

Visualization analysis of theme park research based on CiteSpace

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Abstract

As a relatively new research area, theme parks have received a lot of academic attention. Its research findings are becoming more numerous and the key points of the research are evolving. This article uses visualization analysis with CiteSpace to provide a systematic review of published literature on theme park for all year. In total, 399 references from the Web of Science (WoS) Core Collection were analyzed using the CiteSpace software to identify the research status, hot spots, frontiers, and development trends of design thinking.

Keywords: *Theme park, CiteSpace, Wos, Visualization, Knowledge map*

1. Introduction

“Themed entertainment” is about creating an environment through the use of audio visual, props, and set pieces in order

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to create a larger story that runs throughout the guest experience. And “theme park” holds a “more interrelated entertainment collection behaving in a coordinated and immersive fashion” (Nelson, 2016). Technological innovation has had an enormous impact on theme parks creating a more immersive experience for visitors and enabling constant innovation and the development of theme park expressions.

Early on, in the academic analysis of theme parks of U.S. had a variety of emphasis, some of which were conflicting (Davis, 1997). On the one hand, academic studies - largely focusing on Disney - were critical of theme parks as a characteristic result of North American economic policy (Clavé, 2007). On the other hand, with the change of social consumption tendency, academia began to pay attention to the development process of theme parks (Adams, 1991), and theme parks as narrative space. They treat theme parks as supposedly paradigmatic spaces of the post-modern era (Eco, 1989).

Since the 1980s, rapid economic development has been driving consumer demand. Theme parks are more than just leisure spaces. They become the physical expression of society's desires as to its preferences for the city and offer alternatives to the conventional processes of urban construction, which is moving towards the corporate privatization of spaces and, in short, the redefinition of social space (Clavé, 2007). The research of theme parks includes the role of impact on the local economy (Braun, 1990), as well as market positioning (Milman, 1988). The research methodology is based on empirical studies, focusing on the market and consumer behavior of theme parks.

In the 21st century, advances in digital technology have given new impetus to themed parks. 3D, virtual Reality (VR), augmented reality (AR), mixed reality (MR) and other digital technologies are increasingly being used in amusement parks to provide visitors with a more interactive and diverse experience. For instance, Legoland Florida added VR technology to the roller coaster Project X, turning it into The Great Lego

Race and bringing a whole new experience to visitors(Bevil, 2018). Accordingly, many scholars have conducted research, mainly on the effects of the application of new technologies and their impact on the visitor experience.(Wei et al., 2014 ; Backman et al. 2016 ; Jung, 2016).

Overall, theme parks, as a relatively new area of research, have received a great deal of attention from all walks of life. By 2021, China has become the largest amusement park market in the world with respect to visitor numbers(TF Securities Report). The theme park sector is being sought after by tourists and capital alike. Local theme parks are being built at an accelerated pace, while international theme parks are also capturing the Chinese market. At the same time, the construction of the theme park appeared unclear concept, blind construction, imitation and copying, low-level repetition, relying on real estate, service defects and other problems. Therefore, it is important to sort out the current status and research basis of theme park related research and find the future development direction of theme parks.

In this study, we used CiteSpace as an analysis software to review and summarize the current research trends of theme parks and provide reference for theme park related research.

2. Data collection and research method

In this study, we used the Web of Science Core collection as the database as it can provide the most crucial areas of science and technology research(Boyack et al., 2005) and is often considered to be an ideal data source for bibliometric investigations(Leeuwen, 2006). The data used in this study have been retrieved on June 28th, 2021, with retrieval strategies as follows:

TS=("theme park"OR "themed park") AND LANGUAGE:(English) AND DOCUMENT TYPES: (Article) Timespan: 2000-2020. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.

Based on the above search strategy, we obtained 402 representative articles as the data source of this study. With the accelerated development of information networks, scholars can analyze a subject by visualization analysis of subject knowledge by drawing a scientific knowledge map of literature data information(Hu et al.,2019). In this study, we selected CiteSpace to visualization analysis of the theme park research literature.

3. Result and discussion

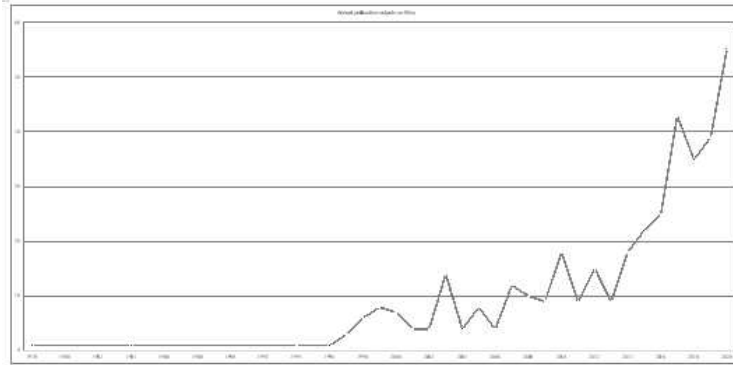
3.1 Characteristics of publication outputs

3.1.1 Analysis of the number of articles published.

The annual number of publications in a knowledge field is an important indicator of the development of scientific research, and it reflects to some extent the increase in the amount of knowledge in the field and the research progress of researchers in the field(Hu et al., 2017). Table 1 shows the annual distribution of theme park publication in the Web of Science Core collection database. Given that 2021 is not yet complete, there is no value for analysis in 2021 when considering the number of articles published. Overall, there is an increasing trend in the quantity of knowledge in the area of theme park research. According to the distribution pattern of the time and number of articles issued, it can be roughly divided into three stages. Before 1996, there were only four theme park related articles. From 1997 to 2014, the number of articles published began to increase significantly. This phase is very important for research as a transition point for research on theme parks. “Theme park” has been a hot topic in academia since 2015 and continues to be so today. A total of 236 articles were published during this phase, representing 58.7% of all documentation reviewed. This is most evident in 2020, when the annual number of publications increased by

141% from 2019, a 55-fold increase compared to 1978. This reflects from the side that there is still more research space in the theme park field.

Table 1: Annual publication outputs on Web of Science Core Collection database for the search topic 'Theme park'



3.1.2 Analysis of published journals.

Table 2 shows the information on the top 10 journals in the Web of Science Core collection database for the number of articles published in the theme park literature, including the journal name, number of articles published, and impact factor. The table shows that the journals published are mainly tourism related academic journals. The tourism geographies, which has the largest number of articles, is the top core journal in the field of tourism and has a very important academic value and guidance role.

Table 2: Top 10 Theme Park Journal Lists

Ranking	Journal Name	Freq.	IF
1	TOURISM GEOGRAPHIES	12	3.1591
2	TOURISM MANAGEMENT	10	7.4320
3	CURRENT ISSUES IN TOURISM	9	4.1469
4	JOURNAL OF TRAVEL TOURISM MARKETING	9	4.0968
5	SUSTAINABILITY	8	2.5759
6	ASIA PACIFIC JOURNAL OF TOURISM RESEARCH	6	2.0171
7	JOURNAL OF DESTINATION MARKETING MANAGEMENT	6	4.2791
8	INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT	5	5.6674
9	CONSUMPTION MARKETS CULTURE	4	1.5161
10	INTERNATIONAL JOURNAL OF HOSPITALITY MANAGEMENT	4	6.7010

3.2 Country co-authorship analysis

A visual knowledge mapping of country collaborative based on CiteSpace software analysis provides a view of theme park research at the macro level. Figure 1 shows the country co-authorship networks of theme park research. It consists of 43 nodes and 55 links (density:0.0609). The nodes stand for countries, the size of which denotes the number of papers originated from different countries. Figure 2 shows that the high-producing countries, the United States(119), China(44) and England(28), occupy important positions. The distance between the nodes and the thickness of the links represent the level of cooperation among countries. The purple rings of nodes depict the high betweenness centralities, which means such nodes are a pivotal point connecting different parts of the network. The thicker the purple ring is, the higher betweenness centralities the node has.

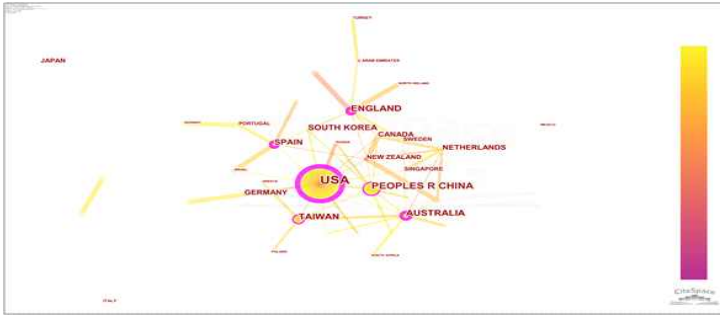


Figure 1. Map of country co-authorship network of theme park research

The centrality of nodes with purple circles in the knowledge mapping is greater than 0.1, and the thicker the purple ring is, the higher betweenness centralities the node has. There are six nodes with purple rings in the figure 2, also the high-producing countries, the United States(0.46), England(0.29),Spain(0.24), Australia(0.22), China(0.19)and Taiwan China (0.14) indicating that these countries play a key role in the collaboration of design thinking research. It can also be seen that the countries with high paper production are also the countries with high publication centrality (top 6). We can see that in theme park research, high-production countries are generally high-collaboration countries as well.

Table 3: Top 10 productive countries of theme park research

Ranking	Freq	Centrality	Year	Countries
1	119	0.46	1998	USA
2	44	0.19	2003	P.R CHINA
3	28	0.29	1998	ENGLAND
4	27	0.14	2006	TAIWAN (P.R CHINA)
5	27	0.22	2001	AUSTRALIA
6	20	0.24	2005	SPAIN
7	18	0.04	2014	SOUTH KOREA
8	16	0.02	2000	NETHERLANDS
9	15	0.07	2005	GERMANY
10	13	0.05	2005	CANADA

Table 3 shows the top ten countries in the field of theme park research in descending order of the number of published articles. As the table shows, the United States contributed 119 articles, representing 29.6% of all articles, far more than any other country. Table 4 shows the top ten research Institutes of theme park research. Top 3 are State University System Of Florida (33), University Of Central Florida (28), Pennsylvania Commonwealth System Of Higher Education Pcshe (10) are all located in the United States. It shows that the United States is the most prolific researcher and plays a key role in transnational co-operation. The world's first theme park Disneyland was born in the United States and remains the most representative theme park of the international arena. All these create a good basis for theme park research.

Table 4: Top 10 research institutes of theme park research

Ranking	Organizations	Country	Freq
1	STATE UNIVERSITY SYSTEM OF FLORIDA	USA	33
2	UNIVERSITY OF CENTRAL FLORIDA	USA	28
3	PENNSYLVANIA COMMONWEALTH SYSTEM OF HIGHER EDUCATION PCSHE	USA	10
4	HONG KONG POLYTECHNIC UNIVERSITY	CHINA	8
5	UNIVERSITAT ROVIRA I VIRGILI	SPAIN	8
6	UNIVERSITY OF CALIFORNIA SYSTEM	USA	8
7	TEMPLE UNIVERSITY	USA	7
8	NATIONAL UNIVERSITY OF SINGAPORE	SINGAPORE	6
9	CHINESE ACADEMY OF SCIENCES	CHINA	5
10	GRIFFITH UNIVERSITY	Australia	4

3.3 Keyword co-occurrence analysis& highest keyword cluster analysis

The keyword is the condensing of the core content and ideas of the article. Over time, a knowledge map of keyword co-occurrence could reflect hot topics, and burst keywords (keywords that are cited frequently over a period of time) could indicate frontier topics (Yu et al., 2017). Table 5 shows the top 10 keywords on theme park in terms of counts and centrality. Through the keyword co-occurrence analysis of the 402 documents in Web of Science Core collection, we can find that the keywords with high frequency, except for "theme park", are tourism, model, satisfaction, experience, impact, behavior, service, authenticity, and quality. authenticity, quality. The intermediate centrality of both "experience (0.14)" and "behavior (0.12)" was greater than 0.1, indicating that research centered on "experience" and "behavior" is receiving attention from the academic community. It further indicates that theme park visitor experience and behavior research are dominant and a current hot spot for research.

Clustering analysis based on keywords co-occurrence analysis can refine more precise themes and provide a more detailed understanding of current research hotspots. Figure 2 shows the map of highest Keywords cluster network of theme park related articles. The analysis further illustrates that the research of theme parks cannot be separated from the research of visitors, whether it is the design of theme park experience programs or the creation of theme park interior atmosphere, it ultimately comes back to the consumer's perception and evaluation.

Table 5: Top 10 keywords on theme park research in terms of counts and centrality

Ranking	Count	Centrality	Year	Noun phrase
1	111	0.27	2000	theme park
2	38	0.1	2007	tourism
3	37	0.07	2005	model
4	35	0.07	2005	satisfaction
5	31	0.14	2005	experience
6	22	0.07	2011	impact
7	20	0.12	2008	behavior
8	18	0.03	2016	service
9	16	0.07	2011	authenticity
10	15	0.02	2009	quality

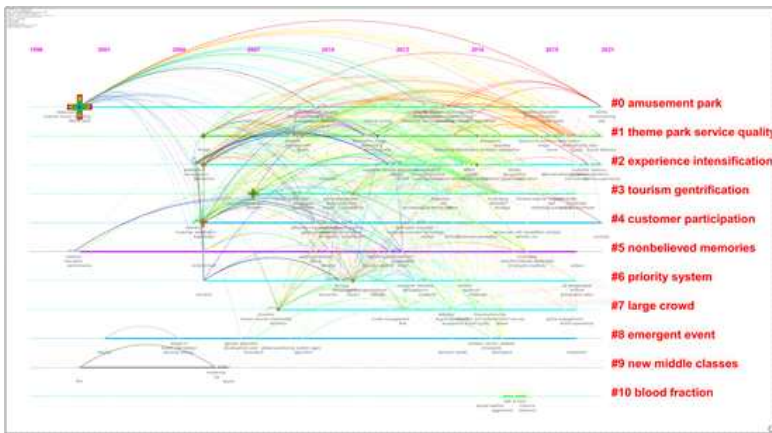


Figure 2: Map of highest Keyword cluster network of design thinking research

4. Conclusion and limitation

In this paper, a total of 402 theme park-related articles were retrieved using the Web of Science (WoS) Core Collection database as the data source. Firstly, we counted the number of publication time and journal distribution of all the articles, and then analyzed them with the help of CiteSpace visualization software to visualize the knowledge mapping from

three aspects of countries, institutions and keywords, and determined the current situation of theme park. It can be seen that the experience of the theme park and the behavior of the visitors are at the center of the theme park research.

However, this study has some limitations. The input data for CiteSpace were all English articles downloaded from Web of Science (WoS) Core Collection. This may cause bias in the results of the analysis due to the absence of articles in other languages.

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