



Global Dissemination Landscape of Chinese Opera Cultural on Twitter: A Computational Analysis on Content and Users

Ran Gao¹, Jingyi Shi², Shijing Lin³, Wenxiang Zhang^{4*}

¹ PHD+School of Journalism and Communication, Nankai University, Tianjin, 300071, China

² Master +College of Foreign Languages, Nankai University, Tianjin, 300071, China

³ Master +School of Foreign Studies, Xi'an Jiaotong University, Shanghai, 201101, China

⁴ Professor +School of Media and Law, NingboTech University, Ningbo 315000, China

* Corresponding Author: wenxiangzhang@163.com

Citation: Gao, R., Shi, J., Lin, S., & Zhang, W. (2025). Global Dissemination Landscape of Chinese Opera Cultural on Twitter: A Computational Analysis on Content and Users. *Mediterranean Archaeology and Archaeometry*, 25(1), 155-165.

ARTICLE INFO

Received: 01 April 2024

Accepted: 23 April 2024

ABSTRACT

This study examines the changes in the content and sentiment of Chinese opera's dissemination on global social media, while identifying the disseminator network structure and opinion leaders based on computational text analysis and social network analysis. The results of the computer-assisted analysis of Twitter posts over the past decade reveal that Chinese opera has shifted from extended dissemination to elemental dissemination on global social media. The Chinese opera elements, which are embedded in popular culture practice like popular music and games, are found as the primary content in the Chinese-opera-related discussion on Twitter. Additionally, personal accounts who are active in "circles" based on popular culture have become the key opinion leaders in the disseminator network. The study also found that those popular culture "circles" in the disseminator network remain relatively independent with minimal interaction between each other. Finally, the research proposes some feasible suggestions for future globalization strategies for Chinese opera based on our findings.

Keywords: Global Dissemination of Chinese Opera (Xiqu); Transnational Cultural Practice; Social Media; Computational Text Analysis; Social Network Analysis

1. INTRODUCTION

After the reform and opening-up, China has increasingly strengthened its influence on international society, while the "going-out" of Chinese traditional culture has become an important strategy to improve the country's cultural soft power. On May 31, 2021, at the 30th collective study of the Central Political Bureau of the Communist Party of China, President Xi Jinping proposed to focus on improving the appeal of Chinese culture in order to better promote the "going-out" of Chinese culture and to interpret and recommend more excellent cultural works with Chinese characteristics, Chinese spirit, and Chinese wisdom to the world. Against this background, traditional Chinese opera art, with its distinctive national characteristics and unique aesthetic connotations, has always been an important component of China's traditional culture for globalization.

The unique artistic language, aesthetic style, singing tunes, and performance techniques of Chinese opera art are all inseparable from the long-term accumulation in the Chinese cultural context, and the appreciation of opera art also requires sufficient Chinese cultural knowledge background^[1]. In the context of cross-cultural communication, investigating international perspectives from diverse cultural backgrounds and exploring the "focus, interest, and resonance points" of international audiences towards Chinese opera culture can facilitate better understanding and utilization of cultural integration, and can offer invaluable insights for formulating strategies that are "people-oriented, location-oriented, and time-oriented" to globalize Chinese traditional culture^[2].

Before the 1990s, the spread of Chinese opera culture mainly relied on state-own media practices, authorized performances, and exhibition activities. However, with the tide of globalization and the vigorous development of emerging information communication technology in the past 20 years, the Internet and digital media have gradually become the main medium for transnational dissemination of Chinese culture, while the participants and paths involved in the network have become more diverse and abundant^[3].

The existing literature on the global dissemination of Chinese opera mainly focuses on government-led media practices^[4], and empirical research on audience mostly focuses on audience to traditional media such as theatrical performances^[5], script translations^[6,7], and news reports^[8]. There are few studies on how global social media users discuss, evaluate, and spread Chinese opera culture from an audience perspective.

Given this, this article utilizes computational methods including text mining and social network analysis to explore user-generated content discussing Chinese opera on Twitter, one of the biggest global social media. We aim to figure out the changes in the trends of Chinese opera-related hashtags, examine global users' attitudes towards Chinese opera, and excavate the existing discussion and disseminator network to better understand how international audience considers about the transnational practices of Chinese opera and provide references for the future development of traditional Chinese opera culture.

2.LITERATURE REVIEW

Three Levels of the dissemination of Chinese opera in the new media era

Based on the differences in the media content during the dissemination of opera-related information, Wang Tingxin proposed the “two levels of dissemination of traditional Chinese opera”^[9], namely the basic and extended dissemination. The first level, the basic dissemination, refers to the spread of opera scripts. Additionally, basic dissemination also includes spreading related aspects, such as script reading and appreciation of vocal segments. The second level is extended dissemination, which refers to the spread of various types of information related to traditional Chinese opera on the basis of basic dissemination, such as spreading the opera performances, knowledge, actors, and anecdotes. Lin Yi also argues that the dissemination of Chinese opera can be divided into two parts, while the first part is the desk-based dissemination that centers on opera texts, and the second part is the stage-based dissemination that focuses on the opera itself^[6].

From a media perspective, the dissemination of Chinese opera on stage has temporal and spatial limitations, as it can only be performed in specific ranges and venues. With the emergence of modern digital and network media, the medium of Chinese opera dissemination has gradually shifted from stage and text dissemination to electronic dissemination. This has led to the “post-stage era” of Chinese opera dissemination^[1]. Users can now record Chinese opera content and use network technology to reproduce and recreate it.

In the modern dissemination system supported by digital and network media, Sun Jiaxi further divides the dissemination of Chinese opera into three stages: basic dissemination, extended dissemination, and elemental dissemination^[1]. Specifically, basic dissemination mainly involves the dissemination of traditional Chinese opera or the opera itself. It can be further divided into record-style dissemination (such as publishing recorded performances or live streaming) and artistic-style dissemination through film and television adaptations of Chinese opera. Extended dissemination refers to the dissemination of information related to the opera background, such as stage design, music, vocal style, and script story. Elemental dissemination refers to the dissemination of other types of cultural works that integrate elements of opera such as singing, dancing, and aesthetics. It should be noticed that although elemental dissemination of opera has some operatic connotations, it is not a complete and authentic form of traditional Chinese opera, and lacks substantive content of opera. Moreover, elemental dissemination usually cannot stand alone and needs to be integrated with other artistic elements to create new forms of art for dissemination.

The dominant force in global dissemination of opera in the context of social media

From the perspective of disseminators, the globalization of Chinese opera art has gone through several stages since the establishment of PRC (People's Republic of China) in 1949, including being led by government, then mainly through civil exchanges supported by officials^[4]. The “going-out” of Chinese opera under the national perspective is mostly a type of cultural diplomacy aimed at enhancing the country's soft power, and the disseminators are mostly official media or institutions. With the active development of civil literary and artistic exchanges, Chinese opera troupes have become the dominant force in its dissemination. For example, based on the relevant reports on Chinese opera performances globally by People's Daily, Liu Jun has sorted out the history of Chinese opera's globalization practices in the past forty years^[10]. The research found that in the 1980s and 1990s, government-led Chinese opera troupes' international visits and diplomatic performances were dominant. However, since the 1990s, Chinese opera performances for international civil cultural exchanges have gradually increased. After entering the 21st century, Chinese opera's dissemination forms and content have become increasingly diverse, including civil art festivals, commercial performances, global tours, and many educational activities such as Chinese opera lectures and courses. In addition, international newspapers' reports on Chinese opera performances^[8] and translations of Chinese opera scripts^[7] have also become ways in which Chinese opera art is disseminated globally. From the above historical review, it is easy to see that in the era of mass media, the early global dissemination of Chinese opera relied heavily on institutional organization and mass media.

However, in the digital age, platforms such as Twitter have become a public domain for online discourse aggregation, and global social media users have also become one of the main forces to spread Chinese opera-related content. The evolution of dissemination media has caused a change in dissemination subjects and also innovated dissemination content and structure. The social network analysis allows us to re-examine it from a relational perspective. When social actors (nodes) establish links between each other, a social network structure is formed^[11]. In social media, users can establish connections with other users through interactive forms such as following, forwarding, liking, and commenting, ultimately forming a social media network. Currently, social network analysis is a mature method for exploring the information flow

and diffusion of global social media in transnational dissemination-related research. It mainly focuses on international political issues, and its application in the field of cultural dissemination is relatively rare^[12].

Taking the Twitter platform as an example, this study raises the following research questions to clarify the dissemination mode of Chinese opera on global social media:

RQ1: How do international audiences discuss and perceive Chinese opera on global social media over time?

RQ2: How has the level of dissemination of Chinese opera among international audiences changed over time?

RQ3: What is the network structure of disseminators of Chinese opera on global social media? Who are the key opinion leaders?

3.METHODOLOGY

Data Collection

We used “Chinese Opera” as the search keyword and collected all tweets mentioning Chinese opera on the Twitter platform from February 6, 2013 to March 2, 2022 by Python. After removing redundant information, we obtained a total of 31,488 tweet data, each containing the text content of the tweet, the time of publication, the number of retweets, likes, and comments, as well as the username, account creation time, location, and number of followers of the publisher.

Table 1. Tweet counts by year

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Counts	3564	3311	3002	4643	2480	2380	2274	2400	5288	2146	31488

Note. Data were retrieved on March 2, 2022.

In addition, we also retrieved detailed retweeting relationships of 16,728 tweets from 2018 to 2022 through the Twitter platform’s official API, in order to present the dissemination network structure of Chinese Opera on Twitter. The retweeting relationships include the number of times a tweet was retweeted, as well as the usernames of the tweet’s original poster and the retweeters.

Text Mining

This study utilized text mining to examine the collected tweets mentioning Chinese opera using the keyword “Chinese Opera” and the hashtag “#ChineseOpera” from February 6, 2013 to March 2, 2022, resulting in a dataset of 31,488 tweets after removing redundant information. The dataset includes the text content, posting time, retweet count, like count, comment count, username, account creation time, location, and number of followers for each tweet. Additionally, we obtained 16,728 detailed retweet relationships using the Twitter API from 2018 to the present, which allows us to analyze the network structure of Chinese opera’s dissemination on Twitter.

We preprocessed the text data using the “nltk” module in Python, including tokenization, lowercase, and stop word removal. We conducted keyword analysis by performing annual frequency statistics on both the text of the tweets and the hashtag labels, with a preference for the latter due to its clear and consistent results despite changes in language usage over time. We also created word clouds for each year based on the top 50 most frequently used words in the hashtag labels by Python.

For hashtags clustering, we initially attempted to use the Latent Dirichlet Allocation (LDA) topic model to generate word clusters, but due to the characteristics of Twitter data being short and lacking a clear theme, it did not produce satisfactory results. Therefore, we manually coded the more frequently used 200 keywords into seven major topic categories based on their association with specific topics.

Finally, we employed the VADER sentiment lexicon developed by Hutto and Gilbert^[13] to evaluate and classify the sentiment polarity of the tweets into positive, negative, and neutral. This method uses a lexicon and grammar rules to identify the sentiment of English text, and it is particularly effective in analyzing the sentiment of social media text.

Social Network Analysis

Social network analysis can determine the structure of a system based on the relationship patterns between nodes. By identifying the importance of nodes, it is possible to determine the dissemination structure of relevant issues in the network^[14]. In previous research on the global dissemination of Chinese culture and major events, network analysis has often been used to explore the dissemination path of a particular issue and identify important opinion leaders.

We used the NetworkX package in Python to conduct network analysis on both the tweet text and user forwarding data. On the one hand, based on the co-occurrence relationship of hashtag topics, i.e., the regularity of different hashtags being mentioned in the same tweet, we created a hashtag network of Chinese opera tweets, which reveals the main issues surrounding the global dissemination of Chinese opera. On the other hand, based on user forwarding relationships, we visualized the dissemination network of Chinese opera on Twitter and analyzed the core disseminators and dissemination structures within the network.

4.FINDINGS

Chinese Opera during ten years: From Extended Dissemination to Elemental Dissemination

After conducting frequency analysis on the hashtag labels mentioned in the collected tweets, we visualized the results as a word cloud, shown in Figure 1. The larger the word, the more frequently it was mentioned in the tweets.



Figure 1. Word cloud for Hashtags from 2013 to 2022

After conducting thematic clustering, we obtained a total of seven thematic categories: “Zhang Yixing”, “Genshin Impact”, “digital collections”, “film and television programs”, “theatrical performances”, “traditional opera productions”, and “traditional opera makeup”. We then conducted descriptive statistical analyses of the discussion trends for each category on an annual basis, as shown in Figure 2.

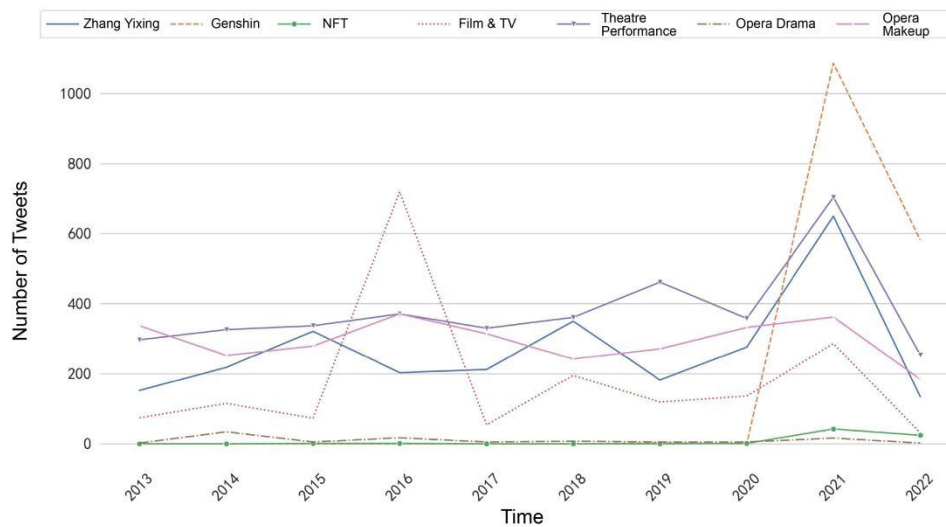


Figure 2. Trends in Topics of Tweets from 2013 to 2022

Additionally, we conducted statistical analyses of the sentiment tendencies in the tweets, and the changes in the proportions of different sentiment tendencies for each year are shown in Figure 3.

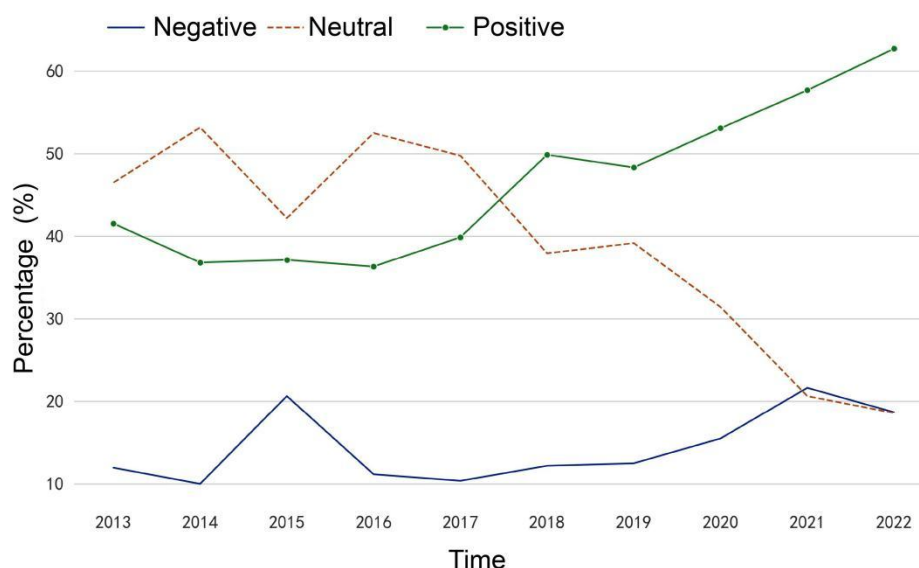


Figure 3. Sentiment changes in tweets from 2013 to 2022

Based on the distribution of key words, the results of thematic analyses, changes in sentiment tendencies, and close readings of the tweets, we believe that the global dissemination of traditional Chinese opera can be divided into two stages based on the proportion of different levels of dissemination. The first stage occurred between 2013 and 2019, during which the main focus of the discussion was on the basic dissemination of photographs and videos of traditional Chinese opera performances and the extended dissemination of behind-the-scenes information, such as makeup, music, and derivative stories. Elemental dissemination only accounted for a small part of the discussion. From a sentiment analysis perspective, approximately half of the tweets during this stage were neutral in sentiment, mainly focusing on the sharing of information about traditional Chinese opera. Between 37% and 50% of the tweets expressed positive sentiment, demonstrating an appreciation for traditional Chinese opera itself or its associated extended information. For most years, the proportion of negative sentiment tweets was relatively low, at around 10%, and mainly consisted of personal expressions of negative impressions about traditional Chinese opera. In 2015, the proportion of negative sentiment tweets increased to 20%, with most tweets related to a traffic accident involving a Henan Yu Opera Troupe.

The second stage occurred between 2020 and 2022. During this stage, there was a sudden surge in the discussion of traditional Chinese opera elements in popular music, games, variety shows, and film and television productions. Elemental dissemination gradually became the dominant topic in the discussion of traditional Chinese opera on global social media platforms. During this stage, the proportion of neutral sentiment tweets rapidly decreased to 20%, with the majority of tweets expressing positive sentiment directly towards traditional Chinese opera elements, such as popular music works and games. The proportion of negative sentiment tweets increased to 20%, with some tweets expressing dissatisfaction towards the related elements, such as singers and games, rather than traditional Chinese opera itself. Furthermore, the sentiment expression of some tweets was influenced to some extent by public opinion events.

From the perspective of high-frequency hashtags, during the first stage of the global dissemination of traditional Chinese opera (2013-2019), in addition to the term “China”, “art” and “culture” were frequently used words. Other high-frequency words included: (1) regions with frequent traditional Chinese opera performances, such as Bangkok, Hong Kong, Singapore, Chinatown, and Penang; (2) travel experiences and shared performance footage, such as travel, photography, photos, and travelogues; (3) behind-the-scenes production terms for traditional Chinese opera performances, such as wigs, facial masks, and makeup; (4) traditional Chinese opera classifications, such as Beijing Opera, Kunqu Opera, Qinqiang Opera, and Cantonese Opera; (5) classic traditional Chinese opera titles, such as “The Peony Pavilion”, “The Phoenix Pavilion”, and “Journey to the West”; and (6) art, such as fashion, design, and retro style.

In 2013 and 2014, discussions regarding Chinese opera mainly revolved around the areas of performance, travel experiences, and terminology behind the scenes. Most of these discussions were derived from performances, indicating that the primary channel for international audiences to learn about Chinese opera was still through offline shows. Online platforms had not yet separated themselves from the stage performances.

In 2015, the frequency of the #Nowplaying hashtag on Twitter, a popular tag for music sharing by users indicating the music they are currently playing, significantly increased. While users could manually attach the #Nowplaying tag to their tweets, in most cases, the tag was automatically generated by the music streaming service when a song was shared^[15]. This indicates that at this time, sharing Chinese opera content on cross-media platforms to Twitter was already quite popular, and online content could be disseminated independently of offline content, which differed from the derivative discussions that relied on offline content in the past.

In 2016, the #Periscope hashtag began to appear frequently in high-frequency words. Periscope is a live streaming media software from the United States, where users can create live broadcasts and share them with other audiences through links. At this time, live streaming technology had a wide range of applications in the global dissemination of Chinese opera.

From the above findings, it can be seen that the development of digital mobile technology is an important booster for the global dissemination of Chinese opera. From the perspective of media affordance theory, the emergence of new technology has expanded the possibilities for people's actions. According to Pan Zhongdang's theory framework of new media affordance^[16], new media has three levels of availability: production affordances, social affordances, and mobile affordances. In terms of production affordances, the large-scale use of streaming media and live streaming has improved the review-ability (users can watch or listen to opera programs online repeatedly), replicability (sharing via online links instead of uploading and downloading content), and associability (users can share content across platforms to Twitter) of Chinese opera performances. In terms of social affordances, prompts such as "currently playing" have further increased the possibility for users to convey and share current emotions, enhancing the emotion communication ability of Chinese opera. In terms of mobile affordances, streaming media technology has enhanced the compatibility of multiple devices for viewing experiences, while live streaming technology allows users to watch offline performances from thousands of miles away, and both having brought more possibilities for the online distribution of media content of Chinese opera in terms of portability, multimediality, availability, and locatability.

From 2017 to 2019, discussions on Chinese opera began to shift culturally. In addition to travel photography, discussions on other Chinese cultures, such as antiques, traditions, Chinese dolls, antique dolls, Chinese New Year, festivals, furniture, and Chinese opera, became mainstream.

After 2020, the global dissemination of Chinese opera entered the second phase. At this time, the frequency of mentioning popular culture representatives such as celebrity singers, Chinese TV dramas, and games in tweets increased significantly. Hashtags such as "Lay Jade", "Winter Begonia", "Genshin Impact", and "Yunjin" have all topped the trending topics list at different times. These works represented popular culture and had so strong influence power that their use of Chinese opera elements in the works and interaction with Chinese opera dance and singing has become a powerful driver for the globalization of Chinese opera culture.

The Use of Facial Makeup Elements in Art and Design

Back in 2016, "Marvel" was one of the popular hashtags when a Hong Kong artist repainted Marvel's superheroes in the style of Chinese opera, which arose heated discussion. By reshaping popular Western characters in the classical image of Chinese opera roles, it was possible to present the profound and serious culture of Chinese opera to international audiences in a more familiar way, closer to their everyday experience, thus promoting the localization of Chinese opera culture.



Figure 4. Marvel superheroes (Iron Man, Captain America, Spider-Man) repainted in Chinese opera style

The use of opera singing, melody, musical instruments, and dialogue in pop music creation

In 2020, one of the popular Chinese singers, Zhang Yixing (Lay) has released his new album "Jade", featuring a song that adapted a selection from Beijing Opera's "Farewell My Concubine", incorporating opera singing style and various traditional Chinese instruments such as "Guqin" and "Hulusi". As the song gained global popularity, many fans spontaneously added the "Chinese opera" tag to related promotional tweets, which was the main reason for the rapid increase in the number of tweets related to "Zhang Yixing" under the "Chinese opera" topic.

The use of opera themes as a backdrop in film and game character design

Late 2020, the open-world game “Genshin Impact” was widely popular among gamers both at home and abroad and is considered a successful example of Chinese cultural output. The game character “Yunjin” was created based on a Chinese theatrical performer and incorporates many traditional opera elements in its design. In addition to presenting several opera lyrics in the character introduction interface, the animation design of Yunjin also integrates the characteristics of opera acrobatics and traditional martial arts, performing a dance with a flower spear. Yunjin immediately attracted heated discussion from international audiences upon its debut, and even reached the 3rd position on the global trend of Twitter. Furthermore, the combination of film and television works with drama can not only drive the plot development of the entire film through opera, but also render the atmosphere of the film, shape the characters’ personalities, and promote fans’ interest in Chinese opera. For example, many international fans who have watched the classic film “Farewell My Concubine” have developed a strong interest in Beijing Opera.

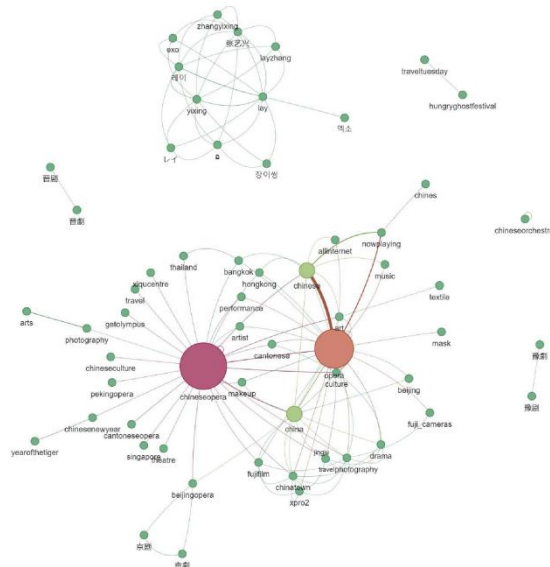
As pointed out by Sun Jiayi, elements of opera, such as facial makeup art, phoenix crowns and rosy cloaks in role attire, folding fans and pheasant feathers in props, and opera singing tunes in music, are integrated into other forms of media carriers such as film and television dramas, movies, music, and fashion shows. Through a fashionable and diversified method, it can further attract young audiences and bring new vitality to traditional Chinese opera^[1]. From the perspective of transnational dissemination, on the one hand, popular culture has borrowed and utilized elements of opera, adding classical Eastern theatrical beauty and increasing the artistic and topicality of the work’s own dissemination. On the other hand, Chinese opera art uses popular culture products as new carriers, and with the global popularity of popular culture, it can be more widely understood and discussed by global audiences, rejuvenating its vitality.

It should be noticed that hashtags related to “NFT” (Non-fungible Token) began to frequently appear in tweets about Chinese opera in 2021, including hashtags like “NFT art”, “NFT community”, and “NFT collections”. NFT art refers to limited edition art assets with collectible value registered on the blockchain. It has the characteristics of decentralization, transparency, and immutability, which can fully trace the source of ownership and transaction process of art collections[17]. We have found that related tweets about this topic revolve around the trading of Chinese opera digital art collections, indicating that the application of NFT has initially taken shape in promoting the creation and dissemination of Chinese opera. According to our measurements, the hashtags of NFTs appeared a total of 49 times in 2021, and had already reached 22 times in the first quarter of 2022, indicating that the digitization of Chinese opera art works has strong potential for dissemination.

The Global Dissemination Landscape of Chinese Opera:

Hashtag network: mainstream cultural “circle” and subcultural “circle”

Through a co-occurrence analysis of Twitter hashtags, the overall network of hashtags related to Chinese opera is depicted in Figure 5. The node size indicates the frequency of hashtag appearances, while the thickness of the edges represents the frequency of co-occurrences between nodes in the same tweet.



While analyzing the contributor network in the dissemination of Chinese opera on Twitter, we approached the topic from both individual and collective levels. Our findings indicate that the opinion leaders are dispersed, but the majority of users are members of subculture “circles” related to popular culture, such as celebrities and gaming communities. The dissemination of Chinese opera exhibits a characteristic of “dispersed users and centralized topics.”

We calculated the total number of retweets for each user’s tweets related to Chinese opera. Among the top 35 users with the most retweets, the account “yunjindaily”, which is related to the character “Yun Jin” in the game Genshin Impact, has the highest number of retweets, reaching 9442. However, the majority of retweets for this account were concentrated on a few tweets, such as an introduction to the character’s appearance, which received over 7000 retweets alone.

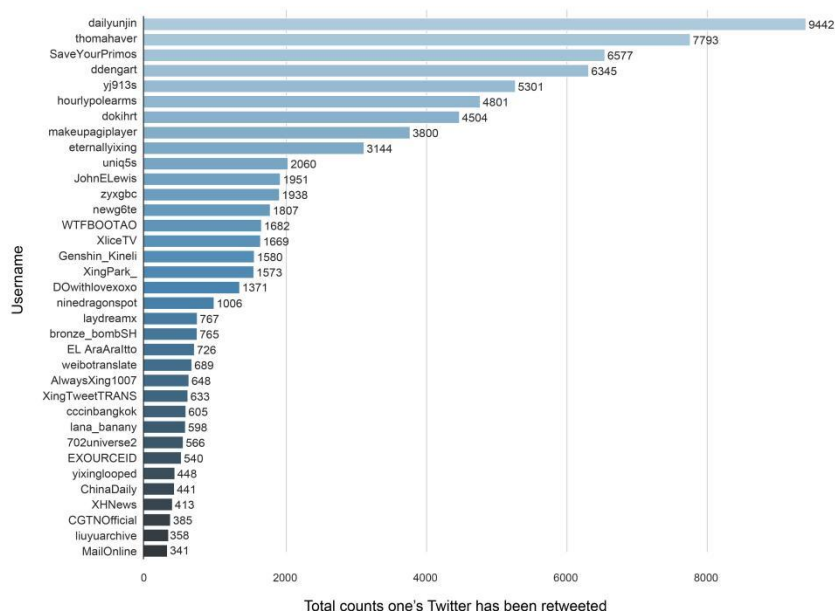


Figure 6. Top 35 Users with the most retweeted tweets

In terms of the number of retweets, the influence of personal accounts is far greater than that of official institution-verified accounts for China’s transnational dissemination. The top 30 accounts in terms of retweet frequency are all personal accounts.

Figure 7 depicts the overall disseminator network, with each node representing a Twitter user, the size of which indicates the frequency of retweets, and each edge indicating the existence of a retweet relationship. For simplicity, only edges with a frequency greater than 2 and their related nodes are displayed. The network contains a total of 16076 user nodes and 18033 retweet relationships. From the illustrated network structure, the differences in the retweet features between institutional and personal accounts are more significant. Institutional accounts, such as China Daily, exhibit a characteristic of “small nodes and many edges”, indicating a large number of users and strong user stickiness, but the account’s tweets generally do not have a significant impact. On the other hand, personal accounts related to celebrities or games, such as XingPark and DailyYunjin, exhibit a characteristic of “large nodes and few edges”, indicating that their main retweet traffic may come from a single “explosive” tweet, with weak fan stickiness but a huge impact.

From the perspective of network user circle formation^[18], Chinese opera dissemination on Twitter has formed numerous “circles” linked by “interest affinity”, such as fan circles centered around “Zhang Yixing”.

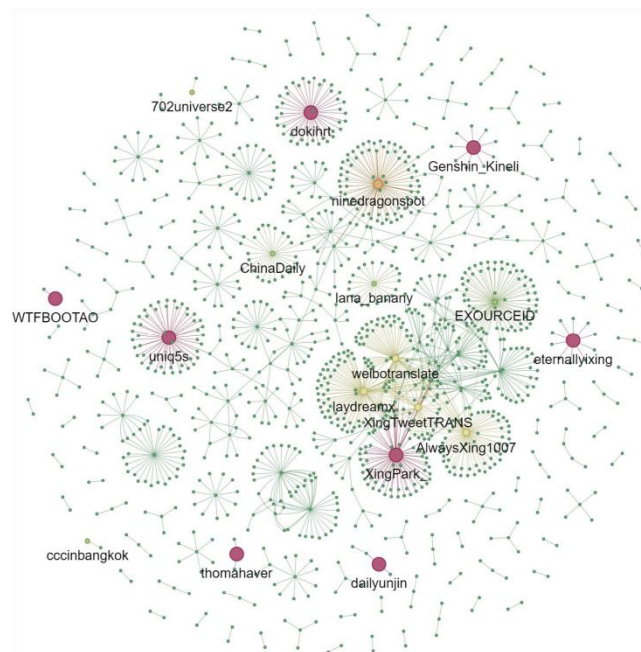


Figure 7. The disseminator network of Chinese Opera on Twitter (2013.2.6~2022.3.2)

5.DISCUSSION

Revitalize Chinese Opera through innovation and pop culture integration for a younger audience

In the past few decades, the main route for the international dissemination of Chinese opera has been through official communication and cooperation. However, our research has found that incorporating elements of Chinese opera into popular culture works can present the elegant Chinese opera in a more lively and popular form, reducing the difficulty of international audiences in understanding and appreciating it, and effectively enhancing the output effect of Chinese culture.

User-generated content could incentivize professional content production

From the perspective of the dissemination network structure, the fans of official opinion leaders have strong stickiness, but there are not many contents that can trigger discussions. Personal opinion leader accounts, on the other hand, have weak fan stickiness and mainly rely on single “explosive” tweets to become the center of the dissemination network. Therefore, official accounts should “borrow force” in the international dissemination of Chinese opera, packaging and reproducing popular contents created by individual users in a professional manner, and achieving content feedback from user-generated content to professional content.

Intellectual Property could become the key to the commercialization of Chinese Opera culture

In the discussion of Chinese opera on Twitter, global users in recent years have focused more on the elements of Chinese opera rather than the opera itself, and have become more dependent on the discussion of stars and their film and television works. When social media becomes the main medium of communication, the international dissemination of Chinese opera can follow the laws of new media and explore the artistic value of Chinese opera culture. In addition, it is possible to follow the trend of subculture on the internet and effectively utilize the fan economy of films and television works, celebrity singers, and online games to further promote the commercialization of Chinese opera culture and explore the commercial value of Chinese opera derivative products.

For example, people can open online stores for Chinese opera cultural and creative products as intellectual properties, design and sell cultural and creative products that combine Chinese opera elements, and use cultural products as a carrier to promote the dissemination of Chinese opera culture. At the same time, professionals can actively collaborate with the producers of films and television works, celebrity singers with a certain global fan base, and online games, and design, in order to promote joint derivative products, using the extensive influence of other excellent global works to rediscover and attract new audiences for Chinese opera culture dissemination.

NFT could act as a new medium for global dissemination of Chinese opera

This study has found that NFT art as an extension of real art in the Internet has become a new hot spot for the international dissemination of Chinese opera art since 2021. The NFT art form has the characteristics of decentralized digital storage, display, transaction, and tamper-proof replication, which not only guarantees the copyright of the original creators, encouraging artists to continuously create new digital artworks, but also greatly promotes the cross-border dissemination of works on the Internet.

Given this, future international dissemination practices can focus on creating NFT Chinese opera artworks, establishing

funds, awards, and other incentives to encourage more digital artists to participate in the creation of Chinese opera cultural works such as music, painting, video, etc.

Limitations

Data prior to 2018 were not included in the analysis due to sample limitations. Since Twitter currently only retains the most recent 100 retweets for each tweet, the number of retweets used for analysis is limited to 100 for each tweet.

REFERENCES

- [1] [SUN JIAXI. A study on cross-cultural communication strategies of traditional Chinese Opera [M]. Xinhua Press, 2020[2022-04-06].
- [2] LI XIAOJUN. Promoting the Going Global of Chinese Culture and Enhancing the Soft Power of National Culture [N]. Guangming Daily, 2021-06-16: 016.
- [3] JIANG FEI; ZHANG NAN. The Three Tides of China's External Communication (1978—2019) [J/OL]. Global Journal of Media Studies, 2019, 6(02): 39-58. DOI: 10.16602/j.gmj.20190014.
- [4] WU PINGPING. The Globalization of Chinese Opera from the Perspective of National Image [J]. Studies in Culture & Art, 2018, 11(03): 70-77.
- [5] YU H, CAI P. Study on the External Communication Strategy of Chinese Opera A Case Study of the Return of Classic Intellectual Property “The Dawns Here Are Quiet” to Russia[C/OL]//4th International Conference on Contemporary Education, Social Sciences and Humanities (ICCESSH 2019). Atlantis Press, 2019: 941-945[2022-12-22]. <https://www.atlantis-press.com/proceedings/iccessh-19/125911970>. DOI:10.2991/iccessh-19.2019.211.
- [6] DAI QIAN, LIN YI. A Media Perspective on the Intercultural Communication Strategies of Traditional Chinese Xiqu [J/OL]. Theatre Arts, 2018(04): 93-101. DOI: 10.13737/j.cnki.ta.2018.04.013.
- [7] GAO LUYI. Reflection and Enlightenment on the "Going Global" of Chinese Traditional Drama Literature: A Case Study of the Spread of "Peony Pavilion" in the English World [J]. China Publishing Journal, 2016(09): 26-29.
- [8] WEN XIANGPIN. An Analysis of the External Communication Strategy of Chinese Traditional Opera: Based on the Report of "Peony Pavilion" in British and American Newspapers in the Last 30 Years [J]. Sichuan Drama, 2020(01): 79-82.
- [9] WANG TINGXIN. Two Levels of the Xiqu Opera Spreading: On the Basic and Extended Spreading of the Xiqu Opera [J]. Hundred Schools in Arts, 2006(04): 40-43.
- [10] LIU JUN. A Study on the Overseas Communication of Traditional Chinese Opera since the Reform and Opening up: Taking the Report of People's Daily as an Example [J/OL]. Chinese Theatre Arts, 2021, 42(03): 36-39+65. DOI: 10.15915/j.cnki.cn11-1172/j.2021.03.008.
- [11] HIMELBOIM I, SMITH M A, RAINIE L, ET AL. Classifying Twitter Topic-Networks Using Social Network Analysis[J/OL]. Social Media + Society, 2017, 3(1): 2056305117691545. DOI:10.1177/2056305117691545.
- [12] Qu XUSHENG, ZHAO PENGCHENG. Status and Characteristics: The Application of Social Network Analysis in Communication Research in China [J/OL]. Journalism Lover, 2021(03): 67-69. DOI: 10.16017/j.cnki.xwahz.2021.03.019.
- [13] HUTTO C, GILBERT E. VADER: A Parsimonious Rule-Based Model for Sentiment Analysis of Social Media Text[J/OL]. Proceedings of the International AAAI Conference on Web and Social Media, 2014, 8(1): 216-225. DOI:10.1609/icwsm.v8i1.14550.
- [14] SHI ANBIN, TONG TONG. Xi Jinping's Thought on Ecological Civilization: The International Dissemination of the Issue of "2060 Carbon Neutral" on Twitter Platform as an Example [J]. Contemporary Communication, 2021(04): 39-44.
- [15] ZANGERLE E, PICHL M, GASSLER W, ET AL. #nowplaying Music Dataset: Extracting Listening Behavior from Twitter[C/OL]//Proceedings of the First International Workshop on Internet-Scale Multimedia Management. Orlando, Florida, United States: Association for Computing Machinery, 2014: 21-26. <https://dl.acm.org/doi/10.1145/2661714.2661719>. DOI:10.1145/2661714.2661719.
- [16] PAN ZHONGDANG, LIU YUSI. What's “New”? Power Entrapment and Theoretical Reflection in “New Media” Discourse: An Interview with Pan Zhongdang by Liu Yusi [J]. Journalism & Communication Review, 2017(01): 2-19.
- [17] [QIN RUI, LI JUANJIUAN, WANG XIAO, ET AL. NFT: blockchain-based non-fungible token and applications [J]. Chinese Journal of Intelligent Science and Technology, 2021, 3(02): 234-242.
- [18] PENG LAN. Circles on the Internet: Aggregation and Separation on the Dimensions of Relationship, Culture and Technology [J/OL]. Editorial Friend, 2019(11): 5-12. DOI: 10.13786/j.cnki.cn14-1066/g2.2019.11.001.