

**Research Article**

The Innovation of Mongolian Folk Song Music Cultural Inheritance Path Based on Intelligent Computing Analysis of Communication Big Data

Jiayu Wu,1,2 Cheong Jan Chan,2 and Julia Chin Yee Chieng2

1Faculty of Music and Dance, Hulunbuir University, Hulunbuir 021000, Inner Mongolia, China
2Faculty of Human Ecology, Universiti Putra Malaysia, Seri Kembangan, Selangor Darul Ehsan 43400, Malaysia

Correspondence should be addressed to Jiayu Wu; gs57385@student.upm.edu.my

Received 24 January 2022; Revised 1 March 2022; Accepted 24 March 2022; Published 11 April 2022

Academic Editor: Muhammad Arif

Cultural inheritance and innovation is an important measure to enhance the vitality of traditional culture and realize the sharing of national culture. Mongolian folk music, as an important part of Chinese cultural resources, plays an irreplaceable role in inheriting Mongolian culture. How to better inherit the music culture of ethnic minorities has been a hot topic in the music education circle in recent years. However, when we focus on the campus inheritance of ethnic minority music, we have to pay attention to the original living space of ethnic minority music and its unique local inheritance method. What is the relationship between them? What are the similarities and differences? The investigation of the relationship between the two is an indispensable content for exploring the inheritance of minority music. This paper aims to study the innovation of the inheritance path of Mongolian folk song music culture, endow Mongolian folk song music with a new era connotation in the new era, and let the folk song music culture be inherited and revitalized in the in-depth contact with the masses. This paper proposes a method to study user needs with the help of dissemination big data, identify malicious traffic with the help of the Internet of Things, find the most touching music and cultural elements of users, innovate and integrate the Mongolian nation, avoid malicious traffic from invading Mongolian folk songs, and enhance the attractiveness of Mongolian folk songs. Experiments have shown that Mongolian folk songs have a strong appeal, and the participation rate of young people in Mongolian folk songs has increased by 20%.

1. Introduction

China is a multiethnic unified country, and each ethnic group has its own unique language, customs, costumes, and other splendid cultures. The Mongolian traditional culture is rich in content, broad, and profound. However, with the flood of mainstream culture and the influence of the baton of the college entrance examination, the traditional Mongolian culture has gradually been marginalized or even ignored. On one side, modern culture is blooming, and traditional culture is declining. On the other side, the inheritors are difficult to survive, and many excellent Mongolian cultures are facing loss, and there is vitality in the crisis. At present, more and more people have noticed the dilemma of traditional culture, and more and more people have begun to pay attention to the inheritance and development of national music culture. The protection and inheritance of national music culture highlight its collective consciousness compared to any historical period. How to let the Mongolian culture inherit and develop and how to realize the Mongolian folk song music in the new era will be reborn as the test of the times that musicians must answer.

For the inheritance and innovation of traditional culture, experts and scholars at home and abroad have already had certain achievements and experience. Zhao proposes a new way of inheriting traditional culture by injecting traditional culture into the art classroom. Schools should grasp the correct value orientation of art teaching according to the requirements of core literacy. He proposed to organically graft art teaching materials with students’ cultivation and
implement colorful and innovative teaching. He pays attention to the internalization of students’ knowledge and skills and improves the core quality of students’ art. He wants students to find unique traditional cultural symbols and establish a sense of national belonging and self-worth [1]. Pan et al.’s research on Xin’an Medical College is the development history, looking for the law of its inheritance and development. As a medical school with distinctive regional characteristics, it has contributed to the development of Chinese medicine in terms of literature resources, medical theories, clinical applications, and spiritual culture and has had a profound impact. His article discusses its academic characteristics and contribution to the development of Chinese medicine, focusing on its formation, academic inheritance and innovation, overseas popularization, and the integration of Confucianism and Buddhism in medicine [2]. The source of Pedeliento et al.’s research on cultural innovation is to learn from the theory of cultural innovation. He provided a case study on a recently established consumer startup company that stood out on the local competitive arena due to the cultural positioning it pursued. The results of the two-year longitudinal case study combine longitudinal case analysis with active research, revealing how consumers recognize the existence of cultural opportunities. It develops cultural strategies and builds companies to take advantage of this opportunity commercially. His research provides a theoretical and empirical explanation for linking the literature of consumer entrepreneurship with the theory of cultural innovation [3]. Lin et al. strive to build a biscuit knowledge-based teaching tourism factory, combining local handmade biscuit experience and evaluation. He aims to disseminate biscuit making techniques and the experience of biscuit manufacturers to the public. In addition, he looks forward to sharing with the public what the concept of nonadditives and nature is. He provides knowledge about food safety and conveys local characteristics and cultural spirit [4]. Wang studies digital cultural innovation, and under the background of the all-round development of Internet big data, he uses digital art technology to help transform scientific and technological innovation capabilities into real productivity. Digital media disciplines in colleges and universities should seize opportunities, respond to challenges, develop cultural and creative industries, and better realize the transformation of results [5]. Jiao et al.’s research explores how the social networks of senior management team members of Chinese cultural and creative industries influence corporate innovation performance through organizational learning. Based on the cultural and creative industries, their article focuses on how the social networks of senior management team members influence innovation through organizational learning. They used upper echelon theory and social capital theory to put forward the relationship between the social network, organizational learning, and innovation performance of the senior management team. Based on the analysis of the internal mechanism between the senior management team network, organizational learning, and innovation performance, they finally drew the influence mechanism framework of the social network of the cultural and creative industry senior management team on corporate innovation. This provides a theoretical basis for enterprise innovation, as well as guidance and practical operation path for enterprise management innovation [6]. The cultural diversity among Elia et al. research alliance partners can have a negative impact on their innovation performance. They believe that innovation is more challenging in alliances involving subsidiaries of multinational corporations (MNCs), because they embody the dual background of the culture of the host country and the home country. They proposed that the impact of cultural diversity depends on the content of the alliance, which is positive in exploratory alliances and negative in exploitative alliances. Their findings confirm that subsidiaries often lack innovation in alliances involving partners from other cultures. However, when these alliances focus on exploratory activities, the impact of this cultural diversity becomes positive, because the challenge of cultural diversity is offset by the benefits of exposure to new cognitive programs [7]. Kostis et al. study the impact of cultural changes on innovation performance. They explored the relationship between cultural change and innovation performance using an imbalanced panel of tenth grade data from 34 OECD countries from 1980 to 2010. Their analysis using fixed effect estimates, different intercepts in different countries, and ten-year time dummy variables showed that culture and innovation are positively correlated. In addition, their exploration of the influence of the civic cultural dimension on innovation shows that the positive effect of culture on innovation stems from the positive effect of trust, control, professional ethics, and honesty, while the negative effect of obedience is on innovation [8]. MapReduce believes that big data classification has become a popular research topic in various fields such as medical care, e-commerce, and finance. The addition of the feature selection process helps to improve the big data classification process [9]. Zhao et al. believe that the electronics market is able to handle all aspects of quality planning by effectively deploying the IoT-Assisted Identification Management (IIDM) model. As a result it enables electronic marketplaces to handle all aspects of quality planning by effectively deploying available IIDM models [10].

This article analyzes the inheritance path of Mongolian folk song music culture innovation and finds the way of Mongolian traditional culture. It finds obstacles that affect the inheritance of Mongolian folk song culture and proposes targeted measures to remove the obstacles. It uses big data to mine information, compares the excellent experience of cultural inheritance and innovation at home and abroad, and finds a new method of cultural inheritance of Mongolian folk songs. Folk inheritance or campus inheritance has its own relatively perfect practice exploration, but with the change of social ecological environment, the reform of music education, and the change of educational environment, the inheritance of minority music needs to be studied in depth from a new perspective. First, scholars have looked for an inheritance method based on school inheritance in terms of curriculum setting, current situation analysis, teaching material implementation, and teaching evaluation, ignoring the study of the original living space of minority music;
second, they have studied minority music. Most of the articles on the inheritance mechanism are in the field of ethnomusicology, and there are few articles analyzing the connotation of ethnic music inheritance from the perspective of music pedagogy; thirdly, the inheritance of ethnic minority music in basic education is still relatively weak, and most of them are introductions to teaching experience and a description of the current state of inheritance. From the review of literature, there are still contradictions in how to find a balance between traditional and modern, mainstream and nonmainstream, and local and foreign in the inheritance of minority music.

2. Mongolian Folk Song Music Inheritance and Big Data Mining

2.1. Inheritance Methods of Mongolian Folk Songs. The geographical environment where the Mongols live is vast grassland. Over the years, the Mongols have not only created their own glorious history, but also created a beautiful grassland culture. Music and dance are an important part of grassland culture. Mongolian folk music, whether it is folk songs, rap, folk songs and dances, or musical instruments, has a distinctive ethnic style. The melody is beautiful, the breath is broad, the feeling is deep, and the breath of grassland is strong.

The Mongolian beauty is mainly the product of a long-term nomadic life and the resulting practical activities to create beauty. It is the objective relationship between Mongolian long-term nomadic work and nature and its objective activities. It is not only the cause of beauty, but also the fundamental basis for the artistic practice of creating beauty. Therefore, the essence of Mongolian beauty and artistic beauty lies in the perfect unity of man and nature. This is the essential feature of the Mongolian unique aesthetic style and aesthetic thought. Like Mongolian long-tuned pastoral songs, its long melody and grand phrase style are one of the few development peaks in the field of human music melody thinking. Long tone is the art of nature, and it has the breath of freedom and the romantic charm of freedom, which embodies the harmonious coexistence between man and the grassland, and is closely related, an art of life. Just like the Mongolian heroic epic, emotions and imagination usually thrive in the vast universe, and the music is beautiful and magnificent. The ancient British aesthetic consciousness of the Mongolian nationality is the product of the objective relationship between the Mongolian nomadic life and the natural world. It is also a product of the social relationship between Mongolian nomadic life and the struggle for survival of the nation or tribe. Therefore, Mongolian music aesthetic consciousness is the most concentrated and typical manifestation of the essential characteristics of Mongolian aesthetic consciousness. It is also the most essential form of Mongolian aesthetic consciousness.

The inheritance mechanism of Mongolian folk music is a kind of music inheritance system formed naturally by the Mongolian nationality. Although there is no standard support system, in the long-term historical development process, it can adapt to the needs of society and maintain a stable state of development. Due to the special nomadic lifestyle, people need singers to sing at weddings and funerals. It needs storytellers to use Sihu music to tell various historical stories after getting off work, and it also needs to use the low tide to vent their inner distress and sadness. Music is an indispensable content in Mongolian life. Due to a wide range of social needs, folk artists have been recognized by the society as a profession, and more and more members of society choose to become artists. This is the driving force behind the music inheritance mechanism of Mongolian folklore. Figure 1 shows the three main music inheritance types of Mongolian folk songs [11].

2.1.1. Family Inheritance. Family inheritance is a kind of inheritance method passed down from generation to generation, and it is the most natural inheritance mechanism. Folk artists who grew up in the singing of their grandparents listened to the singing and performances of their families and villagers at home, at work, and at weddings and funerals. They learned the skills of their grandparents without knowing it and grew up in the footsteps of their grandparents, so these skills are often better than their grandparents. Inheritance includes passing and inheriting, that is, the relationship between teaching and learning, mission and teaching. The teacher-student relationship under the family inheritance model is often unclear, and there is no clear contract, and the learner’s childhood is just an unconscious legacy. Over time, the ancestors hope that future generations can inherit their skills, and future generations will naturally take on this important task. In the family inheritance model, there is often more than one teacher. In ordinary family life, many elders can influence learners. The biggest feature of the family inheritance mechanism is that the learning method is very natural, and there is music and music as a way of life. Musicians formed by the mechanism of family inheritance usually show extraordinary musical talents. They continue to climb along the mark of their ancestors, elevating this family skill to a glorious pinnacle.

2.1.2. Inheritance of Master and Apprentice. In the inheritance of Mongolian music, the relationship between teacher and student is first of all the relationship between teaching and learning. Secondly, if the teaching is successful, an oral contract relationship is formed. The master has the responsibility to impart skills, and the apprentice has the obligation to take care of the master’s life. After apprenticeship, the young disciple went to the master to study, and while helping the master with housework, he consulted the master at the same time. Or he may receive the master in his own home for a period of time, take care of his life, perform his duties, and learn art from the master. In the relationship between teacher and apprentice, the division of labor between teaching and reception and the distinction between the roles of teacher and apprentice are very obvious. According to the requirements of roles and division of labor, a certain relationship mode is formed between the two. This teaching method is a bit like the professional small classes of
our professional music schools today, but the contact between teachers and students in modern music schools is often limited to the classroom. In the Mongolian teacher-student inheritance mechanism, the coexistence of teachers and students is its advantage. Teachers and students live together for a period of time, which is very similar to family inheritance. This allows teaching to be carried out at any time without time and space constraints. Education is not only about teaching skills, teachers’ attitudes towards music and life continue to influence students, and teaching activities have a rich extension. It can be said that the inheritance of teachers and students in modern education has the dual characteristics of family education and school education. In addition, the mentor-to-apprentice inheritance is often open. Learners can choose whom to study with, often more than one teacher so that learners have the opportunity to gain insight into a hundred masters, to be inclusive and to develop their skills.

2.1.3. Inheritance of Social Customs. The inheritors of social folklore are the products of the environment. The development and distribution of human activities are strictly restricted by the environment. For thousands of years, the Mongols have been engaged in animal husbandry production, living on aquatic plants, and living a relatively closed life for a long period of time. This allows the Mongolian unique folk activities to be well protected. However, human beings are emotional animals and need to exchange feelings. Therefore, people have great enthusiasm for the folk activities organized on a regular basis. The folk music heritage of Mongolian civil society is an activity based on certain folk customs and entertainment activities. For example: nadam, weddings, festivals, sacrificial obo, reception sheep blankets, and other occasions must carry out certain sacrificial activities. According to traditional customs, Mongolians must sing different folk songs in folk activities on different occasions. Entertainment is the main way for the masses to participate, and artists compete with each other, communicate, learn, expand their artistic vision, and accumulate singing experience. Folk activities have the characteristics of sociality, collectiveness, periodicity, and stability and provide a social platform for the inheritance of folk music. The social needs of folk activities mean that folk music always maintains its own vitality. But the inheritance of art by civil society is usually a form of word of mouth. The form of word of mouth means that art and knowledge are constantly changing and cannot be passed on in a solidified and normalized form. However, the inheritance process of social folklore, due to its social, collective, openness, and other factors, naturally produced many aspects such as integration, innovation, and transformation.

These three delivery mechanisms combine with each other and promote each other. Family inheritance often plays an important role in the artist’s youth, laying a solid foundation for him and providing him with the possibility of further development. When they grow up to a certain age, they will look out, they will feel the need to expand their games and singing, and they will naturally look for better teachers to learn art. Nongovernmental activities and other exchange platforms allow artists to understand the strengths of a family. This often plays a decisive role in the promotion of folk artists and the formation of talents and artistic styles. Mongolian folk music combines and promotes each other through family inheritance, master and apprentice inheritance, and social custom inheritance, forming a virtuous cycle of inheritance mechanism. It plays an irreplaceable role in the inheritance of folk music and has vigorous vitality [12].

2.2. Big Data. As a recent hot word, big data mainly describes large-scale, diverse, and rich data sets [13]. It is a product of the development of computer networks to a certain extent. Compared with data in the traditional sense, big data has characteristics that traditional data does not have, as shown in Table 1.

The data volume of big data continues to increase rapidly and requires high-speed data input and output requirements. And the data sources and types are diverse,
2.2.1. Association Rule Algorithm. Association rules are rules based on different items. They are generally used to mine the deep information association of data in the field of big data. Today, the value of data mining is further highlighted. Focus on this field at home and abroad to promote the in-depth development of data mining.

Items can be represented as properties in the database. The basic concepts of association rules are items and transactions. An itemset is a collection of multiple items. Itemset, as the name suggests, is a collection of multiple items. If the itemset is \( N = \{ N_1, N_2, N_3, \ldots, N_n \} \), then \( n \) is called the \( X \) itemset. A transaction is a database column relative to an item. It is a database row.

Support is a basic measure in association rules. If the total number of rule transactions is \( g \) and the total number of database transactions is \( h \), the support of the two is the quotient of the two [15]. The frequency set is an itemset greater than the minimum support \( S_{\text{min}} \), and the support can be expressed as

\[
S(N) = \frac{G}{H} \tag{1}
\]

Another basic measure of association rules can be expressed as confidence. It represents the probability of \( B \) appearing in the overall database \( a \) in the rule \( A \Rightarrow B \) [16], and its calculation rule is

\[
C(A \Rightarrow B) = \frac{S(A \cap B)}{S(A)} \tag{2}
\]

The definition of frequent itemsets is as follows. When the frequency of itemsets appearing in the database is greater than \( S_{\text{min}} \), that is, if there are itemsets \( N \) and \( S(N) \geq S_{\text{min}} \), then itemsets \( N \) is frequent itemsets.

Candidate itemset is a candidate option for mining frequency set [17], which is generated by connection pruning process, and there is a very high frequency set. In addition, it also has many nonfrequency sets, but these data will affect the mining efficiency. Therefore, the candidate set should be selected for data mining.

The association rule is an implicit formula like \( A \Rightarrow B \), expressed as

\[
E \subseteq N, F \subseteq N, E \cap F = \Phi. \tag{3}
\]

This is our final goal, which is used to guide users to make decisions with the help of data association. The premise to achieve this goal is to generate association rules. According to the general support confidence standard, association rules are generated on the basis of frequency set, expressed as

\[
C(A \Rightarrow B) \geq C_{\text{min}}. \tag{4}
\]

Breadth-first searches the entire itemset space, starting from \( k = 0 \) and iteratively produces a set \( K_{k+1} \) of candidate itemsets of length \( k + 1 \). A candidate itemset is an itemset whose subsets are frequent itemsets. \( C1 \) is composed of all items in 10, and all itemsets of length \( k + 1 \) are generated at the kth level. Layer-by-layer recursion is the basis of Apriori algorithm [18], as shown in Figure 3. The process is as follows:

1. It first scans the database to get the candidate 1-itemset set \( D_1 \) and at the same time records the number of occurrences of the corresponding item. It filters the sets of items in \( D_1 \) according to the user-specified \( S_{\text{min}} \) and obtains the frequent 1-itemset set \( K_1 \).
2. It uses the apriori_gen function to connect and prune members in \( K_{m-1} \) to generate candidate frequency set \( K_m \). It scans the database to calculate the support degree of the candidate itemset and compares it with \( S_{\text{min}} \) to obtain \( K_m \).
3. It repeats the above steps until 2 is empty.

In order to get the connection of transactions, the first step of Apriori algorithm is to use the connection pruning to turn the frequency set into candidate sets and rules. The process is as follows:

1. **Connection Operation**. It is self-connected from \( K_m \) to generate \( K_{m+1} \), and the precondition for the two sets of \( K_m \)

| Features               | Meaning                                                                 |
|------------------------|-------------------------------------------------------------------------|
| Rich variety           | There are many types, states, and formats of big data                    |
| Great value            | Big data has multidimensional characteristics such as time and space and contains rich value |
| Fast processing speed  | Big data update time is short; computer processing time is fast          |
| The data is true       | Reflect the universal law of time through big data, and the data is true |
| Data security          | Not easily tampered with                                                |
| Data visualization     | Big data needs software visualization                                    |
| Big amount of data     | Multiple data sources, long data storage time                           |

**Table 1: Characteristics of big data.**
to be connected is that the first m-1 items of the two are the same. Let \( K_m \) be as follows:

\[
K_m = \{K_1, K_2, \ldots, K_m\}.
\]  
(5)

It is assumed that there are two itemsets \( K_p, K_q \) in \( K_m \), as shown in the formula

\[
(K_{p[1]} = K_{q[1]}) \land (K_{p[2]} = K_{q[2]}) \land \ldots \land (K_{p[m-1]} = K_{q[m-1]}) \land (K_{p[m]} = K_{q[m]}).
\]  
(7)

The connection can get a candidate \((m+1)\)-itemset, and the specific itemset formula is shown in

\[
K_m = \{K_{p[1]}, K_{p[2]}, \ldots, K_{p[m]}, K_{q[m]}\}, K_m \subseteq D_{m+1}.
\]  
(8)

(2) **Trim Operation.** We build candidate sets to exclude invalid nonfrequency sets, determine the attributes of frequency sets, filter data inconsistent with the attributes, and realize pruning operation. The attribute criteria are as follows:

All nonempty subsets of the frequency set are frequency sets. If \( N_m \) is a frequent m-itemset, then the number of \((m-1)\) item subsets that include \( D_{m-1} \) in \( N_m \) must be \( m \). Any superset of the nonfrequency set must also be the nonfrequency set. If \( D_m \) can produce frequent \((m+1)\) itemsets, then the number of itemsets in \( D_m \) must be greater than \( m \).

\[ [a]_{\text{ind}(B)} = \bigcap_{T \in B} [a]_{T}. \]  
(10)

\( W/\text{ind}(B) \) means knowledge related to \( B \), and \( W/T \) replaces \( W/\text{ind}(B) \).

Upper approximation and lower approximation: knowledge system \( Z = (W, T) \), subset \( a \subseteq W \) in the universe of discourse, and an equivalence relation \( T \in \text{ind}(Z) \). The upper and lower approximate expressions of \( A \) for \( T \) are shown in (11) and (12):

\[
\overline{T}A = \bigcup \left\{ L \in \frac{W}{T} | L \cap A \neq \emptyset \right\},
\]  
(11)

\[
\underline{T}A = \bigcup \left\{ L \in \frac{W}{T} | L \subseteq A \right\},
\]  
(12)

\[
\text{bn}_T(A) = \overline{T}A - \underline{T}A,
\]
\[
\text{pos}_T(A) = \overline{T}A,
\]
\[
\text{neg}_T(A) = W - \overline{T}A.
\]  
(13)

Set \( \text{bn}_T(A) \) is called the \( T \) boundary domain of \( A \), \( \text{pos}_T(A) \) is the \( T \) positive domain of \( A \), and \( \text{neg}_T(A) \) is the \( T \) negative domain of \( A \). \( W \) is a finite set of universe, set function \( X: 2^W \rightarrow [0, 1] \) is a probability measure, and we know
2.3. Malicious Traffic Monitoring Technology. The network generates a large amount of data every day. The data is huge and messy. Is there any malicious data that disrupts the network environment? Therefore, it is particularly important to find a way to identify malicious data. With the development of computer network technology, the port-based application protocol identification technology and the data packet load-based protocol identification technology can no longer meet the requirements of current protocol identification. The detection and identification method based on session statistical behavior was born. In addition, the knowledge of machine learning is needed for statistics, so it can also be called a protocol identification and detection technology based on machine learning. Since there are not many tools for monitoring malicious code under Linux system, and each tool has different monitoring purposes, it cannot fully satisfy us to obtain more monitoring information from the kernel. The design of this idea is mainly to monitor the malicious process at the kernel layer and record the behavior of accessing files to provide more useful information, so that the malicious code can be analyzed in detail. Computational attribute reduction is a key part of inductive learning under the rough set framework. The attribute reduction algorithm based on difference matrix is one of the commonly used attribute reduction algorithms. Given an information system, all attributes of the information system can be obtained by using this reduction algorithm. However, the algorithm requires a large storage space and takes a long time to execute, especially for large databases.

The current mainstream technology is a real-time monitoring and detection method based on network data packets, but the extraction and optimization of network data features and real-time detection efficiency are not particularly high.

The application protocol identification method based on the statistical behavior of the transport layer packet session is generally divided into three stages: the extraction stage of statistical features, the creation stage of the statistical model, and the specific classification detection and identification stage. At present, model statistics mainly use machine learning algorithms. According to the nature of training data, machine learning is divided into three categories: supervised, unsupervised, and semisupervised. The classification of machine learning mainly includes learning strategies, learning methods, and data forms, learning goals, etc. Supervised algorithms include decision trees such as ID3 and C4.5, support vector machine algorithms, naive Bayes, and neural networks. Unsupervised machine learning is mainly some clustering algorithms, such as DBSCAN
also records the data node information of each block in each file, but it does not permanently store the location information of the block, because this information is reconstructed by the data node when the system starts. Figure 4 is a schematic diagram of the structure of HDFS.

MapReduce's data processing requires that the data set to be processed can be divided into many small data sets that cannot be processed in parallel. The complete data flow of a Map and Reduce task is shown in Figure 5. A dashed frame represents a data node, the dashed arrow in the dashed frame represents the data transmission process within the node, and the solid arrow represents the data transmission process between data nodes.

From the perspective of the entire Hadoop system, the specific process of parallel computing includes distributed parallel computing, data distributed storage, data merging, reduce, task pipeline, and task granularity. The execution flow of the MapReduce program is shown in Figure 6.

### 3. Investigation and Analysis of Mongolian Folk Song Music Cultural Inheritance Innovation Experiment

#### 3.1. Experimental Design
In order to find the obstacles that affect the cultural inheritance of Mongolian folk songs, we have carried out extensive questionnaire surveys in Mongolian and society to understand the views and suggestions of the masses on the cultural inheritance of Mongolian folk songs. At the same time, we conducted one-on-one interviews with Mongolian folk song music cultural inheritance institutions and Mongolian music leaders to understand their opinions and related suggestions.

#### 3.2. Survey Content
We distributed 1,000 questionnaires to the whole society and successfully collected 946 and removed 11 invalid data. The completion rate of the questionnaire survey was 93.5%, and the relevant data were collected and analyzed. The content of the questionnaire is shown in Table 2.

We invited 2 heads of Mongolian folk song music cultural inheritance institutions and 8 Mongolian music leaders to organize face-to-face interviews. We surveyed their views on the current development of Mongolian folk songs, existing problems, and future improvements and collected relevant results.

#### 3.3. Data Analysis
It can be seen from Table 3 that the reliability coefficient value is greater than 0.8, indicating that the reliability of the research data is of high quality. The value of “the alpha coefficient of the item that has been deleted” did not increase significantly, indicating that all items should be retained, further indicating that the data has a high level of reliability. In general, the reliability of the data is of high quality and can be used for further analysis.

It can be seen from Table 4 that the KMO value is between 0.7 and 0.8, indicating that the questionnaire data is suitable for factor analysis. Significance is less than 0.05,
indicating that the validity is good, and the questionnaire is valid.

It can be seen from Figure 7 that the users of the questionnaire are concentrated in the 18–60 age group, which is in line with the current actual situation. Most people in this age group are native Internet users, who have been online for a long time, and most of them have been employed. Among the surveyed population, most of them are employees, but there are also some educators, legal experts, managers, businessmen, and scientific and technological workers, who have enriched their horizons for this survey.

It can be seen from Figure 8 that the majority of users surveyed like to listen to music, and nearly half of them like

| Table 2: Questionnaire on the inheritance of Mongolian folk songs by the society. |
|---------------------------------|----------------|----------------|----------------|----------------|
| **Your age** | A. below 18 years | B. 18–35 years old | C. 35–60 years old | D. over 60 years |
| **Your gender** | A. female | B. male |
| Do you usually listen to songs | | |
| Do you usually like to sing | | |
| Your occupation | | | |
| Have you heard Mongolian folk songs? | A: Yes | B: No |
| What is your opinion on the inheritance of Mongolian folk songs? | |
| Do you have any suggestions for the inheritance of Mongolian folk songs? | | | | |
to sing, indicating that most people have a certain level of musical literacy. But when asked about Mongolian music, most people said they did not understand it, and many said they had heard of it. This shows that the inheritance of traditional Chinese culture has achieved certain results.

Table 3: Cronbach reliability analysis.

| Name                                              | Total correlation | The alpha coefficient of the item deleted | Cronbach’s alpha coefficient |
|----------------------------------------------------|-------------------|------------------------------------------|------------------------------|
| Do you usually like to sing?                      | 0.687             | 0.783                                    |                              |
| Have you heard Mongolian folk songs?              | 0.641             | 0.798                                    |                              |
| What is your opinion on the inheritance of Mongolian folk songs? | 0.658             | 0.789                                    | 0.831                        |
| Do you have any suggestions for the inheritance of Mongolian folk songs? | 0.679             | 0.774                                    |                              |

Table 4: Validity test results.

| KMO sampling suitability quantity | Approximate chi-square  | Degree of freedom | Significance |
|----------------------------------|--------------------------|-------------------|--------------|
|                                  | 0.753                    |                   | 1086.600     |

Bartlett sphericity test

| Profession | female | male | total |
|------------|--------|------|-------|
| Educator   |        |      |       |
| Merchant   |        |      |       |
| Legal worker |      |      |       |
| Farmer     |        |      |       |
| Worker     |        |      |       |
| Scientific worker | |      |       |

Figure 7: Introduction to the basic situation of the questionnaire.

Figure 8: The investigator’s understanding of Mongolian folk songs.

However, only 2% of people really like Mongolian music, which shows that Mongolian music is difficult to inherit.

It can be seen from Figure 9 that, for many people, the reason for the difficulty in inheriting Mongolian folk music is largely because there are too many types of music today. In
addition, the Mongolian folk music has a small audience and there is no good publicity, which makes it difficult to inherit the Mongolian folk music. For experts, the difficulty in inheriting Mongolian folk music is certainly due to the abovementioned reasons, but more of it lies in the low degree of public recognition of Mongolian culture. Mongolian folk songs do not match well with modern music, and popular music is more accepted by the public. It is naturally difficult for people to recognize Mongolian folk music, and the development of Mongolian folk music is unsustainable.

It can be seen from Figure 10 that there is still a lot of work to be done in the innovation and inheritance of Mongolian culture. On the one hand, it is necessary to improve the shortcomings. It is necessary to innovate in the form and content of Mongolian folk songs, increase original content creation, and create high-quality songs. On the other hand, we must also improve the lack of optimization. The inheritance of traditional folk songs is no longer suitable for the present, and scientific teaching can train a large number of Mongolian folk song creators. At the same time, Mongolian customs must be innovatively integrated with modern life, and there must be breakthroughs in expression methods, so that the Mongolian folk song culture can be better inherited.

4. Discussion

The article has extensively investigated the whole society and found the relevant factors that affect the cultural inheritance of the Mongolian nationality. From the survey, we found that the main reason for the difficulty in the inheritance of Mongolian culture is the failure of the inheritors. Coupled with the rich and multisourced modern music culture, it is difficult for Mongolian folk songs to gain a foothold here. According to social surveys and expert opinions, we found that the innovative inheritance of Mongolian folk songs should also focus on the form and content. It needs to win the recognition of the audience with high-quality folk songs and at the same time strengthen innovative publicity to expand the influence of Mongolian folk songs. Throughout the history of Chinese scholars’ research on the inheritance of ethnic minority music, it is not difficult to see that the two inheritance paths of rural and campus have intersected. The relationship between them has changed from the initial one to the other, to the noncommunication, and then to the complementarity of each other. Whether they can enter the relationship of mutual correlation and coprosperity and joint construction has become a new topic in this field. It raises the question of whether the inheritance of ethnic
minority music is local or campus-based. If it is based on local inheritance, it means that campus inheritance must cooperate with the reconstruction of local culture. As an existing way of decorating campus culture without its own context, culture needs to be reintegrated to adapt to the inheritance of the campus. However, when we probed deeper and deeper into the “root” of minority music culture and tried to find the best way to inherit music culture, we found that this was the internal structure problem of the two cultural ecosystems. Professor Xie Jiaxing emphasized in his national key project “Research on Chinese Excellent Traditional Culture Education” that “There are three major components of Chinese excellent traditional culture: classic cultural education, traditional art and folk culture.” From this perspective if it is converted into the traditional culture of ethnic minorities, it should include three major components: classic education, traditional art, and folk activities. As mentioned above, minority music grows with life and plays a role in shaping personality. In this sense, music should be an integral part of the classical education of minority culture.

5. Conclusions

Based on the communication big data, this paper conducts research on the cultural inheritance of Mongolian folk songs. It uses big data to investigate the opinions and suggestions of the ethnic group on the understanding and inheritance of Mongolian culture, finds relevant professional expert interviews, and finds new ideas suitable for the inheritance of Mongolian folk song culture. This is an innovative suggestion to improve the cultural heritage of Mongolian folk songs. In the two inheritance paths, we see the limitations and advantages of each inheritance. From the establishment of the experimental base of art education, people are more and more aware of the importance of tradition. This makes it possible for us to discuss the modern adaptation and traditional reconstruction of minority music culture in a sense of crisis. However, the article also has its shortcomings. For example, the survey sample of the article is too small and may not be representative [20, 21].

Data Availability

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

This work was supported by Hulunbuir University Research Funding Project no. 2021YJYB02.

References

[1] Y. Zhao, “Research on cultural inheritance and innovation of higher art education from the perspective of core literacy,” International Journal of Social Science and Education Research, vol. 2, no. 5, pp. 13–18, 2019.
[2] Y. Pan, J. Wang, J. Hu et al., “Characteristics and achievements of the Xin’an medical school,” Journal of Traditional Chinese Medical Sciences, vol. 5, no. 4, pp. 328–334, 2018.
[3] G. Pedeliento, C. Bettinelli, D. Andreini, and M. Bergamaschi, “Consumer entrepreneurship and cultural innovation: the case of GinO12,” Journal of Business Research, vol. 92, pp. 431–442, 2018.
[4] H. H. Lin, M. H. Wu, and J. C. Wu, “Discussion on local cultural innovation service process - A case study of Taiwan you good food,” International Journal of Kansei Information, vol. 9, no. 1, pp. 1–8, 2018.
[5] C. Wang and Y. Wang, “Opportunities for digital culture and innovation under cultural construction in the big data era -- take digital cultural innovation in jiangxi universities as an example,” International Journal of Social Science and Education Research, vol. 2, no. 11, pp. 38–43, 2020.
[6] H. Jiao, Y. Wang, and M. Liu, “The effect of the social network of the top management team on innovation in cultural and creative industries,” Journal of Chinese Human Resource Management, vol. 10, no. 1/2, pp. 4–18, 2019.
[7] S. Elia, A. Messeni Petruzzelli, and L. Piscitello, “The impact of cultural diversity on innovation performance of MNC subsidiaries in strategic alliances,” Journal of Business Research, vol. 98, pp. 204–213, 2019.
[8] P. C. Kostis, K. I. Kafka, and P. E. Petakis, “Cultural change and innovation performance,” Journal of Business Research, vol. 88, pp. 306–313, 2018.
[9] S. Rajendran, O. I. Khalaf, Y. Alothai, and S. Alghamdi, “MapReduce-based big data classification model using feature subset selection and hyperparameter tuned deep belief network,” Scientific Reports, vol. 11, no. 1, Article ID 24138, 2021.
[10] H. Zhao, P.-L. Chen, S. Khan, and O. I. Khalaf, “Research on the optimization of the management process on internet of things (IOT) for electronic market,” The Electronic Library, vol. 39, no. 4, pp. 526–538, 2021.
[11] T. Hopp and C. J. Vargo, “Does negative campaign advertising stimulate uncivil communication on social media? Measuring audience response using big data,” Computers in Human Behavior, vol. 68, pp. 368–377, 2017.
[12] C. Wiencierz and U. Röttger, “The use of big data in corporate communication,” Corporate Communications: An International Journal, vol. 22, no. 3, pp. 258–272, 2017.
[13] J. D. Freeman, B. Blacker, and G. Hatt, “Use of big data and information and communications technology (ICT) in disasters: an integrative review,” Disaster Medicine and Public Health Preparedness, vol. 13, no. 2, pp. 1–15, 2018.
[14] Q. Yan, W. Chen, and H. V. Poor, “Big data driven wireless communications: a human-in-the-loop pushing technique for 5G systems,” IEEE Wireless Communications, vol. 25, no. 1, pp. 64–69, 2018.
[15] S. Sengan, O. I. Khalaf, G. R. Rao, D. K. Sharma, K. Amarendera, and A. A. Hamad, “Security-aware routing on wireless communication for E-health records monitoring using machine learning,” International Journal of Reliable and Quality E-Healthcare, vol. 11, no. 3, pp. 1–10, 2022.
[16] M. Qiu, K. Gai, and Z. Xiong, “Privacy-preserving wireless communications using bipartite matching in social big data,” Future Generation Computer Systems, vol. 87, no. OCT, pp. 772–781, 2017.
[17] O. I. Khalaf and G. M. Abdulshahib, “Energy efficient routing and reliable data transmission protocol in WSN,” International Journal of Advances in Soft Computing and Its Applications, vol. 12, no. 3, pp. 45–53, 2020.
[18] H. J. Joo and H. Y. Jeong, “Implementation of quality coverage map system via wireless communication service and big data analysis,” Multimedia Tools and Applications, vol. 76, no. 16, pp. 1–18, 2017.
[19] C. Zhang, K. Ota, J. Jia, and M. Dong, “Breaking the blockage for big data transmission: gigabit road communication in autonomous vehicles,” IEEE Communications Magazine, vol. 56, no. 6, pp. 152–157, 2018.

[20] X. Li, H. Liu, W. Wang, Y. Zheng, H. Lv, and Z. Lv, “Big data analysis of the internet of things in the digital twins of smart city based on deep learning,” Future Generation Computer Systems, vol. 128, pp. 167–177, 2021.

[21] C. S. Karam, L. A. Coie, and J. A. Javitch, “Small flies meet big data: genetic convergence of neurodevelopmental disorders modeled in Drosophila,” American Journal of Psychiatry, vol. 177, no. 6, pp. 482–484, 2020.