Hotspots and Frontiers of Foreign Consumers' Online Purchase Intention——Visualization Analysis of Bibliometrics Based on WOS (2007-2019)

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Abstract. In order to objectively reflect the development status and hotspots of foreign consumers' online purchase intention research, this article uses the core journal literature included in the core collection retrieval platform SSCI database of WOS as the data source, and uses Citespace software to visualize the research results of foreign consumers' online purchase intention analysis. The study found that foreign consumers' online purchase intention research focuses on hot topics such as trust, consumer behavior, information systems, and e-commerce models, focusing on cutting-edge content such as online shopping product development and e-commerce marketing models.

Keywords: Online Purchase Intention, Visual Analysis, Hotspot and Frontier

1. Introduction
With the advancement of technology and consumption concepts, global online shopping users continue to rise, and domestic and foreign scholars are paying more and more attention to consumers' willingness to purchase online. Foreign scholars have valued from hedonism [1], Brand image [2], and trust mechanism [3], sustainability [4], and channel integration [5] explored the influence mechanism of online purchase intention. Focusing on the research results of consumers' online purchase intention, this article will retrieve the core journal literature included in the SSCI database, use Citespace knowledge visualization software to process and analyze the data, discover authors, institutions and keywords, and sort out the research results of foreign consumers' online purchase intention research. Hotspots, context evolution and research frontiers help relevant scholars to find entry points for future research.

2. Data Sources and Research Methods
2.1 Data Sources
Based on the core journal literature included in the core collection retrieval platform SSCI database in Web of Science, this article searches with similar topics such as "online purchase intention" and "online shopping willingness". After excluding irrelevant results and removing duplicates, it meets the conditions. There are 1,387 journal articles.
2.2 Research Methods
In this paper, with the visualization function of CiteSpace [6], the analysis of the target document's publication timing, research subjects, and keywords co-occurrence is analyzed to obtain the research topics and hotspots of consumers’ online purchase intention, and to reveal its research frontiers and development trends.

3. Visual Analysis

3.1 Research Profile Analysis
The chronological changes in the number of publications in the subject area can directly reflect the development of a certain field, and also help scholars to intuitively grasp the current research and development status of the subject area [7]. According to the annual distribution chart of foreign consumers' online purchase intention research literature (see Fig. 1), the number of literatures in this field has generally increased since 2007, especially in 2014-2019, with a large increase, with an average increase of 30%.

![Annual distribution of research volume of foreign consumers’ online purchase intention (2007-2019)](image)

According to Price, the father of scientometrics,

\[ n = 0.749\sqrt{\eta_{\text{max}}} \]  

(n represents the minimum number of papers published by the author, and \( \eta_{\text{max}} \) represents the maximum number of papers published by the author)

When the author posts more than \( n \), it can be identified as the core author [8]. By calculation, those with two or more posts can be listed as the core scholars of online purchase intention research. According to statistics, a total of 384 scholars participated in publishing journal articles in this field, of which 153 were high-yielding scholars, accounting for 40% of the total number.

Research on the distribution of institutions and cooperation will help to grasp the distribution of research teams in this field [9]. The results of the statistical analysis of the issuing organizations are shown in Table 1. Judging from the number of publications, there are 14 institutions with 10 or more publications. It can be seen that many academic institutions have paid attention to the research in this field. From the geographical location of the main institutions, most of them are located in Taiwan, China, Hong Kong, China, Hubei, China, Spain, the United States, and the Netherlands, reflecting that these regions and countries have strong research interest and experience in online shopping purchase intention.
Table 1. Consumers' Online Purchase Intention Research on Major Institutions and Number of Posts

| Name of Institution                                                                 | Number of posts |
|-------------------------------------------------------------------------------------|-----------------|
| Natl Chung Hsing Univ                                                               | 19              |
| City Univ Hong Kong                                                                 | 18              |
| Natl Cheng Kung Univ, Huazhong Univ Sci & Technol                                  | 16              |
| Univ Amsterdam                                                                     | 14              |
| Hong Kong Polytech Univ, Natl Cent Univ                                            | 13              |
| Natl Taichung Univ Sci & Technol, Natl Chiao Tung Univ, Univ Zaragoza               | 12              |
| Natl Sun Yat Sen Univ, Natl Taiwan Univ Sci & Technol, Univ North Texas, Univ Granada | 10              |

3.2 Research Hotspot Analysis

The high-frequency keyword co-occurrence network atlas helps to clarify the knowledge network relationship between consumers' online purchase intention. In this paper, Citespace software is used to draw online shopping intentions to study a high-frequency keyword co-occurrence network map, as shown in Figure 2.

Fig.2. Foreign Consumers' Online Purchase Intention Research

From 2007 to 2019, there are 521 high-frequency keyword nodes for foreign consumers' online purchase intentions. There are 4458 links between nodes (indicating the relationship between keywords), and the density between nodes is 0.0329. According to Figure 2, the "purchase intention" node is the largest, followed by "trust", "model", and "impact". In addition, keywords such as "trust", "commerce", "behavior", "electronic commerce", "Internet", and "involvement" are at the center of the knowledge map. It can be seen that such topics are at the core of current online purchase intention research.

Keyword frequency can reflect the hotspots in this field to a certain extent, and the betweenness centrality of a keyword indicates the degree of control it has over other keywords and the entire network [10]. This article counts the top ten keywords in terms of frequency and centrality of foreign consumers’ online purchase intention research, as shown in Table 2. As can be seen from the table, the word frequency and centrality of keywords such as "behavior", "model", "online" and "Internet" are high.
Therefore, these keywords can be regarded as important nodes in the consumer’ online purchase intention research network, and a lot of research work can be carried out around these keywords.

**Table 2. Top 10 Keywords for Word Frequency & Centrality**

| Serial number | Keywords            | Word frequency | Serial number | Keywords            | Centrality |
|---------------|---------------------|----------------|---------------|---------------------|------------|
| 1             | purchase intention  | 340            | 1             | behavior            | 0.05       |
| 2             | trust               | 333            | 2             | electronic commerce | 0.05       |
| 3             | model               | 302            | 3             | moderating role     | 0.05       |
| 4             | impact              | 250            | 4             | model               | 0.04       |
| 5             | intention           | 235            | 5             | online              | 0.04       |
| 6             | behavior            | 233            | 6             | internet            | 0.04       |
| 7             | online              | 228            | 7             | experience          | 0.04       |
| 8             | World of mouth      | 213            | 8             | involvement         | 0.04       |
| 9             | information         | 194            | 9             | perspective         | 0.04       |
| 10            | internet            | 185            | 10            | commerce            | 0.04       |

3.3 Context Evolution and Frontier Analysis

This article uses Citespace software to draw the front-end time zone map of online purchase intention research (see Figure 3). According to the front-end time zone map, it can be seen that the study of foreign online purchase intention in 2007-2019 can be roughly divided into three stages: 2007-2012, the research is in in the nascent stage, the research hotspots during this period mainly focused on consumer online shopping acceptance research and consumer online shopping behavior research, including "e-commerce", "user acceptance", "internet involvement", "consumer behavior", "satisfaction"; in 2013-2015, the research was in the exploratory stage, the research hotspots during this period mainly focused on consumer online shopping interaction research, consumer online shopping satisfaction research and information system research, including "interactivity", "information systems success ", "e-satisfaction ", "market ", "multiple item scale "and other aspects; from 2016 to 2019, the research is in the development stage, the research hotspots during this period mainly focus on the research of online shopping product development and the exploration of e-commerce marketing models, including "product involvement", "organic food" "Consumer response", "brand equity", "social networking site", "repurchase intention" and so on.

![Fig.3. Frontier Time Zone Map of Foreign Consumers' Online Purchase Intention Research](image)
4. Research Conclusion and Prospect
First, from the perspective of research on the distribution of time and space, the number of relevant literature on online purchase intention has shown an overall growth trend since 2007, reaching a peak of 307 articles in 2019. Therefore, scholars who are interested in the research of online purchase intention can learn from previous research experience and combine the actual situation to further clarify the research goals and connotations in this field, explore the research gaps in this field, and provide substantial help for practical applications.

Secondly, from the perspective of high-frequency keywords in the research, there is a trend from the study of consumer online shopping behavior to the construction of a model to analyze e-commerce. In view of the above analysis, continuous attention to the e-commerce model should be strengthened in the future.

Thirdly, from the perspective of the research's cutting-edge topics, foreign consumers have more complete research on online shopping behavior and online purchase intention. Before their research, they focused on the development of online shopping products and the exploration of e-commerce marketing models, indicating that future research on online purchase intention focus on topics such as product development and marketing models for online shopping.

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