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Article

Construction of Red Agricultural Culture Digital Resource Base Based on Data Mining and Its Application in Art and Aesthetic Education

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Abstract: With the continuous development of technologies such as big data and cloud computing, this paper utilizes data mining techniques to extract, analyze, clean, convert, filter, and integrate red agricultural cultural digital resources, storing the public metadata in a data warehouse. This study mainly focuses on students enrolled in the "Teach You a Trick" aesthetic education course offered by our institution. through a questionnaire survey to investigate the actual differences in digital resource needs among students of different genders, disciplines, and grades within the red agricultural cultural digital resource repository in the context of art and aesthetic education. The results show that 92.78% of students believe that accessing red agricultural culture digital resources is generally easy, fairly easy, or very easy. 62.7% of students believe that the proportion of their learning time spent using red agricultural culture digital resources is below 20% or between 21% and 40%, indicating that the usage time of red agricultural culture digital resources in the learning process needs to be improved.

Keywords: data mining; data warehouse; red agricultural culture; art education

1. Introduction

The development of digital teaching resources is one of the key components of higher education informatization. In today's highly networked environment, the issue of collaborative development and sharing of digital teaching resources among universities has become increasingly prominent [1]. In terms of teaching resource development, as theoretical research and practical applications have deepened, the focus has shifted from initial hardware construction to more complex and critical software development, resource construction, and the exploration of resource sharing models and mechanisms [2-3]. China's efforts in the development and construction of digital teaching resources have achieved notable results after over a decade of development [4]. Led by the state and with universities as the mainstay, the construction of various types of resources at all levels has already formed the rudiments of China's educational resource system. In particular, the construction of public service systems such as digital libraries and university digital libraries has achieved phased results in the construction of educational resources [5].

Currently, many universities have established their own resource repositories, and university users also have access to some digital resources. However, these resources are largely scattered, making it time-consuming and labor-intensive for users to quickly locate the resources they need within the vast array of available materials. This inevitably limits the utilization rate of these resources [6]. Many universities lack unified classification standards and planning for independently developed resources, leading to redundant resource development. As the volume of resource data grows, interface issues become increasingly prominent. The lack of technical platforms and tools to support resource services for users significantly hinders the sharing of digital educational resources and reduces their utilization rate [7-9].

A review of current research literature reveals that studies on the development of digital educational resources are currently very popular. Among these, a significant portion focuses on the application of digital educational resources in education, which has become one of the hot topics in research on resource sharing [10-13]. For example, WU, Ying emphasized the advantages of digital educational resources in university classroom teaching, particularly in enhancing learning outcomes and student engagement, while also highlighting the challenges they face in terms of integration and infrastructure [14]. Alberola-Mulet, I et al. explored teachers' views on digital educational resources, concluding that these resources help to improve students' motivation to learn, but there was no consensus on the degree to which they should be integrated. Overall, however, they believed that digital resources can improve the quality of education [15]. Liu, H., et al. studied the construction and application of digital teaching resources in education and demonstrated through practical cases that the construction and application of digital educational resources can address the current issue of educational inequality and provide suggestions for promoting the reform and development of information-based teaching [16]. Chen, R., et al. explored the development of co-creation models for digital educational resources in the "Internet+" era, analyzed the challenges faced, and applied this model in the field of education using NetPad as an example [17]. Based on the findings of the aforementioned scholars, the application of digital educational resources in education has reached a high level of theoretical maturity. These research outcomes lay the foundation for our study on the construction of a digital educational resource repository for red agricultural culture and its application in artistic aesthetic education.

This paper extracts, parses, cleans, converts, filters, and integrates data from heterogeneous data sources located in different locations, and stores them in a local data warehouse. Through data mining and analysis techniques, it uncovers the implicit, meaningful, and related data relationships within the educational resource repository. This process is used to build a digital resource repository for red agricultural culture. This study takes the students enrolled in the "Teach You a Trick" aesthetic education course offered by our school as its research subject and uses descriptive statistics in SPSS software to explore students' use of red agricultural culture digital resources in art and aesthetic education.

2. Construction of Digital Resource Libraries

2.1. Resource Library Definition

Red agricultural cultural digital resources can be divided into broad and narrow definitions. Broadly defined, red agricultural cultural digital resources encompass nearly all information and technology within a digital learning environment, including individual information. Narrowly defined, red agricultural culture digital resources are primarily defined from the perspective of their effectiveness and relevance to learning. Red agricultural culture digital resources refer to multimedia materials that have been digitized, organized according to learner characteristics, and can be run on multimedia computers or in network environments to support learners' independent and collaborative learning, enabling resource sharing. The research and discussion of red agricultural cultural digital resources in this book are based on this narrower conceptual understanding. Red agricultural cultural digital resources provide resource support and assistance to numerous learners through convenient, efficient, and flexible service methods, fully considering individual needs and differences, and embodying a people-centered philosophy.

2.2. Resource Library Structure

2.2.1. Physical Structure

The current red agricultural culture digital resource repository is generally built on the basis of the three-tier structure model, with the development model and technical architecture primarily based on this structure. The following provides a brief introduction to it. The three-tier architecture is a browser-server architecture. The three-tier architecture originated from the architecture proposed by Microsoft Corporation in the United States. It emerged as a variation or improvement of the client-server architecture with the rise of new technologies. In this architecture, the user interface is implemented through a browser, with minimal business logic handled on the front end, while the majority of business logic is processed on the server side, forming the so-called three-tier structure. The physical structure of the digital resource repository is shown in Figure 1.

Based on the three-tier structure, the client and management end serve as the system's user interface and navigation layer, the server and its applications form the business processing layer, and the database server and resource server cluster constitute the integrated storage layer. The database server is primarily used to store structured data, while the resource server cluster is mainly used to store unstructured data. The architecture of a digital resource repository supporting self-directed learning is built upon this structure and has its own unique characteristics.

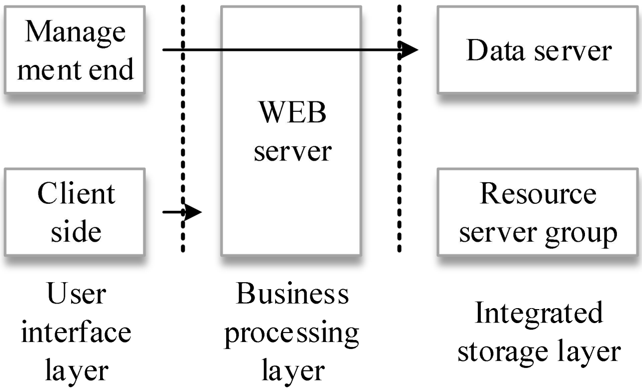

Figure 1. Physical Structure of the digital resource library.

2.2.2. Functional Structure of the Resource Library

From a functional structural perspective, the Red Agricultural Culture Digital Resource Repository consists of three categories: the Incoming Repository, the Active Repository, and the Outgoing Repository. The Incoming Repository is a collection of uploaded red agricultural culture digital resources that have not yet been reviewed. The Outgoing Repository is a collection of red agricultural culture digital resources that have been withdrawn. The Active Repository is a collection of resources currently in use. These repositories do not refer to storage space but rather to the status of digital resources within the repository. We can add an "application status" attribute to the resources and input this attribute into the metadata database. By changing the value of the "application status" attribute, we can alter the status of the resources. For example, if we set the "application status" attribute to have three values: -1, 0, and 1, these represent the digital resources being in the pending removal repository, the selected repository, and the active repository, respectively. If the "application status" of Resource A is 0, it means that after passing the review for selection into the repository, its "application status" is changed to 1, indicating it has entered the in-use repository and is available for learners to use. Conversely, if the "application status" of Resource B is changed from 1 to -1, it indicates that for some reason it is no longer available to learners and has been transferred to the pending removal repository.

2.3. Resource Library Format

The form of the Red Agricultural Culture Digital Resource Repository can be analyzed from various perspectives, including the method of resource storage, geographical organization and distribution, and the builders involved.

From the perspective of resource storage, the forms of red agricultural culture digital resource repositories primarily include three modes: file storage, database storage, and quasi-database storage. The database storage form is illustrated in Figure 2.

In the actual construction of digital resource repositories, these three storage methods are selected based on specific circumstances. Due to differences in resources, networks, technical personnel, and other factors, the storage method typically employs one primary mode supplemented by the other two, rather than relying solely on a single storage method for repository construction. For example, for the management of educational resource attributes (i.e., metadata), database storage is used to facilitate resource retrieval and location. For the storage of educational resources themselves, the choice depends on specific circumstances. For small-data-volume resources such as text, images, and animations, they can be stored in a database to ensure their security. For large-data-volume resources, file management is used, but certain technologies must be employed to ensure their security and stability—such as server technology and streaming media technology for resource management and distribution.

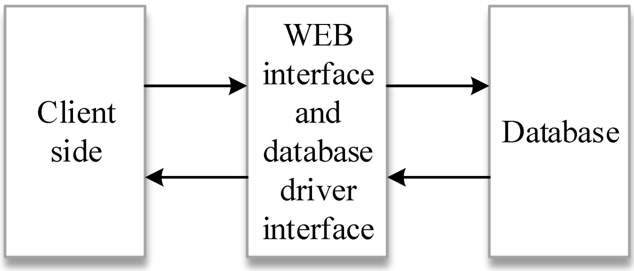

Figure 2. Database Storage Form.

3. Integration of Digital Resources on red Agricultural Culture

3.1. Database-Based Integration of Digital Resources on Red Agricultural Culture

A data warehouse refers to a subject-oriented, integrated, time-varying, non-volatile collection of data used to support management decisions. Systems based on data warehouse resource integration primarily achieve this by extracting, parsing, cleansing, transforming, filtering, and integrating resource information from heterogeneous data sources or database management systems located in different locations. This process converts dispersed, inconsistent data into common metadata and stores it in a local data warehouse. Users can then access the local data warehouse to perform centralized searches across multiple heterogeneous database systems located in different locations. A data warehouse differs from a general database management system in that it effectively integrates data from various heterogeneous data sources according to specific rules, serving as a tool for data resource integration and consolidation. A data warehouse can organize data by theme, apply different groupings for data from heterogeneous databases across various domains, and perform comprehensive, unified categorization while maintaining consistent alignment with the original data. It can also extract data from heterogeneous databases, organize it according to requirements, eliminate redundant, erroneous, invalid, conflicting, or inconsistent data, and convert it into globally unified data. As the data sources continue to grow, the data warehouse will continuously update to maintain data freshness and stability. The main characteristics of data warehouse integration are: data is physically integrated locally, integrated data is separated from operational data, and the dispersed data in the original data sources can still exist independently, continuing to provide data retrieval services to users. Therefore, it has the characteristics of centralized management and centralized storage of heterogeneous data sources. The advantages of data warehouse integration include efficient integration of multiple heterogeneous data sources, resolving differences between different databases, providing users with a transparent, unified data usage environment, and enabling fast, high-quality data queries. Its disadvantages include occupying a large amount of storage space and potential discrepancies in data timeliness. The necessary supplementary role of data warehouse integration in resource integration is primarily reflected in the following aspects: First, it can store integrated data in a unified data source, optimizing the form of data storage, reducing the response time of alternating access to multiple data sources, and improving user access speed. Second, a unified data source reduces the difficulty of resource integration application development and improves development efficiency. The digital resource integration architecture based on a data warehouse is shown in Figure 3 [18].

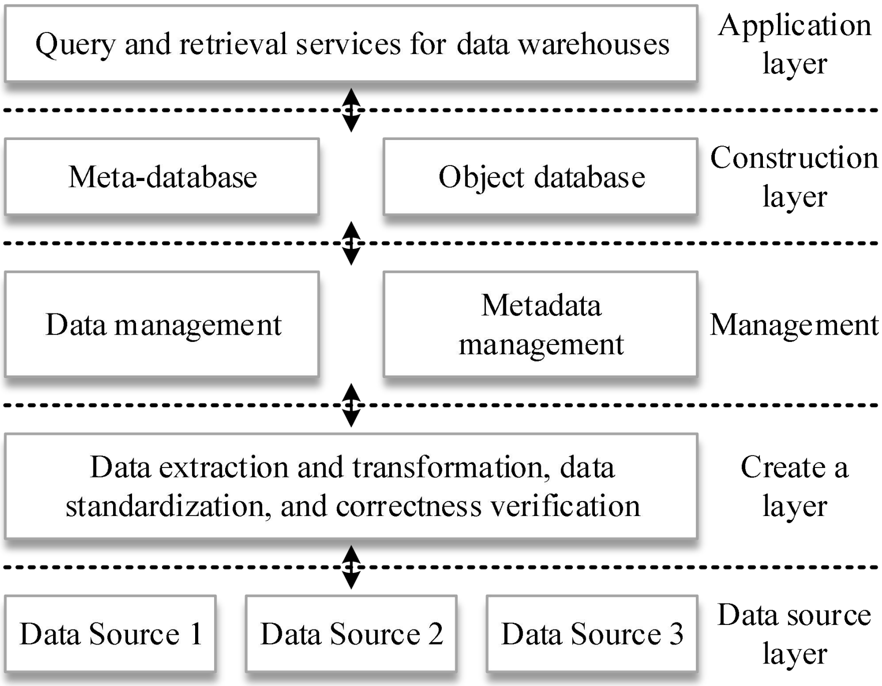

Figure 3. Digital resource integration system chart.

3.2. Data Mining of Red Agricultural Cultural Education Resources

In the practice of resource integration, we typically deal with data on the order of terabytes (TB). Faced with an explosive volume of information, how do we identify the data users need in such a complex and intertwined environment? This is where data mining technology comes into play. Generally speaking, data mining is a process that uses various analytical methods and tools to establish models and discover relationships between data in large-scale datasets. These models and relationships can be used for decision-making and prediction, supporting the methods and processes of large-scale data analysis. The goal of data mining is to uncover hidden, meaningful, and related data relationships within databases. Data mining possesses functions such as automatic trend and behavior prediction, anomaly detection, clustering, concept description, and association analysis. Especially in the integration of educational resources, data association is particularly important. Through association analysis, patterns between the values of two or more variables can be discovered, and these patterns are referred to as associations. Associations can be categorized into simple associations, causal associations, and temporal associations. The primary function of association analysis is to identify the interrelationships within a database, and the results of such analysis possess a certain degree of reliability. Therefore, data mining serves as a necessary supplementary component to data resource integration. The necessary supplementary role of data mining in resource integration is primarily manifested in the following aspects: First, data mining is more effective in uncovering the interconnections between business logic tables, identifying key influencing factors within data resources, and refining the design of existing resource integration systems. Second, data mining aids in identifying defects in business data, optimizing data resource storage, and eliminating redundant data.

4. Research on the Application of Red Agricultural Culture Digital Resources in Art and Aesthetic Education

4.1. Research Subjects

The final resource demand model obtained through the Delphi expert consultation method was applied to develop the "Red Agricultural Culture Digital Resource Demand and Service Survey Questionnaire." This questionnaire survey is targeted at students enrolled in our school's "Teach You a Trick" aesthetic education course and Data was collected using two methods: through the online platform "QuestionStar" and paper versions in the classroom. The aim was to investigate differences in students' actual digital resource needs across gender, discipline, and grade levels. The questionnaire is divided into three sections related to the content. The first section investigates the channels and methods through which college students obtain and learn about red agricultural culture knowledge; the second section explores the use of digital resources related to red agricultural culture in art and aesthetics education courses; the third section investigates whether students have actually used or experienced digital resource services with the aforementioned quality characteristics in their daily studies and lives, and collects more representative and practical survey data to provide service recommendations for resource service departments. The "Teach You a Trick" project recruits freshmen annually, and to date, a total of 230 questionnaires have been collected.To facilitate measurement analysis of the items, the items in both sections of the scale were numbered separately. The items in the red agricultural culture digital resource demand scale are numbered n1-n14, and the items in the red agricultural culture digital resource service scale are numbered s1-s14. All data processing and analysis were conducted using SPSS 26 software.

4.2. Questionnaire Analysis

4.2.1. Reliability and Validity Analysis

Fourteen items from the red agricultural culture digital resource demand questionnaire were selected as the analysis objects. KMO and Bartlett's sphericity test were selected as the factor analysis indicators. The closer the KMO value is to 1, the higher the partial correlation between the factors. A p-value (sig) of less than 0.001 rejects the hypothesis of independence between the items and accepts the hypothesis of strong correlation between the items. The relevant values obtained are shown in Table 1.

Table 1. KMO and spherical test analysis results.

Index		Numerical value
KMO value		0.901
	Approximate card	1506.022
Bartlett ball test	Degrees of freedom	94
	Significant (sigma)	0.001

Similarly, 14 items from the Red Agricultural Culture Digital Resource Service Experience Questionnaire were selected as the analysis objects. After KMO and Bartlett's sphericity tests, the relevant values are shown in Table 2.

Table 2. KMO and spherical test analysis results.

Index		Numerical value
KMO value		0.957
	Approximate card	2799.315
Bartlett ball test	Degrees of freedom	94
	Significant (sigma)	0.001

The KMO values for the two scales mentioned above are 0.901 and 0.957, respectively, which are greater than 0.7 and close to 1; the significance of the sphericity test is 0.001. The results indicate that the two scales have a certain degree of validity.

4.2.2. Project Analysis

A commonly used method in project analysis is the extreme group method. This method involves assigning values to questionnaire scales, calculating total scores, and ranking the test results based on the order of total scores to further understand the differences in test performance across different items. The basic principle is to distinguish between high-scoring groups and low-scoring groups (typically the top and bottom 27%) based on the order of total scores, calculate the cutoff value (CR value) for each item, and perform a t-test on the CR values to determine whether they reach the significance level. The questionnaire in this study is divided into two parts, which are related but have different overall content. Therefore, two item analyses were conducted to calculate the CR value differences for each part separately. The results of the item analysis for the Red Agricultural Culture Digital Resource Demand Scale are shown in Table 3.

As shown in the table, all 14 items in the Red Agricultural Culture Digital Resource Demand Scale have p-values less than 0.05, indicating that the items exhibit good discriminative power and reach statistical significance.

Table 3. Resource requirements table project analysis summary table.

	t	Degrees of freedom	Sig.	M	SD	The difference is 95% confidence interval	
						Lower limit	Upper limit
n1	11.153	128	0.001	-0.987	0.089	-1.162	-0.813
n2	14.145	128	0.001	-1.294	0.092	-1.478	-1.108
n3	8.847	128	0.001	-0.905	0.104	-1.096	-0.705
n4	9.457	128	0.001	-1.068	0.094	-1.263	-0.884
n5	10.745	128	0.001	-1.068	0.114	-1.289	-0.846
n6	15.213	128	0.001	-1.240	0.117	-1.469	-1.012
n7	14.157	128	0.001	-1.596	0.107	-1.816	-1.389
n8	12.036	128	0.001	-1.337	0.094	-1.522	-1.182
n9		128	0.001	-1.084	0.114	-1.287	-0.902
n10		128	0.001	-968	0.098	-1.158	-0.768
n11	9.387	128	0.001	-1.225	0.096	-1.409	-1.042
n12	13.128	128	0.001	-0.889	0.084	-1.036	-0.722
n13	11.005	128	0.001	-1.722	0.126	-1.968	-1.487
n14	14.078	128	0.001	-1.727	0.118	-1.956	-1.189

The results of the analysis of the Red Agricultural Culture Digital Resource Service Experience Questionnaire are shown in Table 4. From the table above, it can be concluded that the p-values of all 14 questions in the Red Agricultural Culture Digital Resource Service Experience Questionnaire are less than 0.05, indicating that the questions have good discriminative power and reach a significant level.

Table 4. Questionnaire project analysis summary table.

	t	Degrees of freedom	Sig.	M	SD	The difference is 95% confidence interval	
						Lower limit	Upper limit
s1	17.387	128	0.001	-1.715	0.105	-1.911	-1.522
s2	16.272	128	0.001	-1.73	0.113	-1.94	-1.522
s3	11.872	128	0.001	-1.556	0.138	-1.815	-1.298
s4	16.17	128	0.001	-2.128	0.138	-2.388	-1.869
s5	14.7	128	0.001	-1.875	0.134	-2.128	-1.625
s6	14.632	128	0.001	-2.114	0.151	-2.4	-1.83
s7	16.435	128	0.001	-1.952	0.125	-2.187	-1.719
s8	13.751	128	0.001	-1.873	0.143	-2.142	-1.605
s9	16.663	128	0.001	-1.762	0.112	-1.971	-1.555
s10	21.359	128	0.001	-2.334	0.116	-2.549	-2.12
s11	18.767	128	0.001	-2.159	0.121	-2.387	-1.934

s12	17.209	128	0.001	-2.114	0.129	-2.356	-1.873
s13	17.387	128	0.001	-1.715	0.105	-1.911	-1.522
s14	16.272	128	0.001	-1.73	0.113	-1.94	-1.522

4.3. Analysis of Results

4.3.1. Basic Information on the Main Users (Students)

Using descriptive statistics in SPSS software, we examined the overall awareness, attitudes, and capabilities of all surveyed participants regarding the use of red agricultural cultural digital resources. The application situation is shown in Table 5: the mean and standard deviation of each observed variable are M±SD. This study used a Likert scale, so the median is 3. This score is mainly the average calculated using a five-point scale, which can to some extent reflect the score level of the indicator. The average scores for overall awareness, attitude, and ability are all above 3 points. When asked, “Are you willing to use red agricultural cultural digital resources in art learning?” the average score reached 4 points, indicating that students hold a positive attitude toward “using red agricultural cultural digital resources in art learning.”

Table 5. Students use digital learning resource awareness.

	Case number	Range	Min	Max	M	SD
Students must master the ability to learn from red agricultural cultural digital resources	230	4	1	5	3.96	0.899
We are willing to use red agricultural cultural digital resources in the course of learning	230	4	1	5	4.12	0.884
You can use electronic equipment to consult red agricultural cultural digital resources	230	4	1	5	3.49	0.997
You can select resources for your own learning	230	4	1	5	3.68	0.953

4.3.2. Application Environment Descriptive Statistics

A descriptive analysis of the application environment is shown in Table 6, with the mean and standard deviation of each observed variable expressed as M±SD.

Table 6. Application environment description statistics.

	Case number	Range	Min	Max	M	SD
The Internet downloads the red agricultural cultural digital resources at a speed	230	4	1	5	3.26	1.132
Teachers encourage students to use video or online courses to study	230	4	1	5	3.64	1.028
There is a teacher who is involved in the evaluation of online learning hours	230	4	1	5	3.22	1.279
Students around you love to learn from video, animation, or online courses	230	4	1	5	3.25	1.024
The school has the provision of the online learning length of part of the course to be included in the performance review	230	4	1	5	3.56	1.177

The survey results are shown in Table 7. The mean values of the observed variables for network speed and humanities and policy environment are all higher than the median of 3, reaching a positive state. However, three values are just above the median, reaching a critical state. These are network speed, teacher performance evaluation methods, and the popularity of surrounding students. As a result, many students still chose values below the median, warranting further analysis.

Regarding the statement “When downloading and streaming red agricultural cultural digital resources online, the speed is smooth,” 48.53% of students selected “completely disagree,” “somewhat disagree,” or “unsure.”

Table 7. The network downloads the resources of the resources at a speed.

		Percentage	Effective percentage	Cumulative percentage
In effect	Complete mismatch	7.38%	7.38%	7.38%
	Discrepancy	29.02%	29.02%	36.4%
	Indeterminate	12.13%	12.13%	48.53%
	Match with	44.59%	44.59%	93.12%
	Perfect coincidence	6.89%	6.89%	100%
	Total	100%	100%	

The survey results regarding whether teachers include online learning hours as part of the grade assessment are shown in Table 8. For the observed variable “whether teachers include online learning hours as part of the grade assessment,” 50.33% of students selected “completely disagree,” “somewhat disagree,” or “unsure.”

Table 8. The network downloads the resources of the resources at a speed.

		Percentage	Effective percentage	Cumulative percentage
In effect	Complete mismatch	11.31%	11.31%	11.31%
	Discrepancy	22.46%	22.46%	33.77%
	Indeterminate	16.56%	16.56%	50.33%
	Match with	34.10%	34.10%	84.43%
	Perfect coincidence	15.57%	15.57%	100%
	Total	100%		

As shown in Table 9, students around them really like using videos or online courses for learning. However, when asked, “Do students around you really like using videos, animations, or online courses for learning?”, 54.92% of students chose “completely disagree,” “somewhat disagree,” or “unsure.” Based on the analysis above, students are generally willing to use red agricultural culture digital resources, but they don't totally love them.

Table 9. The network downloads the resources of the resources at a speed.

		Percentage	Effective percentage	Cumulative percentage
In effect	Complete mismatch	4.26%	4.26%	4.26%
	Discrepancy	24.75%	24.75%	29.02%
	Indeterminate	25.90%	25.90%	54.92%
	Match with	37.54%	37.54%	92.46%
	Perfect coincidence	7.54%	7.54%	100.00%
	Total	100%		

4.3.3. Resource Applicability

A descriptive analysis of the application environment is shown in Table 10, with the mean and standard deviation of each observed variable given as M±SD. The mean scores for all indicators of the resource's applicability did not reach 4 points. While the richness of resource types and the timeliness of campus website updates were acknowledged, the lack of detailed explanations of knowledge points and the mismatch between the difficulty of the resources obtained and the learning level require further attention.

Table 10. resource applicability description statistics.

	Frequency	Percentage	Effective percentage	Cumulative percentage	Frequency	Percentage
n1	230	4	1	5	3.15	1.008
n2	230	4	1	5	3.10	0.994
n3	230	4	1	5	3.87	0.978
n4	230	4	1	5	3.36	1.032

4.3.4. Resource Application Process

A single-option frequency and cumulative percentage analysis was conducted on the valid questionnaires, with the results shown in Table 11: As can be seen from the analysis in the table, regarding the ease of accessing red agricultural cultural digital resources, 92.78% of students selected “average,” “relatively easy,” and “very easy,” with the majority choosing “relatively easy,” indicating that accessing red agricultural cultural digital resources is becoming increasingly convenient. Regarding the methods of accessing these resources, the most common choice was free downloads from Baidu Wenku, followed by downloads from literature databases such as CNKI and Wanfang, and then resources provided by teachers. Thus, the primary sources of learning resources are limited to Baidu Wenku and teacher-provided materials. Video resources such as online courses have not been fully utilized among students, and efforts should be made to expand their access to such resources. Finally, when asked about the proportion of total study time spent using red agricultural culture digital resources, 62.7% of students selected “less than 20%” and “21%-40%,” indicating that the duration of using red agricultural culture digital resources in the learning process needs to be improved.

Table 11. Resource application process.

Resource application process	Answer	Percentage
Hard to get	Very easy	12.62%
	Easier	45.41%
	General	34.75%
	More difficult	6.56%
	Very difficult	0.49%
Access path	Campus net acquisition	14.26%
	Library acquisition	22.62%
	Teacher offer	17.05%
	Baidu library is free download resource library access	30.33%
	Other	13.61%
The proportion of the total length of learning is used	Under 20%	27.38%
	21%~40%	35.41%
	41%~60%	25.74%

	61%~80%	9.18%
	Over 81%	2.46%

4.3.5. Evaluation of Application Effectiveness

The descriptive analysis of the application effectiveness evaluation is shown in Table 12, with the mean and standard deviation of each observed variable denoted as M ± SD. Three indicators in the table have M values above 3 points, indicating that the use of red agricultural cultural digital resources has made the presentation forms of classroom content more diverse. Students' attention is also more easily captured. For the indicator "increased difficulty in the learning process," the final result was below 3 points. Overall, the use of red agricultural cultural digital resources in the learning process does not increase difficulty compared to traditional learning models. However, during self-directed learning, students find it difficult to distinguish between key and challenging knowledge points and ordinary or peripheral knowledge points.

Table 12. Applied effect evaluation descriptive analysis.

	Case number	Range	Min	Max	M	SD
There are more forms of classroom content	230	4	1	5	3.56	1.008
More attention to learning	230	4	1	5	3.74	0.936
The learning process is harder	230	4	1	5	2.96	1.014
It is difficult to grasp the difficulty of self-study	230	4	1	5	3.37	1.038

5. Conclusion

This paper primarily utilizes data mining-related technologies to establish a digital resource repository for red agricultural culture. A survey questionnaire on the demand for and services related to red agricultural culture digital resources was developed, and its application in art and aesthetic education was investigated and analyzed. The results indicate that most students hold a positive attitude toward the use of red agricultural culture digital resources in art learning. The application process of the resources and the timeliness of their applicability have been affirmed. However, the duration of resource use during the learning process and the "increased difficulty of the learning process" require improvement. Therefore, data mining technology will drive the development of art and aesthetic education.

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