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Research Article

Big Data Analysis Research on the Deep Integration of Intangible Cultural Heritage Inheritance and Art Design Education in Colleges and Universities

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Intangible cultural heritage involves a large number of national traditions, or folk unique knowledge, language, and customs, derived from folk dance and music as well as traditional medicine and other forms of art. China's intangible cultural heritage plays a key role in the whole national traditional culture. Strengthening the protection of intangible cultural heritage and promoting its continuous development is an important way and inevitable choice to strengthen cultural self-confidence and build a cultural power. As the builders and successors of the socialist cause, college students must strengthen their cultural self-confidence and shoulder important responsibilities in the construction of a cultural power. Big data is a new technology in the Internet era. Using big data technology to realize the collection, preservation, retrieval, reproduction, integration, dissemination, and utilization of intangible cultural heritage information can better meet the requirements of the times, so as to provide new opportunities, conditions, and means for the inheritance and development of intangible cultural heritage. This article will discuss the use of big data to analyze the research talent training of the deep integration of intangible cultural heritage inheritance and art design education in colleges and universities. This article introduces the background and significance of intangible cultural heritage inheritance and educational integration, introduces its related methods, and then designs a new mode of intangible cultural heritage learning in colleges and universities based on big data. Finally, this article applies the model to college education and then investigates the students' experience of the new model curriculum, and comes to the conclusion that the proportion of people who choose to like and very much like the new model is 69.3%; 83.3% of the people who chose to agree and strongly agree with the new model were helpful to themselves. In short, the application and design of the new curriculum model is still relatively successful.

1. Introduction

In recent years, countries all over the world have gradually realized the significance of protecting their national traditional culture, actively carried out project legislation, and established an effective working mechanism, with fruitful results. For example, Denmark, Russia, and Switzerland collect, record, sort out, and establish special institutions to study folk literature and art; Japan and South Korea have promulgated relevant laws and comprehensively launched the investigation of national customs and cultural property. In the context of economic globalization, the rapid development of China's economy is surprising. At the same time, the protection and inheritance of intangible cultural heritage has come into people's vision and gradually attracted people's attention. However, compared with tangible cultural heritage, intangible cultural heritage faces greater difficulties in the process of protection and higher risks in its development, and the protection and inheritance of intangible cultural heritage is imminent, which has attracted extensive attention all over the world. As a platform for protection and inheritance, for school education, colleges and universities have unique functions and advantages in the inheritance of intangible cultural heritage. Students majoring in art and design should shoulder the important task of inheriting intangible cultural heritage. Therefore, in this context, it is

necessary to explore the talent training of the integration of intangible cultural heritage culture and higher education.

As an important part of traditional culture, intangible cultural heritage shoulders the important task of cultural inheritance, symbolizes the core content of national culture, and plays a very important role in the inheritance and development of human civilization. Compared with tangible cultural heritage, intangible cultural heritage faces greater difficulties in the process of protection and higher risks in its development. Therefore, it has attracted extensive attention all over the world. Nowadays, colleges and universities are also aware of their social responsibility in the inheritance and protection of intangible cultural heritage. Therefore, many art majors in colleges and universities have set up intangible cultural heritage art courses to cultivate intangible cultural heritage art talents in order to promote the inheritance and protection of intangible cultural heritage. The characteristics of big data, such as large data volume, many types and fast processing speed, make it have various values and functions in promoting intangible cultural heritage protection. Therefore, it is of great significance to use big data to study the integration of intangible cultural heritage inheritance and college education to cultivate talents.

The innovation of this article lies on (1) a proposal of new mode of intangible cultural heritage learning in colleges and universities based on big data, and the structure, function, design principle, and core idea of this mode. (2) The new model is applied to art education in colleges and universities, and a questionnaire survey is conducted on the participating students to investigate the students' feelings about the new model. It is found that the application of the new model is still relatively successful.

2. Related Work

Intangible cultural heritage inheritance is the work of many countries in the world. It is of great significance for inheriting national culture and carrying forward national spirit, so many scholars have studied it. Zhang proposed to improve the supporting facilities of the intangible cultural protection system, improve the rural centripetal force with cultural elites as the core, restore the inheritance function and guiding value of intangible cultural heritage in rural society, and rebuild the regeneration mechanism of folk cultural elites, so as to truly promote the development of intangible cultural heritage protection in the direction of inheritance and sustainable development. But he did not put forward specific measures [1]. Kogiso inspected the dissemination process of pelota mixteca in the United States and focused on the specific cultural aspects of traditional and indigenous sports as intangible cultural heritage. Finally, it is concluded that recognizing traditional and indigenous sports as intangible cultural heritage helps to understand the fuzziness and polysemy between these sports and other cultures. Therefore, the method of sport anthropology may prove valuable in the future [2]. The effective dissemination of national traditional sport culture helps to establish a good national image and national self-confidence. Ming follows the requirements of national policies and the principle of resource sharing, explores the communication mode of national traditional sport culture, obtains effective communication channels, provides reference for the wide dissemination of national traditional sport culture, and carries forward national traditional sport culture. The defect of this research is the lack of specific case analysis [3]. The high density of intangible cultural heritage is concentrated in flat and water-rich areas, where the plains and low mountains are dominated by broad-leaved forests, with fertile soil, pleasant climate, and long cultural history. Baicui believes that the development of intangible cultural heritage should be based on the discovery of unknown projects, break the existing pattern of strong cohesion and high density, and seek the overall balanced development, but this study does not consider practical factors [4].

As a product of the information age, big data is of great significance in many fields. Xu looks at privacy issues related to data mining from a broader perspective and studies various methods that help protect sensitive information. In particular, Xu identified four different types of users involved in data mining applications, namely data providers, data collectors, data miners, and decision makers [5]. Barbu proposes a novel effective learning scheme, which strengthens the sparsity constraint by gradually deleting variables according to the criteria and schedule. Experiments on real data and synthetic data show that this method has a good comparison with other methods in regression, classification, and ranking. At the same time, it is very efficient and scalable in calculation. The deficiency of this research lies in the lack of reflection [6]. Xu studied the relationship between IOV and big data in vehicle environment, mainly studied how IOV supports the transmission, storage ,and calculation of big data and how IOV benefits from big data, including IOV feature description, performance evaluation, and big data auxiliary communication protocol design. Then, Xu studied the application of IOV big data in autonomous vehicles. Finally, the new problem of IOV supporting big data is discussed [7].

3. Based on Big Data Analysis, Talent Training of Intangible Cultural Heritage Inheritance and College Education Integration

3.1. Integrated Application of Big Data and Higher Education. According to the definition in Wikipedia, big data refers to those data sets that exceed the storage, management, and processing capacity of traditional software or consume more time than an acceptable range.

3.1.1. Big Data-Related Technologies

(1) Big Data Storage. At first, data were directly stored in files. The shortcomings of file storage are obvious. There is a lack of formatted information and it is not convenient to support operations such as query, insert, and delete. Then relational databases appeared. Relational database is also the mainstream way of data storage now, because it supports the addition, deletion, modification, and query of data; database

transactions; stored procedures; and other functions. Distributed file system means that the physical storage resources managed by the file system are not necessarily directly connected to the local node, but are connected to the node (which can be simply understood as a computer) through the computer network. With the emergence of distributed file system, data can be stored in the form of distributed files. The distributed file system can accommodate a large amount of data and has good scalability [8]. Figure 1 shows the structure of a distributed file system.

(2) Parallel Implementation of PageRank Algorithm. PageRank algorithm is a patent of Google. It is the algorithm used by Google to search and sort web pages. It is one of the top 10 algorithms of data mining. The core idea of PageRank is that for a page, the number of links linked to the page is regarded as the support of the page. If a page is linked by many other pages, it shows that its support is relatively high and should be ahead in the search results. The page support in PageRank can be expressed by the following formula:

$$R(i) = \sum_{j \epsilon B(i)} R(j), \tag{1}$$

where $R(i)$ represents PageRank of i and $B(i)$ represents all web pages linked to i. However, this formula is not suitable for practical use, because it cannot judge the quality of the website, so it should be improved [9]. An improved common method is to set the weight for each link. If there is an N link pointing to a page B of page A, the importance of each link is $I(j)/N$, in order to standardize the results, add a constant C to obtain the following formula:

$$R(i) = C \sum_{j \epsilon B(i)} \frac{R(j)}{N(j)}. \tag{2}$$

Next, let us take a look at the specific calculation process of PageRank algorithm. A large number of web pages and links in the Internet can be represented by directed graph, which can be represented by adjacency matrix. The web page reference diagram is shown in Figure 2.

The digraph relationship can be represented by the following matrix:

$$M = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 \end{bmatrix}. \tag{3}$$

In this matrix, all nodes with value I in row A of M are the web pages linked by web page I, and all nodes with value 1 in column J of M represent all web pages connected to web page J. If each element of matrix M is divided by the sum of all elements of the row according to its row to obtain matrix N, and then n will be transposed to obtain N^T, then the sum of all elements of each row of N^T is the PageRank we require, and the obtained matrix N^T is as follows:

$$N^T = \begin{bmatrix} 0 & 0 & 1 & \frac{1}{3} \\ \frac{1}{2} & 0 & 0 & \frac{1}{3} \\ \frac{1}{2} & 0 & 0 & \frac{1}{3} \\ 0 & 1 & 0 & 0 \end{bmatrix}, \tag{4}$$

where N^T is regarded as a transition probability matrix of Internet users jumping between different web pages. Assuming that the probability of Internet users jumping to each web page is the same, which is 1/4 in this example. Then, by right multiplying the transfer matrix N^T by an n-dimensional column vector V with a value of 1/4, the transfer probability matrix after one-step operation of Internet users can be obtained, as follows:

$$V_1 = N^T V = \begin{bmatrix} 0 & 0 & 1 & \frac{1}{3} \\ \frac{1}{2} & 0 & 0 & \frac{1}{3} \\ \frac{1}{2} & 0 & 0 & \frac{1}{3} \\ 0 & 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} 1/4 \\ 1/4 \\ 1/4 \\ 1/4 \end{bmatrix} = \begin{bmatrix} \frac{1}{3} \\ \frac{5}{24} \\ \frac{5}{24} \\ \frac{1}{4} \end{bmatrix}. \tag{5}$$

Multiply V_1 by m to get V_2, and iterate until V converges, that is:

$$V_n = MV_{n-1}. \tag{6}$$

The value of V_n in the final column vector is the PageRank value of the corresponding web page.

3.1.2. University Education Evaluation Technology Based on Big Data

(1) Construction of Learning Object Network Diagram. Network diagram is a graphical model, which is shaped like a network, so it is called network diagram. Network diagram is composed of three factors: operation (arrow line), event (also known as node), and route. After selecting the knowledge points to be learned, learners need to determine the population according to the mastery of all learners for the target knowledge points [10]. Letting $L = \{l_1, l_2, \ldots, l_n\}$ represent the set of knowledge levels of all learners who have completed the learning task (the number of populations is n), represent the knowledge level of the ith learner, and let d $(0 < d < 1)$ represent the degree of knowledge-level difference, then the population can be defined as

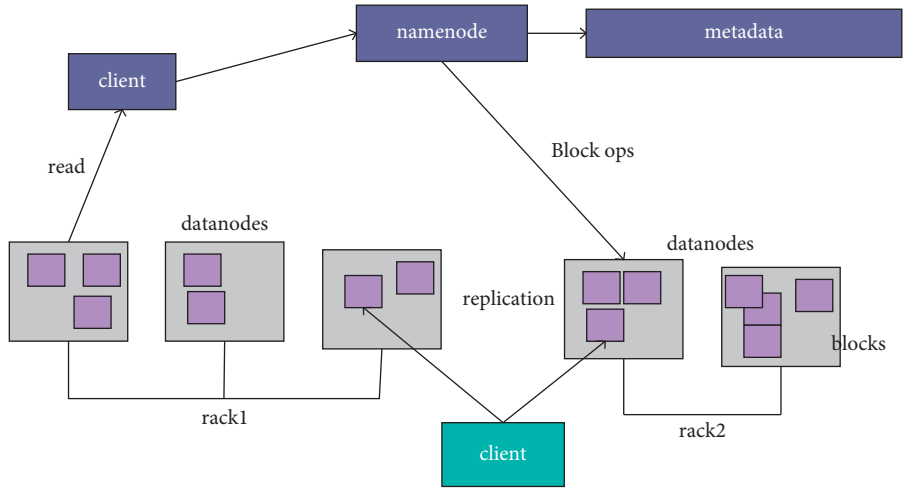


Figure 1: Structure of a distributed file system.

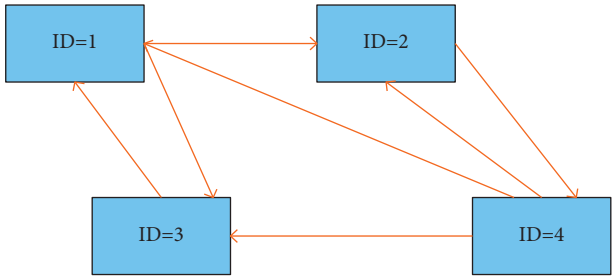


Figure 2: Web page reference relationship.

$$L_0 = L_1 + L_2,$$
$$L_1 = \left\{ |l_i| l_o - l_i \le d \right\}, l_i \in L. \tag{7}$$

(2) Learning Path Evaluation. The overall evaluation method of this chapter is that if the learners have been evaluated after learning and their knowledge level has been improved, the evaluation shall be adopted, otherwise it shall not be adopted. The reason why the level decline is not adopted is that the learning object may not be very effective, but the possibility of error and misleading is very low. It can be ignored. After learning a learning object, the level decreases mainly due to the personal reasons of the learners [11, 12]. The global path evaluation is specifically expressed as follows: assuming that user K has completed the learning task and A represents the learning path, the evaluation update formula of each section on path J is as follows:

$$\sigma_{ij}(t+1) = \begin{cases} \sigma_{ij}(t) * (1-\rho) + \Delta\sigma_A^k, & (m_i \longrightarrow m_j) \in A, \\ \sigma_{ij}(t) * (1-\rho), & (m_i \longrightarrow m_j) \notin A, \end{cases} \tag{8}$$

where $\Delta\sigma_A^k$ is the user K's evaluation of the learning path.

(3) Heuristic Information. Heuristic information means that after learning a learning object, learners will choose suitable learning objects according to their intuition. Intuition mainly includes their own knowledge level, learning style, and media preference. Learners will compare their knowledge level and the difficulty of the learning object; their learning style and the applicable style of the learning object; and their media type preference and the media type of the learning object and then make a comprehensive choice.

Letting the difficulty of the learning object m be d_m, and the knowledge level of the knowledge point attached to j by the target learner L (defined in the domain knowledge model in this article) be l_0, then the heuristic information formula of the knowledge level is as follows:

$$\eta_{L,m}^{-L} = 1 - |l_0 - d_m|. \tag{9}$$

The learner's learning style is a vector. Letting the learning style of user l be s_L and the knowledge expression feature of learning object m be c_m. The learning style inspiration formula is as follows:

$$\eta_{L,m}^{-S} = 1 - |s_L - c_m|. \tag{10}$$

The learner's interest preference is a vector. Letting the interest preference of user l be h_L and the media type of learning object m be q_m, and the interest preference heuristic formula is obtained as follows:

$$\eta_{L,m}^{-h} = 1 - |h_L - q_m|. \tag{11}$$

Combining knowledge level, learner style, and media preference, the heuristic information formula is obtained as follows:

$$\eta_{L,m} = \left[1 - |l_0 - d_m|\right] * \left[1 - |s_L - c_m|\right] * \left[1 - |h_L - q_m|\right]. \tag{12}$$

3.2. Intangible Cultural Heritage

3.2.1. Value Composition of Intangible Cultural Heritage. The public goods attributes of intangible cultural heritage are as follows: first, intangible cultural heritage can provide products and services for human society; second, intangible cultural heritage is the common property of all mankind,

and the value and services of intangible cultural heritage are shared by all members of society; finally, everyone has the right to enjoy intangible cultural heritage and cannot damage the due interests of other individuals and groups, and technically it is impossible to exclude individuals who refuse to pay for them from the scope of benefits [13].

The nonuse value of intangible cultural heritage represents people's will and tendency to recognize things in a more sense. It belongs to the difficulty and core of value evaluation and cannot be reflected by market price. Therefore, valuation methods other than price must be used to judge its value. Intangible cultural heritage value naturally has the above attributes and can be divided into use value and nonuse value [14], and its value composition formula can be expressed as follows:

$$V_a = V_u + V_n, \tag{13}$$

where V_u and V_n represent use value and nonuse value, respectively. The calculation formula of nonuse value V_a of intangible cultural heritage is as follows:

$$V_n = M(WTP) * N, \tag{14}$$

where $M(WTP)$ represents the average willingness to pay value and N represents the overall range. The logical block diagram of intangible cultural heritage value composition is shown in Figure 3:

3.2.2. Evaluation Indicators of Intangible Cultural Heritage. The degree of coordination of expert opinions is a very important indicator for evaluating the value of intangible cultural heritage. Through calculation, we can judge whether there are great differences in the evaluation of each indicator by experts or find highly coordinated expert groups and experts with heretical opinions. At the same time, it is also an indicator of the credibility of the consultation results [15]. The indexes to measure the degree of coordination include the coefficient of variation of the evaluation results of each index and the coefficient of coordination of expert opinions. The coordination coefficient of expert opinions is between [0, 1]. Generally speaking, larger coefficients are better. This chapter uses Kendall harmony coefficient to analyze the consistency of expert opinions. When the same evaluator does not have the same rating, the calculation formula is as follows:

$$W = \frac{12S}{K^2\left(N^3 - N\right)}, \tag{15}$$

where N stands for the number of evaluated objects, K stands for the number of raters or the number of standards on which the score is based, and S refers to the sum of squares of deviations between the sum of grades R_i and the average $\overline{R_i}$ of these sums, which can be calculated as follows:

$$S = \sum_{i=1}^{n}\left(R_i - \overline{R_i}\right)^2 = \sum_{i=1}^{n} R_i^2 - \frac{\left(\sum_{i=1}^{n} R_i\right)^2}{n}. \tag{16}$$

When the same evaluator has the same rating, the calculation formula of W is as follows:

$$W = \frac{12S}{K^2\left(N^3 - N\right) - K\sum_{i=1}^{K} T_i}, \qquad T_i = \sum_{i=1}^{m_i}\left(n_{ij}^3 - n_{ij}\right), \tag{17}$$

where m_i represents the number of repeated grades in the evaluation result of the ith evaluator and is the number of the same grade of the repeated grade in the evaluation result of the evaluator n_{ij}.

3.2.3. Inheritance Characteristics of Intangible Cultural Heritage

(1) Skill Acquisition Based on Theoretical Knowledge and Practical Experience. The teaching of technical knowledge includes two aspects: the teaching of explicit technical knowledge and the teaching of tacit knowledge technology. The former can be clearly expressed in language, usually expressed in some principles and methods, while the latter is often only understandable and difficult to explain, which can only be grasped by understanding. Tacit knowledge is intellectual capital and the root that provides nutrition for big trees. Explicit knowledge is just the fruit of trees. Through the inheritance of modern apprenticeship, the learning content is organized with educational structured content, so that the explicit knowledge represented by theoretical knowledge and the tacit knowledge represented by practical experience can form a good technical knowledge structure. To practice the inheritance method of intangible cultural heritage traditional skills, the main body of knowledge teaching is usually undertaken by the masters of industry enterprises, intangible cultural heritage inheritors, and professional teachers in the school, and each has its own emphasis [16].

(2) Situation-Based Skill Formation. The situation-based skill formation is relative to the situational characteristics of the inheritance of intangible cultural heritage traditional skills. The essence of the inheritance of intangible cultural heritage traditional skills is the mutual transformation between tacit knowledge and explicit knowledge. The transformation between tacit knowledge and explicit knowledge follows the logic of knowledge externalization, knowledge relevance, knowledge dissolution, and knowledge co-influence, forming a "knowledge spiral" knowledge evolution process. "Field" provides an operation platform for knowledge

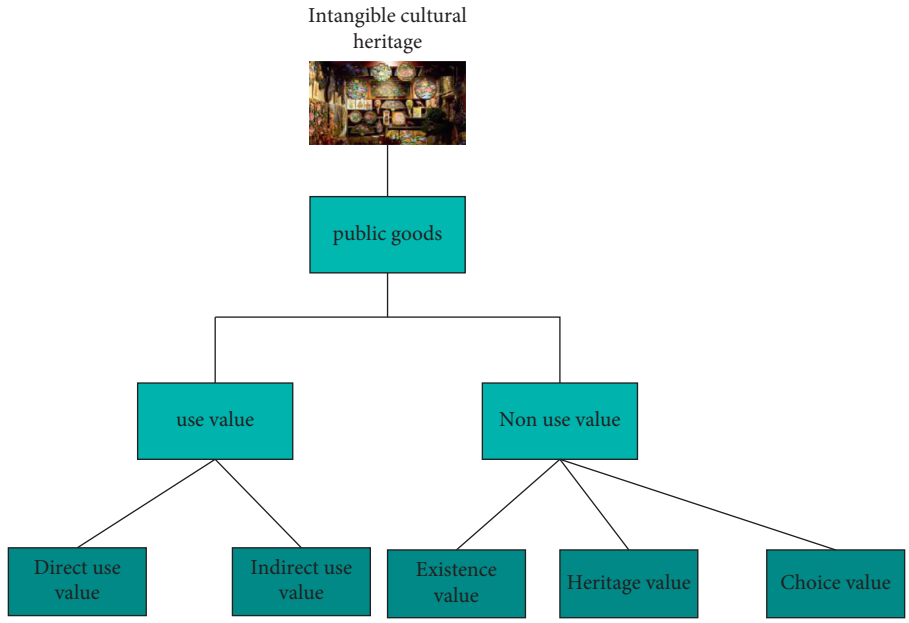


Figure 3: Value composition of intangible cultural heritage.

transformation and innovation and puts forward "fields" corresponding to four knowledge transformation modes, as shown in Figure 4.

3.3. Advantages of Colleges and Universities in the Inheritance and Protection of Intangible Cultural Heritage

3.3.1. Talent Resource Advantage. One party's water and soil nourishes one party's people, one party's culture comes from one party's water and soil, and the joint action of the natural environment and cultural environment in a specific area makes the birth of intangible cultural heritage. Therefore, it shows a strong regional style. As a specific regional product, it is not only the key link to maintain people's emotion and national spirit, but also the cultural foundation on which regional characteristic political and economic development depends. Generally speaking, colleges and universities are mostly set up in central areas with strong political, economic, and cultural strengths in various provinces and cities. Compared with individuals, specific groups, and scattered cultural units, colleges and universities have significant advantages in protecting and inheriting intangible cultural heritage [17, 18]. If colleges and universities can give college students more learning and research opportunities and equip them with sufficient human and material resources for special education, it will be very conducive to cultivate college students into inheritors of intangible cultural heritage.

3.3.2. Advantages of Teaching Resources. There are many kinds of educational resources in colleges and universities. Resources such as libraries, journals, and electronic databases can enable teachers and students to timely understand the latest research, latest theories, and latest views of scholars at home and abroad on intangible cultural heritage, as well as all kinds of knowledge and protection status of intangible cultural heritage. In daily teaching activities, colleges and universities can invite inheritors of intangible cultural heritage to actively impart knowledge and skills according to the actual situation such as curriculum and teaching arrangement, so as to let art students know about intangible cultural heritage in the classroom. In addition, it can also cooperate with the local government to form an academic exchange mechanism. In this way, we can not only expand financial support and policy encouragement, but also expand access to resources and provide more distinctive teaching resources.

3.3.3. Advantages of Educational Inheritance. The key to the protection and inheritance of intangible cultural heritage is to consolidate the mass foundation and ensure that more and more people, especially college students, recognize it. Compared with other cultural institutions and individuals, colleges and universities have rich talent resources and teaching resources, which play a significant role in protecting and inheriting intangible cultural heritage. The introduction of intangible cultural heritage education into the teaching system of colleges and universities can also provide new soil for the inheritance of intangible cultural heritage and more intellectual support for the continuation of national excellent culture. As a treasure house of wisdom, colleges and universities can reduce the probability of such problems in a certain sense [19]. The ability of theoretical research and method exploration based on practice can also give new vitality and scientific guidance to the protection, inheritance, and innovation of intangible cultural heritage.

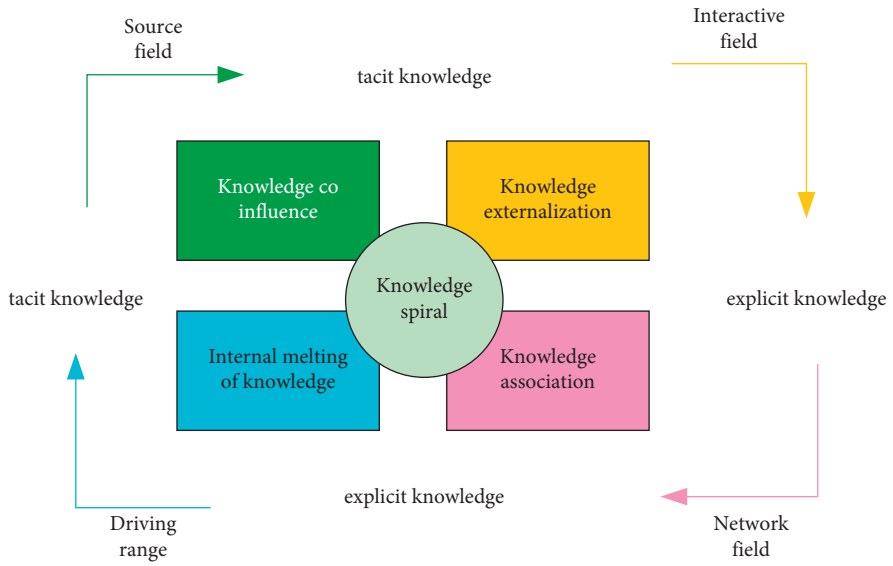


Figure 4: Four knowledge transformation modes.

3.4. New Model of Intangible Cultural Heritage Curriculum in Colleges and Universities Based on Big Data

3.4.1. New Model Core

(1) Relying on Big Data Network Platform. The function of the e-learning platform based on big data is becoming more and more powerful and constantly updated to gradually meet the diversified needs of users. In a real sense, it provides a development platform for learners' mobile fragmented learning. Students can effectively use its functional characteristics to obtain learning information, communicate, cooperate, and learn and share resources anytime and anywhere. In addition, with the rapid development of information network, the continuous popularization of 4G network, mobile Wi-Fi, personal hotspot, and even 5G communication technology provides network support for course teaching based on big data network platform [20].

(2) Students as the Main Body. The new teaching mode of "intangible cultural heritage" course of public art in colleges and universities based on big data network platform is a hybrid teaching process of "Online + offline," adhering to the people-oriented teaching concept and emphasizing the situational learning. Students choose learning topics according to their personal learning interests, set up special learning groups, create learning situations, fully reflect students' subjectivity in learning, and improve students' enthusiasm and participation in learning.

3.4.2. New Model Structure and Function. In traditional teaching, the teaching mode has the characteristics of old and single, students' negative course selection, lack of initiative in learning, lack of interaction between teachers and students, poor teaching effect, lack of practical exploration, imperfect evaluation mechanism, etc. Under the new model, teachers should focus on problems, students' interests, and thinking and exploration. First, after students select personalized learning goals, teachers create learning situations driven by tasks to teach students how to search and choose in the network, so as to improve students' learning initiative. Second, according to students' learning tasks, structured and systematic learning materials are released hierarchically in the network teaching platform for students to use their fragmented time for mobile learning [21, 22].

Based on the above thinking, this article proposes a new model of college intangible cultural heritage curriculum based on big data and its structure is shown in Figure 5.

The basic layer is the WeChat platform supporting the new teaching mode of the course and the whole teaching process, and the core layer is the whole learning process of learners. It is an important step and method, including the learning stage in and after class; the development layer is the highest level of the curriculum model and the ultimate goal to be achieved by students after fragmented learning through the network teaching platform.

3.4.3. Curriculum Design Principles of the New Model. In the network era, applying the network teaching platform to the art education curriculum teaching needs to innovate and develop on the basis of the classical curriculum design theory, combine it with the new teaching theory in the network era, and jointly build a curriculum teaching model that can not only give play to the leading role of teachers, but also reflect the learning subjectivity of students, highlight the discipline characteristics, and improve the teaching quality. Based on this, the following three curriculum design principles are proposed:

(1) Pay Attention to Teachers' Guidance. In the art course learning based on the network teaching platform, the various learning resources obtained by students in the network must be loosely structured and fragmented knowledge. Therefore, the systematic construction of the course is mainly reflected in the teachers' guidance to students. In addition, the change

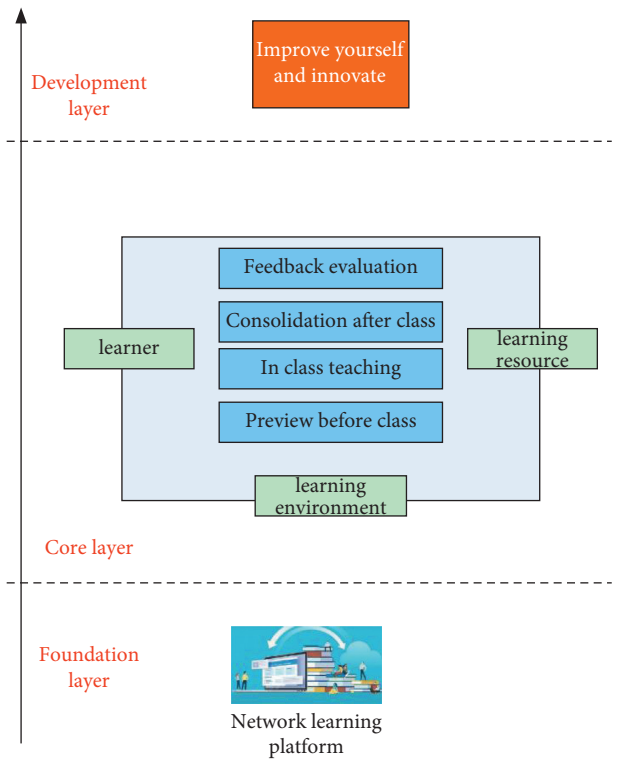


Figure 5: A new model of intangible cultural heritage curriculum in colleges and universities.

of teachers' role leads to the change of teachers' teaching tasks. Teachers' guidance should run through the whole process of curriculum learning activities.

(2) Cultivate Students' Innovative Ability. The core idea of new constructivism is to realize knowledge innovation through "zero deposit and lump-sum withdrawal" learning. In the traditional public art courses in colleges and universities, students are in a state of passive acceptance, and their understanding of knowledge is usually superficial. In the course design, we should pay attention to the cultivation of students' innovative ability, change a variety of teaching strategies, set enlightening questions, stimulate students' thinking, and further associate rational knowledge in online and offline cooperation and communication, and finally realize knowledge innovation.

(3) Establishment of Curriculum Evaluation System. The traditional art curriculum evaluation mainly adopts the examination method, and the teachers evaluate the students' learning effect, that is, the mastery of explicit knowledge, according to the examination results. However, this evaluation method cannot play a supervisory role in students' learning process. Therefore, in the evaluation system, we should pay attention to the evaluation of students' usual performance and tacit knowledge, and examine whether students have improved their humanistic quality and aesthetic cultivation. Therefore, we can enrich the evaluation methods; expand the unilateral evaluation of teachers into the evaluation between students, self-evaluation, evaluation of network platform, etc.; and evaluate students in many aspects.

4. Implementation Experiment of the New Model of Intangible Cultural Heritage Curriculum in Colleges and Universities Based on Big Data

4.1. Experimental Design

4.1.1. Experimental Object. This experiment selects 200 students majoring in art from two colleges and universities in a certain area as the experimental object to let them experience the new model of intangible cultural heritage curriculum in colleges and universities based on big data for 1 month. There are intangible cultural heritage-related courses for these students. The basic information of students is shown in Table 1.

4.1.2. Experimental Method. There are two methods used in this experiment, namely questionnaire survey and data statistics. This experiment investigates students' understanding and attitude towards intangible cultural heritage through questionnaire, and also investigates students' learning feelings about the new model through questionnaire. Data statistics rules are used to investigate students' learning data.

4.1.3. Questionnaire Design. The questionnaire design of the experiment is divided into two parts. The first part investigates students' attitude and understanding of intangible cultural heritage inheritance, and the second part investigates students' learning feelings about the new model of university intangible cultural heritage curriculum based on big data. The questions in the first part are as follows:

(1) As an art major, do you think you should shoulder the responsibility of inheriting intangible cultural heritage?

(2) Do you think you know about intangible cultural heritage?

The questions in the second part are as follows:

(1) You think the new model of courses is helpful for you to learn intangible cultural heritage?

(2) Do you like the new model of intangible cultural heritage curriculum?

The first part of the question wants to investigate whether students think they have the responsibility of inheriting intangible cultural heritage and their understanding of intangible cultural heritage, and the second part examines their recognition and liking for the new model.

4.2. Questionnaire Survey Results

4.2.1. Investigation on the Attitude and Understanding of Intangible Cultural Heritage Inheritance. First, this experiment investigates the students' attitude towards the inheritance of intangible cultural heritage. The corresponding question in the questionnaire is as follows: as an art major

Table 1: Basic information of students.

Type	Option	Proportion (%)
Gender	Male	39
	Female	61
Educational level	Specialty	21
	Undergraduate	65.5
	Graduate	12.5

student, do you think you should shoulder the responsibility of inheriting intangible cultural heritage? The results obtained are shown in Table 2.

As can be seen from Table 2, the vast majority of students believe that they should take the responsibility of inheriting intangible cultural heritage. In total, 47.5% of the students choose to be very worthy and 41.5% of the students choose to be worthy, which proves that most students are aware of their responsibility for inheriting intangible cultural heritage, which is a good phenomenon. It can also be seen from the picture that only 2% of the students think they should not shoulder the responsibility of inheriting intangible cultural heritage. Therefore, the school can further strengthen the cultivation of students' awareness of intangible cultural heritage inheritance, so that every art major student can realize their importance to intangible cultural heritage inheritance.

Next, this experiment investigates the students' understanding of intangible cultural heritage and asks them to make a self-assessment of their understanding. The results are shown in Table 3.

It can be seen from Table 3 that the largest number of students choose to know something, accounting for 42.5%, and the second largest number accounting for 39%. From this point of view, the largest number of students only know a little about intangible cultural heritage, which proves that colleges and universities are far from enough to cultivate the knowledge and skills of intangible cultural heritage of art students. In the future, we should strengthen the training of art students in this regard. However, it is gratifying that no one chooses not to understand it at all, which proves that all students have at least some knowledge of intangible cultural heritage.

4.2.2. Investigation on the Feeling of New Model Curriculum Participation. This experiment investigates students' feelings of participating in the new curriculum model, and explores students' attitudes towards the new curriculum model. First, the experiment investigates whether students think the new model curriculum is helpful to their learning. The results are shown in Figure 6. The picture on the left shows the survey of boys and the picture on the right shows the survey of girls.

It can be seen from the figure that the vast majority of men and women believe that the new model curriculum is helpful to them, which proves the effectiveness of the new model curriculum in intangible cultural heritage teaching. Comparing men with women, it is found that women's recognition of the new model teaching is slightly higher than

Table 2: Attitude towards intangible cultural heritage inheritance.

Option	Proportion (%)
Very much	47.5
Should	41.5
Commonly	9
Should not	2

Table 3: Understanding of intangible cultural heritage.

Option	Proportion (%)
Very understanding	19.5
Understand	39
Know a little	42.5
Not at all	0

men, because the proportion of women choosing to agree and very agree is higher than men, which is 85% and that of men is 81.5%, with an average of 83.3%. After calculation, the average proportion of men and women who choose to agree with the new model teaching is 41.8%, and the proportion of people who choose to agree is 41.5%. In general, the students' recognition of the new curriculum model is relatively high.

Next, this experiment investigates the students' love of the new model curriculum, and the results are shown in Figure 7.

It can be seen from the figure that most people like and like the new curriculum model very much. Among men, 64% choose to like and like very much, whereas in women, it is 74.5%. It can be seen that men's love is lower than women, but the proportion of both is relatively high. The average the number of men and women choose to like and like very much is 69.3%. So generally speaking, students still like the new model curriculum, which is a very good phenomenon.

4.3. Investigation of Students' Learning Data under the New Model. This part of the experiment is to count the data results of the students after one month of learning in the new learning mode. The learning data are divided into two parts. One part is the students' browsing data of preview materials and review materials. In this month's learning, all students in the two universities participated in eight new model courses of intangible cultural heritage. Before each class, teachers will release preview materials through the online learning platform and send review materials after class, so this part of the data is the browsing of all students for a total of 16 times; and the second part of the data is the attendance rate of students in class.

First, the students' browsing of learning materials is investigated, and Figure 8 is obtained. The picture on the left in Figure 8 represents the browsing situation of preview materials, and the picture on the right represents the browsing situation of consolidated materials.

As can be seen from the figure, neither preview materials nor review materials have been browsed by all students. For preview materials, the peak browsing is the first class and the last class. Guess it may be because the first class is just the beginning, and the students are curious, so the number of

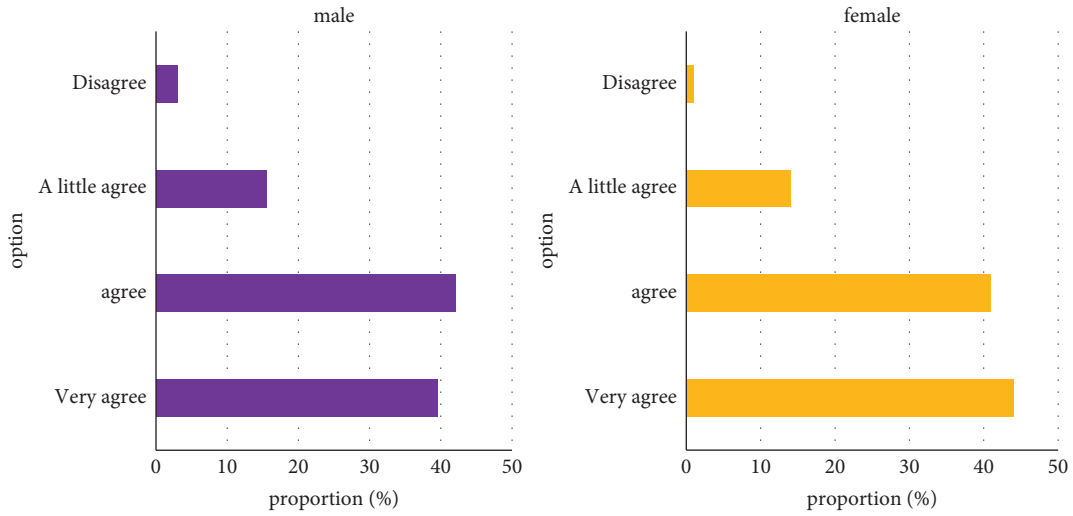


Figure 6: Students' recognition attitude towards the new curriculum model.

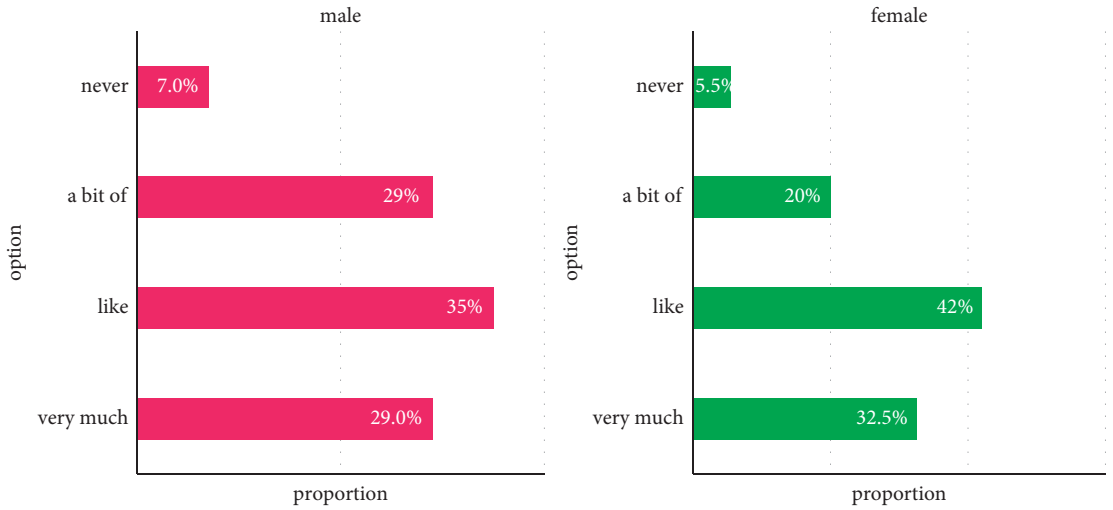


Figure 7: Students' love of the new curriculum model.

visitors is naturally more. The last class is because the class is about to end, so the students will be more serious about the last class. For review materials, the peak number of visitors appears in the last class and the fifth class. The reason for the large number of visitors in the fifth class may be that the content of the fifth class is attractive to students. After calculation, for the preview materials of eight classes, the average browsing rate of students is 83.3%, and for the review materials, the average browsing rate is 77.4%. It can be seen that more students browse the preview materials than the review materials. Then, the browsing situation of the preview materials and review materials is balanced, and the total average value of the proportion of the number of people browsing materials is 80.35%.

Borrowing this experiment to count the students' check-in, and the results are shown in Figure 9.

It can be seen from the figure that, similar to the browsing of preview materials, the peak of course check-in also appears in the first and last classes. From the first to the fifth class, the number of course attendance gradually decreased, the least number of attendance occurred in the fifth class, and the number of course attendance rebounded in the sixth class. After calculation, the highest and lowest attendance rates are 76% and 90%, respectively. The average course attendance rate was 82.6%.

To sum up, most students have completed both browsing learning materials and course check-in, but the average value of both is only over 80%, so the completion needs to be improved.

5. Discussion

With the deepening of the protection of world cultural heritage and natural heritage, the international community has gradually realized that there is another folk intangible cultural heritage corresponding to the material cultural heritage that also needs to be protected. Intangible cultural heritage is an important part of excellent traditional culture.

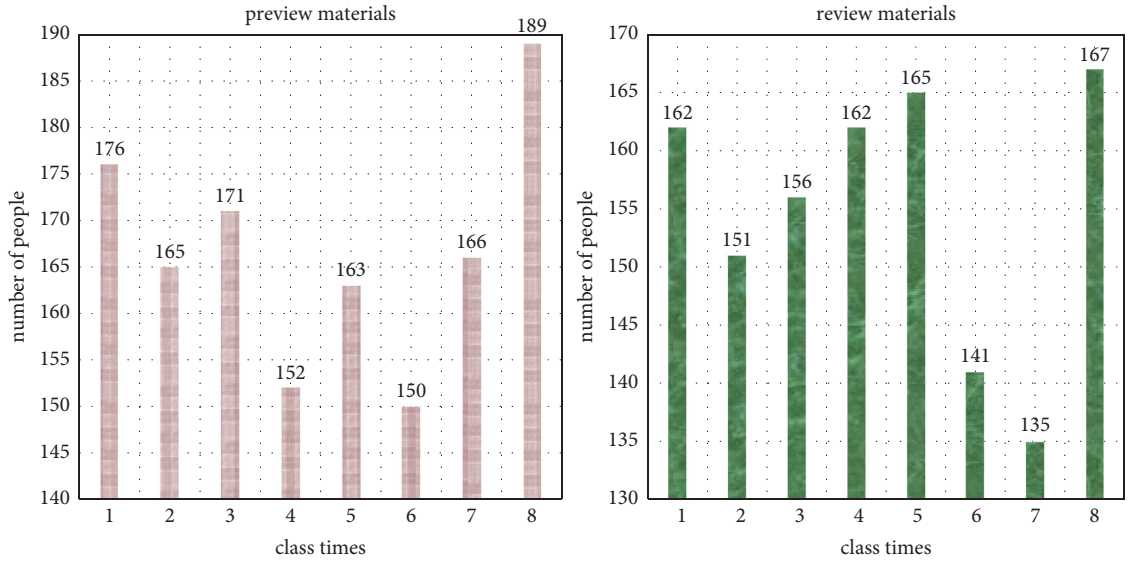


Figure 8: Browsing of learning materials.

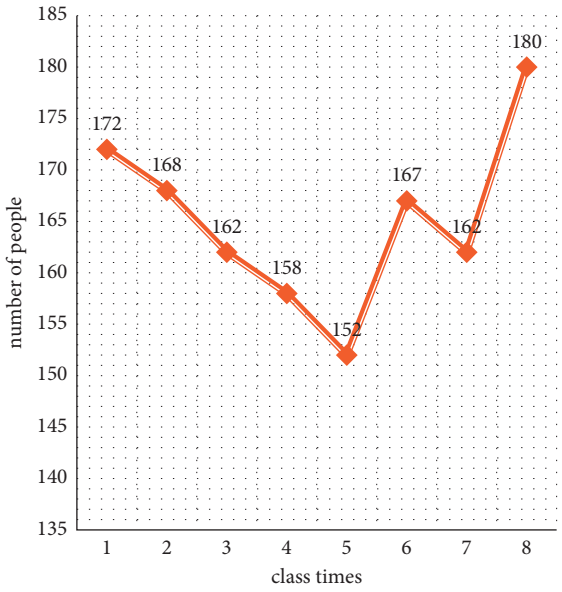


Figure 9: Course attendance.

It is a valuable wealth formed by human beings in the long-term practice of production and life. It represents the unique spiritual style and identity of a country and a nation. College students in the new era show many new characteristics. They are energetic, eager to learn and make progress, have a broad vision, are open and confident, and have strong autonomy. Intangible cultural heritage has new and different forms of cultural expression, profound educational value connotation, broad audience participation, and distinctive nationality. They integrate local intangible cultural heritage into art education in local colleges and universities and train art students, which is a very important way for art students to inherit intangible cultural heritage. The future work is to collect students' suggestions for the improvement in the new model intangible cultural heritage curriculum, constantly modify this model, enrich the learning links of this model, and make this model more popular and recognized by students.

6. Conclusion

Inheriting intangible cultural heritage is something that countries must do. This road has a heavy task and a long way to go. Education is one of the very important roads. The most basic inheritance of intangible cultural heritage is the cultivation of talents. Only by cultivating intangible cultural heritage talents can the national excellent intangible cultural heritage be handed down from generation to generation. In the new era, the cultivation of intangible cultural heritage talents is not limited to the cultivation of skills, but also the cultivation of cultural knowledge, quality, and morality. Therefore, college art design students are the best group to cultivate at this time.

Based on big data, this article studies the talent training of the deep integration of intangible cultural heritage inheritance and art design education in colleges and universities. This article introduces the background and significance of the topic, introduces the inheritance of intangible cultural heritage and the relevant methods of big data, and then puts forward a new model of intangible cultural heritage curriculum in colleges and universities based on big data. Finally, this article makes an experiment, applies the model to college education, and then investigates the students' attitude towards intangible cultural heritage and their experience of the new model curriculum. It comes to the conclusion that the vast majority of students think they should bear the responsibility of inheriting intangible cultural heritage and have a certain understanding of intangible cultural heritage. Also, the vast majority of students recognize and love the new curriculum model. In addition, the experiment counted the students' learning situation and found that most of the students were browsing materials and

signing in for the course. To sum up, the application and design of the new curriculum model is still relatively successful.

Data Availability

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

Conflicts of Interest

The authors declare that there are no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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