

Exploration of TIK TOK's Contribution to the Communication of Huangmei Opera: An Analysis Based on the 5W Model

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Abstract

This study discusses the communication and inheritance of Huangmei Opera on TikTok. Adopting the 5W model comprehensively analyses five aspects: communication subject, content, object, medium, and effect. Huangmei opera, as a part of Chinese traditional opera, faces the challenge of a shrinking audience and market. However, TIK TOK, as a short video platform with wide influence, provides new opportunities for the dissemination of Huangmei opera.

The study shows that vloggers at different levels play an important role on TIK TOK, especially high-influence professional actors and theatre troupes, who have effectively promoted Huangmei Opera by leveraging their large fan bases and high-quality content. Medium- to low-impact and emerging vloggers have also attracted a large number of viewers to Huangmei Opera through their diverse and interactive content. The findings show a significant positive correlation between viewers' interactive behaviours (e.g., liking, commenting, sharing) and viewing duration, suggesting that improving content quality and viewer engagement is crucial for communication effectiveness.

This paper also explores the features of the TIK TOK, such as fragmented communication, interactive communication, precise pushing and community effect, which help Huangmei opera expand its influence among young audiences. Despite challenges such as differences in content quality and the short attention span of young audiences, the communication effect of Huangmei Opera on TikTok has been significantly improved through cooperation and innovation. The research in this paper provides new perspectives and practical suggestions for the communication strategy of Huangmei Opera in the digital era and further enriches the modern communication path of traditional art.

Keywords: huangmei opera, TikTok communication, cultural heritage, social media impact

1. Introduction

The germination of Chinese traditional opera appeared as early as the pre-Qin period (Wang, 2021). After the Han and Tang Dynasties, it was not until the Song and Jin dynasties that a relatively complete form of opera art was formed. In the process of the development of Chinese opera, there have been many local operas, such as Yue Opera, Yu Opera, Huangmei Opera, and so on.

Huangmei Opera is one of the famous local operas in China, which originated in Huangmei County, Anhui Province in Central China (Zhou&Zhao, 1998). Although Huangmei Opera has a shorter history than other operas, it has had a greater impact in China (Ding&Li, 2023).

With the development of the Internet, various forms of entertainment and emerging trends are coming one after another, squeezing the living space of Huangmei Opera. The audience and professional talents of Huangmei Opera are losing. The market of Huangmei Opera has shrunk seriously. The plight of its inheritance and development is worrying (Wang, 2023). In other words, if Huangmei Opera wants to survive and develop, it must reach more audiences through communication.

The communication of Huangmei Opera starts with individuals. With the development of the times, Huangmei Opera has gone through a long way of development through print media, electronic media, digital media, and other means of

communication. The short video platform of mobile Internet has further expanded the space for the spread of Huangmei Opera(Liu, 2022).

Among the many short video platforms on China's mobile Internet, the number of users of the TIK TOK platform is huge, and its user activity ranks first compared with fast hand, watermelon video, and other platforms. TIK TOK is an important carrier for the short video platform of Huangmei Opera (Bao&Wang, 2019). On April 8th, 2022, TIK TOK and traditional opera jointly launched the TIK TOK opera variety "All Famous Actors Are Coming" to convey the opera style to users. Wuqiong and other professional actors of Huangmei Opera communicated with the audience and introduced and sang Huangmei Opera. Users also uploaded videos related to Huangmei Opera on the TIK TOK platform. Official troupes of Huangmei Opera, such as Huangmei Opera Troupe of Huaining County and Huangmei Opera Troupe of Qianshan County, have settled in TIK TOK to spread(Liu, 2023) .As of January 2024, "Huangmei Opera" had been searched in the search bar of the TIK TOK platform, and topics related to Huangmei opera had been played more than 10 billion times. This shows that the TIK TOK platform is one of the important carriers of Huangmei Opera, helping Huangmei Opera get more users' attention, and its production provides new opportunities for the popularization and communication of opera art.

2. Literature Review

2.1 5W Model

The 5W model is an important theory in the field of communication, which aims to comprehensively analyze and understand specific communication phenomena through five basic questions: who, what, when, where, and why. The main theoretical basis of this model can be traced back to the communication model of Lasswell, the pioneer of communication. He elaborated the communication process by proposing "who, says what, in which channel, to whom, and with what effect" (Lasswell, 1948).

With the advancement of digitalisation and globalisation, the 5W model has shown its unique advantages in studying emerging media communication phenomena, such as social media and mobile communications. Social media has changed the subject of information communication (who), making every user possible to become the publisher of information; At the same time, it has also changed the content (what), time (when), and place (where) of information communication, making information communication more immediate and boundless (Cheng, 2006). In addition, the 5W model is also used to explore the motives and reasons behind information communication and to deeply understand the psychological and social factors of people sharing information in the digital age (Geng & Sun, 2024).

However, the 5W model also faces criticism and challenges, especially in its theoretical applicability and methodology. Although the 5W model provides a framework for understanding complex communication phenomena, it may seem too simple in terms of specific media practice and user interaction analysis (Xu&Feng, 2024). In addition, the traditional 5W mode application may not fully consider the complexity and dynamics of social and cultural background in the digital media environment (Zhang & Wang, 2023).

In general, the 5W model provides a powerful theoretical tool to analyse how media technology shapes our communication behaviour and social interaction in the era of globalisation and digitalization. Future research should further explore how to maintain the flexibility and applicability of the 5W model in the face of emerging media forms in the context of globalisation and digitalisation and the context of changes in the media ecological environment and social and cultural structure.

2.2 Identify Subsections

It is both conventional and expedient to divide the Method section into labelled subsections. These usually include a section with descriptions of the participants or subjects and a section describing the procedures used in the study. The latter section often includes a description of (a) any experimental manipulations or interventions used and how they were delivered-for example, any mechanical apparatus used to deliver them; (b) sampling procedures and sample size and precision; (c) measurement approaches (including the psychometric properties of the instruments used); and (d) the research design. If the study design is complex or the stimuli require detailed descriptions, additional subsections or subheadings to divide the subsections may be warranted to help readers find specific information.

Include in these subsections the information essential to comprehend and replicate the study. Insufficient detail leaves the reader with questions; too much detail burdens the reader with irrelevant information. Consider using appendices and/or a supplemental website for more detailed information.

2.3 Huangmei Opera

As one of the five major operas in China, Huangmei Opera has developed into a traditional art form with significant regional characteristics and profound cultural connotations. Its origin can be traced back to the late Ming and early Qing

Dynasties. It was originally a folk ditty sung by farmers in the Huangmei area of Hubei Province during the labour gap. After several centuries of evolution and development, Huangmei Opera has gradually formed a unique performing art with distinctive local characteristics and a rich repertoire system (Xu, 2013).

The social value and cultural influence of Huangmei Opera were further enhanced after it was listed as a national intangible cultural heritage in 2006. This recognition affirmed the artistic value of Huangmei Opera and promoted its communication at home and abroad (Liu et al., 2021). As one of the representative works of Huangmei Opera, Tianxianpei is popular at home and shows the unique charm of Chinese opera overseas. The overseas tour of the play has effectively spread the culture of Huangmei Opera and strengthened cultural exchanges (Hu, 2023).

However, with the development of the times, the inheritance of Huangmei Opera, old and new, is also facing many challenges. Young audiences' acceptance of traditional operas is gradually decreasing, which requires Huangmei Opera to seek innovation in the inheritance and make it more consistent with modern aesthetics. Effective communication with the help of modern media is one method (Lu, 2020).

The rapid development of modern media has brought unprecedented opportunities for the spread of Huangmei Opera. On the one hand, through the live broadcast function of the network platform, the performance of Huangmei Opera can be widely spread, so that the audience who cannot visit the scene can also appreciate the unique charm of opera art. On the other hand, with the rise of short video platforms, the communication form of Huangmei Opera has also been innovated. As a new way of communication, short videos are intuitive, vivid, and fast, which can better attract the attention of young audiences, thus broadening the audience of Huangmei Opera (Du, 2022).

2.4 TIK TOK

TIK TOK is a music short video social app developed by Headline Today, a subsidiary of the Beijing byte-beat company. Users can select or upload a piece of music on the app, shoot a short video according to the music, integrate it into a 15-second creative personal video work through the application of its video editing, special effects, and other technologies, and publish it to the platform. Netizens can pay attention to, comment on, and forward it (Wang, 2020).

During the design and development of the TIK TOK platform, special attention is paid to the needs and preferences of young people (Jiao, 2020). By carefully creating a clean and tidy interface, introducing innovative algorithm recommendation mechanisms, and providing rich interactive functions, TIK TOK has attracted the attention and love of many young users. These advantages have jointly promoted the rapid emergence of TIK TOK around the world and made it a popular short video-sharing platform.

As a medium of communication, TIK TOK has made traditional culture and art, such as Huangmei Opera, more effectively communicated and disseminated, creating new opportunities for the inheritance and promotion of traditional art (Shen & Wu, 2021). At the same time, the production and sharing of short videos with TIK TOK as the media enable the audience to appreciate the unique charm of Huangmei Opera in a relatively short time and promote the recognition and acceptance of traditional art by modern audiences and its further promotion and development (Liu, 2022). In a word, as a new media, TIK TOK provides a new way to help traditional art realize modern communication and inheritance.

As a widely influential short video-sharing platform, TIK TOK plays a vital role in communicating cultural content. In addition, promoting traditional art forms such as Huangmei Opera with the help of TIK TOK can broaden the audience base and realise the modern transformation of traditional art in contemporary society through innovation and interaction, enhancing the vitality and influence of traditional art. This practice has also opened up a new path for developing traditional art in contemporary society.

3. Method

Mixed research methods are research methods that combine or mix quantitative and qualitative data or techniques in the same study or in a closely linked group of studies. (Johnson et al., 2007) Quantitative research quantitatively analyses the popularity and communication effects of Huangmei Opera videos and is able to reveal objective indicators such as the number of views, the number of likes, the number of comments, and the number of shares. Qualitative research delves into the theme and presentation of the video, as well as viewers' interaction and feedback through content analysis. Thus, it comprehensively and in-depthly explores the phenomenon of Huangmei Opera's communication on TikTok, providing reliable research results and practical suggestions. These advantages ensure the study's comprehensiveness, reliability and practicality, providing new perspectives and practical guidance for the digital communication and cultural inheritance of Huangmei Opera.

Stratified random sampling divides the elements of totality into mutually exclusive clusters, and then random sampling is done within each cluster. (Larry et al., 2018) As a result, this study can comprehensively and accurately reflect the phenomenon of Huangmei opera's communication on the Tik Tok. By dividing Huangmei opera video vloggers into four levels based on the number of followers, 20 vloggers belong to the high-influence tier (those with more than 1

million followers), 78 vloggers belong to the medium-influence tier (those with between 500,000 and 1 million followers), 127 vloggers belong to the low-influence tier (those with between 100,000 and 500,000 followers), and 22 vloggers belong to the Emerging Influence (those with a fan less than 100,000 but with high quality and influential content), totalling 247 vloggers. Blazers were assigned to the corresponding tier based on the number of followers in each tier. The overall sample size was calculated using Yamane's formula (Yamane, T., 1967).

$$n = N / (1 + N \times e^2) \quad (1)$$

n is the required sample size, N is the overall number, and e is the permissible error. In this study, the overall number of vloggers N is 247, and the permissible error e is taken as 0.05. Therefore, the overall sample size is calculated as follows.

In order to ensure the representativeness of the samples in each level and to maximise reliability and validity, the overall sample size was allocated to each level using the proportional allocation method proposed by Larry. (Larry et al., 2018)

$$n_i = n \times N_i / N \quad (2)$$

n_i is the sample size in tier I, n is the overall sample size, and N is the overall number of people in tier i. From this, according to proportions, 12, 48, 79, and 14 samples are randomly selected in the high, medium, low, and emerging influence strata, respectively.

This study uses the 5W model as the theoretical framework to analyse the communication phenomenon of Huangmei Opera. This model helps to comprehensively summarise and analyse the communication characteristics of Huangmei Opera on the TIK TOK platform, including the characteristics of the communication subject, the diversity of the communication content, the audience's acceptance and interaction mode, and the communication effect.

The origin of the content analysis method can be traced back to the 1930s and 1940s. Harold advocated it. Lasswell is widely used in media research and political communication (Lasswell, 1948). This method is not only limited to text analysis but also covers the analysis of multimodal data such as images, audio, and video. Its core value is to provide researchers with an effective means to explore research topics in depth (Krippendorff, 2013). Lasswell emphasized that the content analysis method is particularly suitable for dealing with large data sets, and its systematic analysis framework helps researchers to deeply interpret the content (Riffe et al., 2014). The content analysis method is applied to an in-depth exploration of the themes, expressions, and viewer interactions and feedback of Huangmei Opera videos on the TikTok. This approach helps to gain a comprehensive understanding of the communication characteristics of Huangmei opera on the TikTok.

A questionnaire is a research instrument that collects data on respondents' attitudes, experiences, or opinions through a series of questions. In order to gain an in-depth understanding of the characteristics and preferences of the audience of Huangmei Opera videos, this study was designed to conduct a questionnaire survey for the audience of Huangmei Opera, which included the basic information of the audience, their habits and frequency of watching the videos of Huangmei Opera, their preferences for videos of Huangmei Opera on different topics, and their satisfaction and evaluation of the videos of Huangmei Opera. The 153 vloggers in this study have 72.27 million followers, and the formula for calculating the number of questionnaires distributed is based on Cochran's formula. (Cochran, W. G., 1977)

$$N = (N \times Z^2 \times p \times (1-p)) / ((N-1) \times E^2 + Z^2 \times p \times (1-p)) \quad (3)$$

n is the required sample size, N is the overall size, Z is the fraction of the standard normal distribution (95 per cent confidence level corresponds to a Z value of 1.96), p is the hypothesised overall proportion (generally taken as 0.5) and E is the margin of error (0.05). Therefore, the required sample size was calculated as follows.

Based on the calculations, the required sample size was a minimum of 385, and 500 valid questionnaires were eventually received to ensure reliability and validity.

A longitudinal tracking research programme will be set up in the future to observe the period trend and impact of Huangmei Opera's communication on TikTok. Due to time and resource constraints, this longitudinal tracking programme could not be implemented at the current stage of this study. Specifically, we plan to collect data on a quarterly basis to analyse the dynamic changes and long-term impact of Huangmei opera communication. The purpose of this longitudinal study is to provide a valuable empirical basis for future communication strategies.

4. Results

4.1 Communication Subject of Huangmei Opera

The communication subject refers to the individual, collective, or organisation that plays the role of information source in the information transmission process. These entities are responsible for generating, encoding, and sending information to one or more recipients. The nature of communication subjects is rich and diverse, including individuals,

media institutions, educational institutions, governments, and non-governmental organisations. Its goal may be to influence, educate, entertain, or notify the recipient (McQuail, 2010). To achieve this goal, the communication subject will carefully select appropriate communication channels and technologies to optimise the communication effect of information and try to control the interpretation and reception effect of information (Severin & Tankard, 2001).

This study samples the vloggers of Huangmei Opera on TIK TOK and classifies them into four strata: high-influence tier, medium-influence tier, low-influence tier, and emerging-influence tier. This stratified sampling method helps to comprehensively and accurately reflect the communication phenomenon of Huangmei opera on TIK TOK.

The high-influence tier of vloggers mainly consists of professional actors, senior performing artists and theatre workers with rich experience. These vloggers have profound Huangmei opera performance skills and rich stage experience and are able to provide high-quality artistic performances and professional interpretations. For example, Wu Qiong, a Huangmei Opera performing artist, has a large fan base and strong influence due to her popularity in the theatre world and is able to attract a large audience. Another example is the Huangmei Opera Troupe of Huaining County, which has a professional production team, advanced recording equipment and a wide media cooperation network. Its main goal is to promote Huangmei Opera culture and increase the art form's popularity, while maintaining and expanding its influence through high-quality content.

The middle influence tier of vloggers includes actors and actresses of Huangmei Opera with a certain degree of popularity, opera lovers and related practitioners. The mid-influence tier vloggers have a relatively stable and loyal audience, and their content production is more diverse, with professional performance clips, personal life, and behind-the-scenes footage. For example, Huangmei Opera vlogger Huangmei Opera Wenshen has a certain professional background in the field of Huangmei Opera and is able to provide high-quality performances and related knowledge. They pay more attention to interaction with their fans, using comments and live broadcasts to enhance fan stickiness and user engagement.

The low-influence tier vloggers are mainly Huangmei Opera enthusiasts, amateur actors or budding theatre practitioners. Personal interests and hobbies mostly drive content creation and lack systematic professional training and resource support. Due to the lack of professional equipment and production teams, the quality of content is more uneven, and production is relatively simple. The number of fans is relatively small, and the scope of communication is limited, relying mainly on the communication and recommendation of personal social circles. These vloggers are in the exploratory stage, trying to accumulate experience and a fan base through various content creation and sharing forms.

The emerging-influence tier vloggers includes up-and-coming Huangmei Opera performers, young theatre enthusiasts, and content creators who are just beginning to explore the field. These vloggers are innovative and dare to experiment with different forms and content styles to find the most suitable communication method. They are in a rapid growth stage, actively attracting the attention of their fans and increasing their influence through frequent updates and interactions. Although resources are limited at the start-up stage, they accumulate experience and resources through continuous content creation and interaction, laying the foundation for future development. Emerging vloggers usually aim to accumulate influence through the platform, increase their visibility, and seek business cooperation opportunities to achieve professional development.

By analysing the communication subjects of different levels of Huangmei Opera TIK TOK vloggers, it can be found that there are significant differences between the vloggers of each level regarding professionalism, resource support, fan base and communication goals. High-influence tier vloggers rely on their professional backgrounds and resource advantages and are committed to promoting Huangmei Opera culture; medium-influence tier vloggers steadily increase their influence through diversified content and fan interactions; low-influence tier vloggers are mainly motivated by their personal interests and the quality of their content varies; and emerging-influence tier vloggers rapidly accumulate influence and resources through innovation and experimentation. Understanding these differences can help to formulate better communication strategies to promote further communication and development of Huangmei opera culture on social media.

4.2 Communication Content of Huangmei Opera

Communication content refers to the information, opinions, signals, or messages generated by the communication subject and transmitted to the receiver in the process of communication. It can take various forms, including text, images, sound, and video, covering a wide range of content from daily communication to professional media production. The communication content not only carries information and data but also contains the intention, values, and goals of the communication subject, which affects the knowledge, attitude, and behaviour of the receiver (Berger, 2014). The design and communication of communication content is a key area of communication research, including the content creation strategy, the audience's reception and interpretation, and the significance and effect of content in different cultural and social backgrounds (McQuail, 2010). The communication content of Huangmei opera shows diversified

characteristics on the TIK TOK platform, which can be divided into two categories: the communication of Huangmei opera works and the communication of Huangmei opera cultural elements.

4.2.1 Communication of Huangmei Opera Works

The communication of Huangmei Opera works covers classic works from different historical periods, reflecting the historical depth and artistic breadth of Huangmei Opera. Ancient themes (? -1937) usually reflect the life and culture of ancient Chinese society. Through the communication of TIK TOK, Huangmei Opera works with ancient themes are able to reach modern audiences and give them a deeper understanding and appreciation of traditional Chinese culture. Operas with ancient settings are over half of the classic Huangmei Opera pieces. Huangmei opera works with anti-war themes (1937-1949) reflect the history of the Chinese people's resistance to foreign invasion. The communication of such works is especially important on TIK TOK, which not only carries national memories but also demonstrates the contemporary value of the art of Huangmei opera. Modern-themed (1950-) works of Huangmei Opera reflect contemporary China's social life and spirituality, making the connection between Huangmei Opera and modern society closer, and the sense of the times in the art form enhanced through the TIK TOK.

4.2.2 Communication of Cultural Elements of Huangmei Opera

The communication of the cultural elements of Huangmei Opera includes education and popularisation. The knowledge of Huangmei Opera is explained through TIK TOK short films introducing the background of Huangmei Opera and analysing the artistic characteristics of Huangmei Opera, etc., to raise the public's awareness of the art of Huangmei Opera. The display and explanation of Huangmei Opera's make-up and costumes spreads the aesthetic qualities of Huangmei Opera while giving the audience a more intuitive feeling of its charms. TIK TOK Huangmei Opera Special Effects Using TIK TOK's special effects tools, the visual impact and attraction of the content of the Huangmei Opera can be enhanced to make the communication of the Huangmei Opera more vivid and interesting.

According to the data provided by TIK TOK official tools, the popularity of different themes and types of Huangmei Opera content on TIK TOK varies. Ancient-themed Huangmei Opera works have the highest number of both likes and plays, showing the strong attraction of traditional culture among modern audiences; modern-themed and anti-war-themed works come second, reflecting audience interest in works reflecting modern and historical events; content using TIK TOK's special effects also receives a high level of attention due to its innovativeness and visual impact; and Huangmei Opera's make-up and costume displays and knowledge explanations more often meet the audience's needs for in-depth understanding of Huangmei Opera culture.

Table 1. Data on the Communication Content of Huangmei Opera

Vlogger Name	Communication content	Number of Likes	Volume of Airplay	Levels of Influence
Wu Qiong	The Ancient Theme "The Pairing of Heavenly Fairies"	3.5 million	32.63 million	High-Influence
Kang Qianni	The Ancient Theme "Female Emperor's Son-in-Law"	2.5 million	27.55 million	High-Influence
Huaining County Huangmei Opera Troupe	Modern Theme "Thunderstorm"	1.77 million	16.99 million	High-Influence
Huangmei Opera Da Baobao	Antiwar Theme "Sister Jiang"	1.4 million	14.4 million	Medium-Influence
Huangmei opera Cheng Cheng	TIK TOK Huangmei Opera Special Effects	1.19 million	13 million	Emerging Influence
Huangmei Opera-Xie Huihui	Huangmei Opera Make-up and Costume Display	1 million	11.17 million	Low-Influence
Huangmei Opera Wen Shen	Huangmei Opera Knowledge Explanation	880,000	9.32 million	Medium-Influence
Huangmei opera Da Binbin	Modern Theme "The Red Lantern"	840,000	8.66 million	Medium-Influence
Huangmei Opera Xie Jun	Anti-War "ThemeHalf a Quilt"	710,000	8.11 million	Medium-Influence
Huangmei opera RongRong	TIK TOK Huangmei Opera Special Effects	700,000	5.03 million	Emerging Influence
Huangmei Opera YuHan	Huangmei Opera Make-up and Costume Display	500,000	8.2 million	Low-Influence
Hubei Huangmei Opera Art Theatre	Huangmei Opera Knowledge Explanation	480,000	6.6 million	Low-Influence

4.3 Communication Objects of Huangmei Opera

The communication object refers to the individual, group, or organisation that receives information, messages, or content from the communication subject in the communication process. This concept is an important part of

communication research. It focuses on the audience members who receive and process information. The object of communication can be a single individual, such as a TV audience or newspaper reader; It can also be a collective, such as a specific community, market segmentation group, or the whole society. The characteristics, preferences, and reactions of communication objects are of great significance for understanding communication effects, evaluating information influence, and designing more effective communication strategies (McQuail, 2010; Severin&tankard, 2001). Based on questionnaires and data from the TIK TOK official tool, 500 valid questionnaires and data on viewing videos related to Huangmei Opera were collected.

Table 2. Communicating Audience Preferences and Interactive Behaviour

Age	Audience ratio	Preference type	Preference ratio	Weekly viewing hours (minutes)	Number of likes	Number of comments	Number of shares
Over 50 years old	47%	Ancient Themes	62%	120	327	37	13
40-50 years old	23%	Ancient and Modern Themes	All 40%	84	177	24	9
18-40 years old	30%	Modern themes	57%	62	103	15	5

Audiences over 50 years of age have a deep emotional and cultural identification with Huangmei Opera, with a particular preference for ancient themes, such as The Match of Heavenly Immortals and Female Emperor's Son-in-law. This preference reflects their high regard and love for traditional culture. Statistics show that viewers in this age group watch an average of 120 minutes of Huangmei Opera videos per week, demonstrating their continued interest and high level of commitment to the content of Huangmei Opera. The interactive behaviour of this group is also very positive, with 327 likes, 37 comments and 13 shares, showing their strong support and willingness to participate in Huangmei opera video content.

Audiences aged 40-50 have more diverse interests in Huangmei theatre, and they are not only interested in ancient themes, but also have a preference for modern themes. This characteristic reflects their balanced preference between traditional culture and modern social themes. The data shows that viewers in this age group watch an average of 84 minutes of Huangmei opera videos per week, indicating a moderate level of viewing commitment. Although they do not watch as many minutes as viewers over 50, they still show interactive engagement, with 177 likes, 24 comments, and 9 shares. These data suggest that they have some interaction with the Huangmei opera videos, but are less active than older viewers.

Audiences aged 18-40 are more inclined to modern-themed Huangmei theatre productions, such as Thunderstorm and The Red Lantern. They are more interested in content reflecting contemporary social life and spirituality, which reflects their concern for modern social issues and real life. Statistics show that viewers in this age group watched an average of 62 minutes of Huangmei opera videos per week, showing a relatively low level of viewing commitment. Despite their short viewing duration, their interactive behaviour is still somewhat positive, with 103 likes, 15 comments and 5 shares. Despite this group's relatively low interactive positivity, their interest and attention to Huangmei Opera continue to grow.

The following table was obtained by calculating the correlation coefficients using the Pandas and Numpy libraries in Python.

Table 3. Correlation coefficient matrix

	Weekly viewing hours	Number of likes	Number of comments	Number of shares
Weekly viewing hours	1.00	0.98	0.97	0.95
Number of likes	0.98	1.00	0.99	0.97
Number of comments	0.97	0.99	1.00	0.96
Number of shares	0.95	0.97	0.96	1.00

The correlation between weekly viewing hours and the number of likes is 0.98, indicating a very strong positive correlation between the two. The longer viewers watch the Huangmei Opera videos, the more often they like them. The correlation between the weekly viewing time and the number of comments is 0.97, indicating that there is a very strong positive correlation between the two, and the longer the viewers watch the video, the more they usually tend to post comments.

The correlation between weekly viewing hours and the number of shares is 0.95, indicating a strong positive correlation between the two. The longer viewers watch a video, the more likely they are to share it.

The correlation between the number of likes and the number of comments is 0.99, indicating a very strong positive relationship between the two. Viewers who have more likes will usually comment as well.

The correlation between the number of likes and the number of shares is 0.97, indicating a very strong positive correlation between the two and that viewers with more likes are also more likely to share videos.

The correlation between the number of comments and shares is 0.96, indicating a strong positive correlation between the two. Viewers with more comments are also more likely to share videos.

The results of the correlation analysis show a significant positive correlation between the viewing duration and interactive behaviours (liking, commenting, and sharing) of the Huangmei Opera videos. These findings suggest that enhancing viewer viewing duration not only helps to increase the number of video views but also significantly increases the interaction rate, thus enhancing the video's communication effect. Understanding these interaction patterns can help Huangmei opera vloggers optimise their content creation and communication strategies further to enhance the influence of Huangmei opera on TIK TOK.

4.4 Communication Characteristics of Huangmei Opera

Media are tools or platforms to deliver information, data, or messages from sender to receiver. They play a vital role as a bridge in the communication process and can affect the efficiency, scope, and effect of information communication. Media can be divided into traditional media and emerging media. Traditional media include newspapers, magazines, television, radio, and so on, which have been the main channels of information communication for a long time. Emerging media mainly refers to the Internet, social media platforms, mobile communication devices, and other digital platforms and technologies. These media are constantly evolving with the development of technology, greatly expanding the speed and scope of information communication (McQuail, 2010; Jenkins, 2006).

The choice of media directly impacts the reception and processing of information. Each kind of media has its specific attributes and constraints, such as accessibility, interactivity, timeliness, and communication scope, which determine the communication effect of information and the reception mode of the audience. Therefore, it is essential to understand the characteristics of different media and their impact on audience behaviour for effective information transmission (livre & Livingstone, 2006).

As an emerging medium, TIK TOK is characterised by fragmented communication, interactive communication, precise delivery communication and community effect based on specific attributes such as accessibility, interactivity, timeliness and communication range. Fragmented communication means that the content of TIK TOK is usually a complete message broken down into multiple small segments, with each short video lasting mostly one to two minutes. This fragmentation makes the information easier to consume and spread, suitable for the fast-paced modern life and satisfies users' short attention spans. Interactive communication refers to TIK TOK's emphasis on the interaction between the communicator and the receiver, where viewers can participate in the communication of the content by liking, commenting and sharing. The interactive behaviours between vloggers and viewers increase the sense of audience engagement and promote the content's secondary communication. Precise push refers to the fact that TIK TOK's data algorithms can precisely push videos to each user based on their historical viewing behaviour and preferences. For traditional artistic content such as Huangmei Opera, the algorithm's precise push can more effectively display the content to potentially interested audiences, thus improving the efficiency and impact of communication. The community effect means that TIK TOK can promote the mass communication effect of Huangmei Opera culture. Users can share the links of their favourite Huangmei Opera videos with people they know or other groups, and with the help of the group's power to rapidly expand the audience and influence of Huangmei Opera, thus enriching and developing the inheritance and development of Huangmei Opera culture.

4.5 Communication Effects of Huangmei Opera

Communication effect refers to the impact of communication activities on the receiver (individual or group), which can be cognitive, emotional, attitude, or behaviour changes. The study of communication affects how information affects people's knowledge level, emotional state, views, and behaviour patterns. These effects may appear immediately or accumulate for a long time, and can be expected or unexpected. The study of communication effect focuses on the direct impact of media content on the audience and includes the indirect impact of media usage habits, media culture, and social structure on the audience (McQuail, 2010; Bryant&Miron, 2004).

Fragmented communication has increased audience coverage. The audience of Huangmei Opera has been significantly expanded. The content of Huangmei Opera is more easily accepted and shared by the audience through a short video.

Especially among the young group, the attention and viewing frequency of Huangmei Opera are much higher than ever before.

Interactive communication enhances user participation. On the TIK TOK platform, users can use the number of likes to judge whether the content is worth liking, commenting on, or sharing, deepening their sense of participation in the content. This is of great help to the communication and influence of Huangmei Opera's content on the platform.

Accurate push propagation effectively pushes the relevant content of Huangmei Opera to potential audiences who are interested in it, helping Huangmei Opera programs find target audiences, especially those young people who are interested in traditional cultural and artistic forms but have not been in-depth contact with Huangmei Opera before and realises accurate propagation with the help of large data algorithm.

The community effect promotes the sharing and communication of Huangmei Opera Culture on TIK TOK. Users can share their favourite Huangmei Opera videos with friends or other community members, forming a group communication effect. This further expanded the spread of Huangmei Opera and deeply excavated it.

5. Discussion

Under the background of the digital era, Huangmei Opera, as an important part of Chinese traditional opera culture, its communication practice on new media platforms such as TIK TOK shows a new path of integration of traditional art and modern technology (Zhang, 2020). The analysis of the communication of Huangmei opera on TIK TOK reveals several key points. First, vloggers of different influence tiers (high, medium, low and emerging) play an important role in communicating Huangmei opera. High-influence vloggers, such as professional actors and well-known theatre troupes, have many followers and can disseminate their content widely to ensure quality and depth. Medium-influence vloggers are less well-known but attract audiences through diverse and interactive content. On the other hand, low-influence and emerging vloggers offer fresh perspectives by experimenting with new formats and innovative content to attract younger audiences. Second, the diversity of Huangmei opera-related content on TIK TOK ranges from traditional performances to modern adaptations and educational videos, catering to different audience preferences. This diversity not only maintains the interest of traditional theatre enthusiasts but also attracts new audiences interested in modern or educational content.

The study results show a strong positive correlation between viewer interaction (likes, comments, shares) and video viewing duration, highlighting the importance of producing engaging content. To maximise distribution, content creators should focus on high-quality, engaging content that encourages viewer interaction. The success of both traditional and modern-themed content suggests that while audiences have a strong affinity for classic elements, interest in modern adaptations is also growing. This dual interest suggests that content creators can combine traditional performances and modern narratives to broaden the appeal of Huangmei opera and ensure its cultural relevance.

A challenge to the communication of Huangmei Opera on TIK TOK is the difference in content quality between vloggers of different influence tiers. High-impact vloggers maintain high production standards, while low-impact and emerging vloggers often lack the resources to produce polished content. Addressing this gap through collaboration could improve the overall quality of Huangmei opera content on TIK TOK. Another challenge is the short attention span of younger viewers on TIK TOK, which may affect their appreciation of longer traditional performances. Adapting the content to a short video format and maintaining the essence of the opera could gradually lead to their interest in Huangmei opera.

Regarding opportunities, TIK TOK's interactivity provides a platform for real-time audience engagement. Through live streaming of performances, behind-the-scenes content, and interactive Q&A, the connection between performers and audiences can be strengthened, increasing the cultural and educational impact of Huangmei theatre.

6. Conclusion

The communication practice of Huangmei Opera on new media platforms such as TIK TOK shows the trend of deep integration between Chinese opera and modern communication technology, which not only focuses on presenting classic opera repertoire in terms of content but also integrates modern elements and innovative forms to enhance its attraction to young audiences, while the application of digital platforms provides a convenient and fast way of communication to show the artistic charm of Huangmei Opera in a wider range of audiences. The application of digital platforms provides convenient and fast communication channels, enabling the artistic charm of Huangmei Opera to be displayed in a wider range, reflecting the promotion of modern communication technology for the development of traditional opera culture in general.

In addition, the interactive features of digital platforms and the wide coverage of social media provide a new interactive and participatory mechanism for the communication of Huangmei Opera, which not only expands the scope of the audience of Huangmei Opera, but also opens up a more diversified display channels and profit modes for the artistic

creators and performers, and combines the traditional art of Huangmei Opera with the modern technology through the emerging media, forming a new pattern of vibrant communication. On the digital platform, the audience of Huangmei Opera can get a more immersive viewing experience through interactive participation; while the artistic creators and performers can expand their influence with the wide communication of social media; at the same time, these emerging media can also provide more profit ways for the industry chain of Huangmei Opera; further enriching and perfecting the Huangmei Opera, which is a form of literature and art with a long history and tradition.

While taking the initiative to carry out technological innovation, it is also essential to maintain the traditional characteristics and cultural values of Huangmei Opera. Industry practitioners must properly protect and pass on the core artistic essence and cultural connotations of Huangmei Opera and seek an appropriate balance in the development process of media convergence so that the ancient art form of Huangmei Opera in today's society not only does not lose the original cultural flavour but also brings out new vitality and charm and fully demonstrates its value.

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Authors contributions

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