Optimized Assessment of Overseas Communication Paths of Chinese Traditional Music Based on the Information Entropy Model

Song Gao[1] and Dong Liu[2,*]

[1] School of Contemporary Music, Shandong University of Arts, Jinan, Shandong, 250000, China
[2] Postdoctoral Workstation of Hisense Group, Qingdao, Shandong, 266000, China

Corresponding authors: (e-mail: 19157064672@163.com).

Abstract New technological tools and globalized communication platforms in the Internet perspective have brought new opportunities and challenges to the overseas dissemination of Chinese traditional music. In this paper, we use python software to capture 19,471 comment data related to Chinese traditional music on ByteDance Tiktok. Based on the information entropy theory, a node influence model is constructed, and the node influence is measured in terms of the number of terminal nodes and the average degree, so as to deeply analyze the law of information dissemination, and reasonably control and optimize the evaluation of the dissemination path. The results show that the information entropy model can be used to determine the intensity of themes on different dates, among which the entropy values of theme 5, theme 3 and theme 9 are relatively the largest. The communication influence in the new media environment decreases with the increase of average degree and increases with the increase of the number of network nodes. The experimental comparison results show that the algorithm in this paper can effectively select the information dissemination path with high influence.

Index Terms tiktok, information entropy, node influence, topic strength, Chinese traditional music

I. Introduction

China is a multi-ethnic country with rich and diverse ethnic music, which attracts the attention of the world with its unique melodies and rhythms. Traditional music is the valuable cultural heritage of the Chinese nation, carrying a rich history and emotions, spiritual style and cultural confidence, containing a wealth of musical expressions and emotional connotations, reflecting the wisdom and emotions of the Chinese nation [1]-[3]. The importance of traditional music lies in its historical value and cultural significance. The inheritance and development of traditional music is of pivotal significance for inheriting and carrying forward the excellent cultural traditions of the Chinese nation, enhancing the soft power of national culture, and promoting national spirit and cultural self-confidence [4], [5].

Through the dissemination of traditional music, one can feel the love and praise of the Chinese nation for nature and life. Similarly, one can also feel the deep expression of family and national sentiments, and these musical works not only reflect the living conditions and aesthetic interests of the ancient people, but also embody the deep heritage and supreme realm of Chinese culture [6]-[8]. Folk music (mountain songs), opera music (Peking Opera, Kunqu accompaniment), folk musical instruments (Guzheng, Pipa), rap music (Playing words), song and dance music (Yangge), etc., have enjoyed a great reputation in the international arena because of their ideology and artistic value, and have become the representatives of the Chinese music and culture, and more and more foreigners have begun to learn and play the Chinese folk musical instruments and music, which has made the Chinese traditional music spreading and promoted [9]-[11]. As a global language, music is able to break the barriers of national boundaries and cultures and convey the common emotions and values of human beings. The international dissemination of Chinese traditional music has enabled the world to know more about China and enhanced friendly exchanges between China and other countries, while the uniqueness of Chinese traditional music has also won more respect and recognition for China in the international arena [12]-[14].

Although traditional music has been widely disseminated globally through pathways such as the Internet and digital media, musicians and music ensembles, and music organizations and activities of governmental nature, barriers to cultural exchange still exist [15]. Traditional music from different countries and regions have their own unique styles and languages, which may be difficult to understand and appreciate. In addition, the content of traditional music disseminated by media platforms like TikTok short videos duplicates more than 50% of the content disseminated by overseas Confucius Institutes and other institutions, resulting in a waste of resources [16], [17].

Moreover, the rate of essential semantics and cultural loss of opera or traditional rap such as Peking Opera and Kunqu Opera also exceeds 50% after translation into foreign languages, which makes it difficult to obtain emotional resonance from overseas audiences in the initial dissemination [18], [19]. The effective dissemination of Chinese traditional music overseas is still difficult.

In this paper, we conduct a simple case study of the account "Yuqi in Finland" in the new media environment to explore how traditional Chinese culture and music can be spread cross-culturally through the TikTok platform. Using python software, we captured user comments from Tiktok with the keywords of "feeling traditional culture from Chinese traditional music" and "favorite type of Chinese traditional music". Based on the information entropy theory, an information entropy model is constructed to analyze the influence of communication nodes by analyzing the number of connected nodes, the average degree and the number of communication paths. The model of this paper is subjected to multi-group comparative experiments and validation experiments on real network datasets and artificial network datasets. The validity and usability of the method are verified.

II. Social Media Communication Path of Chinese Traditional Music

II. A. Case studies

"Yuqi in Finland" is a self-media account focusing on Chinese and Finnish food, Finnish life, cultural differences between China and Finland, etc., and started posting videos in 2018. At first, "Yuqi in Finland" was an early vlogger on B.com, mainly sharing interesting stories about the blogger's life. As of April 2024, the "Yuqi in Finland" account has 1.825 million followers on B-site, 1.612 million followers on Jitterbug and 276,000 followers on Tiktok. Yuqi is originally from Sichuan, lives in Finland and has two children. The content of her Vlog is as small as taking children to visit the Science and Technology Museum, taking children to meet their girlfriends, and as big as the whole process of buying a house in Finland, all aspects of life are presented in the Vlog. From the theme of the videos, the content of the account "Yuqi in Finland" mainly involves three sections: firstly, the food Vlog with the Finnish family having Chinese food experience, secondly, the daily life of the family Vlog, and thirdly, the growth of the children Vlog.

"Yuqi in Finland" is an interactive communication from the perspective of the "other" of foreign audiences, "Yuqi" is the "other" in the "group self" relative to foreign audiences, and the spiritual outlook of overseas Chinese's active life is presented with the help of the lens of Vlog. The interaction can invariably satisfy the foreign audience's "sense of cultural freedom", alleviate their misunderstanding and prejudice towards Chinese culture, and thus make Chinese culture and Chinese image accepted and disseminated.

The content of "Yuqi in Finland" is scattered, which is determined by the characteristics of Vlogs as personal logs. "Yuqi in Finland" integrates Chinese culture into daily life and lowers the barriers to cross-cultural communication with shared emotions.

The image of an independent woman shown in the Vlog of "Yuqi in Finland" can trigger the audience's desire for self-improvement and a better life, and also convey a sense of responsibility and mission to spread Chinese culture in a heterogeneous social context, and build a connection between overseas Chinese and their own cultures as well as their own audiences across time and space.

Most of the foreign audiences of Vlogs do not have the opportunity to experience Chinese culture in real life, and the Chinese culture they learn through other forms of videos contradicts with their own cultural background, which makes them psychologically divorced from the real life. The "Yuqi in Finland" Vlog makes up for this sense of detachment, and the life experience provided by its videos gives both Chinese and foreign audiences a chance to get the cultural experience and sense of communication that they cannot get in reality in the videos.

II. B. Social media-based communication path innovation

When creating short videos to communicate Chinese culture to the outside world, not only do we need to pay attention to filming skills, but creators also need to improve their creativity in selecting materials and their ability to grasp the differences between Chinese and Western cultures.

When telling Chinese stories on social media, creators need to keep up with the times and adjust their expressions in communication.

In the production of vlogs, they should emphasize the integration of Western cultural elements, highlight the transmission of common values in the content of video works, and understand the cultural concepts of overseas target audiences.

Overseas Chinese Vloggers should follow the law of communication, actively shape and interpret the image of China, make the design concept of video content more in line with their own characteristics, and promote more overseas audiences to actively subscribe due to curiosity and love.

In view of the fact that people tend to choose entertainment and leisure content or current affairs hotspots to discuss in social media, overseas Chinese Vloggers can introduce entertainment, art and current affairs hotspots into their video content at the right time, and utilize the hotspots and points of interest to attract domestic and international traffic and start friendly discussions with their audiences.

II. C.Reflections on the Social Media Communication Path of Chinese Traditional Music

Through the analysis of the above cases, we find that the rise of social media has provided a new window and rich channels for the inheritance and internationalization of Chinese traditional music. By utilizing it in a reasonable way, the overseas dissemination of Chinese traditional music can be more in line with the development trend of modern society and the aesthetic preferences of young people in foreign countries. By integrating media resources, innovating content output, building brand image and strengthening digital promotion and dissemination, we can gain wider attention from the audience, attract more active participation and win more genuine love from people, effectively enhance the popularity and influence of traditional Chinese music, boost the inheritance and dissemination of traditional Chinese music as well as its innovation and development, and revitalize the vitality of this treasure of traditional Chinese culture and bring it into the limelight.

III. Communication impact assessment based on information entropy modeling

III. A. Information Entropy Model

The concept of information entropy was first introduced in 1948 to solve the problem of information metrics. Information entropy describes the amount of information content by defining the uncertainty of the information source for the different values of random variables, and its expression is shown in Equation (1):

$$H(X) = K[-\log P_i] = -\sum_{i=1}^{n} P_i \log P_i, \quad 0 \le P_i \le 1, \quad i = (1, 2, ...n) \tag{1}$$

X denotes the random variable, against which is the set of all possible outputs, defined as the set of symbols, and the output of the random variable is denoted by X. $P(X)$ denotes the output probability function. The greater the uncertainty of the variable, the greater the entropy and the greater the amount of information needed to figure it out. The main idea implied by formula (1) is: assuming that the uncertainty function f is a monotonically decreasing function of the probability p, then the probability of occurrence of n independent uncertain events should be its sum. The information entropy theory is mainly applied in the field of physics and statistical mechanics, but also some scholars use the information entropy theory to analyze the information law, and a small amount of literature applies the information entropy to computer science [20].

III. B. Information entropy model of communication node influence

In calculating the direct influence of nodes firstly the information entropy of the number of connected nodes should be calculated. The $f_v^{(t)}$ represents the relationship between node i and node j at time t. If node i is connected to node j, $f_{ij}(t) = 1$, otherwise $f_{ij}(t) = 0$. $K_i(t)$ denotes the set of all nodes connected to node i at time t, thus $K_i(t)$ is an important measure of the direct influence of node i at time t, i.e., if nodes 2, 3, and 4 all originate from node 1 at time t, then $K_i(t) = 3$ for node 1. Thus the expression for the number of connected nodes $K_i(t)$ of node i is:

$$K_i(t) = \sum_{j=1}^{n} f_{ij}(t) \tag{2}$$

The entropy of connected node information $I_i^c(t)$ for node i is denoted as:

$$I_i^c(t) = -\sum_{i=1}^{K_i(t)} \frac{1}{K_i(t)+1} \log_{10} \frac{1}{K_i(t)+1} \tag{3}$$

Next, the information entropy of the interaction frequency between nodes is calculated. The interaction frequency between nodes is denoted by $F_{ij}(t)$, which represents the number of contacts between node i and node j at

time t, i.e., if two of node i's blogs are originated from node j at time t, then $F_{ij}(t) = 2$. Therefore the information entropy $I_i^f(t)$ of the interaction frequency between node i and node j at time t is denoted as:

$$I_i^f(t) = -\sum_{j=1}^{K_i(t)} \frac{F_{ij}(t)}{\sum\limits_{k=1}^{K_i(t)} F_{ik}(t) + 1} \log_{10} \frac{F_{ij}(t)}{\sum\limits_{k=1}^{K_i(t)} F_{ik}(t) + 1} \tag{4}$$

The direct influence information entropy $MI_i(t)$ of a node i shall be the product of the information entropy of the number of nodes it is connected to $I_i^c(t)$ and the information entropy of the frequency of interactions between each node it is connected to $I_i^f(t)$, i.e:

$$MI_i(t) = I_i^c(t) \times I_i^f(t) \tag{5}$$

III. C. Assessment of communication impact in social networks

In emergent public opinion, what triggers the change of user influence is the global influence of the topic, i.e., the breadth and depth of information dissemination, in addition to the user's own followers. In this model, the main basis for measuring the breadth of information spread by users is the quality of topic interaction between users, while the main factors affecting the quality of interaction are the number of comments and replies. What determines the depth of dissemination, on the other hand, is the length of the dissemination path of Tiktok messages [21]. The user relationships of the relationship manifold are shown in Figure 1.
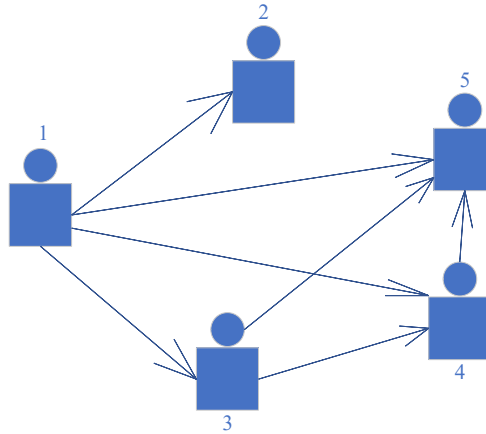

Figure 1: User-relational graph of relational manifestation

Dynamic information entropy is determined by the behaviors of commenting, replying, and forwarding among users. Since the number level of interaction between users and the number level of forwarding are not consistent, this model subdivided the dynamic information entropy into dynamic interaction information entropy and dynamic dissemination information entropy. Firstly, take user 1 as an example to explain and illustrate the dynamic interaction information entropy of user 1. Assuming that the number of interactions of users 2, 3, 4 and 5 about a certain Tiktok message is 8, 16, 12, 14. Then the calculation of dynamic interaction information entropy of user 1 is shown in equation (6):

$$H_i^u = -\frac{8}{50}\log_2\frac{8}{50} - \frac{16}{50}\log_2\frac{16}{50} - \frac{12}{50}\log_2\frac{12}{50} - \frac{14}{50}\log_2\frac{14}{50} \tag{6}$$

The H_i^u in equation (3) represents the dynamic interaction information entropy of user 1.

It is composed of explicit and implicit relations between users, but the influence propagation strength of explicit relations is definitely stronger than implicit relations, for example, the user relations 1→4, 1→5, 3→5 derived from the propagation path 1→3→4→5, which are obviously weaker than 1→3 and 4→5. If user 5 retweets user 4's Tiktok message, then user 5 has influence not only on user 4's user influence, but also on users 1 and 3's influence. In terms of sociology and the strength of user relationships, user 5's influence on user 1 is weaker than that of users 3 and 4, and user 5's influence on the topic of user 3 is weaker than that of user 4. In this paper, according to the

increase in the length of the propagation path of a Tiktok message, the influence decline factor $\gamma = 0.5$ is set, and the topic influence that user 5 feeds back to users 4, 3 and 1 is halved in turn.

In the emergent network public opinion, the network propagation topology of a Tiktok message is taken to determine all the propagation path URLs of the message, from which the proportion of users' topic influence allocation can be derived, as shown in Equation (7):

$$B(u,v) = \frac{2^{-(u,v)}}{\sum\limits_{i=1}^{n} 2^i} \tag{7}$$

In Eq. (7), $B(u,v)$ represents the proportion of topic influence allocation contributed by user u to user v, n represents the propagation path length from the message source node to node u, and (u,v) denotes the Tiktok message propagation path length from user u to v. Assuming that the initial influence are all 1, the topic influence assigned by user 5 to user 1 is shown in Eq. (8) in Fig. $1 \rightarrow 3 \rightarrow 4 \rightarrow 5$, for example:

$$B(5,1) = \frac{2^{3-3}}{\sum\limits_{i=1}^{3} 2^i} \times 1 \tag{8}$$

Accordingly, the topic influence of all users under a certain Tiktok message is obtained, and then the dynamic propagation information entropy of users is determined [22]. Again taking user 1 as an example, the dynamic propagation information entropy of user 1 is determined by users 2 and 3. Assuming that the topic influence of user 2 and user 3 are 1 and 1.25, respectively, then the dynamic propagation information entropy of user 1 is calculated as shown in equation (9):

$$H_i^t = -\frac{1}{2.25} \log_2 \frac{1}{2.25} - \frac{1.25}{2.25} \log_2 \frac{1.25}{2.25} \tag{9}$$

In Eq. (9) H_i^t denotes the dynamic propagation information entropy of user 1.

The dynamic information entropy of the user is determined according to the weighted fusion method. The calculation method is shown in equation (10):

$$H_i^s = \alpha H_i^u + \beta H_i^t \tag{10}$$

In Eq. (10) H_i^s represents the dynamic information entropy of the user under the i th Tiktok message. α, β represent the corresponding parameters. However, in critical incident online public opinion, the Tiktok messages involved are often more than 1, usually about 10, so it is necessary to calculate the dynamic information entropy under each Tiktok message, and then according to the importance of the Tiktok message and then weighted fusion to get the total dynamic information entropy. The calculation method is shown in equation (11):

$$H^s = x_1 H_1^s + x_2 H_2^s + \cdots\cdots + x_i H_i^s \tag{11}$$

In Eq. (11) H^s represents the final node dynamic information entropy of the user, and x_i represents the corresponding parameters.

The final node information entropy is then obtained by the weighted fusion of dynamic and static information entropy, which is calculated as shown in Eq. (12):

$$H = mH^s + nH^e \tag{12}$$

In Eq. (12) H represents the final node information entropy of the user, m, n represent the corresponding parameters, and all the above parameters are determined by hierarchical analysis.

IV. Analysis of experimental data and results

Under the new media environment, the media ecology has undergone profound changes, and social media has gradually become the main means of information exchange for the global public. In recent years, the internationalization of Chinese local social media, especially short-video social media, has provided new opportunities for the international dissemination of Chinese culture. In 2017, Tik Tok, the overseas version of TikTok,

was officially launched, and in 2018, Tik Tok covered as many as 150 countries and regions globally, and has become one of the most popular short-video APPs in Japan, Thailand, Germany and other countries, and has topped the list of video products in the app stores of many countries. As of 2021, TikTok has 1 billion active users worldwide and has been downloaded more than 3 billion times in the APP Store and Google Play.TikTok's overseas breakout has successfully broken the monopoly of Europe and the United States on international social media platforms, bringing new opportunities for the international dissemination of Chinese culture. It is important to study how to utilize TikTok to promote the dissemination of Chinese traditional music.

IV. A. Data sources

Tiktok as an important social media for hotspot dissemination, 2020 Tiktok User Development Report shows that as of September 2020, Tiktok reached 511 million monthly active users and 224 million daily active users, which is an important birthplace for online public opinion. In this paper, we use python software to capture the keywords "feel traditional culture from Chinese traditional music", "favorite type of Chinese traditional music" Tiktok user comment ID, user comments and time, and obtain 19,471 user comments. We obtained 19,471 user comments, and the changes in the number of comments are shown in Figure 2. From the figure, we can see that the hotspot fermented on January 19, 2024, but the online platform spread rapidly, instantly reaching 2,823 retweets and comments, the hotspot erupted on January 20 and quickly formed a hotspot, with the passage of time and people's forgetfulness of the hotspot, the hotspot gradually cooled down, and until the termination of the termination of the termination of th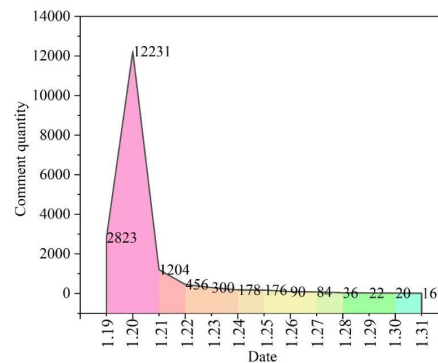e termination of the termination of the termination of the termination of the termination of the termination of the termination of the termination after January 31st.

Figure 2: Changes in the number of public opinion comments

Table 1: Topic information entropy

Theme										
	0	1	2	3	4	5	6	7	8	9
1-19	0.4612	0.77816	0.66508	0.75145	0.71333	0.60375	0.5445	0.69608	0.4919	0.68839
1-20	0.7012	0.70053	0.96378	1.32673	0.72947	1.50351	0.84714	1.1202	0.86508	1.23968
1-21	0.3846	0.37416	0.36839	0.3789	0.33631	0.32776	0.2488	0.3464	0.21534	0.38638
1-22	0.2124	0.21068	0.17456	0.2983	0.14781	0.13198	0.13909	0.25824	0.12401	0.19145
1-23	0.1613	0.16178	0.14745	0.23621	0.18613	0.20576	0.12316	0.13909	0.16905	0.13974
1-24	0.1155	0.11625	0.10041	0.11615	0.10798	0.10808	0.10001	0.11595	0.10011	0.11585
1-25	0.09926	0.10828	0.10838	0.14004	0.10798	0.17751	0.11595	0.13984	0.10808	0.1462
1-26	0.0902	0.10828	0.11635	0.13132	0.10001	0.16384	0.10001	0.13037	0.10011	0.18678
1-27	0.0632	0.10031	0.10838	0.11615	0.10798	0.10011	0.10001	0.10798	0.10808	0.11585
1-28	0.0995	0.0207	0.10041	0.10021	0.03035	0.01055	0.0204	0.04031	0.05036	0.09991
1-29	0.0516	0.0207	0.0208	0.07036	0.0204	0.01055	0.03035	0.04031	0.06031	0.10788
1-30	0.0814	0.0207	0.01085	0.10021	0.04031	0.09016	0.10001	5E-4	0.0205	0.04021
1-31	0.0302	0.01075	9E-4	0.10818	5E-4	6E-4	0.01045	0.03035	0.08021	0.09991

IV. B. Analysis of data results

IV. B. 1) Information Entropy Analysis

In this paper, the model filters the first 10 topics for each year, resulting in the information entropy of each topic for each year as shown in Table 1. As can be seen from the table, the themes are ranked by the given information entropy values, and the three themes with the highest information entropy values for each date are selected.

Tiktok's theme intensity comparison on Chinese traditional music reviews is shown in Figure 3, which reveals that the hot themes remain basically consistent across years. Taking January 20, the date with the largest amount of review data, as an example, the entropy values of theme 5, theme 3 and theme 9 are relatively the largest, while the theme intensity values of the three themes are the highest. Topic filtering is realized from the external information entropy perspective, which at the same time corresponds to the daily topic intensity. The information entropy filters themes, reduces the amount of uncertain information, and facilitates hotspot regulation-related departments to understand the key themes of hotspots and grasp the key information of hotspots.
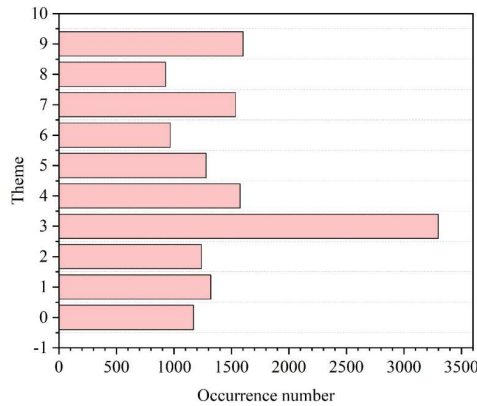

Figure 3: Weibo comment topic intensity graph

IV. B. 2) Identification of propagation characteristics

(1) Influence of Average Degree

A number of comparative experiments and validation tests have been conducted on real network datasets and artificial network datasets, and the experimental results show that the information entropy model of the influence of propagation nodes in this paper is effective in selecting information propagation paths with high influence.

This set of experiments utilizes the Stanford Network Analysis Tool (SNAP) to construct 16 sets of artificial networks with different average degrees, network densities and average path lengths, and the specific network parameters are shown in Table 2. In this section, the experiment will evaluate the trend of information dissemination tree cost change of the information entropy model under two important network parameters, i.e., dissemination impact. The network parameters include network average degree, network density and average path length, and the average degree is the average of the degrees of all nodes in the network. Network density is the ratio of the actual number of edges in the network to the upper limit of the number of edges that can be accommodated. Average path length is the average shortest distance between all pairs of nodes.

Table 2: The 16 Groups of Artificial Networks

Network group	Node number	Side number	Average degree	Network density	Mean path length
1	50	100	3	0.0822	5.298
2	100	200	3	0.0414	8.312
3	150	300	3	0.0275	9.714
4	200	400	3	0.0227	11.845
5	50	150	4	0.1232	4.021
6	100	300	4	0.0628	7.139
7	150	450	4	0.0419	7.148
8	200	600	4	0.0318	9.497
9	50	200	5	0.1637	3.142
10	100	400	5	0.0814	5.022
11	150	600	5	0.0546	6.471
12	200	800	5	0.0415	7.514
13	50	250	6	0.2045	2.781
14	100	500	6	0.1121	4.296
15	150	750	6	0.0683	4.557
16	200	1000	6	0.0526	5.046

The effect of average degree on propagation influence is shown in Fig. 4, which indicates that propagation influence decreases as the average degree of the network increases. When the average degree of the network increases from 2 to 5 and the number of end nodes in the network is equal to 15, the propagation influence decreases from 128.74 to 46.63. This is because for social networks with a higher average degree of the network, the nodes have a greater chance to choose low-cost edges to propagate information, and therefore the cost of the information propagation tree is significantly lower. The main difference between the four network datasets is the number of network nodes. As the average degree increases, the datasets with more nodes have a more pronounced trend of decreasing propagation influence compared to the datasets with fewer nodes. This is because the more nodes there are in the network, the more nodes there are to choose as next-hop nodes when disseminating information, and thus the lower the dissemination impact of the information dissemination tree.
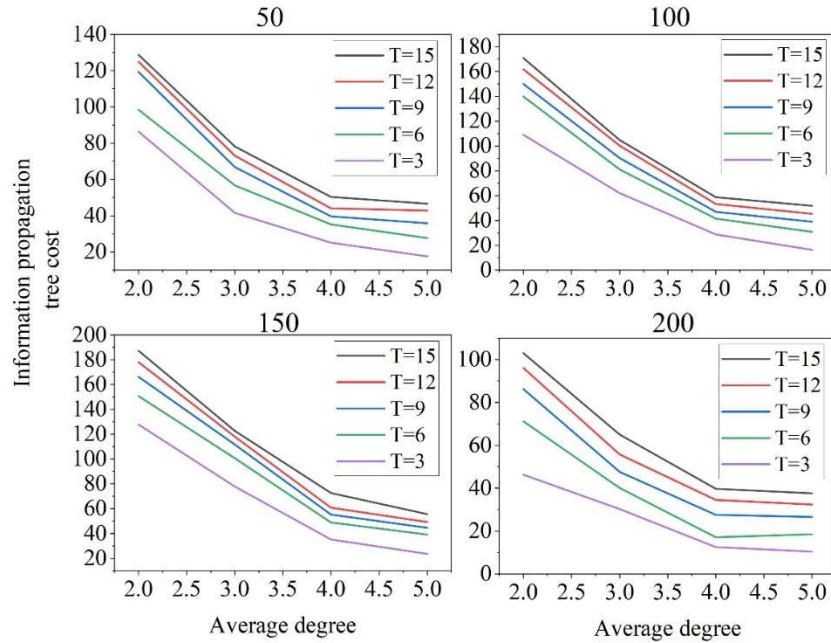

Figure 4: The impact of average on the cost of communication

(2) Influence of the number of terminal nodes

This set of experiments utilizes four sets of network datasets with average degrees ranging from 2 to 5 to assess the effect of the number of terminal nodes on the spreading influence generated by the information entropy model. The four sets of network datasets with different network average degrees are shown in Figure 5 for the effect of the number of terminal nodes on the dissemination impact.

As shown in the figure, when the number of terminal nodes increases, the cost of the information dissemination tree also increases. For example, when the number of network nodes is equal to 50, as the number of terminal nodes in the network increases from 3 to 15, the dissemination influence of the whole information dissemination tree increases from 46.32 to 102.37. When the number of terminal nodes in the social network is higher, the information entropy model needs to search for more edges to disseminate information to these opinion hotspots, and the pathway more edges means more dissemination influence. In addition, networks with more nodes have higher dissemination impact. For example, when the number of terminal nodes is equal to 6, the number of network nodes increases from 50 to 200, and the propagation influence consumed increases from 71.18 to 154.87. This is because in social networks, as the number of network nodes increases, the topology of the network increases, and the length of the shortest paths between hotspots is larger, and thus the cost of propagating the information to the opinion leaders increases.
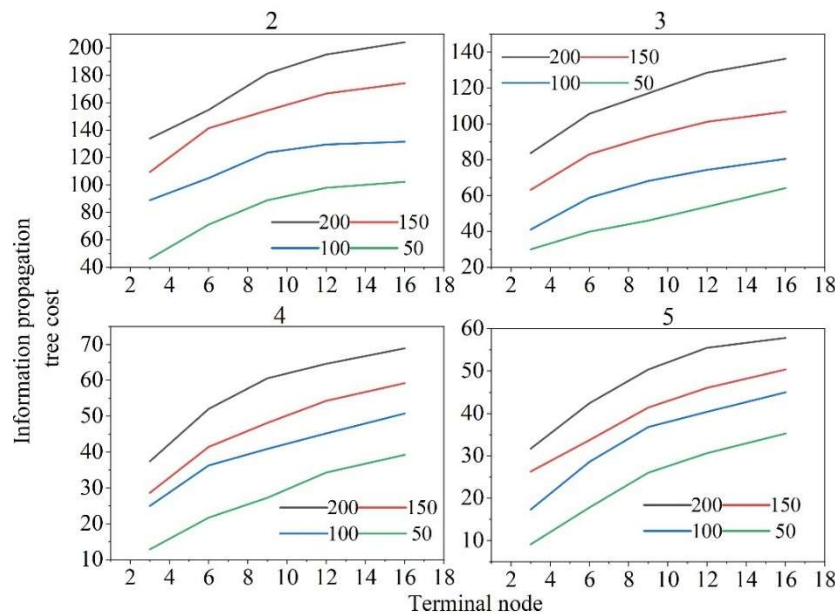
Figure 5: The impact of the cost of information dissemination

V.   Conclusion

This paper constructs the information entropy model of communication node influence based on the information entropy theory.Through python software, we obtain the user comment data related to Chinese traditional music from ByteDance Tiktok, and analyze the information entropy of different themes to calculate the influence size of network nodes. It is known that Chinese traditional music forms a hotspot on January 20, 2024, and terminates after January 31.Among the 10 themes, theme 5, theme 3 and theme 9 have the largest entropy value and the highest theme intensity value. Comparison experiments in the real network data set and artificial network data set, the results show that this paper spreads the information entropy model of node influence in, analyzes the size of the node influence and the change rule, selects the information dissemination path with high influence and so on has the effectiveness. In summary, the findings of this paper are of great significance for the effective control of information dissemination in the new media environment.

References

[1]   Tang, K. (2021). Singing a Chinese nation: Heritage preservation, the yuanshengtai movement, and new trends in Chinese folk music in the twenty-first century. Ethnomusicology, 65(1), 1-31.

[2]   Xu, J. (2022). The Most Influential Elements of the Chinese Traditional Music Culture before the Ming Dynasty in Southeast Asia. Critical Arts, 36(5-6), 177-190.

[3]   Wong, J. Y. (2020). Chinese musical culture in the global context–modernization and internationalization of traditional Chinese music in twenty-first century. Chinese culture in the 21st century and its global dimensions: Comparative and interdisciplinary perspectives, 105-122.

[4]   Yining, Z. (2024). Research on the Protection and Inheritance of Music Intangible Cultural Heritage in Liaoning Province, China. Journal of Roi Kaensarn Academi, 9(11), 1778-1785.

[5]   Zhang, Y. (2023). The Current Situation of Inheritance of Traditional Chinese Music in Public Art Education in Ordinary Universities. Frontiers in Art Research, 5(8).

[6]   Guangqiang, Z. (2020). Analysis of the modern inheritance and development of chinese traditional music. Frontiers in Art Research, 2(8), 60-64.

[7]   Yi, N. (2020, September). Study on the inheritance and development of Chinese folk songs against the background of "the belt and road initiative". In 4th International Conference on Art Studies: Science, Experience, Education (ICASSEE 2020) (pp. 613-616). Atlantis Press.

[8]   You, J. (2024). The Influence of Digitization on the Dissemination of Traditional Chinese Music and Weibo Content Propagation Under Deep Learning. IEEE Access, 12, 13870-13877.

[9]   Lam, J. S. (2019). Kunqu, the Classical Opera of Globalized China: A Long Story Briefly Told. Confucius Institute at the University of Michigan.

[10]   Chen, X. (2023). The recognition of Chinese culture among Thailand people from the perspective of music dissemination studies-A case study on Appreciating Guzheng and Analyzing by the TV program. Onkologia i Radioterapia, 17(12).

[11]   Shengchuan, R., & Dong, B. (2025). A Study on the National History and Culture of Dai hulusi Music and Its Dissemination Pathway in the Digital Transition Period. Mediterranean Archaeology and Archaeometry, 25(2).

[12]   Yang, S. (2023). Overseas dissemination of Chinese folk music: A research of Zheng Music. Highlights in Art and Design, 3(2), 40-43.

[13]   Liu, L. (2023). Research on the Foreign Communication Path and Strategy of Chinese Folk Music under the Background "The Belt and Road"—Taking Ningbo as an Example. Journal of Social Science and Humanities ISSN, 1811, 1564.

[14] Li, Y., & Sun, R. (2023). Foreign communication of Chinese music through transmitting the spatiotemporal context of the old and new silk roads: A modern approach. Journal of Psycholinguistic Research, 52(4), 1249-1261.

[15] CUI, Y. M. (2024). RESEARCH ON THE ADVANTAGES OF USING NEW MEDIA TO SPREAD CHINESE MINORITY MUSIC. Quantum Journal of Social Sciences and Humanities, 5(2), 13-23.

[16] Guo, W., & Li, S. B. (2016). Music Confucius Institute: Evaluating Its Approach as an Agent for International Chinese Music Dissemination. Higher Education Studies, 6(1), 182-191.

[17] Li, Q., Wu, M., & Yuan, Y. (2021, November). The Status Quo and Path of Traditional Chinese Music Communication on Short Video Platforms-Taking TikTok as an Example. In 2021 2nd International Conference on Information Science and Education (ICISE-IE) (pp. 75-80). IEEE.

[18] Huang, Q., & Wang, Y. (2021). A study on the translation of Peking Opera terminology: A visual grammar perspective. In Terminology Translation in Chinese Contexts (pp. 98-119). Routledge.

[19] Mingjie, W., & Zhengbang, J. (2024). The manifestation and impact of the concept of "Three Yi" in the book of changes in the international dissemination of Chinese ethnic music: a case study of works from "Looking China Youth Film Project". International Communication of Chinese Culture, 1-11.

[20] Linwei Li,Yinli Jin,Peng Gao,Lairan Wang & Libing Liu.(2024).Reliability Analysis of Highway Network Travel Time Based on Information Entropy Model and Electronic Toll Collection Data. Transportation Research Record,2678(9),776-790.

[21] Haoming Guo & Xuefeng Yan. (2025) .Node influence evaluation method based on saturation propagation probability and multi-level propagation. Chaos, Solitons and Fractals: the interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena,195,116299-116299.

[22] Minghong Han,Yaman Wu,Yumin Wang & Wei Liu.(2021).Roller bearing fault diagnosis based on LMD and multi-scale symbolic dynamic information entropy.Journal of Mechanical Science and Technology,35(5),1-13.