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Research Focuses and Frontiers of Consumer Satisfaction of Electronic Commerce: Based on Knowledge Map

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Abstract: Aiming to understand the field of customer satisfaction under the electronic commerce context in recent years, a sample of 565 papers on e-commerce customer satisfaction included in Web of Science (SCIE, SSCI, A & HCI) published during 1993-2013 were analyzed with CiteSpace II software to reveal the research focuses and frontiers of the field. The results show that the theories of expectancy-disconfirmation, planned behavior, and Technology Acceptance Model are the basic theoretical foundation; structural equation modeling is the primary empirical research method; the research focuses would include model, service quality, perceived value, trust and loyalty; the frontiers and trends would be intelligent technology supporting system, service failure recovery, customer feedback utility, service quality and customer loyalty across e-commerce service and production transaction etc.

Keywords: Electronic commerce, Customer satisfaction, Knowledge map, Focuses, Frontiers

1. INTRODUCTION

The concept of consumer satisfaction was first proposed by American scholar Cardozo in 1965^[1], and has been occupying a central position in marketing thought and practice since profits are generated through the satisfaction of consumer needs and wants ^[2]. Practitioners and academics alike have argued that an essential strategy for success and in today's marketplace is the creation and maintenance of satisfied and loyal customers ^[3]. With the development of information technology, the internet has been becoming an important part of people's lives. People can find, select, and buy products from various online channels. Electronic commerce generally refers to the sale and purchase of products and services on the Internet, expands rapidly and meanwhile is characterized by very high competition. Its customer satisfaction differs significantly from tradition in many ways and has been extensively studied for the recent decades. A large number of related researches have been accumulated. But there are few review studies especially from the view of knowledge map.

A methodological review of past literature is a crucial endeavor for any academic research ^[4]. A comprehensive review is needed in order to advance researches in the field and guide future research. In order to clarify the evolution of e-commerce customer satisfaction research, and grasp the focuses and frontiers, a sample of 574 pertinent papers in Web of Science (SCIE, SSCI, A & HCI) published during 1993-2013 were analyzed with CiteSpace II software. The rest of this paper is organized as follows. Section 2 discusses the data source and methodology. Section 3 presents the analysis result. The last section concludes the paper.

2. DATA SOURCE AND METHODOLOGY

The primary data source is Web of Science (WOS), which provide access to current and retrospective bibliographic information, author abstracts, and cited references found in newly 10,000 of the world's leading

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scholarly science and technical journals, social sciences journals covering and arts & humanities journals. The documents studied are retrieved from WOS. A general search is made in citation databases of SCI-Expanded, SSCI, A&HCI. The search strategy is performed as TS=(satisfaction) and TS=("electronic commerce" or "e-commerce" or e-commerce or e-business or "electronic market*" or "internet commerce") in advanced search and restricted by choosing the language for English and document type for Article. A total of 565 records were identified, with time span of 1993-2013. Save the records, including Cited References, in field tagged format. Name the files as download*.txt.

There are many visualization tools proposed by researchers in fact, among them CiteSpace introduced by Chaomei Chen is a java application for analyzing and visualizing co-citation networks [5]. It can facilitate the analysis of emerging trends in a knowledge domain which can be called as “knowledge domain visualization” aims to create a picture of how science grows and evolves over time [6]. Since its release of the first version, this program has been downloaded more than 10,000 times in 36 countries. This article adopts CiteSpace II. Article co-citation network and network of keywords and noun phrases were generated to analyze the e-commerce customer satisfaction field. The top left of every diagram shows the specific parameter settings.

3. RESULTS ANALYSIS

3.1 Analysis of Research Knowledge base

Figure 1 shows the network of co-citation document derived from the citing behavior of authors writing on electronic commerce customer satisfaction. Table 1 lists the high influencing literatures cited more than 20 times. The key nodes in the literature co-citation network map are the nodes which connect two or more different clustering, and with relative higher centrality and frequency in the map. These nodes may become a key point of the network transition from a period to another. The literatures of key nodes are probably classic literatures, which propose a new theory or a major theoretical innovation. The level of the reference frequency can reflect the impact and value of literature.

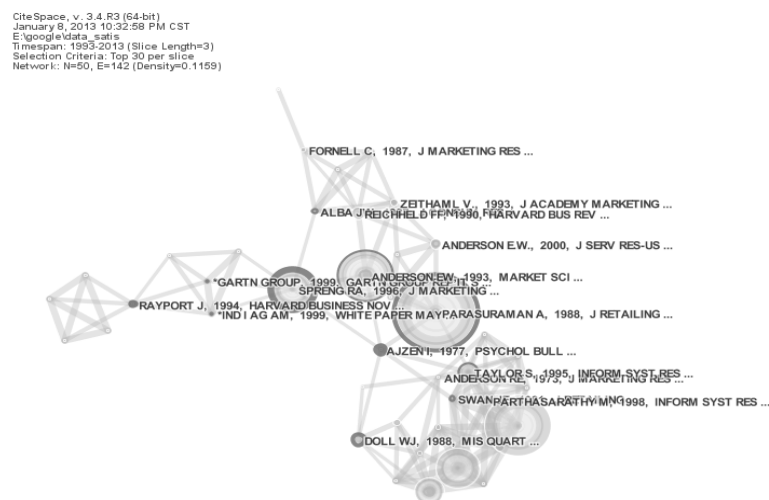


Figure 1. Document co-citation network of electronic commerce customer satisfaction, 1993-2013

Thus, the pivotal literatures can be identified from Figure1 and Table1, such as the journal article of “SERVQUAL: A Multiple-Item Scale for Measuring Service Quality”, “The antecedents and consequences of customer satisfaction for firms”, and “A reexamination of the determinants of consumer satisfaction” etc. “SERVQUAL: A Multiple-Item Scale for Measuring Service Quality” is the most cited paper, which developed the first scale of service quality[7]. “A reexamination of the determinants of consumer satisfaction” is the

literature with the highest degrees of centrality, which proposed a new model of the satisfaction formation process, and a better understanding of the mechanisms that produce satisfaction [8].

From these documents, the research knowledge base in the field of electronic commerce customer satisfaction can be concluded. The theories of expectancy-disconfirmation, planned behavior, and Technology Acceptance Model are the basic theoretical foundation. Structural equation modeling is the primary empirical research method. The antecedents and consequents of customer satisfaction under different context are the primary research questions. Customer service quality is one of the highly valued factors that influencing customer satisfaction.

Table 1. High influential literature in the field of e-commerce satisfaction

Freq.	Author	Year	Title	Centrality
100	A Parasuraman etc.	1988	SERVQUAL: A Multiple-Item Scale for Measuring	0.22
87	Nunnally etc.	1978	Psychometric Theory	0.02
68	EW Anderson etc.	1993	The antecedents and consequences of customer	0.19
58	FD Davis	1989	Perceived usefulness, perceived ease of use, and user	0.02
52	RA Spreng etc.	1996	A reexamination of the determinants of consumer	0.56
35	I Ajzen	1991	The theory of planned behavior	0.02
27	S Taylor etc.	1995	Understanding information technology usage: A test of	0.11
26	FF Reichheld etc.	1990	Zero defections: quality comes to services.	0.1
20	WJ Doll etc.	1988	The measurement of end-user computing satisfaction	0.21

3.2 Research Focuses Analysis

Keywords are the core and essence of the article, the highly summarized and concise analysis of the author; therefore, the key words of the article are often analyzed. The high frequency keywords often used to identify focuses of research [9]. Figure 2 shows the network of co-cited keywords on e-commerce customer satisfaction.



Figure 2. Networks of keywords on electronic commerce customer satisfaction, 1993-2013

From the figure, we can see clearly that “customer satisfaction” is the most frequently appearing keyword, which is consistent with our retrieval formula. Similar function terms also have high frequent appearance such as internet, e-commerce, web site, online, etc. Except for these, the high-frequency keywords appeared more than 20 twice are model, service quality, loyalty, antecedents, consequences, trust, determinants, behavior, performance, perceptions, multiple-item scale, acceptance, expectations, design and perceived value. From these high frequent keywords, we can inform that model, service quality, perceived value, trust and loyalty are the focuses of e-commerce customer satisfaction. This is consistent with the proceeding co-citation analysis results.

3.3 Research Frontiers and Trends Analysis

The frontiers of e-commerce consumer satisfaction are identified by using burst detection techniques and algorithms of Citespace II, examining the time distribution of word frequency, detecting the bust term of high frequency change rate, and eventually depending on the change trend of word frequency, not just the frequency level^[10].

Figure 3 shows the Timeline networks of bust terms on e-commerce customer satisfaction. As can be seen from the figure, the terms with higher frequency change rate are integrating help system, supporting functionality, hot strip mill, failure, new approach, service quality, gathering customer feedback, and service quality, analytical consideration, commercial use and loyalty. Accordingly, some probably research frontiers and trends on the e-commerce customer satisfaction are intelligent technology supporting system, service failure recovery, customer feedback utility, service quality and customer loyalty across e-commerce service and production transaction etc.

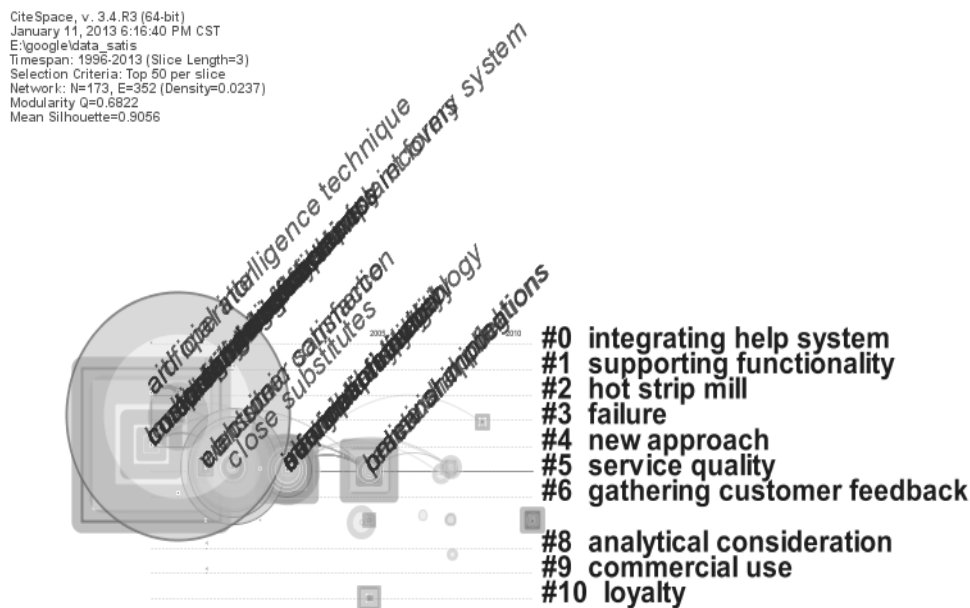


Figure 3. Timeline networks of bust terms on e-commerce customer satisfaction

4. CONCLUSIONS AND DISCUSSION

In this paper, we used CiteSpace II software to analysis the dataset of electronic commerce customer satisfaction in Web of Science (SCIE, SSCI, A&HCI) published during 1993-2013. By co-citation document analysis, findings show that the theories of expectancy-disconfirmation, planned behavior, and Technology Acceptance Model are the basic theoretical foundation; structural equation modeling is the primary empirical research method; the antecedents and consequents of customer satisfaction under different context are the primary research questions. With aid of co-keyword analysis, findings show that model, service quality,

perceived value, trust and loyalty are the focuses of e-commerce customer satisfaction. Through its burst detection, findings show that intelligent technology supporting system, service failure recovery, customer feedback utility, service quality and customer loyalty across e-commerce service and production transaction etc. may be the research frontiers and future trends. The industry of hot strip mill is an important application context.

It is worth noting that the article summarized the field of electronic commerce consumer satisfaction from the view of knowledge map; due to the limitations of the search terms (for example, many articles on electronic commerce customer satisfaction, but not reflected in the subject), a different understanding of electronic commerce, as well as the inherent deficiencies in measurement methods and knowledge mapping; the findings of the study can only be effective to a certain extent.

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