

Visual Analysis of Knowledge Networks for International Brands and Service Quality Based on Bibliometrix

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Abstract: In recent years, the research field of brand and service quality has been highly concerned by international scholars. Based on international literature, this paper analyzes the spatial distribution characteristics, dynamic and static structure and evolution characteristics of brand and service quality network. According to the relevant literature of Web of Science database as research samples, the Bibliometrix knowledge network visualization analysis software is used to conduct data mining on the research results and hot spots of brand and service quality, so as to provide theoretical reference for the theoretical research and practical exploration of this topic research field.

Keywords: Bibliometrix, Brand, Service Quality, Knowledge Network Visualization.

1. Introduction

The vigorous promotion of international e-commerce trade cooperation has triggered a major change in the global economic system. The competition in the service industry has been increasing and broadening. Relying on the strategy of sales and service network, the distribution of sales and service capacity and the value of sales and service network have been promoted to boost the inclusive and interconnected development of the world economy. Therefore, the dual topic research field of brand and service quality has been highly concerned by international scholars. In this paper, Bibliometrix knowledge network visualization analysis software under R language is used to carry out visual knowledge network analysis on literature data in the field of brand and service quality research from 2002 to 2022, explore the spatial distribution and dynamic and static structure characteristics of the development of international research network on this topic, and explore the future evolution and development path of topic network aiming at providing theoretical reference for the theoretical research and practical exploration of this topic research field.

2. Data Sources and Key Technologies

This paper presents a knowledge network visualization analysis of literature on international "brand" and "service quality" topics through Bibliometrix software under R language. WOS core database was selected as The data source, Topic= "The Quality of Service + Brand" as the search condition, and SSCI as the search source. From 2002 to 2022, a total of 1728 literatures were retrieved. After manual screening, news and other literatures were eliminated, 1722 valid English literatures were finally obtained.

3. Study the Spatial Distribution Characteristics of Knowledge Ontology Network Development

(1) Distribution of document development output

A total of 1722 articles on brand and service quality were published internationally, and the development output of international articles was divided into four stages: 1st, the embryonic stage (2002-2006), in which a total of 51 articles were published, and 10 articles were published annually. At this stage, the research focus of international literature is brand building, such as positioning, development characteristics and quality improvement; 2nd, the growth period (2007-2012), during which 289 literatures were published, with an average annual publication of 48 articles. The research heat of international scholars on the factors affecting brand competition began to rise; 3rd, the period of rapid development (2013-2018), when a total of 635 literatures were published, with an average annual publication of 105 articles. At this stage, the international literature on service quality not only focused on the brand itself, but also focused on the relationship between the brand and the customers; 4th, the boom period (2019-2022), when a total of 747 literatures were published, with an average annual publication of 187 articles. The international research on this topic has maintained highly heated, and the number of published papers has remained at a high level. In 2019, international scholars focused on brand quality, online reviews and other Internet-related topics, which also became contemporary research hotspots. Starting from 2021, the international research on this topic again turned to brand equity, satisfaction and service quality. Judging from the current trend, the international research on this field will continue to maintain a high degree in the future.

(2) The distribution of paper development groups

Among the international researches in this field, Han Heesup from Sejong University in South Korea published the most foreign literatures, with a total number of 24. The main

research field is the relationship between brand preference and customers. Among the top 10 published papers, Kim and Jaewook are the earliest scholars in this field, whose main research content is customer experience of online retail.

4. Study the Static Structure Characteristics of Knowledge Ontology Network

According to the output results of the literature, the literature keyword clustering is finally generated as shown in Figure 1. The clustering has a total of 50 nodes, the sizes of which represent the centrality of the keywords, different colors represent different clustering, and the lines between represent the connections between the nodes. The total is divided into 3 node groups. Cluster 1 takes satisfaction as the center to study its influence on service quality and loyalty. Ha, Hong-Youl and other scholars believe that customer orientation not only has a direct impact on brand loyalty, but also indirectly affects brand loyalty through the mediating effect of customer satisfaction, perceived quality and brand association. In addition, perceived quality also exerts a direct influence on brand loyalty, while satisfaction plays an intermediary role and has an indirect impact on brand loyalty[1]. Cluster 2 focuses on the influence of the adjustment of brand to price and quality on consumer perception, concentrated on the theme perception with the highest degree of centrality. Yoon, Sukki, et al define customer perception as the psychological tradeoff of consumers, who usually calculate value as quality divided by price. They believe that a brand can increase customer perception by improving product quality and maintaining price, or reducing price and maintaining product quality[2]. Alwi, Sharifah Faridah Syed, et al found that product quality directly affects customers' brand perception, and thus affects the company's reputation. At the same time, they believe that although customers' perceived price and service quality do not directly affect the company's reputation, they will affect consumers through the intermediary role of brand cognition[3]. Cluster 3 studies the effect factors of trust and commitment on consumers. Apostolos A Giovanis believes that brand loyalty is determined by relationship commitment, which in turn is affected by the quality of the relationship between consumers and brands, such as brand trust, customer satisfaction, investment scale, quality of substitutes and perceived value of service brands. The relationship quality of brand also plays an intermediary role in the relationship between service brand evaluation and brand commitment, in which trust degree and satisfaction degree have a higher influence[4].



Figure 1. Clustering diagram of keywords in international literature

5. Study the Dynamic Structure and Evolution Characteristics of Knowledge Ontology Network

By drawing Thematic Map in Figure 2, the time span is divided into different time slices. Based on the two direct factors of impact factors and publication volume of relevant papers, each theme in various periods is analyzed using development degree and relevance as variables. Thematic trends can be identified in accordance with conceptual structure labels.

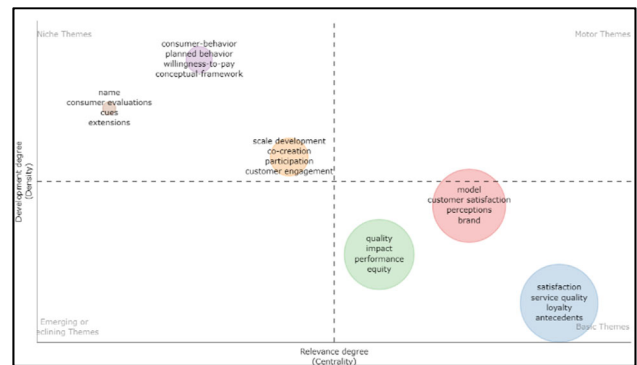


Figure 2. Thematic Map

Combined with the Thematic Evolution chart in Figure 3, time range is divided into three major time areas from 2002 to 2008, 2009 to 2015 and 2016 to 2022. The grey lines indicate the evolution of relevant topics in the paper, realizing the visualization of the development data of research hotspots within a certain time span. From 2002 to 2008 (B2B business development path period), scholars in this time area mainly studied the hot keywords of competition, consumer, image, model, quality, positioning, behavior, B2B, conceptual model, prospect, price, brand extension, totally 12 categories. The total category frequency is 302 times, among which three categories— model, price, quality— appear the most frequently with 138, 41 and 70 times respectively, accounting for 45.70%, 23.18% and 13.58% of the total number of times. The citations of other three categories— consumer rights and interests, quality and behavior— were the highest in the subject research of this section. From 2002 to 2008, most scholars focused on the influence of brand building and service quality among competing enterprises on consumer perception under the background of business to business, forming the integrated positioning -- image -- reputation marketing strategy model. From 2009 to 2015 (the period of "industry +" business development path), scholars in this period mainly studied the hot keywords of model, perception, performance, decision, service, response, B2B, consumer, monopoly, service, participation, company, clue, multi-model and industry, totally 15 categories, and the total category frequency was 1,922 times. Among them, model, perception and service are the more significant research topics in this area, accounting for 56.71%, 19.25% and 8.48% of the total times. Among the topic studies in this area, B2B, company brand image and consumer have the highest citation rate. From 2009 to 2015, the existing enterprises have completed the construction of the basic strategy model of brand competition for the existing consumers, and realized the establishment of brand image in the competition. From 2016 to 2022 (the period of "Internet Plus" business development

path), scholars in this period mainly studied the hot keywords of satisfaction, price, quality, purpose, user acceptance, corporate image, public praise, e-commerce and regional development, totally nine categories. The total category frequency was 4424 times, among which the four categories of quality, satisfaction, reputation and price were the more important research topics in this area, accounting for 24.50%, 20.46%, 11.37% and 10.26% of the total times. The citations of price and regional development were the highest in the subject research of this section. From 2016 to 2022, scholars shifted their focus from the traditional business industry to a broader perspective, and initially fulfilled the "industry +" research model. At the same time, from the perspective of the double upgrading of industry and consumption, they improved the service performance of the original brand from the aspects of strategy execution and service quality application, aiming at the service perception factors of consumers to enterprises, in order to increase the importance of decision-making and put forward corresponding suggestions and opinions for improvement. In addition, scholars further integrate the Internet into their research strategies in response to the development of The Times. Enterprises establish their brand image in balanced development based on consumers' dual pursuit of price and quality. It is predicted that after 2022, enterprises will continue to develop e-commerce to achieve service differentiation, focusing on customer perception factors in order to achieve customer satisfaction, so as to improve customers' purchase intention, and form effective users' praise communication that integrates reality and network in the data era. The academic circle will also adapt to the changes in the strategic trend of enterprises, and take customers' satisfaction, perceived value and repurchase intention as indicators to further measure the sustainable development ability of the industry.

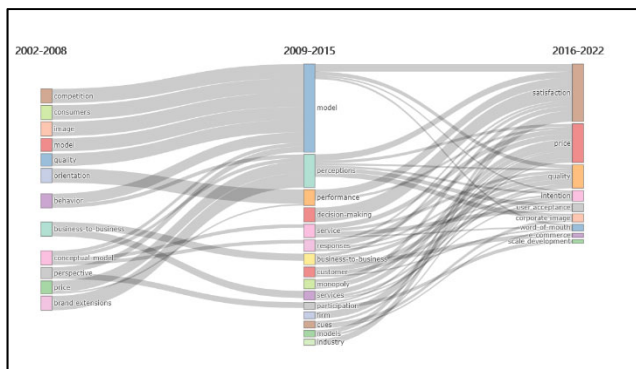


Figure 3. Thematic Evolution

6. Conclusions and Prospects

(1) Conclusion

In terms of literature output. The international research enthusiasm has been steadily increasing, since 2009, the international research enthusiasm is higher than China; In terms of authors. International scholars maintain a high degree of activity, but the international scholars entered the research field late; In terms of research hotspots, the international research on service quality and brand takes customers as the starting point, and all relevant research is carried out around the connection between brands and customers. The international researches on related topics focus on trust, commitment and price, while the international researches pay more attention to quality factors, including the influence mechanism of brand quality and service quality on customers.

(2) Outlook

From the above research conclusions, it can be concluded that the international research direction will still focus on the dual balance of "quality and price", explore the new supply management model with the theme of "trust", "social influence" and "value co-creation" on the social network platform, and look into how social sales can promote the relationship between customer - brand participation and customer - company, so as to deepen the level of users' participation.

Acknowledgment

The authors gratefully acknowledge the financial support from 2022 Hubei College Students' Innovation and Entrepreneurship Training Program (S202210500110).

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