



Visualization Analysis of Customer Engagement in the Virtual Community by CiteSpace

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Abstract. Customer engagement is a hot spot in marketing, and it has also received attention in virtual communities. This research is based on 241 articles in the web of science database from 2010 to 2019 about customer engagement in virtual communities. It sorts out the research status in this field, summarizes research topics and hotspots, and predicts trend analysis. Through the research on development of customer engagement, virtual community operators are helped to solve the current problems.

Keywords: customer engagement · virtual community · visualization analysis · component

1 Introduction

Voluntary customer participation is an important feature of virtual community. Therefore, when the virtual community provides customers with a large amount of information and services, it is expected that customers will remain sticky and loyal in emotion and behavior. This also urges enterprises to adopt various strategies to establish deeper relationships with customers, one of which is called “customer engagement”. Customer engagement reflects the transaction behavior and non-transaction behavior between customers and enterprises in virtual community, and comprehensively depicts the continuous interaction relationship between enterprises and customers, customers and customers [1]. At present, some existing literatures have sorted out customer engagement. However, the current research literature is still insufficient. Based on CiteSpace analysis tool, this paper reveals the research status of customer engagement in virtual communities abroad in recent ten years, makes a systematic analysis of the research results in the field of customer engagement in virtual communities.

2 Analysis of Research Status

2.1 Analysis of Core Authors

Among core authors, Hollebeek published 7 papers, 2 papers in cooperation with Rahman, 2 papers in cooperation with UL Islam, and 3 papers independently. This paper

Table 1. STATISTICS OF THE TOP TEN AUTHORS

Author	Quantity	Institution
Hollebeek	7	NHH Norwegian Sch Econ
Rahman	6	King Abdulaziz Univ
Carlson	5	Univ Pretoria
Malthouse	4	Univ Amsterdam
Ul Islam	4	Univ Melbourne
Andrews	3	Univ Coll Birmingham
Brodie	3	Univ Auckland
Cabiddu	3	Univ Cagliari
Dessart	3	Univ Liege
Harrigan	3	Univ Western Australia

mainly studies the causes and influencing factors of customer engagement in different industry environments, such as technology environment [2], service context [3], and tourism community [4]. Rahman published 6 papers, 4 papers with UL Islam and 2 papers with Hollebeek. His research direction is mainly the research of customer engagement in brand community. For example, through empirical analysis, this paper discusses the influence of the characteristics of brand community [5], personal factors [6] and brand factors [7] on customer engagement. On the other hand, considering from the author's institution, universities are the main research places of customer engagement, and the research force is single. The research institutions need to be further broadened to provide a new vision for customer engagement (Table 1).

2.2 Analysis of Published Journals

The top ten journals published 75 articles in this field, accounting for 31.12%. Considering the nature of the journal, the literature about customer engagement in virtual community focuses on the journals of management, marketing and psychology. The nature of the journal engagements the theme of current research and conforms to the concept of customer engagement as marketing. In terms of the number of articles published, there is not much difference among the top ten journals. In addition, the impact factor of the top ten journals on customer engagement is high, which reflects the high quality of literature on customer engagement and has a certain representativeness in this field, which promotes the research of customer engagement in virtual community, and shows that as a new concept, customer engagement has been fully valued by scholars (Table 2).

Table 2. STATISTICS OF TOP 10 JOURNALS

Sort	Journals with Articles	Quantity	Impact Factor
1	Journal of Research in Interactive Marketing	9	2.540
2	Industrial Marketing Management	8	4.695
3	International Journal of Contemporary Hospitality Management	8	5.667
4	Journal of Marketing Management	8	1.719
5	Journal of Service Management	8	4.662
6	Computers in Human Behavior	7	5.003
7	Journal of Business Research	7	4.874
8	Journal of Interactive Marketing	7	5.097
9	Journal of Retailing and Consumer Services	7	4.219
10	International Journal of Information Management	6	8.210

3 Analysis of Research Hotspots

This study uses the clustering function of CiteSpace software to draw a keyword clustering map, and interprets the theme tendency of customer engagement research in virtual community through clustering, as shown in Fig. 1. Through the graph, we can intuitively see the main clusters of research hotspots and their contents. Through the analysis, we can find that there are 11 clusters in the research field of customer engagement in virtual community. According to the content, the theme of clustering can be divided into the following three aspects: effect of customer engagement, essence of customer engagement behavior, and causes of customer engagement.

3.1 Effect of Customer Engagement

Enterprises or brands expand their influence through social media, virtual communities and other channels, and the effect of customer engagement in virtual communities is mainly reflected in promoting interest perception, amplifying advertising effect [8] and driving innovation related activities [9]. Yang studied how the effectiveness of brand engagement affects the effectiveness of advertising, and also found that brand engagement on social media enhances the relationship between advertising ranking and search engine advertising effect [8]. Shao Peng studies e-commerce platform innovation through several cases, and believes that different types of business model innovation should pay attention to different focuses, in which customer engagement promotes market driven business model innovation, and should focus on customer engagement in the context of market drive [9].

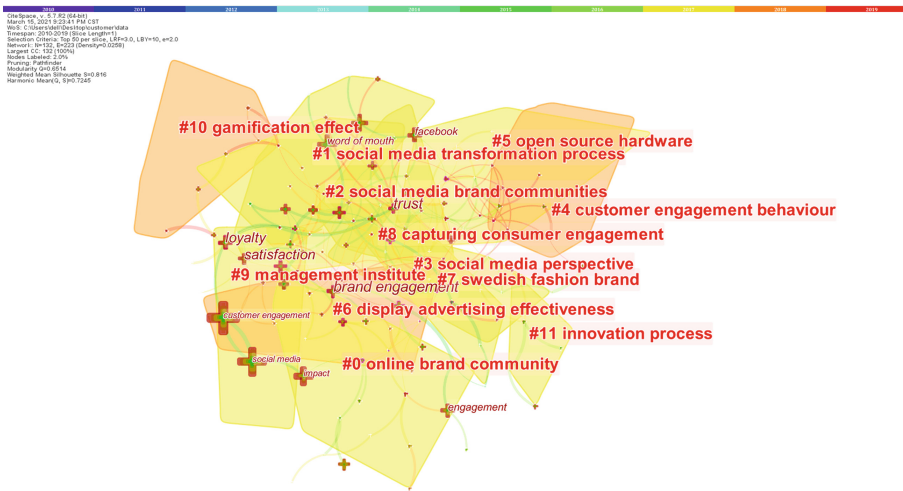


Fig. 1. Keywords clustering map

3.2 Causes of Customer Engagement

Customer engagement is considered as a psychological state or behavior of an individual [10]. Whether the definition of customer engagement is one-dimensional or multi-dimensional, it is considered to be closely related to psychology and behavior. Positive personal internal factors generally have a positive role in promoting customer engagement. Robert Hinson verified that self-image expression promotes the formation of customer engagement through attachment theory [11]. Combining social identity theory and motivation theory, Catherine Prentice studied the relationship between online community customer identity and customer engagement [12]. Jamid UL uses the big five personality model to study the relationship between the personal characteristics of consumers and customer engagement, and shows that the personality characteristics represented by extraversion is the strongest driving force of customer engagement [6].

3.3 Essence of Customer Engagement Behavior

Customer engagement behavior was first proposed by van Doorn [3], and the concept of customer engagement behavior was defined: the behavior of customers to the brand or company caused by motivation driving factors, rather than purchasing behavior. Customer engagement behavior mainly includes participating in product design and obtaining new customers for enterprises or brands [13]. Participating in product design is that customers provide feedback and contribute knowledge to the company through communication with the company or brand, and indirectly participate in product improvement and development. In order to obtain new customers for the company or brand, the matching customers can actively and positively influence the potential customers' views on the company or brand through the company's incentive recommendation plan, or through the interaction between word-of-mouth, blog and other forms of customers.

4 Trend Forecast

4.1 Co-word Cluster

1) *Cluster # 7*: Cluster # 7 is the evolution from marketing, user acceptance, information technology, attitude, technology acceptability model to promoting engagement behavior. Specifically, customer engagement behavior is caused by motivation driven factors, including word-of-mouth activities, recommendation, helping other customers, blogging, writing comments, and even participating in legal proceedings [1]. Customer engagement behavior is closely connected with customers, which determines the situation of engagement behavior, in order to achieve value co creation. The existing research on the qualitative analysis of customer engagement behavior is lack of holistic and systematic research.

2) *Cluster # 5*: The evolution process of keywords is from technology, customer, value co creation, scale design, brand loyalty to customer community engagement. As a social platform to promote customers to spread and share information, brand community reflects the interaction between customers and specific brands. In the context of virtual community, customer brand community engagement is recognized as online brand community. In addition, the emergence of online brand community promotes the interaction of emotion and behavior between brands and customers, customers and customers. Customer brand engagement also expresses customers' positive feelings for a particular brand, and community members' positive behaviors for the brand through personal efforts.

3) *Cluster # 4*: The keyword evolution of cluster # 4 includes the use of social networking sites, service dominant logic, social media marketing, brand perceived value management, use satisfaction theory and social platform innovation. Customers connect with the brand or community voluntarily or intentionally through social media. Through the establishment of this kind of connection, the corresponding customers can promote the mutual relationship and communication for shaping the consumption behavior. The focus of customer engagement is to satisfy customers by providing higher value than competitors to build trust and commitment in long-term relationship. The interaction with social media greatly promotes the establishment of long-term relationship between buyers and sellers. Therefore, customer engagement can strengthen the communication with customers through social media and establish emotional ties. With the deepening of text mining, the mining of deeper relationship between customer engagement and mobile social media will become a research trend (Fig. 2).

4.2 Development Trend Prediction

First, the relationship between customer engagement and individual internal factors in the context of virtual community. Hot words such as "attitude", "graduation", "brand employability", "perception" and "intrinsic motivation" show that the relationship between customer engagement and individual intrinsic factors remains a high research enthusiasm. Virtual community is to gather people with the same purpose through the platform, which is essentially a collection of people. As an important reason of influencing customers' consumption behavior, personal internal factors are also applicable

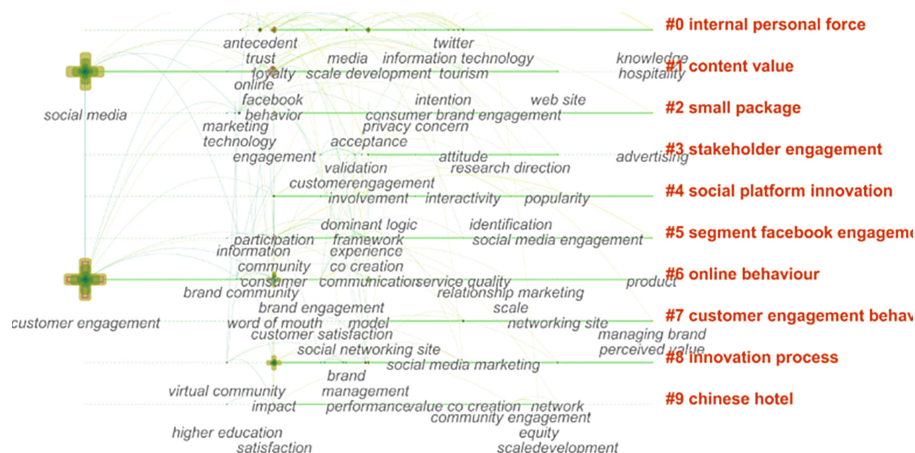


Fig. 2. Keyword timeline view

Table 3. KEYWORDS IN RECENT THREE YEARS

2017	2018	2019
Keywords	Keywords	Keywords
value co creation	social media engagement	perception
brand loyalty	scale development	knowledge
conceptualization	popularity	hospitality
twitter	equity	product
attitude	identification	managing brand
strategy	structural equation model	emotion
information	flow experience	quality
service dominant logic	research direction	moderating role
online engagement	intrinsic motivation	brand equity
online marketing	web site	perceived value
gratification	relationship marketing	review
social media marketing	technology acceptance model	uses and gratifications theory

in the context of virtual community. Therefore, it is necessary to study the relationship between customer engagement and individual internal factors in virtual community. Attitude, satisfaction and perception are usually the antecedents of customer engagement, while brand loyalty is often the outcome of customer engagement. Intrinsic motivation is to stimulate and maintain the existing behavior of customers. Customer engagement is driven by motivational factors, which leads to customers' exceeding purchase performance for the company. Positive internal factors can lead to positive results. It is

self-evident that the relationship between customer engagement and individual internal factors is important for virtual community to maximize customer retention and enhance customer loyalty. Combined with the main keywords in recent three years, the future research trend of customer engagement in virtual community focuses on the relationship between customer engagement and individual internal factors (Table 3).

Second, the research of customer engagement in the context of new media marketing. Social media marketing, online marketing and relationship marketing show that the relationship between marketing and customers is still close. Due to the emergence and gradual development of virtual community and social media, users have begun to use these platforms for value creation and information exchange. Compared with new media marketing, it pays more attention to the breadth of coverage, and often evaluates the effect of traditional marketing by “click through rate” and “number of viewers”. What new media marketing shows is the change from “passive acceptance” to “active participation”. Based on the vast audience of virtual community and social media, new media advertising will receive more attention. Because of the entertainment and interactive characteristics of new media marketing, the information conveyed is easier to be understood, trusted and recognized by customers. New media marketing is gradually becoming an important tool to shape customer engagement. Although customer engagement is to describe the relationship between customers and companies beyond the transaction, the company as a profit organization will eventually face the problem of whether to reach a transaction. In the virtual community, the emergence of customer engagement is more conducive to the accurate delivery of social media marketing and online marketing. The development of mobile Internet provides a new way for marketing, especially in the rapid development of 5g today, will customer engagement appear as a new form and framework of marketing? It is speculated that the combination of new marketing methods and customer engagement will become the research trend in the future.

Third, the relationship between customer engagement and value co creation and brand equity in the context of virtual community. From the keywords of “strategy”, “value co creation”, “equity”, “brand equity”, “managing brand” and “service domain logic”, it shows that customer engagement does not only stay in the level of transaction, but also guides customers to provide strategic thinking for the company. At present, virtual community plays an important role in the process of value co creation and brand equity creation through customer engagement. Compatible users will provide new ideas and ideas for the company from a unique perspective. In addition, engagement customers will bring value-added brand equity for the company, and participate in the strategic behavior of co management of brand and value creation. Therefore, customers interact with a specific brand through virtual community, which reflects their participation and contribution to the brand, thus providing more possibilities for the creation of brand value and value co creation. Customer engagement enhances the brand knowledge of consumers, so as to establish a firm relationship with the brand, positively affects the purchase decision of customers, creates value, and establishes brand equity. Customers can establish closer contact with the brand or company through mobile social media. Through the establishment of close relationship, customers can meet the vision of brand or company strategy formulation, value co creation and brand equity appreciation. In

addition, mobile social media provides enterprises with new ways of customer engagement, through new forms of value creation, tapping the greater potential of enterprises or brands. The research of customer engagement in value co creation and brand equity in virtual community will become one of the future research trends.

5 Conclusion

Through bibliometric analysis of relevant customer engagement literature, this study has made clear the current situation, hot spots and trends of customer engagement research. There are three trends in the prediction of customer engagement in virtual community: personal internal factors and customer engagement; Research on customer engagement under the background of new media marketing; Relationship among value creation, brand equity and customer engagement. This study provides a direction for future research.

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