THE IMPACT OF PERSONALITY CONGRUENCE BETWEEN BRAND AND INFLUENCER ON ENDORSEMENT EFFECTIVENESS FOR COSMETIC PRODUCT

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Abstract - Despite the fact that many marketers from leading companies are jumping on the new celebrity endorsement bandwagon, only a few studies have been presented in the literature addressing new celebrities. However, few research has addressed the effectiveness of new celebrities on consumer brand engagement via social media. This debate results from the fact that marketers the world over spend millions of dollars each year to associate celebrities with their brands , in an effort to influence consumers' perceptions, attitudes, and intentions. Even though brand personality and celebrity endorsements have been researched to a great extent, to date the two streams of research have not been integrated in an attempt to further investigate brand-celebrity pairing. As a result, the present study proposes a new model of celebrity endorsement based on brand personality-celebrity endorser personality congruence. Thus, this research attempt to explore brand personality-celebrity endorser personality congruence via real data /text collected from those social media of brand and celebrity, and then based on the method of scaled directed text mining (SDTM) to estimate the score of personality of brand and celebrity. Further, we calculate the extent of congruence of brand personality-celebrity endorser personality, which used to be examined the impact on engagement of celebrity associated with brand.

Keywords - Personality Congruence, Brand Personality, Internet Influencer, Endorsement Effectiveness

I. INTRODUCTION

With the rise of social media, there has been a growing phenomenon, that is, "social media influencers" (Gillin & Moore, 2009).Social media influencers are regarded as “emerging” celebrities, and they are much sought after and have received a lot of attention (Saul, 2016; Tolson, 2010). They are a group of emerging third-party independent endorsers. Thousands of people pay close attention to their daily lives, tips and expertise on social media (Morgan, 2016). These influencers have the ability to influence and change consumers' attitudes towards brands (Freberg, et al., 2011), and they are good at producing brand-related content, so that their followers will have positive sentiment towards the products they endorse (Lawrence, et al., 2013). The advertisements endorsed by these influencers are considered to be more credible and effective, and these influencers have the ability to use their social media channels to create unique personal relationships between them and their followers (Muniz & Schau, 2007).

Although the marketers of many top companies have followed the wave of influencer endorsement activities, there are still not many academic research reports on influencers. Three scholars including Langner, Hennigs, and Wiedmann (2013) explored the definition of influencer in the study of social identity environment, for the purpose of helping companies promote product marketing more effectively through such influencers. Gillin and Moore (2009) proposed a series of recommendations and principles for marketers on how to use social media influencers for marketing promotion. However, few academic studies analyze influencers through real data and verify the effectiveness of consumer brand interaction for marketing communication through social media (Misha, Rot, and Bailey, 2015).

Every year, marketers around the world spend millions of dollars to maintain partnerships between brands and influencers in an attempt to influence consumers' attitudes and behaviors. However, an inappropriate combination of the influencer with the brand may have a negative impact on the brand, and such inappropriate match cannot achieve the brand's goals and purpose. Although some scholars such as Misra and Beatty (1990) and Kirmani and Shiv (1998) discuss the issue of the match between brands and influencers, most studies still focus on attractiveness and expertise as the criteria for judging the match. Although brand personality and influencer endorsement have been widely studied, there are still few studies on discussing the match between brands and influencers from the perspective of the personality congruence between brand and influencer (Misha, rot, and Bailey, 2015).

One of the most effective ways to achieve brand differentiation and stimulate consumers' purchasing desire is to establish a unique brand personality (Aaker, 1997). A brand with a unique personality can not only attract the attention of consumers, but also enable consumers to have a personalized awareness of the brand based on the brand personality combination (Keller, 2005). If the characteristics of the personality congruence between brand and endorsement

influencer are utilized, the recognition of the brand personality can be further improved through the endorsement influencer's promotion activities. This can not only improve the match and credibility of product endorsement, and effectively influence consumers' purchase attitude and intention (Misha, Rot, and Bailey, 2015).

Although Misha, Rot, and Bailey (2015) began to focus on the influence of the personality congruence between brand and endorsement influencer on consumers' purchase attitude and intention, few studies have analyzed the match between influencers and brands based on real data, which was mostly operated through experimental methods in the past. The reason is because it is very difficult to measure the brand personality through the questionnaire, not to mention that needs a lot of collection.

Fewer researchers have really explored the influence of the personality congruence between brand and endorsement influencer on the effectiveness of marketing communication, except for their studies on the purchase attitude and intention. In other words, fewer researchers have used observable behavior variables (such as the number of likes, the number of comments, and the text content analysis of comments) to conduct measurement.
Therefore, this program attempts to study the personality congruence between brand and endorsement influencer through the real data or texts obtained from the social media of brands and influencers. This study will adopt the research method of Scale-Directed Text Mining (SDTM) (Tsao, et al, 2019). In terms of text content analysis, this study will convert the sentimental score of text content into the score of the marketing scale (brand personality in this study) through sentimental analysis and machine learning methods. Then the following research procedures will be conducted:

1. Measure the personalities of cosmetic product brands and influencers
2. Calculate the personality congruence between cosmetic product brands and related influencers
3. Verify the influence of the personality congruence between brand and influencer on endorsement effectiveness by using machine learning algorithms
4. Establish the forecast model for the influence of the congruence between brand and influencer personality on endorsement effectiveness
5. Propose the influence of the combination of personalities of cosmetic product brands and certain influencer brands on the match and endorsement effectiveness

The research objects for brands and influencers are based on the report of KOL Radar (https://www.kolradar.com/) on top 100 most influential cosmetic product influencers in 2019 and the database of KOL Radar. We hope that the results of this study can generate a forecast model, for the purpose of more effectively recommending influencers for brands with different personalities based on the data generated from the personality congruence between brands and influencers.

This research program aims to find out the cosmetic product brands shared by influencers based on the cosmetic product brands and cosmetic product influencer database of KOL Radar, measure the personalities of brand and influencer by using the SDTM method, and then calculate degree of the personality congruence between brand and influencer. Then, through the Random Forest and Neural Network of machine learning algorithms, for the matching combination of brand and influencer with high brand personality congruence, this study attempts to verify whether the accuracy of its online interaction and influencer buzz that can be forecast based on the combination of its brand personality traits can be higher than that of the matching combination of brand and influencer with low brand personality congruence. If the verification result is supported, it can be proved that the matching combination of brand and influencer with high brand personality congruence has a significant influence on the i-buzz of the influencer for the brand. Based on this, a model for the match between cosmetic product brand and influencer brand can be established. Furthermore, with respect to the matching combination of brand and influencer with high brand personality congruence, through the principal component analysis of unsupervised machine learning, for the matching combination of brand and influencer with high brand personality congruence and high i-buzz, this study attempts to explore whether the combination of some of its brand personality traits has commonality. Based on this, specific recommendation for the match between cosmetic product brand and influencer brand can be propose.

II. RESEARCH METHOD

The basis for this research program is the “Ranking of the Influencers' Buzz of Top 100 Celebrity Cosmetic Products in 2020” released by KOL Radar, This research program collects the contents of all KOL community posts that mention "Keywords for Celebrity Cosmetic Products in 2020" from January 1, 2020 to June 15, 2020, counts the total number of interactions on Facebook, Instagram, and YouTube posts (including likes, comments, shares, and views), and ranks the top 100 celebrity cosmetic products based on the interactive performance of influencers’ posts (which is take as a buzz indicator). The list of celebrity cosmetic products in 2020 is provided by the

Marie Claire, which includes 481 selected products of 61 brands in categories such as makeup, health preservation, fragrance, and green cosmetic cosmetics. Through KOL Radar, 1,650 keywords including the Chinese/English names and abbreviations/nicknames of cosmetic products were searched and compared, and the contents and data of influencers' posts on Facebook, Instagram and YouTube which matching the keywords were collected. The formula for calculating the influencer buzz:

According to the KOL Radar influencer community database, this research program calculates the number of followers and interactive performance of Taiwanese influencers on the three major community platforms (Facebook, Instagram, and YouTube) for the entire year of 2019, and selects the top 100 most influential influencers in the cosmetic field based on the influence index. Statistics time: January 1, 2019 ~ December 31, 2019. Release time: April 20, 2020. Selection criteria: any Taiwanese influencer with more than 1,000 followers on any of the community platforms (Facebook, Instagram, and YouTube). During the statistical period, the influencer shall have more than 12 (including) community posts which mentioned cosmetic keywords , covering more than 400 cosmetic brand keywords in Chinese and foreign languages. Influencers rely on popularity and influence to generate revenue, excluding the posted contents and related data of artist endorsements.

The calculation formula of influence index: 40% of the total number of followers on the three platforms + 60% of the number of interactions (including likes, comments, shares, and views) of posts on the three platforms which mentioned cosmetic keywords. Please refer to the Table 1.

Table 1. Ranking of KOL

Rank	KOL	FB Fans	FB Interactions	FB Growth of Fans	IG Fans	IG Interaction	IG Interaction	YT Fans	YT Interaction	YT Growth of Fans	Total Fans
1	Hello Catie	324,451	0.90%	2.43%	399,925	3.21%	5.23%	944,000	0.73%	7.58%	1,668,376
2	Sandy&Mandy	115,684	0.61%	1.19%	188,453	4.35%	6.40%	512,000	0.52%	6.33%	816,137
3	Howhow	547,683	1.36%	5.27%	460,010	6.80%	13.05%	597,000	0.52%	6.33%	816,137
4	Gina	438,513	0.49%	-0.03%	482,465	4.12%	5.84%	595,000	0.54%	7.98%	1,069,123
5	I'm Charlie	177,251	1.20%	2.31%	268,396	3.89%	4.20%	483,000	0.54%	3.45%	2,388,540

A. Brand Personality Measure

The methods of brand personality measurement are summarized as follows. For detailed theories and verification methods, please refer to the Scale Directed Text Mining (SDTM) developed by scholars such as Tsao in 2019. In this study, R and PHP languages are used to develop its own programs to convert qualitative text content analysis into quantitative marketing scale scores. This study uses two words data sets, respectively the AFINN sentiment lexicon (http://www2.imm.dtu.dk/pubdb/pubs/6010-full.html) and the brand personality dictionary developed by Opoku(2006). The AFINN sentiment lexicon is used to distinguish the word polarity (positive, negative, or neutral) and the degree (with an interval scale from -5 to +5). Please refer to the list of some extracted word sets.

B. Brand Engagement Measure

The interactive performance of an influencer's posts is used as the buzz indicator, according to the calculation formula of KOL Radar influencer buzz:

The total number of interactions of KOL posts in the communities which mentioned cosmetic products = The total number of interactions of FB posts (number of views*0.05+number of likes*0.3+number of comments*0.5+number of shares*1)+ The total number of interactions of *IG posts (number of views*0.05+number of likes*0.2+number of comments*0.5) + The total number of interactions of *YT posts (number of views*0.05+number of likes*0.5+number of comments*0.5). Please refer to the Table 2.

Table 2. The Ranking of Brands

Rank	Brand	KOL Interaction	FB Interaction	IG Interaction	YT Interaction
1	Lancôme	250543.2	48534.95	127590.15	74418.1
2	YSL	194193.2	21643.55	62699.7	109849.95
3	YSL	172683.5	48159.7	107163.65	17360.15
4	SK-II	152969.7	56168.15	58535.8	38265.75
5	Armani	149934.1	5823.3	72234.15	71876.65

C. Personality Congruence Measure

Verify the influence of brand congruence on endorsement effectiveness First, we use IBM SPSS 26 to perform K-means cluster analysis for the i-buzz of the brand endorsed by the influencer and the brand congruence, and convert them into categorical variables continuously. The advantage of IBM SPSS K-means is that we can choose to automatically generate categorical variables as shown in the following diagrams Effective Class 2 and BC Class.

D. Data Analysis

Through IBM SPSS 26, the analysis of Multilayer Perceptron Neural Network can be performed. The data can be grouped according to the level of brand congruence, and then the analysis of Multilayer Perceptron Neural Network can be performed in each group. Based on this, we can compare whether there is any differences in forecast ability between the two groups. For the matching combination of brand and influencer with high brand personality congruence, this study attempts to verify whether the accuracy of its online interaction and influencer buzz that can be forecast based on the combination of its brand personality traits can be higher than that of the matching combination of brand and influencer with low brand personality congruence. If the verification result is supported, it can be proved that the matching combination of brand and influencer with high brand personality congruence has a significant influence on the i-buzz of the influencer for the brand. Based on this, a model for the match between cosmetic product brand and influencer brand can be established. With respect to the matching combination of brand and influencer with high brand personality congruence, through the principal component analysis of unsupervised machine learning, for the matching combination of brand and influencer with high brand personality congruence and high i-buzz, this study attempts to explore whether the combinations of some of its brand personalities have common traits. Based on this, specific recommendation for the match between cosmetic product brand and influencer brand can be proposed. Please refer to the analysis results of the following examples

III.RESULT

Based on the result obtained from the model of machine learning algorithm of Neural Network, we got the following result: First, the accuracy of prediction based on the extent of personality congruence of brand and influencer is 77.8 %. Second, as for the cosmetics products, three specific personality pattern lead to excellent brand and influencer engagement, that is: (1)Excitement and Sophistication; as the figure 1 shown.

IV. FUTURE RESEARCH

Based on the result obtained in this study, we assert that the personality of congruence between the brand and influencer are crucial to determine the effectiveness of endorsement for cosmetic product category. Specifically, three kinds of pattern of personality impact significantly on the endorsement effectiveness. However, the result were able to apply to other product category, and we suggest that monitoring the variation of pattern personality via more efficiently machine learning automation program is a valuable investment on the selection of influencer.

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