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Invited Article

Gaining Consumer Insight through the Multidimensional-Scaling Technique: Connecting Traditional Marketing with Modern Data Analytics

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Abstract

Data analytics and consumer insights are important topics for business administration in general and for marketing in particular. This paper endeavors to propose how multidimensional scaling, or MDS, a technique used in marketing research, can be applicable as a data analytical tool to gain consumer insights. The paper discusses a number of studies that use MDS as their primary tool and how their results provide an in-depth understanding of interesting and useful consumer insights, leading to several managerial implications in marketing and branding.

Keywords: Data analytics, Consumer insight, Multidimensional scaling

Introduction

Data analytics has an interdisciplinary nature which involves several academic fields such as marketing, psychology, and statistics. Furthermore, its popularity is not specific to one country but instead widespread globally in both academia and industry where leading business consultancy firms and digital solutions companies provide business analytics services to their clients (Petrescu & Krishen, 2017). Due to the decrease of customer loyalty and the increase of brand switching and market competition, it is found that most business data analytics are in the customer areas and marketing (Sáenz, Guinea, & Peñalba-Aguirrezabalaga, 2022), resulting in the focal use of data analytics to gain consumer insights.

A consumer insight involves an in-depth interpretation of human behaviors in the consumption context. Its main purpose is to optimize a product or service to match the consumer's preference. Consumer insights can be gained through several methods, such as big data analysis, social media listening, database marketing, and marketing research (Diaz Ruiz, 2022; Laughlin, 2014). In this regard, consumer insights focus on analyzing marketing research (Diaz Ruiz, 2022) and connecting the consumer with the brand. Therefore, the primary purpose of consumer insight is to comprehend why consumers care for the brand as well as their underlying cognition and affect that could result in their actions.

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As consumer insights are often non-obvious, there is thus a need to converge numerous pieces of evidence to arrive at a valid conclusion. Several quantitative and qualitative methods are relevant to achieve this goal. In addition, the gained insights must be actionable where the company can devise business strategies to respond to consumers' desire. Finally, the understanding derived from consumer insights must generate mutual benefit for both the firm and the consumer (Laughlin, 2014).

Multidimensional scaling (MDS), also known as perceptual mapping, has been a statistical tool used in marketing research. It helps marketers to identify important dimensions or axes that actually drive the consumer's perceptions of objects (e.g., brands, products, firms) so that marketers can position these objects of the said dimensions. These objects are often portrayed graphically on a perceptual map based on the derived dimensions. Perceived or psychological relationships among these objects are geometrically represented as points in a multidimensional space. Axes of the spatial map are suggested to denote the psychological bases or underlying dimensions respondents use to form perceptions of the objects (Hair et al, 2019).

MDS is a relatively simple technique as it uses only a series of similarity or preference judgment about the objects provided by respondents in order to infer the underlying dimensions. MDS helps researchers to determine the relative image of a set of objects such as a focal brand and its competitors. MDS is a unique technique providing overall comparisons not readily possible with any other multivariate methods. Its results present a wide range of perspectives for managerial uses including brand positioning, image management, market segmentation, new product development, evaluation of marketing communication campaign, as well as pricing and channel decisions (Malhotra, 2019).

Given the important roles of consumer insight, data analytics, and MDS as well as their potential interconnectedness, this paper therefore attempts to propose how MDS, a technique used in marketing research, can be applicable as a tool to gain consumer insights by discussing a number of studies that employ MDS as their primary tool in their research from which several interesting and useful consumer insights can emerge.

Research using the Multidimensional Scaling Technique

A series of studies by Polyorat and colleagues use MDS to explore and gain consumer insights from numerous product and service domains including, for example, carbonated drink (Buaprommee, Polyorat, & Tassanawat, 2017), coffee (Traikasem & Polyorat, 2014), ice-cream (Suebkhha & Polyorat, 2014), TV actresses (Grajomthong & Polyorat, 2014), football clubs (Anawatchamoncol & Polyorat, 2014), life insurance companies (Chamoosri & Polyorat, 2014), cities (Polyorat et al., 2022), tutoring school (Nonghanpitak & Polyorat, 2013), and modern retailers (Tassanawat & Polyorat, 2013). Three of these studies will be further discussed in greater detail to demonstrate an overall impression of MDS and its benefits.

Life insurance brands

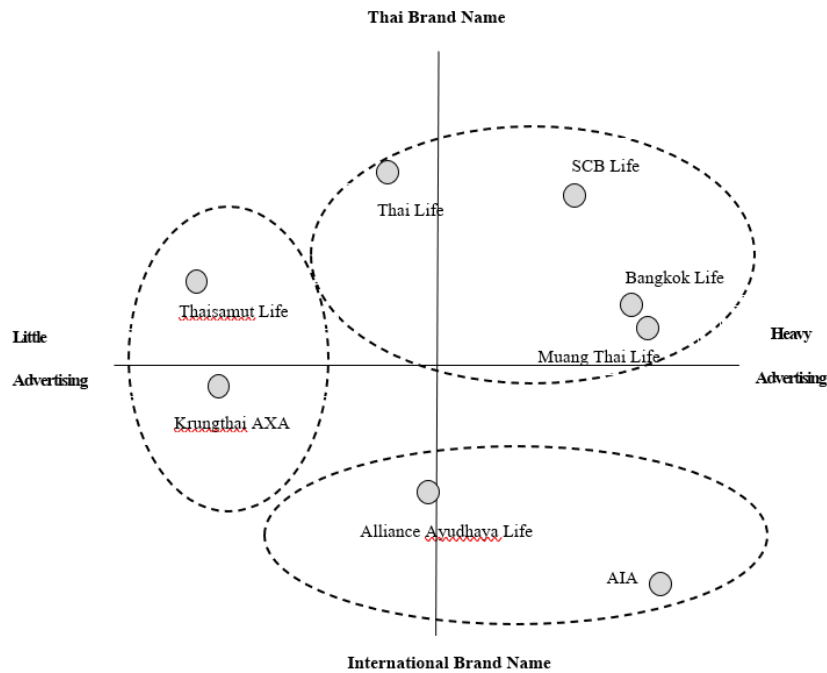


Figure 1: The perception of life insurance brands by consumers without any life insurance policies

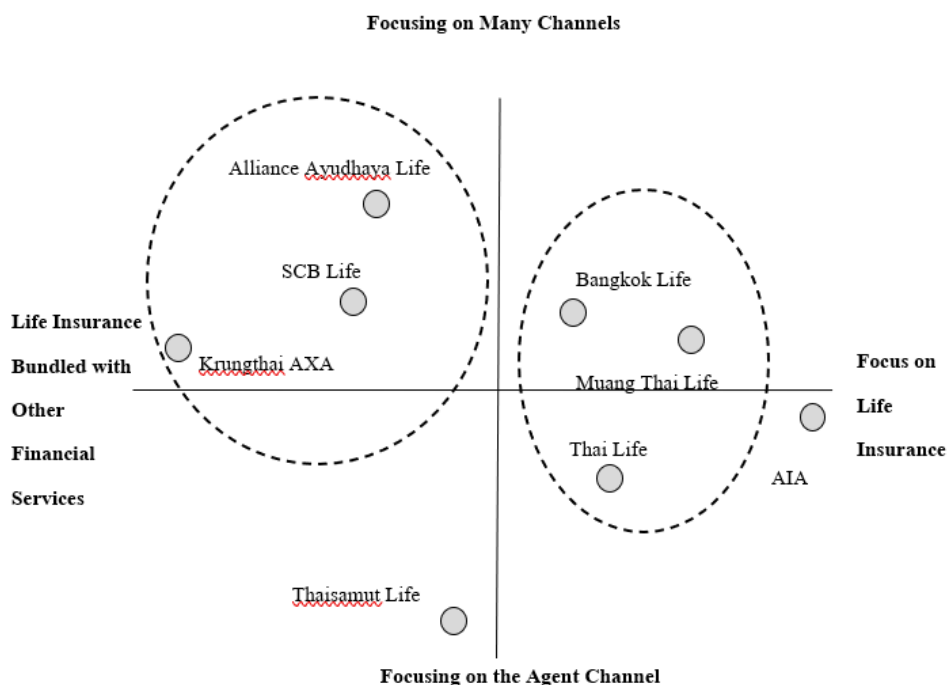


Figure 2: The perception of life insurance brands by consumers with life insurance policies

A study by Chamoosri & Polyorat (2014) examines how consumers perceive the market positions of eight life insurance brands. They survey 200 respondents who had experience in

holding a life insurance policy and 200 respondents who had never hold any. For those without any insurance policy, as graphically displayed in Figure 1, the results uncover two axes: (1) the use of Thai brand name versus international brand name and (2) little versus heavy use of branding and advertising activities. Specifically, this group of consumers regards Thaisamut Life and Krungthai AXA as using little advertising. Furthermore, while Muang Thai Life, Bangkok Life, SCB Life and Thai Life use a Thai brand name, both AIA and Alliance Ayudhaya Life utilize an international brand name. Of these two, AIA is perceived as using heavy advertising. For those with an insurance policy as displayed in Figure 2, (1) types of focal products and (2) service channels, instead of the language of the company brand name, are their criteria for brand positioning perception. Thaisamut Life is perceived with the highest level of service delivery through agents. AIA stands out in selling life insurance policies only. Moreover, Muang Thai Life, Thai Life and Bangkok Life seem to solely focus on life insurance policies by delivering services through agents and other channels. Krungthai AXA, SCB Life and Alliance Ayudhaya Life sell life insurance policies, bundled with other financial products, and offer a variety of service channels, rather than relying on agents only.

Overall, this study reveals consumer insights regarding the four criteria consumers use in perceiving life insurance brands: the use of Thai vs. international brand name, the extent to which advertising is used (little vs heavy), the primary selling channel (agent vs other channels), and the focal product (focus mainly on life insurance vs bundling life insurance with other financial products). What is considered interesting and thus reveal unexpected consumer insight is the findings that for novice or consumers without experience in life insurance, the name of the life insurance company matters much in the form of their perceived brand positioning while it does not matter for expert or consumers with life insurance experience. This example illustrates how MDS may help marketers gain consumer insights which may not be easily tapped through other methods as in the case of MDS because, in most statistical techniques, all variables or dimensions may be needed to specified in advanced.

Cities

In the area of tourism and hospitality industry, Polyorat, Tassanawat, and Amatyakul (2022) study the perceived positioning of Northeastern cities. Their research results, as graphically displayed in Figure 3, reveal that the research respondents classify these cities based on the importance of the city (a main or a secondary city of the Northeast) and the location (situated in the upper or the lower part of the Northeast). That is, Nakhon Ratchasima and Ubon Ratchathani are perceived as the main cities of the lower Northeast while Khon Kaen and Udon Thani are perceived as the main cities of the upper Northeast. Buriram, Sisaket, and Surin are viewed as the secondary cities of the lower Northeast while Loei, NongKhai, and Mukdahan are perceived as those of the upper Northeast. Although the study does not yield ground-breaking results, it does confirm that the criteria generally used in city classification are valid and relevant for consumers and these criteria can therefore be used for further marketing strategies.

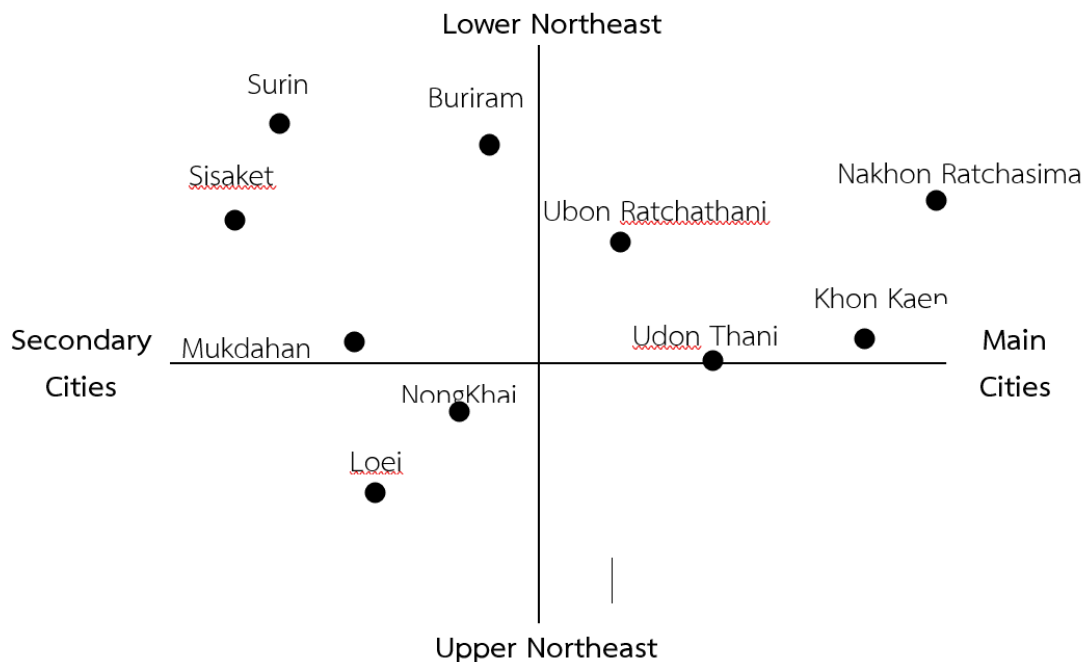


Figure 3: The perception of cities in the Northeast

Football clubs

In a sport marketing context in terms of the positioning of football clubs, Anawatchamoncol and Polyorat (2014) conduct a MDS study with Thai consumers to investigate how they perceive the positions of selected 9 European football clubs. The research results in Figure 4 reveal that 2 dimensions may be used in the classification: game styles and success history. Game styles involve (1) attacking style and fun creation resulting in a large fan base (e.g., Barcelona, Arsenal, Chelsea) or (2) defensive style and boredom resulting in a relatively small fanbase (e.g., Juventus, Manchester). In terms of success history, Barcelona and Real Madrid epitomize regular success while Liverpool and Manchester United represent historical success with an extended period of recession. The study provides managerial research implications for sport marketing and market positioning of non-traditional, tangible products. Not only football clubs and also other business entities which intend to use football or sport in their marketing strategies (e.g., restaurants, bars, financial services, or charity organizations) may draw benefits for the results from this stream of statistical technique.

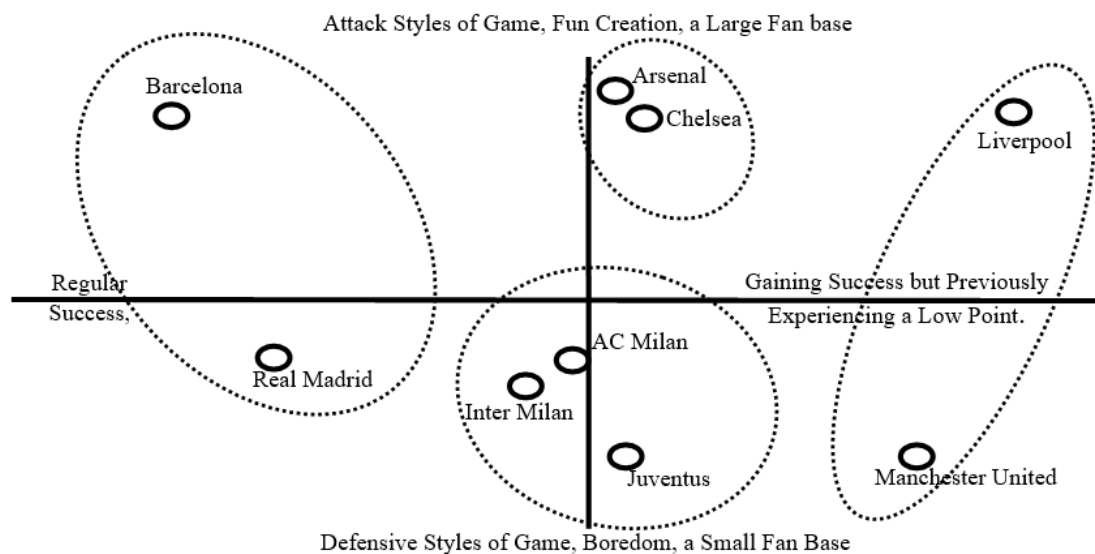


Figure 4: The perception of European football clubs by Thai consumers

Conclusion

As business and marketing these days are more dependent on data, the role of marketing analytics in uncovering consumer insights is undoubtedly crucial for making marketing decisions (Basu et al., 2023). The present paper thus attempts to propose a marketing tool, MDS, which is relatively simple to use, and yet provides fruitful starting point to further explore how consumers perceive the brands and the world around them. Moreover, the results from MDS can provide several managerial implications which may not be conveniently tapped by other more sophisticated statistical tools. In this regard, as the review of MDS studies demonstrate its applicability in several product and service categories, it may conclude that MDS can shed light on consumer and marketing phenomena with meaningful and useful insights in various domains. This may include, for instance, locating market trends, understanding consumer cognitive and affective responses, informing marketing decision-making, and finally improving the optimal allocation of marketing resources.

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