How to Construct Brand Personality for Chinese Animation

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Abstract. This research explored how to build brand personality of Chinese animation by taking Chinese animation movies as samples, mining user preferences from online critic reviews. Based on the existing research results of Chinese brand personality, this paper discussed whether "benevolence", "wisdom", "courage", "happiness" and "elegance" were suitable to express Chinese animation brand personality by means of entropy weight method and text emotion analysis method. Then, according to the empirical results, this paper gives some suggestions on the construction of Chinese animation brand personality, which can provide reference for the construction of Chinese animation brand.

Introduction

With the transition of the national economy, Chinese animation industry has been developing rapidly since 2004. In 2018, the value of Chinese animation industry reached 170 billion yuan and has been becoming more and more important in development of cultural industry. However, to the quality, profit and influence parts, there are still long ways to go for Chinese animation industry to catch the world, such as United States and Japan.

The animation industries in the United States and Japan created many works with strong global influence and built unique animation brand personalities which formed good brand reputation and boosted the economic development of their own countries. Because of the difference of cultural backgrounds, different countries have different brand personalities. How to build brand personality of Chinese animation with Chinese cultural characteristics has attracted the attention of the industries and academics. Although the concept of "animation brand" has been proposed for many years, most of the current researches focus on brand asset management, brand marketing and other studies. "Animation brand personality" is still a relatively new topic.

This paper is based on the previous studies of Chinese brand personality, exploring the method of building Chinese brand personality. It can enrich the research of Chinese brand personality theoretically and give suggestions for the Chinese animation industry development in practice.

Literature Review

With the increasingly fierce market competition and increasing product homogenization, "brand" has become the focus of contemporary enterprises. When building a relationship with a brand, consumers tend to regard the brand as an image, a partner or a person. Sometimes consumers even put their own personality into the brand to present their cognition of the brand. When human personality characteristics are given to brands, different brands have different brand personalities. With the brand symbolic significance getting more and more obvious, its personality characteristics began to be valued. One of the basic connotations of brand marketing is to take brand personality throughout all activities of the marketing.

From the expression of the brand personality, Upshaw (1995) believes that brand personality is equivalent to the appearance of a brand, which has the same meaning with its external image and reputation. People can tell what a brand is used for or what kind of brand it is by its personality [1].

From the function of the brand personality, Watson (2013) proposes the question of how to maintain consumers' interest by establishing a specific brand personality [2]. Keller (2017) believes that brand personality can reflect consumers' feelings on brand, that is, brand personality is consumers' feelings on products and services [3]. What is widely recognized in the academic circle is the definition of brand personality proposed by Aaker(1997). In Aaker's view, brand personality is defined as "the set of human characteristics associated with a brand". It tends to serve a symbolic or self-expressive function for consumers [4]. The above shows that the brand personality is a combination of personality and emotion, which can not only reflect characteristics of consumers, but also reflect the emotional satisfaction that consumers get from the process of brand consumption. Brand personality embodies the emotion and life values of brand users.

To contribute the unique brand personality in order to make the brand succeed in the fierce market competition, Aaker (1997) constructs the "Big Five" dimensions of American brand personality, including "sincerity, excitement, competence, sophistication and ruggedness". Aaker (2001) points out that the traits of brand personality would be variant in different cultural context. For example, different from the "Ruggedness" dimension of the United States, Japan's unique brand personality dimension is "Peacefulness", while "Passion" is unique to Spain [5]. Based on Aaker's research method, Supphellen et al. (2003) concluded that Russia has three unique brand personalities: modern, successful and meticulous [6]. In the context of chain drugstore industry, Escobar et al.(2017) found that Chile's brand personality includes transparency, ambition, society, sincerity and ability [7]. Ferrandi et al. (2015) studied 12 French brands and found that the dimensions of French brand personality are sincerity, stimulation, competence and strength [8]. Chinese scholars Huang&Lu (2003) learn from Chinese traditional national culture and conclude that "benevolence", "wisdom", "courage", "happiness" and "elegance" (BWCHE(refers to *benevolence, wisdom, courage, happiness and elegance*)) are the dimensions of brand personality in China[9], as shown in Table 1. This research conclusion has also become the basis for scholars to study Chinese brand personality [10].

Table 1. Chinese-based dimensions of brand personality

Brand personality Dimensions	Facets	Traits
Benevolence	Honest/Family Peace Righteousness Simple Thrift	Warm and Fragrant, Honest, Family Harmonious, Gentle, Green Righteous, Kindness, Loyalty Pristine, Traditional, Nostalgic Economical, Approachable, Friendly
Wisdom	Steady and Rigorous Profession Innovation	Steady,Rigorous,Literate Professional,Reliable,Leadership Aggressive, Courageous,Innovative
Courage	Bravery Valour	Assertive, Majestic,Decisive Effusive,Strong,Dynamic
Joyfulness	Exciting Happy	Auspicious,Joyous,Healthy Optimistic,Confident,Trendy
Elegance	Modern Elegance Rraditional Eleganc	Respectable,Tasteful,Dignified Elegant,Romantic,Beautiful

The above studies have confirmed that different cultural backgrounds and industries in different countries will lead to different brand personalities. Whether the existing Chinese brand personality dimensions are suitable to express Chinese animation brands needs further discussion. Meanwhile, with the development of online social networks, more and more scholars investigate users' preferences through users' online comment data to improve and perfect the conclusions obtained by questionnaire. However, the research on brand personality is mainly based on the primary data, which lacks the analysis and utilization of secondary data such as network comments. The combination of comment data and users' emotional tendency is particularly lacking in the research on brand personality.

Animation brand is a virtual reality created from the comic and animation, which can meet publics' and fans desires and needs. Animation fans and the public identification are also aroused by Animation brand in term of psychology and value by the interaction with animation IP and animation

derivatives [11]. An animated works, a cartoon image or an animation enterprise can all be seen as a cartoon brand. We consider a cartoon works as a cartoon brand which in our research. Animation brand personality can be obtained from the overall expression of users' feelings on the works. Internet comments are the expression of users' feelings, which will have an impact on product marketing [12]. Therefore, based on the text analysis and emotional analysis of the online comment about Chinese animation on DOUBANDIANYING (https://movie.douban.com/), firstly this paper examines whether the BWCHE (the dimensions of brand personality in China) conform to the personality expression of Chinese animation brands; then, analyze the shortcomings, make recommendations and provide guidance for product positioning of China's animation brand personality construction according to that conclusion.

Animation Brand Personality Dimension

This paper researches the personality of Chinese animation brands based on the data from DOUBANMOVIE (https://movie.douban.com/) animation film critic reviews. First, we expanded the traits of Chinese-based dimensions of brand personality, BWCHE, which are accepted and used by the Chinese scholars. Secondly, based on the animation film critic reviews from DOUBAN MOVIE(https://movie.douban.com/), we calculated the weight of brand personality dimensions to get every animation works which were based on the comprehensive ranking of brand personality. Thirdly, we compared the ranking with the result of emotion analysis from the perspective of the user to test whether the brand personality dimensions veritably reflect user's interests and emotion. With the steps above, we analyzed the validity of the construction of Chinese animation brand personality.

The Synthesis Score of Animation Brand

To fully and accurately express the brand personality dimension, this research firstly expanded the traits in the table 2 according to TongYiCi CiLin. Based on the coding method and tree structure of TongYiCi CiLin, this thesis used the Word Similarity Computing method from the existing literature [13] for reference to compute the Word Similarity. 0.9 was set as the threshold of similarity word selection. If the similarity is greater than or equal to 0.9, the words in Table 2 was selected.

Then, this research calculates the weight of each dimension and the comprehensive score of brand personality of each work by the means of Entropy Method for it can make full use of system information and effectively reduce the uncertainty and fuzziness brought by subjective evaluation. It is widely used in the setting of evaluation index weight [14]. Every animation work in this essay is a data sample. brand personality dimension ("benevolence", "wisdom", "courage", "happiness" and "elegance") is the evaluation index. Semantic segmentation, removal of stop words, cumulative frequency of words would be done in every animation critic review to get sample data set $X = (x_{ij})_{m \times n}$. n is the amount of sample. x_{ij} is the cumulative frequency of feature word of the i_{th} animation work j_{th} dimension brand personality feature words ($j = 1,2,3,4,5$). x_{i6} is the sum of the cumulative frequency of feature word of the i_{th} animation work. The detail compute process is below:

1) Compute the entropy of j_{th} dimension brand personality E_j by (1), p_{ij} is the proportion of dimension j in sample i.

$$E_j = \frac{\sum_{i=1}^{n} p_{ij} \ln(p_{ij})}{\ln(n)} \tag{1}$$

$$p_{ij} = \frac{y_{ij}}{\sum_{i=1}^{n} y_{ij}} \tag{2}$$

Where $y_{ij} = \dfrac{x_{ij}}{x_{i6}}$. According to logarithmic function properties, if $p_{ij} = 0$, $p_{ij}\ln(p_{ij}) = 0$.

2) Compute the weight of j_{th} dimension brand personality w_j as formula (3).

$$w_j = \frac{1 - E_j}{\sum_{j=1}^{m}(1 - E_j)}, 0 \le w_j \le 1, \sum_{j=1}^{m} w_j = 1 \tag{3}$$

3) Compute the synthesis score of i_{th} animation work by (4).

$$Score_i = \sum_{j=1}^{m} w_j y_{ij} \tag{4}$$

Animation Brand Applause Rate Calculation Based on Emotion Analysis

We make emotional analysis of comments on animation works. According to users' emotional inclination in the comments, we calculate the applause rate and compare it with the comprehensive scores of brand personality of animation works to test whether Chinese brand personality truly reflects users' interests and emotions from the user's point of view. According to the result, we analyze the rationality of animation brand personality dimension expression.

Sentiment Analysis. Based on the methods and steps of sentiment analysis in existing literature, this paper analyzed sentiment words, degree words, negative words and special sentence patterns in DOUBANYINGPING animation film critic reviews [15].

Sentiment Words. Based on HowNet (the sentiment dictionary of CNKI), NTUSD(National Taiwan University Sentiment Dictionary), and Tsing (the sentiment dictionary of Tsinghua university), which three contains the common Chinese sentiment words,106 positive words and 87 negative words which were highly frequently used in animation field were added into the sentiment dictionary. When there was a positive word in the critic reviews, the score was a positive value.When there was a negative word in the critic reviews text, the score was a negative value.

Degree Words. Many emotional words are preceded by a degree word. For example, "absolutely amazing" is much stronger than "amazing", and "too thin" is much stronger than "a little thin". In this paper, we use the six levels of HowNet (extreme, most, very, more, -ish, insufficiently, over) and set different scores for the degree words in different emotional levels, as shown in Table 2.

Table 2. Examples of degree words level

Level	Examples	Score
extreme	absolute,alarmingly,awfully,bitterly,definitely,entirely,extreme......	3
very	greatly;much;particularly;really;too far;too much;very......	2
more	further,more,much more,plus,relatively,such,so......	1.5
-ish	a bit,a little,fairly,passably,quite,rather,slightly,some......	0.5
insufficiently	a little less,just,light,merely,not too,relative,slightly......	-0.5
over	above, excessive,extra,plus,slightly more,super,surplus……	-1

Negative Words. If there is a negative word in front of a sentiment word, it would change the sentiment attribute. In this case, when there is a negative word in front of a sentiment word, the score would be multiplied by -1. If there is a double negation, multiplied by -1 to make the sentiment attribute the same as positive sentence. In addition, if there is a negative word in rhetorical question, the expression is also positive emotion. In order to make it had the same sentiment attribute, the score would be multiplied by -1.

Sentiment Analysis Algorithm.

Input: all the short critic reviews of an animation work.

Output: sentiment score of every critic review.

Notes: a critic review could be composed by several sentences. The comma was the clause separator here. Separately analyze the positive sentiment score and negative sentiment score of every sentence, mark $[pscore_i, nscore_i]$ as the sum positive score and negative score of i_{th} critic review.

Step 1: Clause separation in every critic review.

Step 2: Find every word in the TongYi CiLin. If the word is in it, check if there are degree words in front of it and multiply by its score.

Step 3: Check if there are negative words before the sentiment word. If so, change the sentiment attribute.

Step 4: Compute the positive sentiment score and negative sentiment score of critic review i $[pscore_i, nscore_i]$.

Step 5: Get the favorable rate of an animation work. If the positive sentiment score is more than negative sentiment score, mark this critic review positive. Otherwise marks it negative. If the positive sentiment score equal negative sentiment score, mark this critic review middle.

Experiment and Result Analysis

To ensure the representativeness of research samples, the critic reviews of 342 works of Chinese animation films were collected for experimental verification. 34 animation films were randomly selected as test samples and the rest as training samples.

Firstly, the weight of brand personality dimensions of "benevolence", "wisdom", "courage", "happiness", and "elegance" were calculated by entropy weight method, and the results were 0.1921, 0.1706, 0.2203, 0.1643 and 0.2527.

Secondly, 500 critic reviews were randomly selected and artificially marked its sentiment attribute. The precision rate of sentiment analysis algorithm was more than 0.9, which meant this algorithm was suitable for this research.

At last, the synthesis score of every animation work was calculated, and ordered in synthesis score and reputation respectively. Some data are shown in Table 3. As shown in Table 3, the ranking based on the synthesis score of brand personality is almost the same as the ranking of sentiment analysis. Only a few films rankings have deviation. The conclusion can be made that the brand personality dimension is an efficient and suitable way to review animation works from the result. It also confirmed that "benevolence", "wisdom", "courage", "happiness" and "elegance" these five dimensions can express Chinese animation brand personality.

Table 3. Top 20 animation works of brand personality dimension synthesis score

Name of the film	Dimension of brand personality					Ordered in	
	elegance	happiness	courage	wisdom	benevolence	synthesis score	applause rate
Monkey King: Hero Is Back	0.0019	0.0042	0.0153	0.0064	0.0094	*1*	*2*
Feelings of Mountains and Waters	0.0172	0.0034	0.0032	0.0046	0.0067	*2*	*1*
The Monkey King	0.0017	0.0048	0.0090	0.0067	0.0099	3	3
Gro Ber Rauber	0.0003	0.0169	0.0076	0.0038	0.0036	4	4
Baby Tadpoles Look for Their Mother	0.0162	0.0029	0.0028	0.0034	0.0047	5	5
Avanti	0.0002	0.0078	0.0005	0.0159	0.0074	6	6
Lotus Lantern	0.0019	0.0049	0.0098	0.0059	0.0090	7	7
Quebec pull	0.0056	0.0046	0.0067	0.0050	0.0086	8	8
The Legend of Qin III	0.0023	0.0055	0.0085	0.0053	0.0083	9	9
HUAJIANGHUZHIBULIANGREN	0.0045	0.0056	0.0096	0.0023	0.0065	10	10
Three Monks	0.0011	0.0064	0.0012	0.0098	0.0097	11	11
Da Hu Fa	0.0029	0.0053	0.0072	0.0059	0.0065	12	12
The Legend of Sealed Book	0.0011	0.0074	0.0033	0.0070	0.0086	13	13
Big Fish & Begonia	0.0026	0.0058	0.0056	0.0053	0.0075	*14*	*17*
YUTONG	0.0132	0.0025	0.0043	0.0025	0.0023	*15*	*15*

One Hundred Thousand Bad Jokes III	0.0003	0.0121	0.0035	0.0042	0.0059	*16*	*16*
Conquers the Dragon King	0.0019	0.0030	0.0083	0.0039	0.0085	*17*	*14*
No-brain and Unhappiness	0.0012	0.0085	0.0013	0.0074	0.0043	18	18
The Nine-Colored Deer	0.0045	0.0010	0.0022	0.0074	0.0062	19	19
The Magic Brush	0.0008	0.0035	0.0029	0.0055	0.0046	20	20

Conclusion

Based on the research of Huang &Lu's brand personality dimension theory, our research extended the synonyms of brand personality characteristic words in different dimensions. Entropy Method was used to calculate the weight value of "benevolence, wisdom, courage, joy and elegance". The comparison of the rank in brand personality dimension and the result in sentiment analysis verified that Chinese brand personality dimension can be used to express Chinese animation brand personality. Therefore, Chinese animation works should have the attributes of "benevolence", "wisdom", "courage", "happiness" and "elegance" to meet consumer interests, which is beneficial to the promotion of Chinese animation brands.

Acknowledgment

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