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A Quantitative Procedure Integrating AHP and DEMATEL to Develop Strategies for Improving Brand Personality: Introductory Ideas

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Abstract

Due to the importance of brand personality in marketing, it is crucial to use our understanding of this concept in formulating the details of what the marketing department should do (i.e. decision making). It is however more easily said than done as the task is complicated since it is hampered by a lack of general agreement about the brand associations that constitute brand personality. Besides, brand personality consists of various attributes and intangible components which are difficult to measure accurately. Therefore, this paper proposes a hybrid multi-criteria decision making procedure, combining analytical hierarchy process (AHP) and decision making trial and evaluation laboratory (DEMATEL) method as to serve the decision makers with a quantitative means of assessing brand personality. The proposed procedure uses AHP to assign the weightage of each independent dimension of brand personality and DEMATEL to reveal the causal-effect relations between the attributes within each dimension. The outputs of AHP and DEMATEL will certainly facilitate the decision makers to make better-informed decisions concerning brand personality. This procedure could become a valuable asset for organizations that aspire them to develop effective marketing strategies and establish brand loyalty.

Keywords: Brand personality, AHP, DEMATEL

1. INTRODUCTION

With very stiff competition most brands struggled to sustain their loyal customer. Presently, most brands have generally the same business plan that prioritizes the importance of branding and marketing positioning (Keller, 2013). Recognizing this limitation of the marketing strategies, some of companies now tend to focus on specific product & brand differentiation, and this is where brand personality comes into brand strategy consideration. There are many management and marketing strategies involved in brand creation and maintenance, but it is the conclusion of marketers and scholars that brands represented by strong personalities will perform better and resonate longer with consumers (Roberts, 2010). Unfortunately, current brand personality framework unsuccessful to measure the precise performance of each dimension used in the actual marketing activities. Previously, to measure brand personality, conventional measurement tools are devised on cardinal or ordinal scales. Most of the criticism about scale based on measurement is that scores do not necessarily represent customer preference. This is because respondents have to internally convert preference to scores and the conversion may introduce distortion of the preference being captured.

Obviously, brand personality consists of various dimensions, (i.e. sincerity, excitement, competence, sophistication, and ruggedness) and it makes more difficult to measure. In addition, the choice of quantitative

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techniques introduced in past studies as to evaluate brand personality appear to be limited. In most empirical studies, exploratory data analysis techniques such as factor analysis were used basically to discover the actual brand personality determinants or dimensions. Sadly, such techniques failed to deliver some precise as well as useful extra information (e.g. the weights of the dimensions and the interrelationships between the attributes) that could be helpful for the decision makers in making better decisions in strengthening their brand personality. Therefore, this study endeavours to take up the challenge to develop a brand personality performance measurement procedure based on AHP (Bhushan, Ria, 2004; Saaty, 2008) and DEMATEL (Shieh, Wu, and Huang, 2010), where the former one is used to quantitatively identify the weight of each dimension and the former method is applied in order to systematically uncover the causal-effect relationships between the attributes.

2. LITERATURE REVIEW

2.1 Brand Personality

The formal definition of brand personality is “the set of human characteristics associated with a brand” (Aaker, 1997, p. 347), that performs a symbolic or self-expressive function for the consumer (Keller, 1993, 2013), but perceptions of human personality are derives from a person’s behaviour, attitudes and beliefs (Park et al., 1986), and perceptions of brand personalities are developed and impacted by both direct or indirect customer contact with a brand (Plummer, 2000). As such, brand personality combines the brand-user-imagery with a brand over time. Aaker (1997) identified five key dimensions of brand personalities; they are Sincerity, Excitement, Competence, Sophistication, and Ruggedness as a framework for brand personality (refer to Table 1).

Table 1: Brand Personality Dimension and Attributes

Author (s)	Dimensions	Attributes	No. of Items
Aaker (1997)	Sincerity	Down-to-earth; Family Oriented; Small Town; Honest; Sincere; Real; Wholesome; Original; Cheerful; Sentimental; Friendly.	11
	Excitement	Daring; Trendy; Exciting; Spirited; Cool; Young; Imaginative; Unique; Up-To-Date; Independent; Contemporary.	11
	Competence	Reliable; Hard-Working; Secure; Intelligent; Technical; Corporate; Successful; Leader; Confident.	9
	Sophistication	Upper-Class; Glamorous; Good-Looking; Charming; Feminine; Smooth.	6
	Ruggedness	Outdoorsy; Masculine; Western; Tough; Rugged.	5

The brand is said to have a personality when consumers view a brand as having human characteristics (Beldona & Wysong, 2007). Good example of Beldona and Wysong’s argument is that, brands such as Harley Davidson are referred to as a dimension of ‘ruggedness’ in the Big Five of Aaker brand personality dimensions. Other dimensions are; Nike is for ‘Excitement’, Hallmark refers to ‘Sincerity’, while Wall Street Journal is likely to be a dimension of ‘Competence’ and Tiffany more towards the ‘Sophistication’ dimension. These brands have all been found to have strong personalities. Dimensions of brand personality are now an important notion within brand theory and factor-based research is a popular procedure utilized in the investigation of brand personality (Avis, 2012). To date, the work of Aaker (1997) has inspired the majority of research on brand personality (Geuens et al., 2009, Freling et al., 2010). However, certain aspects of early factor models have been criticised, and this has resulted in an evolution and improvement in the methods employed. In reviewing the previous brand personality literature, so far very limited studies have been found (i.e. Avis, 2012; Arora & Stoner, 2009; Freling & Forbes, 2005) to discuss the fundamental importance of brand personality in theory and application research particularly in developing solid measurement.

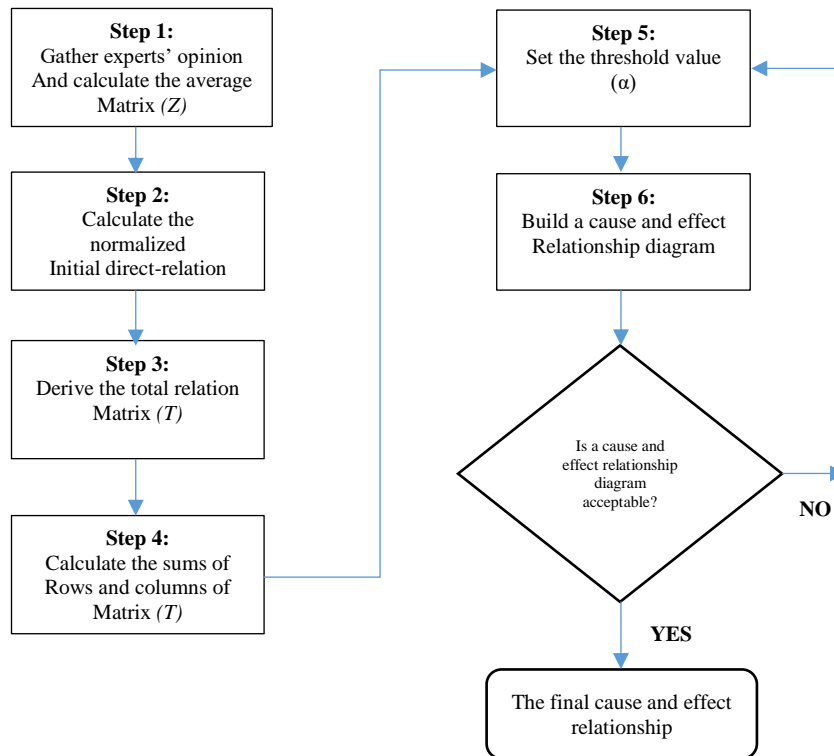
2.2 Analytical Hierarchy Process (AHP)

The AHP was first introduced by Saaty (1980). AHP was developed to optimize decision making when one is faced with a mix of qualitative, quantitative, and sometimes conflicting factors or attributes that are taken into consideration. AHP has been very effective in making complicated, often irreversible decisions. AHP takes the judgments of decision makers to form a decomposition of problems into hierarchies. Problem complexity is represented by the number of levels in the hierarchy which combine with the decision-maker’s model of the problem to be solved. The hierarchy is used to derive ratio-scaled measures for decision alternatives and determines the relative value alternatives have against organizational goals (i.e. customer satisfaction, product/service, financial, human resource, and organizational effectiveness) and project risks.

Many past studies used AHP as a means to prioritize a set of independent attributes or factors involved in a multi-criteria decision making problem (Albayrak and Erensal, 2004). The basic steps of deriving the weights of the factors or attributes using AHP can be delineated as follows.

- a) *Step 1:* The relative importance between the factors or attributes are compared pair-wisely where the preferences can be indicated or expressed by adhering to a predetermined judgment scale. Saaty's 1-9 linear scale is one of the most frequently used scales for the evaluation purpose (Ishizaka and Labib, 2011).
- b) *Step 2:* The weights or priorities of the factors or attributes in the pair-wise matrix are identified through the commonly used eigenvalue method (Dong, Zhang, Hong and Xu, 2010).
- c) *Step 3:* The consistency of the pairwise matrix is measured to verify whether the weights are derived from a consistent pair-wise matrix. If the pair-wise matrix is found to be highly inconsistent, a re-evaluation on the pairwise matrix would be required (Ho, 2008).

Figure 1: The process of the DEMATEL method.



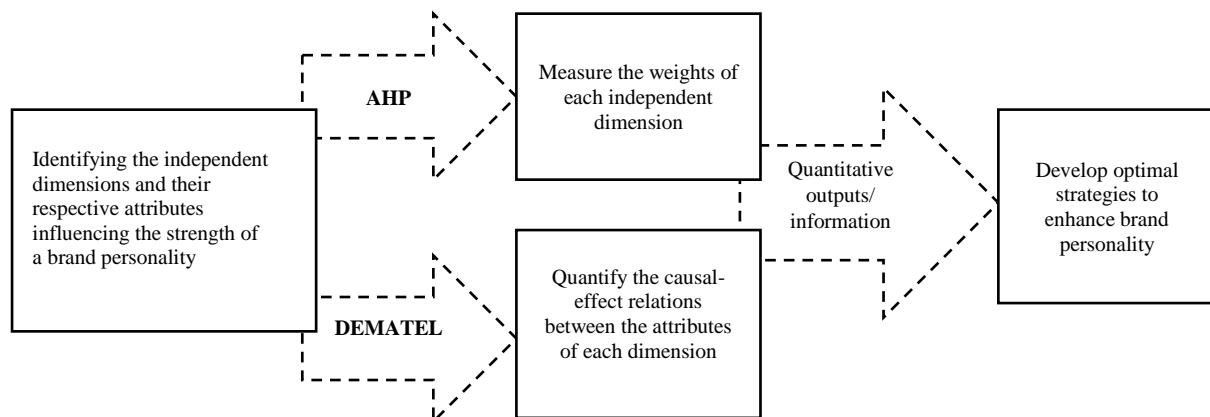
2.3 Decision Making Trial and Evaluation Laboratory (DEMATEL)

Decision making trial and evaluation laboratory (DEMATEL) method (Fontela & Gabus, 1976) is introduced to build the structure of relationship map for clarifying the interrelations among sub-criteria of a criterion, as well as to visualize the causal relationship of sub-systems through a causal diagram (refer to Figure 1). The original DEMATEL was aim at searching the fragmented and antagonistic phenomena of world societies for integrated solutions. It has been widely accepted as one of the best tools to solve the cause and effect relationship among the evaluation criteria (Wu and Lee, 2007, Lin and Tzeng, 2009). This method is applied to analyse and form the relationship of cause and effect among evaluation criteria (Yang et al., 2008) or to derive interrelationship among factors (Lin and Tzeng, 2009). The DEMATEL method is based upon graph theory, enabling us to plan and solve problems visually, so that we may divide multiple criteria into a cause-and-effect group, to better understand causal relationships to plot a network relationship map.

3. METHODOLOGY

The developing procedure of this study consists of several steps as shown in Figure 2. First we identify the brand personality dimension and attributes that customers consider the most important. After constructing the hierarchical structure of evaluation, we calculate the weight of each independent dimension by applying analytical hierarchy process (AHP) method. Then, the causal-effect relations between the interactive attributes of each dimension are identified using DEMATEL. The outputs of AHP and DEMATEL can then be used by the decision makers to develop the right, effective strategies to improve their brand personality.

Figure 2: Framework of developing brand personality performance measure.



4. SIGNIFICANCE OF THE STUDY

This study represents dual interest to academic and managerial fields. From an academic standpoint, this research aims at a double contribution: firstly, clarifying the concept and attributes of brand personality dimensions, and secondly, developing performance measure for each dimension and attributes by AHP and DEMATEL method. The study wishes to show the crucial role of the present dimensions and attributes within the current brand personality framework. This study extends the current knowledge of brand personality by filling research gaps in existing literature. The current study is novel in the way it looks at different angles, by developing the performance measure of brand personality. On top of that, there is considerable scientific interest to determine whether various attributes differ in their brand personalities associations. Thus, understanding the gaps between brand personality construct and how they impact post-purchase behavior is important for academicians, practitioners and society. From a managerial perspective, developing accurate performance measure for brand personality is an important concept which companies should take into account in order to develop and better manage their brand. Indeed, the existence of brand personality measurement provides marketing executives with the opportunity to have a strategic tool, which enables them to improve or strengthen the mapping of their brands.

5. CONCLUSION AND FUTURE RESEARCH

Examining brand personality dimension helps to reveal the strength and weakness of each of these dimensions. In other words, it helps brand managers to further develop their marketing programs for future success. Brand personality is a significant area of research in consumer behaviour, since it provides the brand manager with strategic insight into advertising and positioning research and may also serve as a basis for market segmentation. The well-judged brand personality design needs to be planned and communicated within the organization and all related partners to secure sustainable brand personalities. This can be one of the most important success factors for the fast moving consumer goods industry, where most of the products are purchased due to brand recall and impulse buying in which product and brand personality perception works very strongly.

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