*Research Article*

# Comparison of the Status Quo of Chinese Contemporary Popular Music and Traditional Music Based on Probability Theory and Mathematical Statistics

## Yanlong Niu [ORCID]

*Academy of Music and Dance, School of Zhengzhou Institute of Science and Technology, Zhengzhou, Henan 450064, China*

Correspondence should be addressed to Yanlong Niu; niuyanlong_0512@163.com

In real life and activities, music is everywhere. With the development of the times, Chinese pop music and traditional music have also continued to develop and present new characteristics. However, there is no fixed law in the development of music, and traditional analysis methods cannot capture the current situation of music development in time. Probability theory and mathematical statistics is a subject that studies possibility, which contains many analytical methods. To this end, the article takes the current situation of music teaching development as an example. From the perspective of probability theory and mathematical statistics, the correlation coefficient is introduced and incorporated into the analysis of the development status of popular music and traditional music. In this study, first the general methods of probability theory and mathematical statistics are analyzed, then related experiments from the mathematical level are designed, and a series of investigations are carried out. Finally, starting from the four groups of schools, teachers, parents, and students, the article raises the field of comparison from the campus to the society and focuses on comparing the comprehensive development status of Chinese popular music and traditional music. After a series of experiments and analysis, it can be concluded that the correlation between the students' interest level and the development status of popular music reaches 7.33, and the correlation with the development status of traditional music reaches 7.61. At the same time, after analysis, it is found that most of the students prefer popular music, but they know little about Chinese traditional music. This fully shows that the comparison of the status quo of Chinese popular music and traditional music based on probability theory and mathematical statistics can intuitively describe the development status of the two, which is very important for promoting the national music and creating a good music environment.

## 1. Introduction

With the development of the economy and society, emerging music trends continue to emerge, and the development of music has deeply engraved the imprint of the new era. In this process, the expression form of music itself has not kept up with the tide of the times, so its development status is worrying. However, music is not as easy to analyze and compare as other disciplines, and traditional analysis methods have great drawbacks in the field of music. Therefore, the study introduces probability theory and mathematical statistics methods to analyze and compare the current situation of Chinese contemporary popular music and traditional music. Through a series of comparisons and

researches, the problems existing in the development of Chinese pop music and traditional music have been paid attention to in a timely manner and have been solved in a timely manner according to problems. At the same time, through the comparison and analysis of the current situation of music, the related theories of music can also be enriched, which provides a reference for the theoretical construction of other disciplines. In addition, by studying the current situation of Chinese pop music and traditional music, it can also create a good atmosphere for China to carry forward the national spirit and build a national brand.

Pop music and traditional music are like two sides of the same coin, and the two can be converted into each other. In recent years, many scholars have compared and analyzed the

two. Among them, Shen et al. pointed out that there were many differences between Chinese pop music and traditional music in the form of musical performance, so he compared the two art forms from this perspective. In the process of comparison, he also found that Chinese pop music and traditional music have three common performance forms [1]. Sylvanus aimed to analyze the differences between Chinese popular music and traditional music using deep learning models. In the research process, in order to improve the speed of music information retrieval, he proposed a music recognition system based on visual analysis, which aimed to accelerate the analysis and exploration of Chinese popular music and traditional music [2]. Quin surveyed people's backgrounds in listening to pop versus traditional music. During the course of the investigation, the expressions of the respondents describing the music, as well as their emotional responses, were observed and recorded [3]. In order to analyze the development of Chinese pop music and traditional music in the context of aesthetic education, Liu collected and analyzed the development data of Chinese pop music and traditional music on the basis of computer-aided analysis. In the process, he also pointed out that aesthetic education not only promoted the healthy development of Chinese popular music and traditional music, but also pointed out a new direction for the development of music [4]. Cian et al. studied the inheritance of Chinese pop and traditional music. He pointed out that the Chinese music teaching method was gradually moving closer to the Western professional music teaching mode, which made the inheritance of Chinese popular music and traditional music neglected [5]. The above experts and scholars have compared and analyzed the development status of Chinese pop music and traditional music, but they have not analyzed the future trend of Chinese music development from the current status quo.

Probability theory and mathematical statistics are a combination of a priori and a posteriori, which can intuitively analyze the development trend of things in the present and the future. Chu and Wang introduced the necessity of the integration of probability theory and mathematical statistics courses and ideological and political elements and pointed out the current ideological and political status of this course. To this end, he pointed out that the combination of probability theory and mathematical statistics courses and ideology and politics can implement the concept of pluralistic education, and create a learning atmosphere in the society [6]. In order to make the basic theories and theorems of probability theory and mathematical statistics easier to understand, Luo and Guan used relevant software to design basic teaching cases. At the same time, he also pointed out that this move was bound to stimulate students' interest in learning and deepen their understanding of probability theory and mathematical statistics courses [7]. Zhou pointed out that the original intention of teaching was not only to impart knowledge but also to pay attention to the mining of implicit ways of thinking. To this end, he combined the relevant knowledge of probability theory and mathematical statistics and put forward some suggestions on how to improve students' mathematical thinking [8]. Cao believed

that mathematical modeling could greatly arouse the enthusiasm of students, and at the same time could greatly improve students' interest in learning. Therefore, the idea of mathematical modeling was added to the teaching process of probability theory and mathematical statistics [9]. Costello and Watts clearly pointed out that the teaching of probability theory and mathematical statistics in China paid too much attention to theory and seriously lacks practice. In order to solve this problem, he adapts the problem-driven concept to establish a new structure of probability theory and mathematical statistics learning [10]. The above experts and scholars have analyzed the application and development of probability theory and mathematical statistics from different perspectives, but few have combined probability theory with mathematical statistics and music.

In this study, probability theory and mathematical statistics are applied to the comparison of Chinese popular music and traditional music, and the comparison of the development status of the two is realized. After a series of analyses, it can be known that there is a strong correlation between the age of teachers and the current situation of music development. Among them, the correlation between the age of teachers and the development status of popular music reaches 7.8, and the correlation between the status of the development of traditional music reaches 7.9. This shows that the teacher's age can affect the teacher's musical inclination, which is directly reflected in the music classroom. So it ultimately affects the development status of music. In addition, the correlation between the teacher's professional title and traditional music is relatively strong, reaching 7.1, which shows the current development direction and trend of traditional music. At the same time, driven by parental values, both popular and traditional music have continued to evolve. However, in comparison, traditional music is less persecuted by this concept, and popular music is more deeply hurt.

## 2. Comparison Methods of the Present Situation of Music

In the development process of things, people often compare them in order to discover the inherent characteristics hidden in things [11, 12]. Probability theory and mathematical statistics are important branches of data research and analysis, which have their own unique concepts and methods, and are very rich in content. Probability theory and mathematical statistics provide many methods for comparison and analysis of things, such as parameter estimation and correlation analysis. Different methods have different operation steps and processes, but no matter what method, the core idea contained in the method will not change. Under the guidance of the core ideas of probability theory and mathematical statistics, the comparison and analysis process of the development status of Chinese pop music and traditional music is shown in Figure 1.

It can be seen from the above process that the analysis and comparison process of the development status of Chinese pop music and traditional music is relatively clear [13, 14]. In this process, the first step is to distinguish and
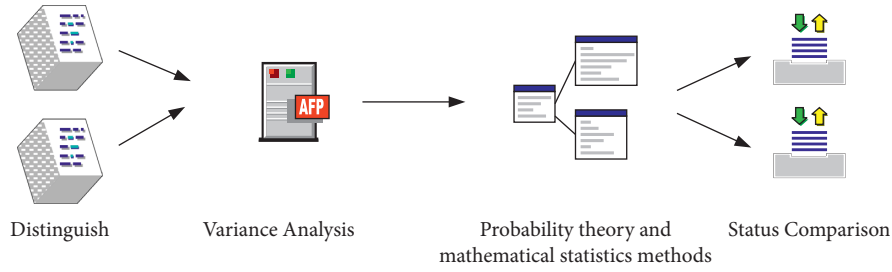
FIGURE 1: Comparison and analysis process of music development status.

analyze music, aiming to start a comparison situation from the source. Then, on the basis of the above differences, difference analysis is performed to obtain difference values and related comparative data. Next, using probability theory and mathematical statistics methods for data analysis and comparison, the data results are obtained [15, 16]. Finally, according to the data results, the comparison of the current situation of music can be formally obtained, and its future development trend can be predicted.

In probability theory and mathematical statistics, there are many methods that can be used for comparison, but not every method is suitable for the analysis and comparison of the status quo of Chinese music [17, 18]. Probability theory and mathematical statistics are a subject in which the prior comes before the posterior. The basic application areas of probability theory and mathematical statistics are shown in Figure 2. It is precise because of the strong scalability of probability theory and mathematical statistics that it can be applied to compare the development status of Chinese pop music and traditional music. At the same time, probability theory and mathematical statistics combine a priori and a posteriori, so they can also use this as a basis to explore the future development of Chinese popular music and traditional music.

Looking at the application fields of probability theory and mathematical statistics, it can be found that its main value lies in the ability to analyze the gap between things in time [19, 20]. In the comparison of the development status of Chinese pop music and traditional music, the application of probability theory and mathematical statistics can intuitively analyze the differences between the two and give data explanations for subsequent predictions and experiments. At the same time, combined with the above ideas and methods, a data analysis method based on correlation analysis is initially formed in the article.

When probability and mathematical statistics are combined with the current state of musical development, the current state of musical development is no longer a bland paragraph of words or numbers, but is transformed into a mathematical formula with cultural symbols by the addition of probability and mathematical statistics. At the same time, the emergence of probability and mathematical statistics has helped music itself to develop, allowing it to see beyond the fog.

In the development of music teaching, the development of music is affected by many factors, so it is very important to discover the key factors in time for the long-term
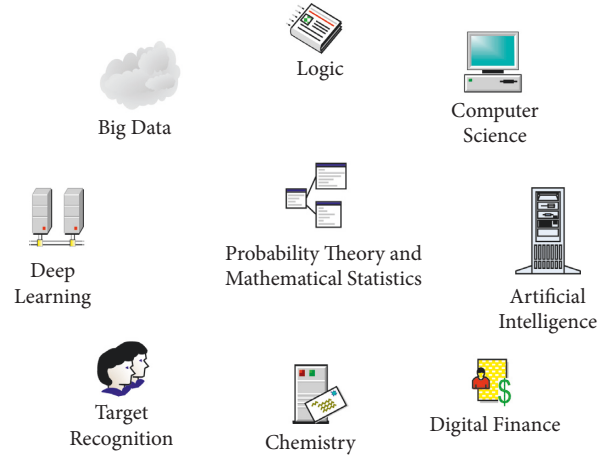


FIGURE 2: Application areas of probability theory and mathematical statistics.

development of music. In order to describe the degree of correlation between things, the correlation coefficient is introduced to analyze the current situation of music [21, 22]. Assuming that $M$ and $X$ represent music indicators and factors affecting music development, respectively, the correlation coefficients corresponding to $M$ and $X$ are expressed as

$$L_{MX} = \frac{\sum_{i=1}^{n} (x_i - x)(m_i - m)}{\sqrt{\sum_{i=1}^{n} (x_i - x)^2 (m_i - m)^2}},$$

$$R = 10L_{MX} = \frac{\sum_{i=1}^{n} \|M - X\|}{\sqrt{\sum_{i=1}^{n} \|M - X\|^2}}. \tag{1}$$

Among them, $x_i$ and $m_i$ respectively represent the random corresponding value of the above two variables, or called the observed value. $L_{MX}$ depicts the correlation between music indicators and factors that affect the development of music, which represents the degree of correlation between the two. In order to ensure the smooth progress of the follow-up research, $L_{MX}$ is multiplied by 10 and $R$ is defined as the enlarged correlation coefficient.

On the basis of the correlation coefficient, it is introduced into the analysis of the current situation of music. But before the analysis, the article first needs to establish the direction and scope of the analysis. Therefore, the concepts of change reliability, analytical validity, and difference degree are defined, and the aim is to analyze the current

situation of music using the correlation coefficient from these aspects.

### 2.1. Change Reliability.

Reliability refers to the degree of reliability in the testing process, which characterizes the validity of the analysis [23]. But reliability itself undergoes many changes over time, which directly affects the accuracy of the analysis. Because the article introduces the concept of change reliability, it aims to study the reliability of things from a dynamic perspective [24, 25].

The formula for calculating the change reliability is

$$a = \frac{1}{n}\left[1 - \frac{\sum M_i}{x^2}\right],$$

$$\overline{x} = P_{mx} = \frac{\sum_{i=1}^n (x_i - x)}{\sqrt{\sum_{i=1}^n (m_i - m)^2}}. \tag{2}$$

The trend function $Z$ is

$$\mathscr{Z} = \frac{\sqrt{\mathscr{N}_i}}{(a_j - e_j)}. \tag{3}$$

From the perspective of probability theory and mathematical statistics, if $\overline{x} > 0$, it means that there is a positive correlation between the direction of change of things and the direction of change of reliability. If $\overline{x} \leq 0$, it indicates that there is a negative correlation between the direction of change of things and the direction of change of reliability. Among them, $Z$ depicts the change trend of the reliability of things in a period of time in the future.

### 2.2. Analytical Validity.

Reliability sometimes does not reflect the actual situation well, so validity is used to analyze the relationship between the changes of things and the actual situation [26]. In the process of analyzing the current situation of music, due to professional or knowledge limitations, people always ignore the relationship between music development and reality. Therefore, analytical validity is introduced, aiming to analyze the hidden associations between things from the real situation.

The analytical validity calculation process is as follows:

$$y = \sum_{n=1}^m \left[(ax + +c)^2 - at\right],$$

$$S = \frac{1}{100} \sum_{n \in M} (F_i - W_i). \tag{4}$$

In the above formulas, $y$ represents the correlation function, which describes the functional relationship between the correlation degrees. $S$ represents the weighting function, which divides things into fixed shares, and then weights them according to the associations between different things.

### 2.3. Degree of Difference.

The degree of difference refers to the difference relationship between things. In order to compare and study things, it is necessary to find out the inherent differences between things, and then use this as a breakthrough to discover the connection between the two.

The differences between Chinese pop music and traditional music are described as follows:

$$m = b\sqrt{g} + D \sum \|Y - u\|,$$

$$y = \frac{\sum_{j=1}^{\&} mx}{\sum_{i=1}^c yD}. \tag{5}$$

In the above formulas, $m$ represents the degree of difference coefficient, which represents the difference between popular music $b$ and traditional music $D$. In this process, the difference frequencies of the two kinds of music conform to a normal distribution.

Finally, based on the analysis of the correlation coefficient, the correlation between the two kinds of music and the surrounding things can be obtained, and then the comparison and analysis of the current situation can be realized based on this.

The calculation formula for comparison and analysis is

$$Q = 1 - \frac{\|\mathscr{R}/10\|}{\mathscr{L}_{\mathscr{M}X}}. \tag{6}$$

Among them, $Q$ represents the result after comparing and analyzing things. Based on this, the article basically realizes the use of correlation coefficient to analyze and compare the current situation of music. In this process, using probability theory and mathematical statistics, the correlation coefficient not only describes the analytical validity of music development but also provides a standard and norm for subsequent research and analysis.

In the above comparison and analysis methods, the article mainly applies the relevant analysis methods in probability theory and mathematical statistics. On the one hand, for the analysis of the status quo of music development, correlation analysis is enough to describe the status quo of music, so there is no need to introduce other methods to destroy the original method structure. On the other hand, correlation analysis can not only explain the relationship between things but also predict the future development trend of things.

## 3. Comparison of the Status Quo of Music Teaching

*Test Subject.* In order to ensure the objectivity of the experiment, the article randomly selects students from Hebei University, Hebei Media College, and Hebei Art Vocational College for the survey. That is, among them, these three universities are all located in urban areas. In terms of the choice of student groups, this article takes first-year students as the main research object. On the one hand, first-year students have relatively more independent time and have more opportunities to come into contact with music. On the other hand, first-year students have just entered the campus and their emotions are often in an increasingly rich state, so they have more points of resonance with music. Also, in the

course of each survey, this study has taken a basic look at each school and conducted a preliminary survey of the teachers responsible for teaching music.

### 3.1. Methods.

In this study, the questionnaire survey method, literature method, and classroom experience method are mainly used. The data in the article come from questionnaires and classroom experience.

#### 3.1.1. Questionnaire Survey Method.

In the process of questionnaire design, it was divided into four levels according to different subjects: schools, teachers, parents, and students. In the process of questionnaire distribution, this study distributed a total of 1000 questionnaires, including 800 questionnaires for students, 100 questionnaires for teachers, 50 questionnaires for parents, and 50 questionnaires for schools. After the final statistics and analysis, a total of 992 questionnaires were recovered in this study, and the effective rate reached 99.2%, which indicated that the method has a certain statistical significance.

#### 3.1.2. Document Law.

Before the study, a large number of literatures and books on music teaching in the university were consulted using online resources. On this basis, according to the relevant theories and research results, a preliminary analysis of the teaching status of popular music and traditional music was carried out to deepen the cognition of popular music and traditional music.

#### 3.1.3. Classroom Experience Method.

There is always a gap between theory and reality, so the article is personally involved in a music class under the guidance of theory. In the actual teaching environment, combined with the actual experience, the students' class status was observed, so as to find the gap between theory and reality. In the process of classroom experience, the teaching atmosphere, quality, and other factors were quantitatively scored according to the actual situation.

### 3.2. Pop Music and Traditional Music Teaching Cases Established.

Music education is an important link to improve China's quality education, and it is also an important basis for studying the current status of music development. But unlike other education subjects, music education has a strong scene. Therefore, the article aims to start from specific cases, focus on analyzing the differences in the development process of popular music and traditional music, and compare their status quo.

#### 3.2.1. Traditional Music.

Traditional music shows China's national style and national spirit. In the process of case selection, "Erquan Reflecting the Moon" showed extremely unique performance skills, fully reflecting the charm of traditional Chinese musical instruments. For this reason, "Erquan Reflecting the Moon" was selected as an illustrative case of traditional music, aiming to illustrate its

development status from the actual point of view. Among them, the musical notation of Erquan Yingyue is shown in Figure 3.

Through teaching investigation, it can be found that students are familiar with the name "Erquan Reflecting the Moon", but they do not know anything about its expression skills and the emotions expressed in it, and they do not know the hidden melody behind it. To this end, the main theme of "Erquan Reflecting the Moon" is played first, and then the expression skills and emotions displayed by the work are analyzed with this as an introduction. Finally, according to the teaching materials, information is integrated and summarized, and interested students are encouraged to continue their studies.

#### 3.2.2. Pop Music.

Chinese contemporary pop music mainly shows the spirit of the times in China. In the process of case analysis, it can be found that the work "My Motherland and Me" not only expresses people's strong patriotic spirit but also combines the spirit of the times with the national spirit, which realizes the combination and unity of the two. For this reason, in the process of explaining the case of pop music, "My Motherland and Me" was chosen. Among them, the musical notation of this work is shown in Figure 4.

Through teaching investigation, it can be found that most students are familiar with this classic pop music and can hum and sing. Moreover, due to the deepening of patriotic education, most students can accurately grasp the patriotic feelings expressed in it and can internalize them in their hearts and externalize them in their actions.

The above two teaching cases are leaders in the field of popular music and traditional music, which fully illustrate the development of Chinese music and the current state of music teaching. But classroom music teaching only illustrates one aspect of the current state of music teaching. Next, the article aims to compare the current state of popular music with traditional music from other perspectives.

### 3.3. Comparison of the Status Quo of Popular Music and Traditional Music.

Through the above case design and experimental analysis, it can be known that there are many differences in the teaching of popular music and traditional music. After a survey of university students in Hebei Province, three months of data were randomly selected to conduct statistics and analysis on the questionnaire results. Table 1 shows the usage of teaching facilities for popular music and traditional music.

Table 1 shows that there are large differences in the use of teaching facilities for popular music and traditional music. Among them, in a three-month period, pop music classrooms were used 21 times, while traditional music classrooms were used only 12 times. In terms of the use of sound, pop music has been used 20 times, and traditional music has been used 15 times.

It can be seen from the above distribution that popular music is favored by teachers and students, so the utilization rate of its teaching facilities is relatively high. In contrast, traditional music is seriously underutilized in teaching

FIGURE 3: Notation for "Erquan Reflecting the Moon."



FIGURE 4: The musical score of "My Motherland and Me."

TABLE 1: Usage of teaching facilities for popular and traditional music.

| Equipment | Popular music | Traditional music | Average |
|---|---|---|---|
| Music room | 21 | 12 | 16.5 |
| Projection | 12 | 14 | 13 |
| Audio | 20 | 15 | 17.5 |
| Piano | 6 | 5 | 5.5 |
| Audio-visual material | 22 | 19 | 20.5 |
| Electronic piano | 10 | 6 | 8 |

facilities due to its profound cultural heritage covering up the surface musical cells, and the current development situation is worrying. In order to deeply study and compare the development status of popular music and traditional music, the article starts from the teaching status and aims to analyze the differences between the two.

### 3.3.1. Current Situation of Pop Music Teaching.
In the teaching process, the article analyzes the allocation of popular music teachers and lesson time in different universities, of which the results are shown in Table 2.

Table 2 shows that the situation of popular music class hours in the above three universities is basically the same, all of them are taught according to two periods per week. However, in terms of teacher allocation, we find that Hebei University and Hebei College of Arts and Vocational Studies have relatively few male teachers teaching popular music, while Hebei Media College has relatively more male teachers. Also, in terms of the number of popular music teachers, Hebei University has only six teachers, while the other two universities basically reach eight teachers. This shows that the distribution of teachers in popular music is more rationalized in art schools.

At the same time, in order to reflect the objectivity of the survey, the opinions and attitudes of students were also collected. In the process of questionnaire summarization, according to the students' attitudes, their love of popular music is divided into the following four levels, and the specific results are shown in Table 3.

Table 3 shows that among the 1000 students, 68.2% of the students like pop music very much, and 11.4% of the students like pop music. This shows that students in Colleges and Universities generally like pop music and have a strong sense of identity with pop music. But it can still be found that 9.9% of students do not like pop music. During the investigation, it can be found that the main reason why these students choose not to like it is that popular music affects their concentration and prevents them from concentrating on studying.

### 3.3.2. Current Situation of Traditional Music Teaching.
Traditional music is the national treasure and the pride of the nation. During the investigation, a series of studies were carried out in strict accordance with the above methods and procedures. Tables 4 and 5 show the distribution of traditional music teachers, class hours, and students' preference for traditional music.

The above results show that the three universities have maintained a good tacit agreement in the allocation of traditional music lessons, with the average lesson time being two lessons per week in all three universities. However, in terms of teacher allocation, Hebei University had a significantly larger team of two male teachers and six female teachers. In contrast, the Hebei College of Communication and the Hebei College of Arts are slightly behind. In terms of enjoyment of traditional music, 45.2% of students said they liked it a lot and 22.5% said they liked it a lot.

## 4. Comparison of the Status Quo of Music Based on Probability Theory and Mathematical Statistics

### 4.1. The Influence of School Factors on the Current State of Music.
In the development process of Chinese popular music and traditional music, schools are one of the palaces of music, which directly affects the current situation of music development. The relationship between schools and the status quo of music development is shown in Figure 5.

It can be seen from Figure 5 that there is a certain relationship between schools and the current state of music development. Among them, the correlation between school facilities and the development status of popular music reached 6.7, and the correlation with traditional music reached 5.8. This shows that school facilities affect the status quo of music development to a certain extent.

### 4.2. The Influence of Teacher Factors on the Current State of Music.
Teachers are one of the founders of music development, and they have a direct impact on the status quo of music development. Different teachers, class schedules and teachers' teams have different effects on music development. Among them, the influence of teacher groups on the status quo of music development is shown in Figure 6.

Figure 6 shows that there is a strong correlation between the age of teachers and the status of music development. Among them, the correlation between the age of teachers and the development status of popular music reached 7.8, and the correlation between the status of the development of traditional music reached 7.9. This shows that the teacher's age can affect the teacher's musical inclination, which is directly reflected in the music classroom, so it ultimately affects the development of music. The correlation between the teacher's professional title and traditional music is relatively strong, reaching 7.1, which shows the current development direction and trend of traditional music.

### 4.3. The Influence of Parental Factors on the Current State of Music.
Parents are the gatekeepers of students, so parents' attitude towards music directly affects students' attitude towards music. Generally, parents want to see their children learn happily, so interest is one of the important factors affecting their development. On this basis, the article further analyzes the influence of parent groups on the status quo of music development, and the results are shown in Figure 7.

Figure 7 shows that, from the perspective of parents, the prospect and future of music development are the two most important factors for them. Among them, the correlation between parents' own interests and the development status of popular music reached 6.98, and the correlation with the development status of traditional music reached 6.18. At the same time, the correlation between music scores and traditional music reached 6.19. This shows that for parents, what they value more is the achievement and development brought about by music. Driven by parental values, both pop and traditional music have evolved along these lines.

TABLE 2: Pop music teacher allocation and class hours.

| School | Male teachers | Female teachers | Lesson/week |
|---|---|---|---|
| Hebei university | 1 | 5 | 2 |
| Hebei media college | 6 | 4 | 2 |
| Hebei arts vocational college | 2 | 6 | 2 |

TABLE 3: Students' preference for pop music.

| Category | Number of people | Percentage (%) |
|---|---|---|
| Very much | 682 | 68.2 |
| Like | 114 | 11.4 |
| General | 105 | 10.5 |
| Dislike | 99 | 9.9 |

TABLE 4: Distribution of traditional music teachers and class hours.

| School | Male teachers | Female teachers | Lesson/week |
|---|---|---|---|
| Hebei university | 2 | 6 | 2 |
| Hebei media college | 3 | 3 | 2 |
| Hebei arts vocational college | 1 | 4 | 2 |

TABLE 5: Students' preference for traditional music.

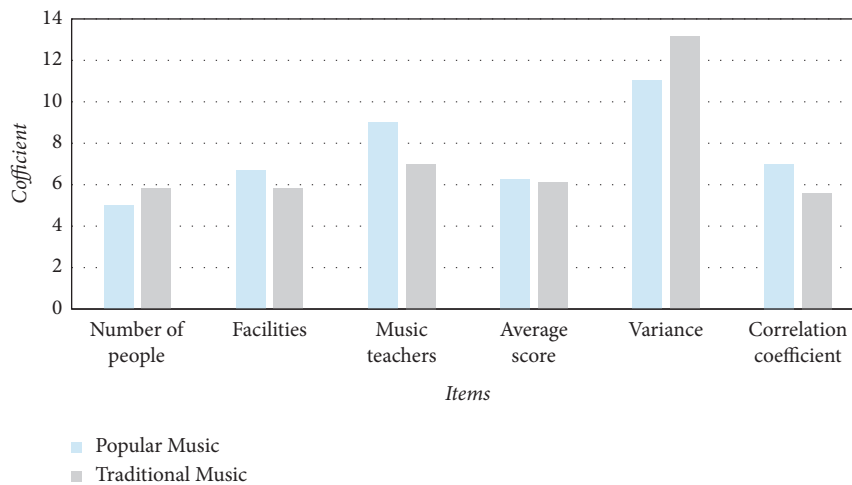| Category | Number of people | Percentage (%) |
|---|---|---|
| Very much | 452 | 45.2 |
| Like | 225 | 22.5 |
| General | 201 | 20.1 |
| Dislike | 122 | 12.2 |



FIGURE 5: Correlation between schools and the current state of music development.

However, in comparison, traditional music is less persecuted by this concept, and popular music is more deeply hurt. It is clear from this that parental factors can be a serious impediment to the development and growth of popular and traditional music in the context of probability theory and mathematical statistics. Therefore, in the process of music development, we need to anticipate and reduce the impact of parental factors on the current state of music development.

4.4. The Influence of Student Factors on the Current State of Music. Students are one of the inheritors of music, so they are most able to determine the future of popular and traditional music development. However, the explicit association between student group behavior and the status of music development is not clear. Therefore, this article studies the relationship between student groups and the current state of music development, aiming to explore the relationship between the two. Among them, the relationship
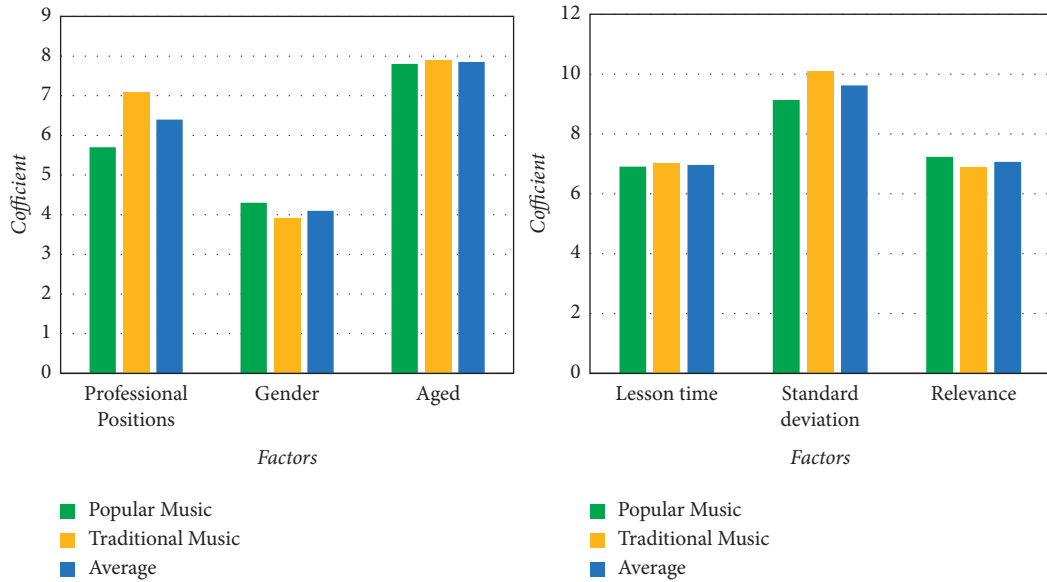
FIGURE 6: The influence of teacher groups on the status quo of music development.
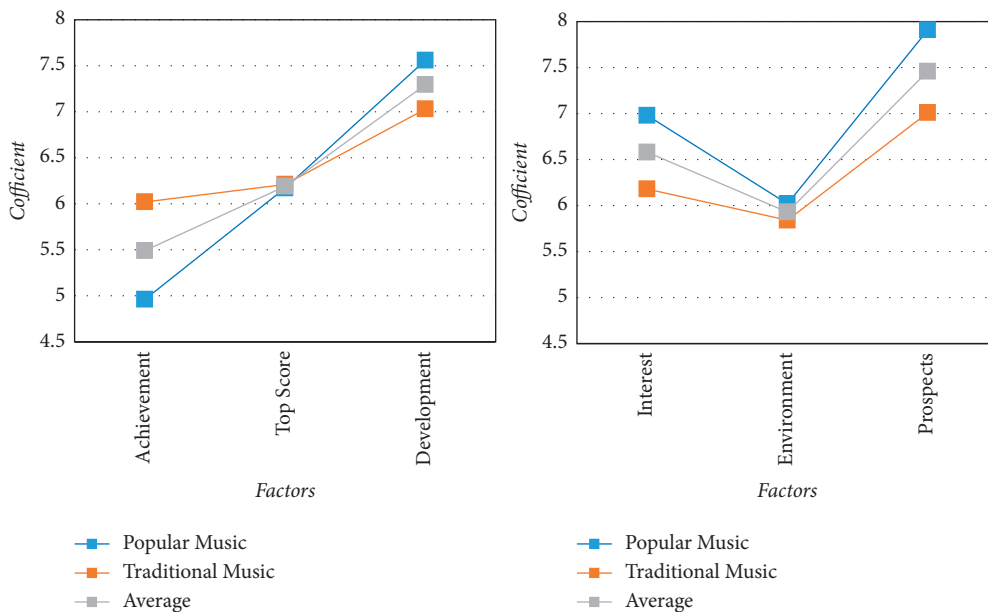


FIGURE 7: The influence of parent groups on the status quo of music development.

between the student group and the status quo of music development is shown in Figure 8.

Figure 8 shows that the relationship between the behavior of different student groups and the status of music development is not the same. Among them, the correlation between the students' interest level and the development status of popular music reached 7.33, and the correlation between the status of the development of traditional music reached 7.61. Moreover, the correlation between students' patience and the current status of popular music development was 8.01, and the correlation between the current status of traditional music development was 7.82. This fully shows that the interest and patience of the student group directly affect the development of music. Among them,

popular music is closely related to these behaviors of students, with a comprehensive correlation of 6.81 and a comprehensive correlation of traditional music of 7.01. In other words, the development of popular and traditional music will change with the behavior of the student body.

It can be seen from the above comparison and correlation analysis that both Chinese popular music and traditional music are deeply loved by students in Colleges and Universities. At the same time, with the deepening of the research, it is also found that most of the students have little understanding of music and cannot clearly perceive the emotions hidden behind the music. Moreover, during the survey, it is found that most of the students prefer popular music, but they know little about traditional Chinese music.
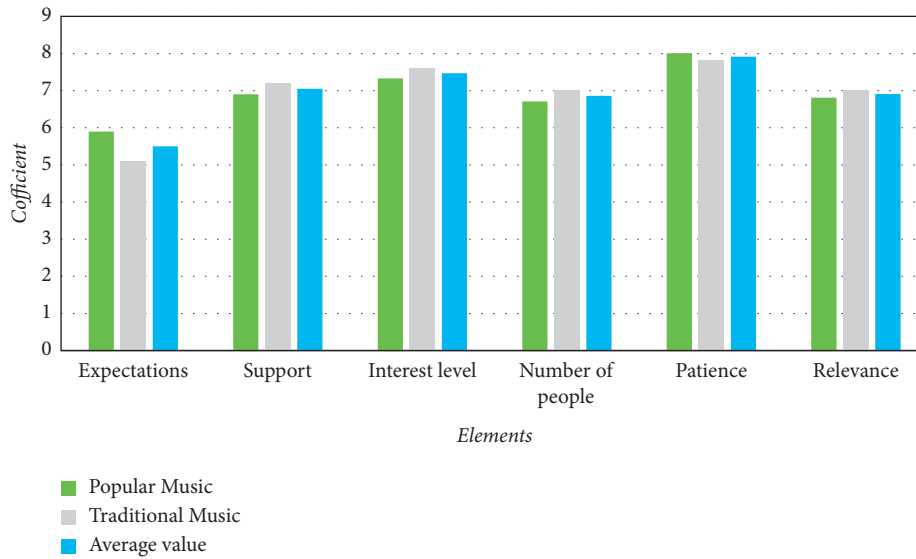
Figure 8: Association between student population and current state of music development.

With the development of science and technology, online media has become the main position for students to contact music, which further promotes the development of popular music. For the relatively conservative traditional music, the emergence of online media has hindered the development of traditional music. At the same time, it should be noted that the emergence of online media has brought challenges, but it has also brought endless opportunities.

## 5. Conclusion

In the process of comparing popular and traditional music, the current state and development of music is in fact a condensation and reflection of the times. Music has influenced the development of campus culture in a subtle way. In turn, the development and prosperity of campus culture also influences the prosperity and status of music to a certain extent. Traditional music is popular music with a sense of age, which is embedded with a rich national identity. Pop music, on the other hand, is a new type of music born out of traditional music, which is both contemporary and rich in national characteristics.

The article uses probability theory and mathematical statistics to study and compare the development of traditional music and pop music. In the course of the study, the article takes Hebei University as the research object, while comparing the fluctuation of the current situation of music under the influence of different factors. Based on this, through probability theory and mathematical statistical analysis, the article finds that schools and teachers can directly influence the spread and development of music and play a role in hindering the development of the current state of music in the area. Moreover, the students themselves as well as their parents can have a certain hindering effect on the development of music. In this process, if the influence of different factors on the fluctuation of the current state of music can be greatly grasped, then both popular and traditional music will be developed in the long run. However,

due to time reasons, the article only analyzes the current state of music teaching in the current state of music development, while ignoring the analysis of the current situation at other levels. In the future, the article will try to explore the comprehensive development status of Chinese pop music and traditional music from multiple perspectives.

## Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

## Conflicts of Interest

The author declares that there are no conflicts of interest.

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