher, it is more likely to be mentioned and become one of the brands considered in the purchase decision. In this case, brand awareness represents consumers' memory and recognition of the brand, which can help consumers improve decision-making efficiency. Empirical studies show that brand awareness may be affected by price intermediaries [18], and can influence consumers' purchase intention [19]. Brand equity of young consumers will be affected [20]. This study suspects that the brand is more likely to be positively evaluated and recommended when a particular brand has high visibility and can be known and discussed by consumers. For the virtual idol Axi, the products she represents are more likely to attract attention, and consumers may be willing to give her a higher and positive evaluation and recommendation to the products she represents when her brand awareness is high [9]. In other words, the higher the brand awareness of the virtual idol brand perceived by consumers, the higher the word of mouth may be generated. Accordingly, hypothesis three is proposed by this study:

Hypothesis 3: In the relationship between the products endorsed by the virtual idol Axi and consumers, consumers' perceived brand awareness of the virtual idol may significantly affect its word of mouth.

2.3 The Mediating Relationship of Variables

In the relationship between the products endorsed by the virtual idol Axi and consumers, hypothesis 1 to hypothesis 3 preliminarily explain the relationship between consumers' perception of brand image, brand awareness and word-of-mouth. Previous studies have also confirmed that there may be pre-influencing factors of brand awareness, which will affect consumers' decision-making behavior [18-20]. Therefore, this

study strongly argues that consumers' perception of virtual idols' brand awareness may be the mediating variable between brand image and word-of-mouth. If brand awareness plays an intermediary role, it will improve the predictive power of word-of-mouth, and clarifying the intermediary role of brand awareness can help enterprises improve the quality of decision making [9]. Accordingly, hypothesis four is proposed by this study:

Hypothesis 4: In the relationship between the products endorsed by the virtual idol Axi and consumers, consumers' perception of the brand awareness of the virtual idol may play a mediating role in the relationship between brand image and word-of-mouth.

2.4 The Concept of Involvement

There is a consistent finding in the existing literature that the more engaged in targets people are, the more motivated they tend to complete their tasks or achieve their goals [20-22]. This kinds of people's input and attention to specific targets is the concept of involvement [10,23]. This is because different levels of involvement will lead to different ranges of information processing processes [20]. When a consumer has a high degree of involvement in a particular brand/product, she/he may spend more time evaluating the advantages and disadvantages of the product/brand, and they will collect and process their information in detail [22]. Literature has pointed out that the level of involvement directly affects their satisfaction and recommendation intention on products [23-27], it will also affect brand awareness and brand image [28,29].

In terms of studies on involvement, existing studies regard involvement as antecedents of individual behaviors [25,30-32] as an intermediary variable of behavior [27,32,33], and as a moderator variable [34]. Obviously, involvement is an important decision-making factor in consumer behavior. Consumers have different degrees of involvement in products or brands, which may change their existing behavior patterns. For example, they may be satisfied with a particular product/brand and have certain reputation and re-purchase behavior for the product/brand. But the importance of the product to them has decreased, they will not give

more reputation and re-purchase behavior even if they are satisfied with the product [10].

As far as this study is concerned, virtual idols are a new concept. When consumers have insufficient awareness of these virtual idols and have not formed significant significance and importance in their lives, their endorsement power may be weak. In this case, consumers' perception of brand image, brand awareness and word-of-mouth may not have a high degree of correlation. On the contrary, when consumers receive more information about virtual idols and perceive their significance and importance, it may be easier to highlight the brand image, brand awareness and word-of-mouth association of virtual idols. Accordingly, hypothesis five is proposed by this study:

Hypothesis 5: In the relationship between the products endorsed by the virtual idol Axi and consumers, consumers' perceived involvement in the virtual idol may have a moderating effect on the relationship between brand image, brand awareness and word-of-mouth.

2.5 Research Framework and Hypothesis

The research framework of this paper is shown in Fig. 1 based on the above literature discussion. First, in the relationship between brand image, brand awareness and word-of-mouth of virtual idols perceived by consumers, brand image may significantly and positively influence word-of-mouth (H1), brand image may significantly and positively influence brand awareness (H2), and brand awareness may significantly and positively influence word-of-mouth (H3) is the initial hypothesis of this study. Secondly, this study suspects that brand awareness has a significant mediating effect, and intends to clarify the mediating correlation among the three variables. That is, brand awareness plays a significant mediating role in the relationship between consumers' perception of virtual idols' brand image, brand awareness and word-of-mouth (H4). Finally, one of the research motives of this paper is the degree of consumers' involvement in virtual idols and the influence on the relationship between variables. Therefore, it is suspected that the relationship between variables may be different with the degree of consumers' involvement in virtual idols (H5).
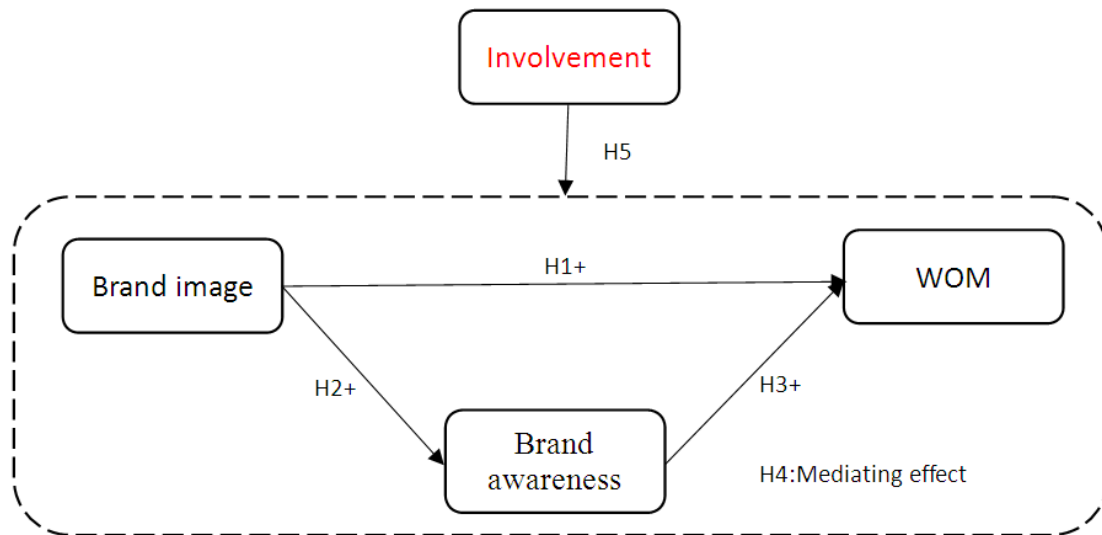
Fig. 1. Research framework

3. RESEARCH METHODS

3.1 Variable Definition, Question and Measurement

Referring to previous studies [35-39], brand image is defined as "consumers' overall evaluation of the image, name and particularity of the virtual idol Axi". Brand awareness is defined as "consumers' overall evaluation of the symbol association and variation degree of the virtual idol Axi"; Word-of-mouth is defined as "consumers' positive evaluation and recommendation of the virtual idol Axi"; It defines involvement as "consumers' overall evaluation of the meaning and importance of the virtual idol Axi".

In terms of measure items, referring to previous studies [35,36,38,39] and other literatures, three questions were researched and drafted on brand image. Such as "Ahxi is special", "Axi is very different from other idols", "I am familiar with Axi's name", etc.; Three items of brand awareness were developed, such as "I know what Axi looks like", "When I see Axi, I quickly associate certain brand symbols", and "I can distinguish Axi among different idols". Two items were adopted to measure word of mouth, such as "I will take the initiative to tell others the advantages of Axi", "I will take the initiative to recommend the products endorsed by Axi", etc. Involved in the research and formulation of three questions, such as "The brands endorsed by Ahi are meaningful", "the brands endorsed by Axi are very important to me", "Watching Axi's

endorsement advertisements has become a part of my life", etc.

In terms of measures, all of them were measured by Likert's 5-point scale, with 5 indicating strong agreement and 1 indicating strong disagreement. The higher the score, the higher the degree of agreement. In addition, in terms of demographic variables, this study designed five questions, including gender, age, educational level, occupation and average monthly income.

3.2 Questionnaire Survey

The topic of this study is the brand image, brand awareness, word of mouth and involvement of virtual idols, and the topic is relatively novel. Since the character setting of the virtual idol Axi tends to be young, fashionable and life-oriented, and considering the feasibility and accessibility of follow-up questionnaire survey, this study mainly focuses on college students and young people as the population. Regarding to the sampling method, quota sampling is carried out according to maternal characteristics. In terms of data collection, questionnaire was built by this study on the Questionnaire Star Platform (https://www.wjx.cn/vm/P3skoJ3.aspx#).

Students were recruited to join the survey through the forward student groups. Moreover, young people who knows Axi were encouraged to join the survey from WeChat groups of those students and research team members. The questionnaire was conducted from November 2022 to December 2022, and a total of 425 valid

questionnaires were received. In order to ensure the authenticity of respondents' answers and the validity of the questionnaire, this study limits each IP to be used only once, and the respondents can only participate in the answer if they can specify at least one product endorsed by Axi.

In terms of sample characteristics, 67.3 percent were female and 46.5 percent were male. In terms of age, respondents' age who less than 20 years old accounted for 25.1%, 20-29 years old accounted for 41.2%; 30 to 39 years old 15.6%; 18.1% were over 40 years old. In terms of educational level, at about 16.2% were junior high school or below, 21.9% were senior high school, 35.2% were junior college, 26.7% were bachelor degree or above, and the majority of respondents were junior college or above. In terms of average monthly income, approximately 60.3% earned less than 3,000 yuan (RMB), 28.3% earned between 3,000 yuan and 6,000 yuan, 8.3% earned between six and 8,000 yuan, and 3.2% earned above 8,000 yuan.

4. RESULTS

In this study, the total score of each measure items were summed, and the top 27% of the higher measure items and the bottom 27% of the lower ones were divided into high group and low group, respectively. Independent t-test was used to identify and test the identification of different subjects. The results showed that the T-values of the 11 measure items were all at significant level, and the proposed measurement items in this study had a degree of discrimination for different subjects.

4.1 Descriptive Statistics

In terms of descriptive statistics (see Table 1), the average value ranges from 3.01 to 3.39, which belongs to the degree of general agreement, and the standard deviation ranges from 1.36 to 1.579. The higher the average degree of agreement is the words of mouth of the virtual idol brand, while the lower one is the brand image. The standard deviation of brand image is large, and the respondents' opinions differ greatly. In terms of reliability, Cronbach's Alpha values ranged from 0.912 to 0.961, indicating high reliability, and the measurement tools had good internal consistency. In terms of validity, the questions were sourced from literature with content calibration. It has been tested by experts and has adequate expert validity.

4.2 Validity and Reliability Analysis

In the validity analysis, the measure items come from literature, which has the theoretical basis and content calibration. Secondly, the questionnaire has been reviewed by experts and relevant researchers, which indicating the expert validity. In this study, the maximum variation method was adopted. Through principal component analysis, the process of factor analysis was covered. Bartlett test was used to determine whether there was factor analysis and the degree of communication between the items of the problem. Factors with eigenvalue greater than 1 were extracted, and the factor loading was greater than 0.6. The results showed that Bartlett test achieved significant significance. It is suitable for factor analysis (see Table 1).

Table 1. Descriptive statistics, validity and reliability analysis

Items	M	SD	SK	KU	FL	VE%	Alpha
Brand Image							
bi1	3.13	1.572	-.149	-1.510	.969	92.1%	0.961
bi2	3.20	1.545	-.207	-1.442	.959		
bi3	3.10	1.554	-.112	-1.473	.962		
Brand Awareness							
ba1	3.35	1.483	-.369	-1.247	.917	85.2%	0.912
ba2	3.39	1.402	-.332	-1.121	.921		
ba3	3.12	1.467	-.100	-1.329	.929		
Words of mouth							
ri2	3.31	1.380	-.295	-1.102	.978	95.6%	0.955
ri3	3.34	1.366	-.329	-1.080	.978		
Involvement							
inv1	3.28	1.375	-.305	-1.080	.936	88.6%	0.936
inv2	3.34	1.415	-.310	-1.161	.944		
inv3	3.14	1.412	-.086	-1.245	.944		

In terms of the brand image of virtual idols, the commonality of items is greater than 0.5, and a factor with an eigenvalue greater than 1 is extracted, with a cumulative explanatory variation of 92.1%. In terms of factor load, each question belongs to only one factor, and the factor load is slightly greater than 0.7, indicating that the brand image scale has an adequate construction calibration. In addition, the reliability coefficient is greater than 0.7, indicating that the scale has an adequate internal consistency. On the whole, the virtual idol brand image scale adopted in this study has an adequate validity and reliability.

In terms of the brand awareness of virtual idols, the commonality of items is greater than 0.5, and a factor with a characteristic value greater than 1 is extracted, with a cumulative explanatory variation of 85.2%. In terms of factor load, each question was assigned to only one factor, and the factor load was slightly greater than 0.7, indicating that the scale of brand awareness had a good construction calibration. In addition, the reliability coefficient is greater than 0.7, indicating that the scale has good internal consistency. On the whole, the virtual idol brand awareness scale adopted in this study has good validity and reliability.

In terms of the brand reputation of virtual idols, the commonality of the projects is greater than 0.5, and a factor with a characteristic value greater than 1 is extracted, with a cumulative explanatory variation of 95.6%. In terms of factor load, each question was assigned to only one factor, and the factor load was slightly greater than 0.7, indicating that the scale of brand reputation had a good construction calibration. In addition, the reliability coefficient is greater than 0.7, indicating that the scale has good internal consistency. On the whole, the virtual idol brand reputation scale adopted in this study has good validity and reliability.

In terms of respondents' involvement in virtual idols, the commonality of items was all greater than 0.5, and a factor with a characteristic value greater than 1 was extracted, with a cumulative

explanatory variation of 88.6%. In terms of factor load, each question was assigned to only one factor, and the factor load was slightly greater than 0.7, indicating that the scale involved had a good construction calibration. In addition, the reliability coefficient is greater than 0.7, indicating that the scale has good internal consistency. On the whole, the virtual idol involvement scale adopted in this study has good validity and reliability.

4.3 Correlation Analysis and Discriminant Validity

The correlation analysis results are shown in Table 2. The results show that the correlation coefficients among all variables, such as brand image, brand awareness, words of mouth and involvement, all reach a significant level. It indicates that the higher the perceived brand image of the respondents to the virtual idol, the higher the perceived brand awareness, the higher the word of mouth, and the higher the involvement degree. Moreover, the higher the perceived brand awareness to the virtual idol, the words of mouth degree and the higher the involvement degree were met. Lastly, the higher their involvement degree of virtual idol, the higher the respondents' words of mouth can be found. Besides, the correlation coefficient reached a significant level and was less than 1, indicating that the variables had good discriminative validity. Therefore, this study can continue to carry out follow-up analysis.

4.4 Test of Initial Proposed Model

As the purpose of this study is to verify the relationship between variables, the quantitative measurement was adopted by this study. Therefore, this study uses multiple regression analysis to test the hypothesis of the initial model, and the analysis results are shown in Table 3. In the initial model, there are two dependent variables in this study, there are two regression equations. The following two regression equations illustrate the results respectively.

Table 2. Results of correlation analysis

Var.	M	SD	BI	BA	WO	INV
BI	9.43	4.50	1			
BA	9.87	4.02	.898**	1		
WO	6.65	2.69	.808**	.845**	1	
INV	9.76	3.96	.796**	.802**	.862**	1

*p<0.05, **p<0.01

In mode 1, brand image and brand awareness were set as independent variables, and words of mouth was set as dependent variable. The results show that the collocation of the model is good (F=560, p=.000), and VIF is less than 10(VIF=5.17), and the collinearity problem is not serious. The results showed that brand image had a significant and positive impact on words of mouth (β=0.258, t=4.451), brand awareness had a significant and positive impact on words of mouth (β=0.258, t=4.451), and the two independent variables could predict 72.6% of the variation to dependent variable. Accordingly, hypothesis 1 and hypothesis 3 are supported.

In model 2, brand image was set as the independent variable and brand awareness was set as the dependent variable. The results show that the collocation of the mode is good (F=1763, p=.000), and VIF is less than 10(VIF=1), and the collinearity problem is not serious. The results showed that brand image had a significant positive effect on brand awareness (β=0.898, t=42), and the independent variable could predict 81% of the variation by variable. Accordingly, hypothesis two is supported.

4.5 Verification of Mediating Effect

In order to clarify the mediating effect among research variables, this study takes brand image as the independent variable (IV), words of mouth as the dependent variable (DV), and brand awareness as the mediating variable (M) to test the mediating effect of brand awareness. The analysis results are shown in Table 4.

Traditionally, the test of mediating effect has three steps (three models), namely, the test of the influence of independent variables on dependent variables (model 3), the test of the influence of independent variables on mediating variables (model 4), and the test of the influence of independent variables and mediating variables on dependent variables (model 5). Among them, if the coefficient of model 3 and model 4 is significant, and the coefficient of model 5 is significant, it means that the mediating variable has a significant mediating effect, and it is partial mediating effect. Table 4 shows that brand image significantly affects word-of-mouth (model 3), brand image also significantly affects brand awareness (modle 4), and both brand image and brand awareness significantly affect words of-mouth (model 5), indicating that brand awareness is an intermediary variable between brand image and word-of-mouth, and it has a partial mediating effect. In other words, brand image can improve word-of-mouth directly (predictive power 0.65) and through brand awareness influence (predictive power 0.73). Accordingly, hypothesis four is supported.

Table 3. Hypothesis testing to initial proposed model

Path	M1		M2	
	Estimate	t-value	Estimate	t-value
BI-WO	0.258**	4.451		
BI-BA			0.898**	42.000
BA-WO	0.613**	10.591		
R^2_{WO}	0.726			
R^2_{BA}			0.81	
F-value	560		1763.00	
VIF	5.17		1.00	

*p<0.05, **p<0.01*

Table 4. Mediation test

Path	M3		M4		M5	
	Estimate	t-value	Estimate	t-value	Estimate	t-value
BI-WO	0.81**	28.25			0.26**	4.45
BI-BA			0.90**	42.00		
BA-WO					0.61**	10.59
R^2_{WO}	0.65				0.73	
R^2_{BA}			0.81			
F	798.00		1763.00		560.00	
VIF	1.00		1.00		5.17	

p<0.05, p<0.01

4.6 Verification of Moderating Effect

In order to clarify the influence of involvement on the relationship between study variables, a moderating analysis was used in this study. Since there are three hypothetical paths in this study, it means that involvement may have a moderating effect on these paths. Accordingly, three modes (model 6, model 7 and modle 8) were used in this study to test the regulating effect of involvement. The analysis results are shown in Table 5.

In model 6, this study takes word-of-mouth as dependent variable, brand image, involvement and the product of the two as dependent variable, and conducts stepwise regression in order. The analysis results showed that the mixture was good ($\triangle F=7.52$; $p=.000$), the collinearity problem was not serious (VIF<10), and the involvement significantly reduced the influence of brand image on word-of-mouth ($\beta=-0.062$, $t=-2.742$). Hypothesis 5-1 was supported.

In mode 7, this study takes brand awareness as dependent variable, brand image, involvement and their product as dependent variable, and conducts stepwise regression in order. The showed that the mixture was good ($\triangle F=2.97$; $p=.000$), the collinearity problem was not serious (VIF<10), and the influence of brand image on brand awareness was significantly reduced ($\beta=-0.035$, $t=-1.724$). Hypothesis 5-2 was supported.

In Model 8, this study takes word-of-mouth as dependent variable, brand awareness, involvement and their product as dependent variable, and conducts stepwise regression in order. The results showed that the mixture was good ($\triangle F=5.25$; $p=.000$), the collinearity problem was not serious (VIF<10), and the influence of brand image on brand awareness was significantly reduced ($\beta=-0.050$, $t=-2.292$). Hypothesis 5-3 was supported.

5. DISCUSSION

The purpose of this study is to clarify the relationship between virtual idol brand image, brand awareness and word-of-mouth, that is, to analyze the influence of brand image on brand awareness and word-of-mouth, and the influence of brand awareness on word-of-mouth (Model 1 and Model 2); to analyze the role of brand awareness (Model 3, Model 4 and Model 5); and the moderating effect of the involvement on the

study model (Model 6, Model 7, and Model 8). All of the results are discussed below.

First, in the results of the initial model, as expected, brand image significantly and positively affects word-of-mouth and brand awareness, and brand awareness also significantly and positively affects word-of-mouth. The analysis results are consistent with the existing studies [10,11,12]. Through the endorsement role of virtual idol, enterprises can make consumers feel the uniqueness of the virtual idol, the difference between the virtual idol and other brands, and even familiar with the name of the virtual idol, which can create a good and positive brand image for enterprises. After consumers perceive a higher brand image, they are willing to give a positive evaluation to the brand, help the brand convey positive information, and even recommend it to others. Secondly, when they perceive the positive brand image of the virtual idol, it is easier for them to associate the brand symbol or logo, and think of the brand name and product attributes. In addition, while they think of the brand symbol or logo to evoke the brand name, they are also willing to give a positive evaluation of the brand and recommend its advantages to others. For example, the role of Axi (virtual idol) represents youth and fashion. Pepsi and Yadi electric vehicles had an advertise on TV and major media through Axi endorsement. When consumers are exposed to these advertisements, they recognize the advertising image of Axi and easily project the image of Axi onto Yadi electric vehicles and Pepsi brands. Thus, the brand awareness and positive evaluation of Yadi electric car and Pepsi Cola are enhanced. When there is no other special competition in the market, consumers will give these brands a high positive evaluation and recommend them to their friends, relatives and colleagues.

Secondly, the results confirm that brand awareness plays an intermediary role, which is the intermediary variable between brand image and reputation. The analysis results are consistent with previous studies [9,19]. In other words, brand image affects word-of-mouth both directly and through brand awareness. The adoption of virtual idols as spokespersons in enterprises can not only improve the brand image of enterprises, but also influence their word-of-mouth and brand awareness through brand image. Secondly, if enterprises want to obtain positive word-of-mouth from consumers, they should not only improve the brand image

and brand awareness traditionally, but also consider the brand awareness perceived by consumers, because brand awareness plays a key intermediary role between brand image and word-of-mouth, which can more effectively predict the word-of-mouth of consumers. In this case, brand image and brand awareness have a significant positive impact on word-of-mouth, indicating that the higher the perceived brand image and brand awareness of Axi, the higher their word-of-mouth, and the perceived brand image and brand awareness of When only the relationship between brand image and reputation is considered, the predictive power is only 0.65, and the predictive power of independent variable on dependent variable is increased to 0.726 after adding intermediary factors. According to this, the brand awareness endorsed by Axi can increase the respondents' word-of-mouth by 7.6%. In other words, through the intermediary role of brand awareness endorsed by Axi, more accurate word-of-mouth prediction power can be improved.

Finally, virtual idol is an emerging issue in recent three years, and there are few studies and discussions on the significance and importance of consumers' perception of virtual idol. That is, there are few studies about consumers' involvement influence on virtual idol in existing literature. The results of this paper show that different level of involvement of respondents will affect their perceived brand image-word-of-mouth relationship, brand image-brand awareness relationship and brand awareness - word-of-mouth relationship. The results reveal

consumer involvement has a moderating effect, which is consistent with the literature [23,25,26,27]. That is to say, the degree of involvement perceived by respondents will regulate the variable relationship among brand image, brand awareness and word-of-mouth. First, this study found that different levels of perceived involvement significantly reduced the impact of respondents' perceived brand image on word-of-mouth. This means that the higher the respondents' involvement in virtual idols, the higher the perceived meaning and importance, and the influence of brand image on word-of-mouth may be less than before (see Fig. 2). In other words, virtual idols have already occupied a place in their lives, and their brand image influence may have hit the ceiling, which is difficult to continue to strengthen and improve. On the contrary, when respondents have a low degree of involvement in virtual idols, the significance and importance of virtual idols still have room to improve, and the influence of brand image on word-of-mouth is more important. Similarly, different levels of perceived involvement significantly reduce the impact of respondents' perceived brand image on brand awareness (Fig. 3). The different degree of respondents' perceived involvement significantly reduces the impact of respondents' perceived brand awareness on word-of-mouth (see Fig. 4). In view of this, enterprises should consider consumers' involvement in virtual idols and formulate different marketing programs according to different involvement levels when they endorse virtual idols.
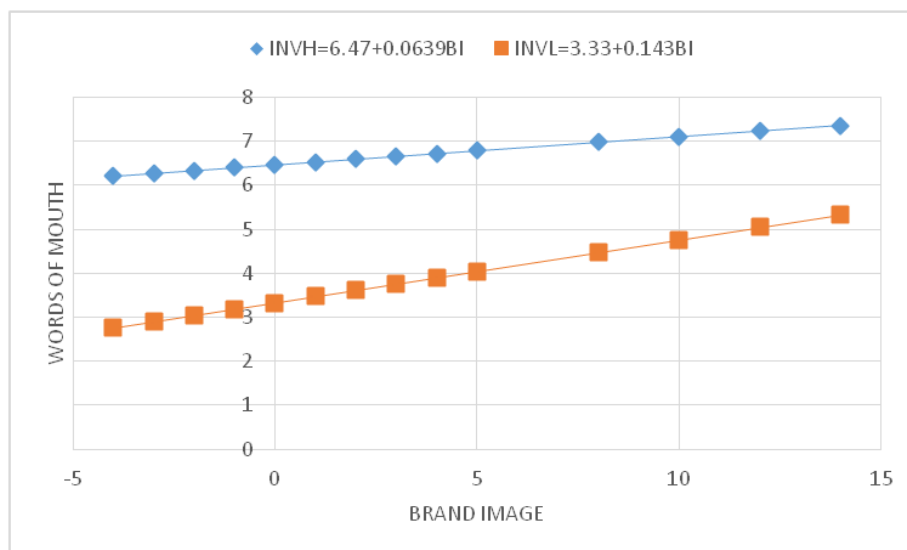

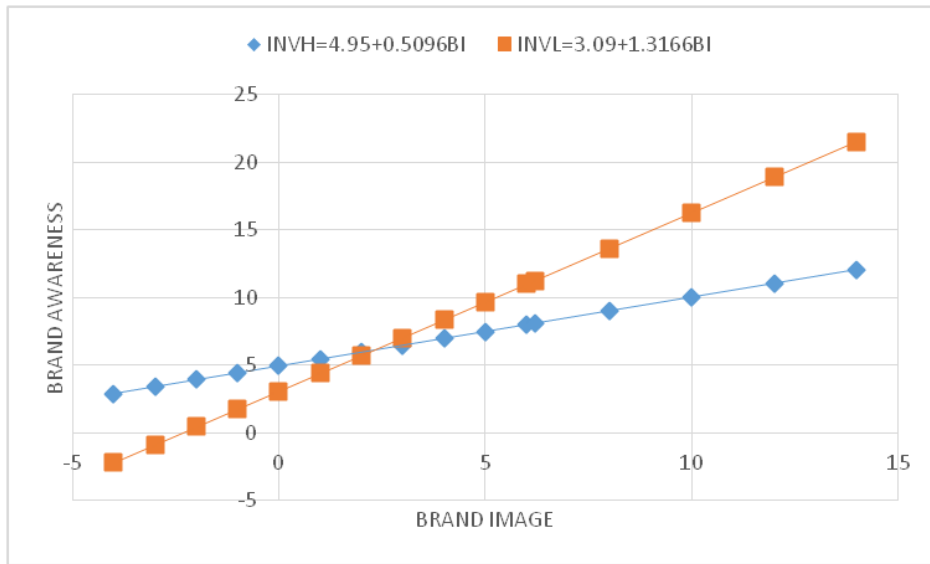**Fig. 2. The moderating effect of involvement on BI-WO**
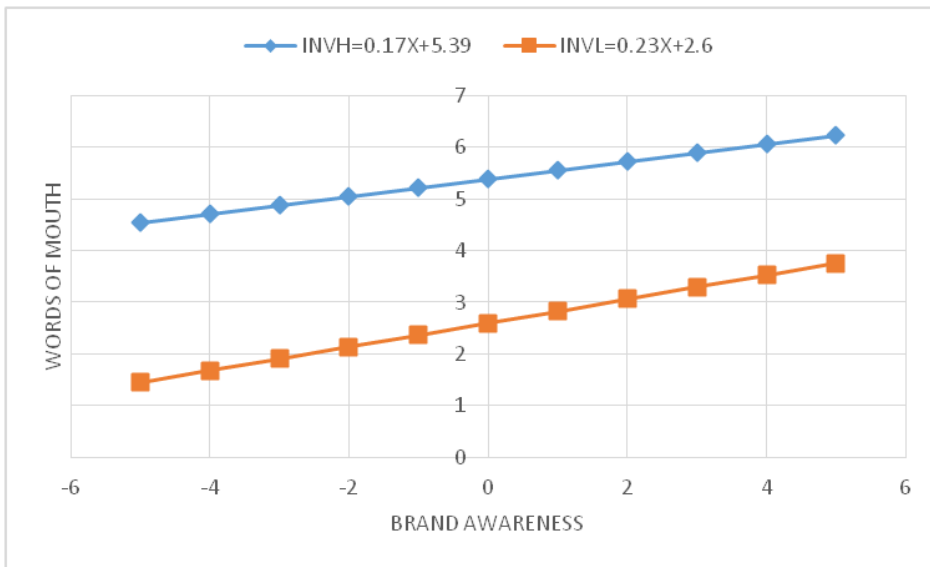
Fig. 3. The moderating effect of involvement on BI-BA

Fig. 4. The moderating effect of involvement on BA-WO

Table 5. Moderation test

Model	DV	IV	Estimate	t-value	ΔF-value	VIF
M6	WO	BI	.336***	9.074	7.52	2.727
	(0.786)	INV	.585***	15.691		2.760
		BI*INV	-.062**	-2.742		1.025
M7	BA	BI	.709***	21.299	2.972	2.727
	(0.828)	INV	.232***	6.933		2.760
		BI*INV	-.035*	-1.724		1.025
M8	WO	BA	.419***	11.712	5.25	2.854
	(0.81)	INV	.518***	14.613		2.806
		BA*INV	-.050**	-2.292		1.045

*p<0.1, **p<0.05, ***p<0.01*

6. CONCLUSIONS AND SUGGESTIONS

Virtual idols can replace real people in advertising endorsement without any moral problems, which is one of the feasible spokespersons. The purpose of this study is to verify the current status of brand image, brand awareness and word-of-mouth perceived by consumers to virtual idols; clarifying their correlation; and clarifying the mediating effect of brand awareness and the moderating effect of involvement. Based on the above analysis, the following conclusions are obtained in this study, and suggestions are proposed as follows.

6.1 Conclusion

- In terms of the current status of respondents' perception variables, the average degree of agreement is higher for the reputation of virtual idol brands, and the respondents' opinions are consistent. The standard deviation of brand image is large, and the respondents' opinions differ greatly.
- In terms of the correlation of variables, the relationship between brand image, brand awareness and word-of-mouth presents a significant positive correlation, and brand image significantly and positively affects word-of-mouth and brand awareness, brand awareness significantly and positively affects word-of-mouth, respondents' brand image of virtual idols is an effective predictor of brand awareness and word-of-mouth.
- In terms of the mediating effect of variables, virtual idol's brand awareness is the mediating variable between brand image and word-of-mouth, which has a partial mediating effect and can also improve the respondents' overall word-of-mouth predictive power.
- In terms of moderating effect, the involvement of surveyed consumers is the moderating variable of the relationship between brand image, brand awareness and word-of-mouth. More importantly, it significantly reduces the impact of brand image on word-of-mouth, the impact of brand image on brand awareness and the impact of brand awareness on word-of-mouth.

6.2 Suggestions

Based on the above findings, some suggestions are drawn to managers below.

- Since respondents have low agreement on the brand image of virtual idols and their opinions differ greatly, enterprises should focus on improving the brand image of virtual idols and find out the reasons for the differences.
- The brand image of virtual idol is the anthems of brand awareness and words of mouth. Enterprises should be committed to improving the brand image of virtual idol, so that consumers can perceive the characteristics and highlights of virtual idol, and highlight the differences between virtual idol and other spokespersons. In this way, it will be beneficial to gain higher brand awareness and words of mouth.
- Virtual idol's brand awareness is an intermediary variable between brand image and word-of-mouth, which has significant predictive power to improve word-of-mouth. Enterprises should enhance the brand awareness of virtual idols through multiple channels, such as print advertising and in-store advertising promotion activities for traditional users, and live marketing and platform marketing programs for new media users.
- Since consumer involvement will reduce the relationship between variables, enterprises should devote themselves to eliminating the adverse effects on consumer involvement, such as analyzing the causes of low and high involvement groups and developing different marketing schemes. Virtual idol is one of the future endorsement trends, enterprises should continue to let consumers perceive the importance and significance of virtual idol endorsement, and improve the predictive power of virtual idol brand image.
- In addition, in terms of future research, this study makes the following recommendations.
- This study uses a single dimension to measure the brand image of virtual idols and analyzes how they affect consumers' brand awareness and reputation. However, some studies suggest that brand image has many measurement aspects, such as functional image, emotional image, price image, etc. Future studies can adopt different measurement methods to explore the influence of virtual idol brand image on word-of-mouth and brand awareness.
- This study only focuses on the endorsement of a virtual idol and analyzes the influence of its brand image. Although the virtual idol has endorsed cars, online flowers and some

feminine products, there are still many categories she has not endorsed. Therefore, its endorsement effect should be limited. Future studies may try to compare the effect of different virtual idol endorsements and the differences in their brand image, brand awareness and word-of-mouth.

- Finally, this study has analyzed the moderating effect of consumers. Future research will continue to verify the factors that improve consumers' involvement in virtual idols and the adjustment of different moderating variables on the relationship between brand image and brand awareness.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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