

# Comparative Analysis of Voice Behavior Research at Home and Abroad Based on Bibliometric Methods

Tingting Jia<sup>1,\*</sup>, Long Zhang<sup>1</sup>

<sup>1</sup> College of Economics and Management, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China

\*Corresponding author. Email: [\\_healerjtt@163.com](mailto:_healerjtt@163.com)

## ABSTRACT

Taking the literature of voice behavior research collected in CSSCI and SSCI as the sample, this paper uses bibliometric methods and CiteSpace5.6.R5 software to conduct a comparative analysis of voice behavior research at home and abroad from the aspects of hotspots, topic clusters and frontiers. Results indicate that: (1) In terms of similarity, both domestic and foreign studies attach importance to the discussion of two-dimensional voice behavior and the relationship between silence and voice; both focus on the factors affecting voice behavior at individual and leadership levels; both future researches will continue to pay attention to the role of leadership in voice behavior. (2) In terms of differences, domestic studies pay attention to the antecedents of voice behavior with Chinese characteristics; however, domestic studies pay far less attention to the voice-related concepts, contextual antecedents and outcomes of voice behavior than foreign studies, future foreign studies will carry out more discussions on contextual factors related to voice and voice's outcomes. This paper identifies the similarities and differences between domestic and foreign voice behavior research, in order to provide reference for future domestic voice behavior research.

**Keywords:** voice behavior, bibliometrics, CiteSpace5.6.R5, knowledge map, comparative analysis

## 1. INTRODUCTION

Voice behavior, also known as upward communication or speaking up, is an important form of employee participation in management[1], which affects organizational innovation and change. Since it was put forward in 1970, 'Voice' has been widely concerned by scholars around the world[1-3]. Some scholars have summarized researches on voice from different perspectives, but most are traditional narrative reviews[1, 4, 5], which just sort out the connotations, dimensions, measurements, antecedents and consequences of voice using qualitative methods, thus they are single and subjective[5], and there is a lack of comprehensive and systematic reviews using quantitative methods[6]. Bibliometric analysis carry out quantitative analysis on published documents[6]. it can intuitively display the knowledge structure of a research field by mapping scientific knowledge, which can help overcome the shortcomings of previous review studies[6]. However, there is only one Chinese review of voice research has used this analysis[3]. In addition, due to the differences in cultural values and research starting time, there may be differences in the focus of voice behavior research at

home and abroad, but few scholars have made comparative summaries.

Based on the above, this paper adopts bibliometric methods and use Citespace5.6.R5 software to quantitatively analyse voice behavior documents published during 2005-2020, and compares the similarities and differences between domestic and foreign research in terms of hotspot, topic cluster and research frontier, in order to understand the research dynamics and trends in this field, and provide reference for future domestic voice behavior research.

## 2. DATA AND METHODS

### 2.1. Data Collection and Processing

To improve the accuracy of the analysis, the Chinese Social Science Index (CSSCI) and the Social Science Citation Index (SSCI), which include high quality and influential documents, are used as data sources to collect literature data of voice behavior research at home and abroad[6, 7]. In CSSCI, set the title or keywords as '建言' or '谏言' or '进谏', and the document type as 'papers' or

'reviews' or 'comments'; in SSCI, set the subject words as 'employee voice' or 'voice behavior' or 'speaking up behavior' or 'upward communication', and the document type as 'article' or 'review'. The time span is both from 2005 to 2020. By deleting documents that are duplicate, or their document types or research topics unrelated to voice behavior, 255 domestic data and 1,286 foreign data are eventually retained. In addition, for the comparability in language, domestic data information of titles, keywords and abstracts are chosen the English version.

Figure 1 shows the distribution of annual documents in the field of voice behavior research. Overall, the number of domestic and foreign documents is generally increasing year by year, and the number of foreign documents has always been higher than that of domestic ones. Specifically, from 2005 to 2009, the number of domestic documents is scarce, and research is in its infancy; after 2009, the number of documents grows linearly, but relatively flat. However, from 2005 to 2020, the number of foreign documents show an exponential growth trend, with rapid growth. In general, the number of domestic voice research is far less than that of foreign research, which is still in the development stage and has a huge space for development.

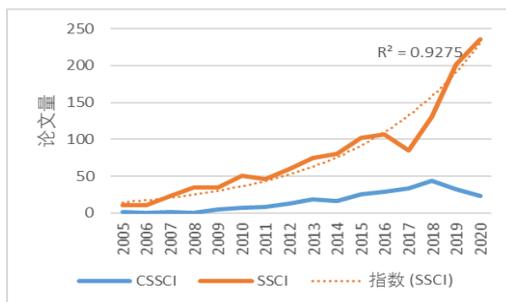


Figure 1 Distribution of Annual Documents in Voice Behavior Research at Home and Abroad

### 2.2. Research Method

This paper mainly analyses hotspot, topic cluster and research frontier of domestic and foreign voice behavior research by using word frequency analysis, keyword clustering analysis, document co-citation analysis and burst detection. Keywords are highly condensed on the topic of the study, so that high-frequency keywords obtained by word frequency analysis can reflect the hotspot in the field[8]. Keyword clustering is to gather closely related words together to form topic cluster based on keyword co-occurrence times[7], which helps to understand the overall framework and structure of a certain research field. Co-citation happens when two documents are simultaneously cited by one or more subsequent documents[7]. Burst detection of citations is an indicator of the research frontier of a field[8]. It can identify the burst citations of research in a certain field, that is research frontier[7].

### 3. HOTSPOTS ANALYSIS

Through word frequency analysis, 504 domestic keywords and 2818 foreign keywords are obtained. The most frequently occurring keyword in domestic research is 'voice behavior', with 109 occurrences, while the most frequently keyword in foreign research is 'employee voice', with 464 occurrences. Calculate the threshold of high-frequency keywords according to the Price formula[7]: the frequency of domestic high-frequency keywords is greater than 7, a total of 23, see Table 1; while the frequency of foreign high-frequency keywords is greater than 12, a total of 159, see

Table 2. Due to space limitations, only the top 10 high-frequency keywords are listed both at home and abroad.

Table 1. Top 10 High-frequency Keywords in Domestic Voice Behavior Research

Keywords	Freq
voice behavior	109
employee voice	60
psychological safety	24
prohibitive voice	22
voice	21
promotive voice	16
leader-member exchange	16
organizational support	15
organization-based self-esteem	13
perceived insider status	13

Table 2. Top 10 High-frequency Keywords in Foreign Voice Behavior Research

Keywords	Freq
employee voice	464
voice	376
performance	337
model	188
antecedent	171
impact	146
consequence	138
voice behavior	138
leadership	137
organizational citizenship behavior	133

It can be found that there are some common high-frequency keywords between domestic and foreign research, which indicates that there are some similar

hotspots. On the one hand, in terms of concept, both domestic and foreign studies not only focus on promotive voice and prohibitive voice; but also focus on silence and the relationship between silence and voice. On the other hand, in terms of research on antecedents of voice behavior, studies all involve factors at individual, leadership and organizational levels. In particular, there is a large overlap in hotspots of individual perception and leadership style. In addition, power distance is a contextual factor that has been attentioned on both home and abroad.

Except for the similarities, there are also some differences in hotspots. Firstly, in terms of concept, foreign studies regard voice behavior as a change-oriented organizational citizenship behavior; at the same time, it attaches importance to the concepts related to voice behavior, such as issue selling. Secondly, in terms of research on antecedents of voice behavior, factors with Chinese characteristics are hotspots in domestic research, such as Zhong-Yong, perceived insider status and humble leadership. However, foreign studies examine a wider range of antecedents, without paying special attention to antecedents with Chinese characteristics. Besides, different from the domestic studies only taking power distance as a contextual antecedent, foreign studies not only emphasize organizational contextual factors such as human resource management and climate, but also emphasize social contextual factors such as labor relations and culture. Thirdly, in terms of research on consequences of voice behavior, domestic studies don't pay enough attention, while foreign studies not only focus on employee-level consequences such as turnover and employee engagement, but also focus on organizational consequences such as corporate performance and productivity. Fourthly, domestic studies lack attention to 'methodos' research. Differently, foreign studies draw on a variety of theories (e.g., social exchange, social identity), and use a variety of analytical methods (e.g., integrated models, meta-analysis, qualitative research) to analyse voice behavior of employees in different countries (e.g., China, the United States) and different types of organizations (e.g., multinational company).

#### 4. TOPIC CLUSTERS ANALYSIS

Use CiteSpace5.6.R5 to carry out keyword clustering analysis, 5 domestic topic clusters and 9 foreign topic clusters are obtained, as shown in Figure 2 and Figure 3 respectively. Cluster labels are automatically extracted from keywords using LLR algorithm.



Figure 2 Topic Clusters in Domestic Voice Behavior Research



Figure 3 Topic Clusters in Foreign Voice Behavior Research

By comprehensively comparing the topic clusters information of voice behavior research, it is found that there are some similarities. First of all, leadership factor, an important factor affecting voice behavior, is a common theme at home and abroad, even there is a cluster with exactly the same name at home and abroad -- Authoritarian Leadership -- domestic cluster #1 and foreign cluster #3. Besides, studies of domestic cluster #2 Abusive Supervision also focus on the role of leadership on voice behavior. Secondly, the relationship between employee cognitions and emotions and voice behavior is another common theme, see domestic cluster #0 Job Satisfaction and cluster #4 Organizational Identification, as well as foreign cluster #6 Organizational Commitment.

From the perspective of differences, firstly, domestic studies attach great importance to the Chinese cultural factors, studies of cluster #3 Employee Power Distance mainly investigate the influence of employee power distance orientation on voice behavior and the influence of leader power distance orientation on leaders' responses to voice. Secondly, foreign research on the voice concept is constantly developing. Studies of cluster #0 Employee Voice mainly understand voice behavior from the perspective of labor relations, and discuss the early labor

union representative’s voice and collective voice, as well as the later formal and informal forms of voice behavior. Studies of cluster #2 Organizational Citizenship Behavior take voice behavior as a type of organizational citizenship behavior, or its antecedents. Thirdly, contextual factors that affecting voice have gradually received attention in foreign research. Studies of cluster #4 Safety Climate discuss the influence of safety climate on voice behavior and antecedents of safety climate. Studies of cluster #5 Social Context examine the influence of various contextual factors on voice behavior. Fourthly, foreign research pay attention to the application value of voice behavior research. Studies of cluster #1 Patient Safety and cluster #8 Safety Voice both focus on safety-oriented voice behavior. Studies of cluster #7 LGBT attach importance to the voice opportunities of special groups in organizations.

### 5. RESEARCH FRONTIERS ANALYSIS

Taking bust detection analysis of co-cited documents, 25 domestic and 176 foreign burst citations are obtained, as shown in Table 3 and

Table 4 respectively. Due to space limitations, only list top 10 burst co-citations in terms of burstness in the recent 5 years (2016–2020) both at home and abroad.

**Table 3.** 2016—2020 Top 10 Burst Co-citations of Domestic Voice Behavior Research

Burst co-citations	Burstness	Burst time
Xiang C (2013)	3.884	
Duan JY (2012)	2.9816	
Zhang Y (2015)	2.9798	
Yin J (2012)	3.148	
Liang J (2014)	6.9402	
Morrison (2014)	3.0241	
Wei X (2015)	2.8733	
Liang J (2012)	4.504	

**Table 4.** 2016—2020 Top 10 Burst Co-citations of Foreign Voice Behavior Research

Burst co-citations	Burstness	Burst time
Morrison EW (2014)	26.7161	
Chamberlin M (2017)	20.3345	
Chen ASY (2016)	12.4995	
Hsiung HH (2012)	11.6021	
Gao LP (2011)	10.1321	
Mowbray PK (2015)	9.9937	
Maynes TD (2014)	9.8557	
Hayes AF (2018)	9.5761	
Donaghey J (2011)	8.1746	
Preacher KJ (2004)	8.1746	

According to the above tables, the documents “Employee Voice and Silence” published by E. W.

Morrison (2014) is the only burst co-citations shared by domestic and foreign voice behavior research in the past five years. This document reviews research results of organizational and personal factors on employee voice and silence, providing research directions for later scholars.

By further browsing unique burst co-citations at home or abroad, it can be found that there are some similarities. First of all, social exchange theory is a commonly used theoretical basis. And both domestic and foreign research focus on the influence mechanism of leadership on voice behavior, especially on ethical leadership and empowered leadership. Secondly, in terms of the research object, domestic and foreign research tend to choose front-line employees and their superiors of manufacturing or retail sales companies as the survey objects. Finally, in terms of research design, empirical studies mostly use paired questionnaire survey to collect data by time periods, and construct multi-level linear model or structural equation model for hypothesis testing.

Differences in the frontier are as follows. Firstly, literature reviews account for nearly half of the burst co-citations abroad. Documents with high burstness also specifically discuss structural equation model, mediation and moderation testing methods and some theories (e.g., social learning theory and resource conservation theory). Secondly, except for ethical and empowering leadership, domestic research also pay attention to paternalistic leadership that embodies the Confucian tradition[10], while foreign research focus more on authentic leadership’s impact on voice behavior[11], and the moderating effect of organizational context factors (e.g., procedural justice climate) in examining the role of leadership in voice behavior[11]. Lastly, foreign voice behavior research pay attention to voice outcomes, for example, employee creativity [12].

### 6. CONCLUSION

By portraying the knowledge map of voice behavior research from 2005 to 2020, and conducting comparative analysis of domestic and foreign research, conclusions are drawn as follows: (1) Similarities: research both at home and abroad have paid attention to different dimensions of voice behavior and the relationship between voice and silence; individual and leadership level antecedents of voice behavior are hotspots, relevant studies are so rich that form topic clusters, such as domestic cluster #2 Abusive Supervision and foreign cluster #3 Authoritarian Leadership; social exchange theory is often used to explain the influence mechanism of leadership factors on voice behavior; related empirical studies often use questionnaire surveys to collect data, and regression

models or structural equation models is often built to verify hypotheses.

(2) Differences: at first, domestic research attach great importance to antecedents of voice behavior with Chinese characteristics, such as Zhong-Yong, and even form a topic cluster #3 Employee Power Distance, but foreign research pay little attention. Secondly, domestic research lack attention to related concepts of voice behavior, contextual factors that influence voice, and the consequences of voice behavior. However, foreign research is different, it not only examine related concepts of voice behavior such as issue selling, but also pay attention to the influence of contextual factors on voice behavior such as human resource management, and also pay attention to consequences of voice behavior such as corporate performance. Thirdly, foreign research also pay attention to the application value of voice research, it pay attention to safety-oriented voice behavior, see foreign cluster #1 Patient Safety, and voice opportunity for special groups in organizations, see foreign cluster #7 LGBT.

There are some reasons for the above-mentioned differences between domestic and foreign research of voice behavior. On the one hand, it may because that the number of foreign voice behavior research is far more than that of domestic. Naturally, the investigation of all aspects of voice behavior research is more and more in-depth than domestic research. On the other hand, there are differences in economic development and cultural values, which leads to the different selection of specific variables in domestic and foreign research.

On the basis of discussions, this paper suggest that voice behavior research at home has made some progress, but there is still room for improvement when compared with foreign research. Specifically, domestic research of voice behavior should continue to pay attention to the particularity of voice behavior under different cultures, select variables fitting the context in China or other research area. It also should conduct more and in-depth discussions on consequences of voice behavior, and contextual factors that affect voice behavior.

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