

Original Research Article

## A study on the evolution trend of the image of internet celebrity villages from the perspective of rural operation—Taking Lizu village in Yiwu city, Zhejiang Province as an example

Zisong Huang

College of Geography and Environmental Sciences, Zhejiang Normal University, Jinhua, Zhejiang, 321004, China

**Abstract:** This paper takes Lizu Village in Yiwu City, Zhejiang Province as an example, and uses Dynamic Theme Model (DTM) to explore the thematic structure and evolution trend of its rural image from 2018 to 2025 based on online text data from platforms such as Xiaohongshu, WeChat official accounts, and Ctrip. The study shows that the image of Lizu Village can be summarized into four themes: rural development, leisure experience, cultural cultivation, and brand building, exhibiting an overall evolution from infrastructure to brand building. The introduction of a rural operation team in 2020 became a key node in the image transformation, significantly increasing the intensity of brand and leisure themes, while the focus on cultural themes was relatively weak, reflecting the squeezing of traditional cultural space by modern consumer culture during the operation process. This study provides empirical evidence for understanding the dynamic mechanism of image construction in rural operation and also provides strategic references for rural branding and sustainable development.

**Keywords:** rural operation; dynamic theme model (DTM); image perception

### 1. Introduction

The practice of Zhejiang's "Ten Thousand Villages Project" has provided a good ecological and economic foundation for the construction of beautiful villages through rural environmental improvement, infrastructure upgrading and industrial cultivation. First, professional operation is needed to integrate and utilize the rural assets accumulated<sup>[1]</sup>. Therefore, rural revitalization has gone through the stages of environmental improvement, construction investment and sustainable operation, and rural operation is an inevitable choice to cope with the background of urban-rural integration and changes in market demand<sup>[2-3]</sup>. Rural operation revitalizes resources through market-oriented operation, uses Internet technology to spread the image of the countryside, and intends to build the countryside into a popular Internet celebrity village. The "rural operation" referred to in this article is the development and utilization of rural agricultural, cultural and tourism industries by recruiting and employing professional operation teams by the village collective, focusing on rural land, culture, environment and other resources, with the countryside as the operation object, to promote the development of the village collective economy. The rural operation team can also be called "rural CEO" or "rural operation officer". This is a profession formed in the rural operation practice that urgently needs a team of talents who "understand agriculture, love the countryside and love farmers". Its function is to participate in the market-oriented operation of village assets and the management of some public affairs of the village<sup>[4]</sup>. In recent years, existing research on rural operations has analyzed the dilemmas faced by rural operations from the perspectives of recruitment systems<sup>[5]</sup>, performance management<sup>[6]</sup>, and rural elites<sup>[7]</sup>, and proposed a new paradigm of whole-village and market-oriented rural operations<sup>[8]</sup>, and clarified its role in deeply binding with rural interests and helping rural areas to realize the transformation from external blood transfusion to endogenous blood production. However, existing research focuses on the interest game between rural operation entities and the transformation of rural spatial functions, and rarely pays attention to the importance of digital media for rural operations in the digital age, and ignores the role of rural image in the process of Internet dissemination.

With the rapid development of Internet technology, tourists can quickly collect information about tourist destinations and share their travel experiences through social media. Rural operators can also promote and market rural brand products through Internet platforms and adjust their operation strategies and service

experiences in a timely manner by analyzing tourist experience feedback. Therefore, both tourist interactive reviews and promotional articles by rural operators provide more comprehensive and real-time data for the study of rural image. Bai Hongrui et al. took Nanjing as an example to systematically explore the image perception characteristics of tourists from both explicit and implicit levels, and constructed a comprehensive attractiveness evaluation model that integrates emotion, accessibility and grade factors, realizing the leap from qualitative perception to quantitative evaluation<sup>[9]</sup>. Zhang Huanzhou et al. used the LDA model to identify five major perception themes, including scenic area services, characteristic culture, and landscape, and revealed the asymmetric influence mechanism of each theme on tourist satisfaction<sup>[10]</sup>. Lu Yutong et al. placed the theme analysis under the framework of semiotic theory and dynamically analyzed the image evolution path of Chongqing as a "celebrity city"<sup>[11]</sup>. Zhang Dazhao et al. identified the tourist commercial experience themes in the theme model and realized the visualization mapping of the commercial experience space structure of Dali Ancient City, which promoted the in-depth application of social perception data in spatial analysis<sup>[12]</sup>.

## 2. Study area and research methods

### 2.1. Overview of the study area

Lizu Village is located in the northwest of Yiwu City, Zhejiang Province, covering an area of 1.09 square kilometers. It is 12 kilometers from downtown Yiwu, 5 kilometers from Yiwu Railway Station, and 7 kilometers from Yiwu Airport, making it a typical suburban village. After introducing Rural Operation Officer and Ziyun Xiangyu Operation Company in 2020, Lizu Village has transformed its rural operations towards market-oriented management through brand building, entrepreneur incubation, and business development. As of 2024, the village achieved a collective income of 4.64 million yuan and a per capita disposable income of 66,000 yuan for villagers. It has attracted 265 entrepreneurs and cultivated 72 distinctive businesses, continuously injecting innovative vitality into rural development.

### 2.2 Research methods

#### 2.2.1. Determining the optimal number of topics

In the operation of topic modeling, the determination of perplexity and coherence directly affects the final performance of the model. Lower perplexity indicates a stronger generalization ability of the model to unknown data, while higher coherence indicates a stronger semantic aggregation of topic texts. Therefore, the curves of perplexity and coherence can reveal the changing patterns of the number of topics. The optimal number of topics can be determined while ensuring both good generalization ability and semantic interpretability of the topic structure.

#### 2.2.2. Dynamic topic model

Dynamic Topic Model (DTM) performs time-series modeling analysis on social media comment texts. Dynamic Topic Model is a generative probabilistic model that can identify and track the evolution of implicit topics in text corpora over time. This model was developed in 2006 by introducing a time dimension extension on the basis of the classic LDA topic model<sup>[13]</sup>. Unlike LDA, which assumes that the entire corpus is a static set, the DTM model regards the evolution of topics as a dynamic process. By continuously modeling the topic-word distribution within each time slice, it more accurately reveals the change path and evolution of topic content in long-term texts<sup>[14]</sup>.

## 3. Empirical analysis of the evolution of Li Zucun's image

### 3.1. Image perception analysis of Li Zucun

#### 3.1.1. Perplexity and consistency analysis

This paper sets the number of topics to 2-30 to calculate perplexity and consistency, and obtains the variation curves (Figure 2). The perplexity curve (Figure 1a) shows a decreasing trend as the number of topics increases, with the lowest perplexity when the number of topics is 20. However, too many topics may lead to overfitting. Therefore, combined with the peak position in the consistency curve (Figure 1b) and the phenomenon of strong topic aggregation, it is determined that the optimal number of topics is 4.

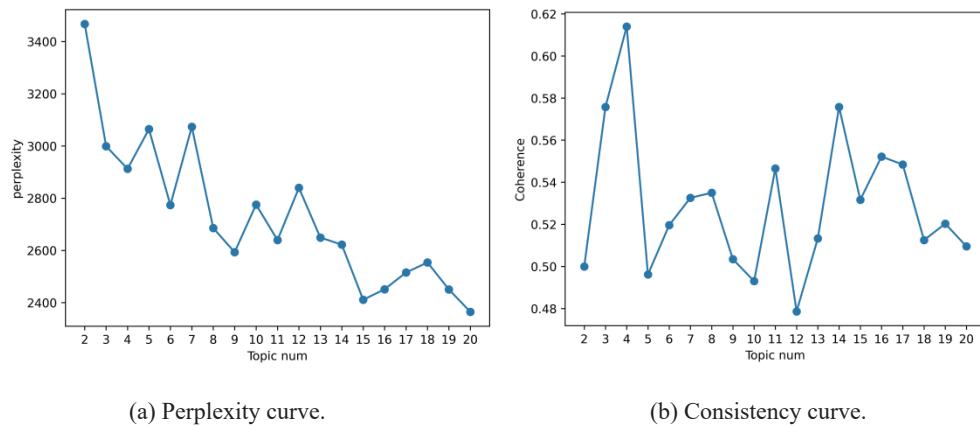


Figure 1. Perplexity-consistency curve.

### 3.2. Analysis of Li Zucun's image theme dimensions

Through feature word clustering and semantic orientation extraction, four themes were ultimately formed. Since the core content and expression tendencies of each theme are significantly different, it is necessary to select 10 keywords that best reflect the main content from each theme based on semantic characteristics to summarize the four theme names: "Rural Development", "Leisure Experience", "Cultural Cultivation" and "Brand Building", and obtain the thesaurus.

### 3.3. The evolution trend of Li Zucun's image based on the DTM model

This article analyzes the intensity of themes at different time periods, resulting in a heatmap of theme intensity for Lizu Village (Figure 2), which shows the evolution of the four thematic images from the perspective of rural operation between 2018 and 2025. Overall, the intensity of the four themes shows a pattern of "rebound from the trough and acceleration in the later stage". 2020 was a key turning point due to the introduction of "rural professional managers", marking the transformation of the rural image from basic cultivation to comprehensive deepening.

From the perspective of the individual themes' evolution, rural development and leisure experience exhibit highly synchronized growth. Both reached a low point in 2020 and have since maintained a steady upward trend. This synchronization indicates that the improvement of rural infrastructure and the cultivation of leisure experience services have formed a close symbiotic relationship in image building, with the improvement in the quality of rural development directly promoting the richness of leisure experience content. The evolution of the rural culture theme is relatively gradual, but it also follows an overall trend of initial decline followed by rise, showing that although the exploration of rural cultural connotations started slowly, it is gradually becoming an indispensable supporting element in the rural image system. In addition, the trough in the brand building theme from 2020 to 2022 indicates that in addition to the impact of the pandemic, rural operations have faced difficulties in operating due to issues such as business loss, reduced tourists, and difficulties in expanding their reach. The growth phenomenon that occurred between 2023 and 2025 corresponds to the successful holding of the Lizu Village Market and the popularity of a number of businesses run by young entrepreneurs on social media, which has further promoted the Lizu Village brand and increased its recognition.

## 4. In conclusion

This paper takes Lizu Village in Zhejiang Province as an example, selecting online texts from Xiaohongshu, WeChat official accounts, and Ctrip as

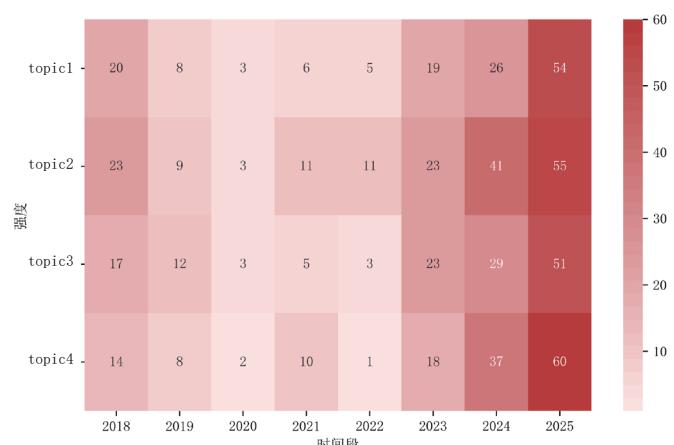


Figure 2. Thematic intensity heat map of Lizucun.

research samples. Using the DTM dynamic topic model, high-frequency word analysis of Lizu Village's online texts is conducted. Through perplexity and consistency analysis, four themes best representing Lizu Village's rural image are identified: rural development, leisure experience, cultural cultivation, and brand building. Rural development received the highest attention, while cultural cultivation received the lowest. The paper also reveals its dynamic evolution path from 2018 to 2025. It finds that Lizu Village's image has gradually developed from an initial focus on infrastructure construction to a comprehensive image system driven by both brand building and leisure experience. Especially after the introduction of rural operation officers in 2020, image construction entered a rapid development phase. However, the relatively low attention given to the cultural theme reflects the risk of dilution of traditional cultural elements during modern operations.

However, as a case study, this paper still has limitations. Because the majority of those sharing the online texts are young people, the sample size for other age groups is insufficient, and these groups are mostly tourists. Therefore, this paper focuses on the perceptions of outsiders, neglecting the perceptions of local villagers. Furthermore, this paper studies the online texts posted by village operators and tourists together, without further exploring the differences in perceptions of the village image between these two groups. More in-depth research is needed to further distinguish the perceptual differences between operators and tourists in order to more comprehensively understand the mechanisms of village image construction.

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