

Research Article

Computer Analysis and Automatic Recognition Technology of Music Emotion

Yuehua Xiang 

Center for College Students' Cultural Quality Education, Central South University, Changsha 410083, Hunan, China

Correspondence should be addressed to Yuehua Xiang; xyh10070207@163.com

Received 7 January 2022; Revised 21 February 2022; Accepted 5 March 2022; Published 23 March 2022

Academic Editor: Wei Liu

Copyright © 2022 Yuehua Xiang. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

With the rapid development of the related computer industry, the use of computer-related technologies has become more and more frequent. The music industry is no exception. The research and analysis of music emotions has been a problem since ancient times. Due to the diversification of music emotions, people with different music in the same piece of music will have different feelings. The research topic of this article is to make a comprehensive analysis of the computer's automatic identification technology, combined with the powerful subcapacity of the computer, so that the research on music emotion can be developed rapidly. The article analyzes the technical research of the automatic recognition and analysis of music emotion in the computer, and conducts a comprehensive analysis of the music emotion through the research of the computer-related automatic recognition technology. This paper focuses on the computer automatic recognition model of music emotion, and successfully realizes the design and simulation of the automatic recognition system based on the MATLAB platform. An automatic identification model using BP neural network algorithm is proposed. By comparing it with the statistical classification algorithm, the experimental results verify the effectiveness of the designed BP network in music emotion recognition.

1. Introduction

Different from the traditional media, the core of new media is the digital media using digital technology, Music plays an important connecting role in emotional communication in different cultural contexts such as age, ethnicity, music, cultural experience, etc. [1]. With its massive information, wide coverage, fast speed, and strong interaction [2, 3], new media has become a carrier for more and more audiences to receive information [4]. Nowadays, digital technology has irresistibly penetrated into every corner of life [5, 6], making people equal between extremely low cost and huge amount of information [7]. The achievements of digital revolution such as digital television and digital CD-ROM enable information to be disseminated in a simple way, accessed in a larger capacity, and communicated with recipients in a more personalized way [8]. Simple interpersonal relationship is being replaced by two-way communication between people, people and groups, so that people can selectively obtain the information they need [9].

At present, the traditional media is gradually becoming digital, and the information exchange between media is more and more accomplished by digital. Internet music relies on new media to quickly become a unique cultural landscape [10]. Numerous netizens forget to return and get their own place in the creation and sharing of "grassroots" music art. Bukharin's Theory of Historical Materialism regards art as the result of reflection of social life, a special "spiritual" activity and spiritual production [11]. It holds that science is the result of systematization of people's thoughts and art is the result of systematization of emotions in images. Art is a means of transferring feelings, and its direct function is to promote emotional socialization. Art is an activity that expresses emotion by artistic image and words, sound, action or other means [12]. It has great vitality and potential, and has become an important means of the development of today's music art, and has a far-reaching impact on music creation, dissemination, appreciation and even the whole music culture [13]. Digital network provides a new way of music creation, production, dissemination and

communication, which deeply influences the way of music creation, performance and its existence in society, and forms a unique aesthetic culture [14]. Even people's ideas and attitudes towards music art are changing quietly [15]. The support of high-tech means of new media culture meets the sensory needs of human beings. The creative impulse of creators can be accurately expressed. The online music world is connected with the imaginary world and the real world. At this time, the form of music art is more perceptual products, and the appreciation activities are more perceptual. Entertainment has become the first demand of network music.

The use of computer's automatic identification technology can well promote the development of human music. Music is a special way of expressing emotions, and his communication method must be highly consistent with the way that humans can accept. And no matter what kind of music, what era of music, his development cannot be separated from technological innovation, especially in this era of rapid technological development, once the development of music and high-tech technology are out of track, it will definitely be leading to the backwardness of music. Through the rational use of computers, this article promotes the innovation and development of music on the one hand, and hopes to have a systematic understanding of the expression of music emotions on the other. The relationship between new media and computer network is very close, and the two influence each other and promote each other. From a technical point of view, computer network applications provide technological impetus for new media, and take the characteristics of new media technology as the research and development point. For example, the most popular new media software WeChat, Weibo, official account, etc. of new media technology. Although the emergence of these new media platforms has brought a huge impact on traditional media, they can still play a relatively positive role in guiding social public opinion. From the perspective of application promotion, new media has a large number of audiences in the Internet environment, and these audiences are the recipients of computer networks, prompting new media to innovate in promoting computer network technology and promoting computer network applications. And under the interaction and feedback mechanism of new media, it provides reference for the realization of technological reform of computer network applications.

2. The Present Situation of Music Communication in the New Media Age

(1) In this age, the use of mobile phones is becoming more and more frequent, and this has also led to mobile phones becoming an important carrier of music expression. Music, as one of the carriers rich in emotions, has always been. It is highly valued by people from all walks of life, especially for artists. Since music was invented, people's research on him has not been interrupted. As of 2018, the penetration rate of smartphone users in China has reached about 70%, and this has further promoted the development of music. Among them, the music media in the new

media era is shown in Figure 1. According to the Expressway Research Institute's Mobile Music Market Report 2018, music applications ranked fourth with 77.2% usage in all kinds of applications, and first in leisure and entertainment software. In addition to the basic needs of netizens such as interaction and information acquisition on the mobile Internet, netizens have a higher demand for music. Users' music listening habits are gradually shifting to the mobile end. From network statistics, we can know that 56.6% of users are used to listening to music on the mobile end, while only 22.4% are used to listening to music on the PC side. 17.3% of users use mixed music on the mobile end and the PC side. 3.7% of users say they don't listen to music very much. The statistics of the specific situation are shown in Table 1.

Combining with the development trend of mobile Internet users and their strong demand for music, mobile music has broad prospects for development in the future. In addition, with the development of APP application of smart phone, which matches the music playing software of smart phone, there will always be a music app playing software in every mobile phone, no matter whether the audience is a music enthusiast or not, such as Cool Dog Music, Cool Me Music, Daily Beauty, NetEasy Cloud Music, QQ Music, and so on. Mi Music, Baidu Music, etc. The market share survey of major apps is shown in Table 2.

Music APP broadcasting software has various functions, including original music (Domi music), music + social networking (NetEase cloud music), original + voice music (5 sing mobile client) and other different types, which indicates that "everyone can have a microphone, everyone can have their own music media communication platform, and everyone can interact with music." The era of mobile Internet, a new media of communication, has begun to mature day by day. The melody of music is also called tune, which is organized by a series of notes that can reflect the theme of the music according to a certain mode relationship and rhythm-rhythm relationship. Melody is the foundation and soul of music, especially the main melody, which embodies the main ideas contained in music and the main emotional information that music wants to express. But for computer-aided sentiment analysis, these sentiment information cannot be obtained directly, and can only be represented by the melody characteristic parameters of the musical work itself. Therefore, the research on the characteristics of the main theme of music is an important prerequisite for sentiment analysis.

(2) Digital control and processing capabilities make communication terminals gradually accepted by people, and can become human-computer interactive media; third, the rich music resources in the Internet are very cheap and even free. Self-media refers to the media form in which information publishers use intelligent terminal devices to disseminate microinformation to the social units, social groups and public users with specific symbols



FIGURE 1: Music media in the new media age.

TABLE 1: Music listening habits of users.

	Male (%)	Female (%)	Total (%)
PC side	18.4	4	22.4
Mobile	21.4	35.2	56.6
Don't listen to music	15	6	21

TABLE 2: Market share of major apps.

	Downloads	Percentage (%)
qq music	460 million	27.4
NetEase cloud music	570 million	31.9
Kugou music	120 million	8.2
Mobile phone users	560 million	65
PC users	320 million	35

through the Internet channels, thus enabling the re-dissemination of microinformation among these audiences. Information disseminated by self-Media includes text, pictures, audio and video. From the point of view of its dissemination technology, self-Media dissemination has the convenience that traditional network media does not have. That is, everyone can register self-Media platform to achieve point-to-point and point-to-point interactive

dissemination of music information. Table 3 shows the amount of music reposted on major platforms.

For the user, sharing his favorite music through his mobile phone is a happy thing for him, and he can do it very happily. While the utilization rate of mobile phones continues to increase, there are more and more listeners to online music. The emergence of a large number of music software has deepened this situation. People have also begun to use various channels to learn about their favorite music. To listen. The development of computer technology is also one of the reasons to promote the development of this convenient thing. People can more conveniently listen to their favorite music accurately and share it with their friends. It is also better for the development of music. Great effect. At the same time, the application field of music is also relatively extensive, as shown in Figure 2:

3. Characteristics of Music Communication in the New Media Era

In the new media era, the form of music information dissemination represented by WeChat media can be summarized and analyzed according to the "five W" model of the famous American scholar Lasswell. The new media music

TABLE 3: The amount of music reprinted on each platform.

	Reprint	Frequency	Percentage (%)
WeChat	3500million	2-3	31
Weibo	4821million	5-8	42
Blog	891million	1-2	11

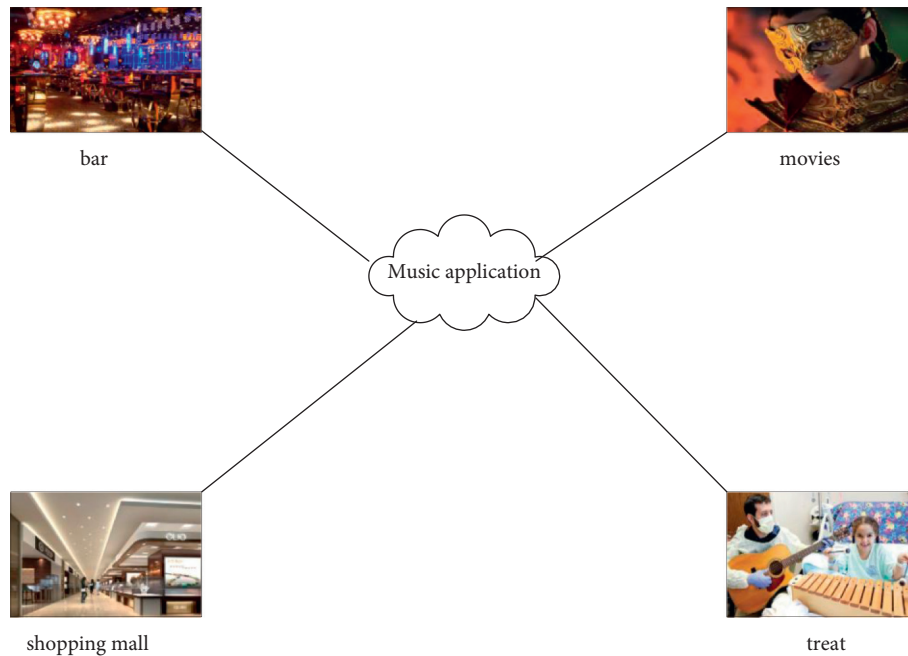


FIGURE 2: Application areas of music.

dissemination gradually presents the following main features. 1. The diversity of music communicators. In the new media communication environment, the source of music has begun to present a variety of characteristics of network interlacing. First, the traditional singularity of music communication sources has gradually disappeared. New media music is transmitted through smart client update. The rate has been greatly improved, and the content of music information has shown a quantitative upward trend. Just taking the original Chinese music base website as an example, as of now, there are more than 30 million registered users, including more than 200,000 original artists; 15,000 new songs are uploaded every day, including more than 2000 original songs; original cover accompaniment content library More than 10 million, including more than 1 million original works; more than 1.5 million uniquely accessed music users per day, more than 6 million page views, music information in both content and form, showing a quantitative feature. In addition to the mainstream primary colors, the live light color can also be matched with a virtual studio software system to control the lighting parameters, which can be adjusted in the software environment according to changes in music rhythm, timbre, speed and other elements. It enables the on-site comprehensive effects such as lighting projection to undertake the task of expressing the emotion of music, expressing the emotion, and rendering and emphasizing it, so as to better convey it to the audience and

achieve a better audio-visual effect. The survey of uploading songs on various platforms is shown in Table 4:

- (3) With the rapid development of music, the development method of music has also undergone tremendous changes. From the original word of mouth to the current record, MP3, mobile phone listening to music, various methods of listening to music emerge in endlessly. People can choose the way they like to listen to their favorite music as they like, so as to enrich their emotions and cultivate their sentiment. The changes in the way of listening to music have also led to more and more accurate music that people can listen to, and they can accurately find the yinyue that suits their tastes. The characteristics of music communication in the new era are shown in Figure 3.

It is also a business model that currently dominates the mainstream market. However, due to the low stickiness of this type of service users, its future business development needs further observation. Typical representatives such as Cool Dog, Cool Me, QQ Music, Baidu Music, etc.; The main feature is that the user actively listens to passive listening. With the increasing content of music, in order to better meet the user's preferences, the life cycle of the product is specifically compressed, typical representatives such as Jing.FM, Douban FM, etc.; Fourth, in the music store

TABLE 4: Status of uploaded songs.

	Upload song	Original song	Percentage (%)
WeChat	210000	12000	29.4
Weibo	360000	70000	47.1
Blog	80000	11000	2.9

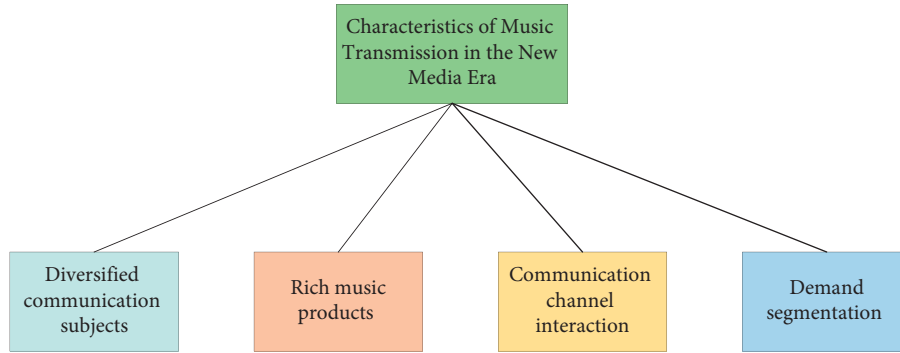


FIGURE 3: Characteristics of music communication in the new era.

category, users are still accustomed to using pirated copies when piracy is not well contained. Such models have a high threshold in terms of user scale expansion and revenue growth. Domestic typical enterprises include Jingdong Mall, Amazon China, Taobao, etc. Class operators, mainly refers to the operator’s music-related products, including ring tones, ring, etc., as well as the operator’s music client software products. Typical products of operators include Mi Mi music, Wo music, and love music. Second, in the form of music dissemination, there is a diversified trend. The spread of music is no longer a “point-to-face” broadcast, but an “peer-to-peer” interactive spread. For example, in terms of music socialization, Domi music and singer are the first to make breakthroughs: Domi music is on the basic needs of listening, allowing users to freely create song lists and share them interactively around songs, through users and users. Communication, to help users find better music; singing to meet the needs of users to practice songs through mobile phones, through the form of community, let users interact, become an interactive platform to show personal charm. 5. The intelligence of music communication effects. In the “music cloud” era, audiences only need to use smart mobile terminals through the Internet, and a huge amount of music information is at your fingertips.

4. The Change of Music Communication in the New Media Age

At present, the development of new media technology has not only changed the form of music information received by audiences, but also exerted a subtle change on the development of music communication. Understanding the changing trend of music communication in the new media era will certainly play a deeper role in promoting the prosperity and development of China’s music industry.

(1) The change of the environment of music media. As McLuhan said, “Media is the extension of human beings.” People’s expression in the new media environment has the characteristics of “transmission-reception” integration. Intrahuman communication, interpersonal communication, organizational communication and mass communication all have new characteristics: the “one-to-one” and “one-to-many” expression forms of instant messaging, the most typical of which are Wechat and Wechat. QQ and other products, their expression and communication can be “one-to-one” or “group” group discussed by many people. Therefore, with the change of media environment, the environment of music communication should also change accordingly. First, music communicators should not only consider creating better works, but also consider how to use the current media environment to disseminate their own works. Secondly, we should make good use of new social media such as WeChat, QQ, blog and so on. Music creation is disseminated through social media. Its effect is very remarkable. Music audiences use WeChat, QQ, blog, microblog, and other platforms to comment, forward and share new works. Music works can quickly become popular works of the times through the spread of “one-to-one” and “one-to-many” by countless disseminators. For example, the popular chopsticks brothers’ Little Apple in 2014 has become a Divine Song widely sung by online and offline audiences with the help of the promotion of the new media environment. Thirdly, we should make good use of smart mobile phone platform. Mobile media has become a new platform for music creation, appreciation and communication. In the future, music audio-visual has changed from the fixed mode to the mobile mode, and the new mode of music communication, channel and industry has gradually become perfect. The proportion of music

media and the trend of music communication are shown in Figures 4 and 5.

- (2) The change of music communication platform. Music communication platform began to change from a single platform to a multimedia, multichannel composite platform. First of all, new media and traditional media platform began to gradually integrate. Taking music communication on TV platform as an example, a large number of music programs such as “Good Voice of China,” “China Dream Show,” and “Most Beautiful Harmony” have been closely integrated with the mobile network, thus constantly refreshing the ratings and improving the effect of music transmission. Secondly, self-Media has gradually become a new platform for music communication. With the continuous improvement of the functions of smartphone Wechat and APP, new media clients have moved from simple content packages to “content + interactive services”. The content of music communication is not limited to content-based state. Self-media music communication should redefine the relationship between audiences and media, change the relationship chain of music communication from music audiences to music users, and on the basis of the new communication relationship, introduce music products that meet the requirements of the industry. Finally, all media platforms should be integrated. In the new communication environment, music communication platform still exists. How to effectively integrate the new platform with the old platform has become the key to expand the effect of music communication. Therefore, the new platform gradually determines the direction of future music communication development with the idea of “Internet +.” Through the effective means of “Internet + newspapers and magazines” and “Internet + Radio and television media,” we will identify new ideas for the development of music communication platform.
- (3) The transformation of the mode of music communication industry. From the perspective of the model of the music communication industry, domestic streaming music still cannot escape the curse of genuine free. In this mode, streaming media providers cannot get compensation from users. Therefore, the new media platform will encounter a series of problems such as how to protect music copyright. Therefore, in the mode of music communication industry, first of all, the state should amend the Copyright Law and other relevant laws in time to promote the transformation of illegal music websites and P2P websites to the mode of music genuine fees. Secondly, music industry practitioners should systematically safeguard their legitimate rights and interests, and promote the closed-loop of music copyright to gradually take shape. Finally, in the level of payment mode, we need to form a closed-loop payment system for genuine online music. In the

period of digital music development, online music payment in China develops slowly, and online music matching payment channels are absent. The survey on music copyright awareness is shown in Table 5:

There is no significant difference in user experience between genuine and pirated music. Even genuine paid music products are more troublesome to use. These three closed-loops well explain the historical reasons for the lag of the construction of the genuine music system in China, and they are also a lesson to be added to the development of the genuine music business model in the new media era. Like the passive old media and interactive new media mentioned by Nicolas Nigroponte in *Digital Survival*, interaction is the most essential feature of the new media.

The influence of digital networking on music is profound, and music has become unprecedented open. Music under the influence of new media has the following characteristics: Virtualization makes the global dissemination of art products inevitable. From the creator’s point of view, professional creators are subject to such restrictions as record companies or media. There are restrictions on their publication of their works. In contrast, individual composers are free to publish their works on the Internet as long as they want, as long as there are certain groups of people to visit. The survey on music dissemination trends is shown in Table 6:

Hegel believes that the initial need of art is to embody the ideas or ideas produced by the spirit in his works. On the one hand, the works of art presented in the sense organs should have an inherent meaning. On the other hand, they should express the content meaning and its image as the products of artistic activities of thought and spirit, rather than the real things that exist directly. In the face of the audience, the new media directly removes the utilitarian content and moves towards the natural transmission. The creators and appreciators regard the creation, dissemination and appreciation of music as a pure artistic act, full of artistic creativity and vitality. Where possible, people with the same interest orientation can establish their own ideological community in the virtual community and exchange ideas with voice and color. 2. Timeliness and popularity as far as the timeliness of music communication is concerned. The new media makes the network music free from space restriction and content updating without fixed cycle, which is extremely easy to operate. Many network music itself is not a professional music creation. New media can quickly transmit the music, sound and image of netizens by means of “always ready” transmission, which is not limited by cost, technology and distribution. The widespread popularity of grassroots music on the Internet is the embodiment of this phenomenon. The great increase of individualized artistic creators will inevitably make the world colorful and dazzling. 3. The interaction and synthesis of music and personalized products appear simultaneously. Multimedia music is a challenge to the pure music form. The involvement of visual media makes the pure music form which requires high quality of the audience develop towards multilevel and planar direction. The deep meaning of music is often expressed directly by

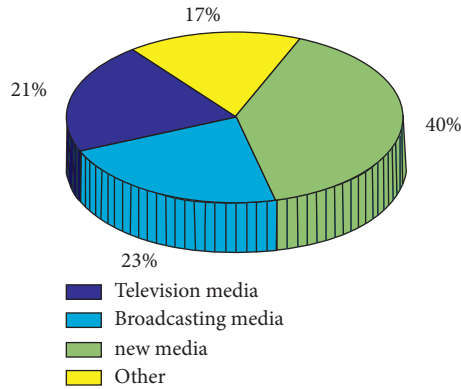


FIGURE 4: The proportion of Music Media.

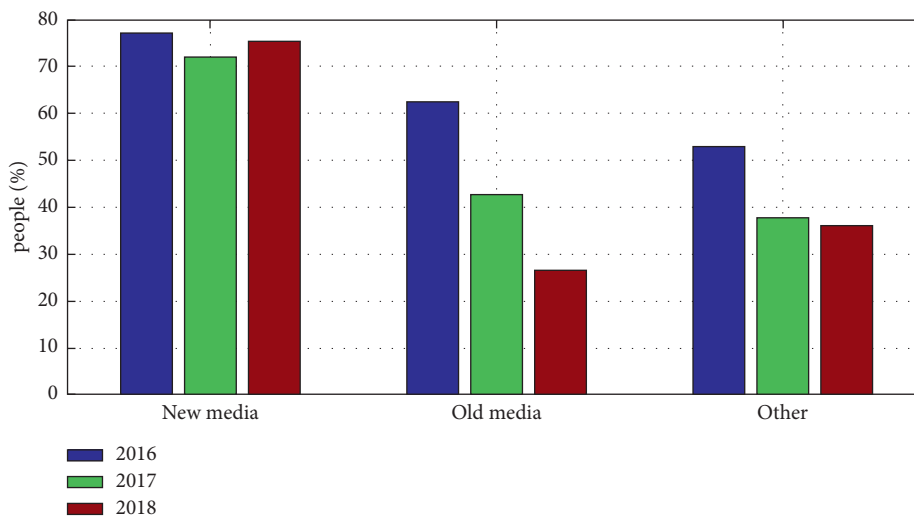


FIGURE 5: The trend of music communication.

TABLE 5: Survey of music copyright awareness.

Gender	Genuine (%)	Piracy (%)	Total (%)
Male	64	36	100
Female	28	72	100
Total	92	108	200

TABLE 6: Survey results of music dissemination trends.

	2016	2017	2018
New media	77	72	75
Old media	62	42	26
Other	53	38	35

means of visual aids. In the way of multimedia appreciation, appreciation changes from simple audio-visual to comprehensive audio-visual acceptance, and then expresses feelings freely on the information platform. The perfection of audio-visual experience is the need of people to accept network music. In the creation and appreciation of the popularity of network music, the creator only experiences the pleasure of existence of “I speak therefore I am,” and the audience does not need to think about the subtle meaning of the works.

Network music creators often use humorous and personalized language to construct works with lively rhythm and clear structure. Most of the audience and audience want to vent their emotions, relax their body and mind in a limited time, and get aesthetic pleasure that makes them happy. As a result, online browsing provides them with a pleasant aesthetic experience, which is easy to appreciate without burden and pressure. Network music uses frank, perceptual and fragmentary voices to dispel the existing discourse authority in the field of aesthetics, bringing people into the virtual aesthetic space the simplest pleasant aesthetic experience. Some people think that this kind of appreciation pleasure is low-level, not aesthetic. However, there is no difference between pleasure and aesthetic feeling. The real aesthetic feeling is the aesthetic feeling after blending all kinds of complex aesthetic psychological pleasure. It brings people a kind of spiritual intoxication. The virtuality, timeliness and interaction of new media music communication are shown in Figure 6.

In terms of the timeliness of music dissemination, traditional media can hardly compare with new media. Due to the influence of many factors such as cost, technology and mainstream ideology, the timeliness of traditional music

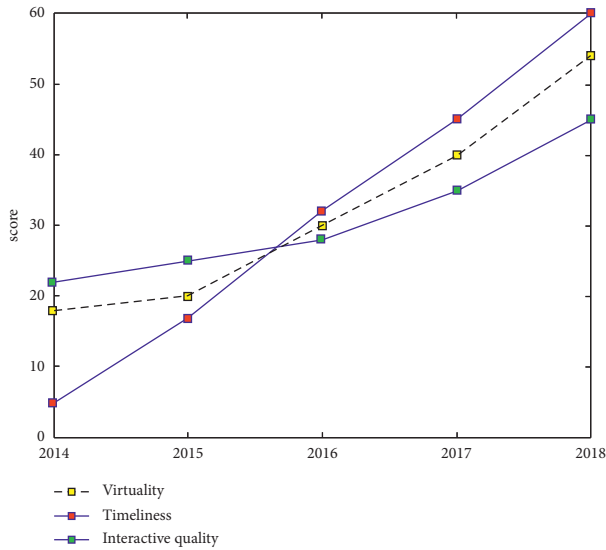


FIGURE 6: The virtual, timeliness and interaction of music communication in new media operations.

media is restricted. The new media makes online music not limited by space, and the content update does not have a fixed period. It is extremely easy to operate. Many online music itself is not a professional music creation, and new media quickly transmits the music, sound and image of netizens in the way of “always ready”, which is not limited by cost, technology and distribution. The widespread popularity of grassroots music on the Internet is a manifestation of this phenomenon. The popularity of many Internet songs and the overnight fame of Internet singers are closely related to the timeliness and popularity of new media. The development of the network enables people to get the latest information as long as they are connected to the network, and virtualization makes the global dissemination of art products inevitable. From the creator’s point of view, professional creators are subject to restrictions such as record companies or media, and they are restricted in publishing their own works. Compared with individual composers, they can freely publish their works on the Internet. As long as he wants, as long as there is a certain crowd to visit. Hegel believed that the original need of art is that people should embody the concepts or ideas generated by the spirit in his works, just as people use language to convey ideas, so that others can understand. On the one hand, a work of art presented to the senses should contain an inner meaning, and on the other hand, it should express this content meaning and its image as something that appears to be not just a directly existing reality, but a mental and spiritual thing. Products for artistic activities: what emerges with personalized products is the vividness and synthesis of music. Multimedia music is a challenge to the pure music form. The intervention of visual media makes the pure music form, which has high requirements on the appreciator’s own quality, develop towards a multilevel plane, and the deep meaning of music is often expressed directly with the aid of visual aids. In the multimedia joyful way, appreciation changes from simple listening to a comprehensive acceptance of audio-visual

integration, and then freely expresses feelings on the information platform. This interaction and comprehensiveness are also the characteristics of new media communication methods. Mature composing techniques and omnipotent digital means make the concept and listening habits of the Voice of Entertainment deeply affect all people who come into contact with digital life. The perfect audio-visual experience is what people need to accept online music.

5. Conclusions

The emergence of new media has greatly promoted the spread and development of music culture. The influence of the media on music culture is firstly manifested in the way in which the works exist, and then expands its scope of influence, eventually expanding to the whole field of music culture. Throughout the development process of music culture, it is actually a process to meet people’s changing perceptual needs, so music culture must put people’s aesthetic needs first. The emergence of new media provides a platform for the spread and development of network music, meets the aesthetic needs of people, and is an indispensable important carrier in the process of the spread of network music culture. As a means of communication, the new media has a tremendous impact on music and its culture. The process of research on the development of music emotion is also relatively difficult. Countless people have invested in this research. The research on music emotion in this article is also a new way, through the use of high-tech technology, such as computer analysis technology and automatic identification technology. Use it to automatically research and recognize music emotions. The changes of the media first affect the way music works exist, and then expand to the whole field of music culture, forming a new way of music interpretation. From this point of view, the modernization of the means of music communication is carried out on the premise of the development of human social science and technology, and is a clear representation of human development. Network music pays more attention to people’s livelihood, people’s cultural and aesthetic needs. In fact, the development of the whole music culture is aimed at satisfying the human perceptual needs. The human musical aesthetic needs are always the first and unconditional. The arrival of the new media era greatly meets the needs of music perceptual aesthetics in new ways. Any music works or even related cultures are used materials. People who live in such media have few burdens left by history because they firmly believe that only aesthetics and perception are always right. Artists use certain material materials and tools, and use their own aesthetic ability and skills to express their worship emotions. Then, art appreciators feel the author’s adoration from the works of art. This kind of worship emotion combined with the appreciator’s own understanding constitutes the appreciator’s own unique interpretation and evaluation. How we judge a work of art comes from whether we feel what the author wants to express in it. Everyone is more or less adored. This is a deeply rooted tradition that we have inherited from time immemorial. Artists use this

adoration as a bridge for emotional transmission. Based on the worship of something, the author's thoughts and emotions are extended. The research focus is on the music emotion recognition system, and the melody feature space for emotion is based on the selection of relatively simple MIDI music. However, a large number of existing music forms are audio files such as MP3 and CD, so this is lacking in practical application. The research method of this paper can be applied to music types such as MP3, the only difference is that it needs to use signal processing, spectral analysis and other means to extract music features, which is also an important direction for further research.

Data Availability

No data were used to support this study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

- [1] Y. E. Linna, "On the musical emotion processing of college student in different cultural background," *Journal of Ningbo Institute of Education*, 2019.
- [2] A. A. Elegza and B. E. zad, "New media scholarship in africa: an evaluation of africa-focused blog related research from 2006 to 2016," *Quality & Quantity International Journal of Methodology*, vol. 52, no. 1, pp. 1–16, 2018.
- [3] R. Emms and N. Crossley, "Translocality, network structure, and music worlds: underground metal in the United Kingdom," *Canadian Review of Sociology/Revue canadienne de sociologie*, vol. 55, no. 1, pp. 111–135, 2018.
- [4] W. C. Ihejirika, "Autorita' and autorevolezza: explaining contestations between political and religious leaders in the age, of the new media," *The Politics and Religion Journal - Serbian Edition*, vol. 5, no. 1, p. 22, 2017.
- [5] H.-I. Kwon, H.-S. Kim, and J. Jang, "Service value network model for the classical music market in South Korea," *Advanced Science Letters*, vol. 23, no. 1, pp. 75–77, 2017.
- [6] D. J. Park and J. David, "United States news media and climate change in the era of US President Trump," *Integrated Environmental Assessment and Management*, vol. 14, no. 2, pp. 202–204, 2018.
- [7] S. Sigtia, E. Benetos, and S. Dixon, "An end-to-end neural network for polyphonic piano music transcription," *IEEE/ACM Transactions on Audio Speech & Language Processing*, vol. 24, no. 5, pp. 927–939, 2017.
- [8] X. Gong, Y. Zhu, H. Zhu, and H. Wei, *Chmusic: A Traditional Chinese Music Dataset for Evaluation of Instrument Recognition*, Engineering and Systems Science>Audio and Speech Processing, 2021.
- [9] L. Taruffi, C. Pehrs, S. Skouras, and S. Koelsch, "Effects of sad and happy music on mind-wandering and the default mode network," *Scientific Reports*, vol. 7, no. 1, Article ID 14396, 2017.
- [10] Y. T. Chen, C. H. Chen, S. Wu, and C. C. Lo, "A two-step approach for classifying music genre on the strength of AHP weighted musical features," *Mathematics*, vol. 7, no. 1, p. 19, 2019.
- [11] J. Li, D. Chen, Y. Ning, Z. Zhao, and Z. Lv, "Emotion recognition of Chinese paintings at the thirteenth national exhibition of fines arts in China based on advanced affective computing," *Frontiers in Psychology*, vol. 12, Article ID 741665, 2021.
- [12] T.-Y. Kim, H. Ko, S.-H. Kim, and H.-D. Kim, "Modeling of recommendation system based on emotional information and collaborative filtering," *Sensors*, vol. 21, no. 6, p. 1997, 2021.
- [13] G. Thompson, "The 'music therapy with families network': creating a community of practice via social media," *British Journal of Music Therapy*, vol. 31, no. 1, pp. 50–52, 2017.
- [14] S. Namasudra and P. Roy, "PpBAC," *Journal of Organizational and End User Computing*, vol. 30, no. 4, pp. 14–31, 2018.
- [15] V. Tolz and Y. Teper, "Broadcasting agittainment: a new media strategy of Putin'S third presidency," *Post-soviet Affairs*, vol. 34, no. 2, pp. 1–15, 2018.