

# **Research** Article

# **Construction of Network Organization Structure of College Students' Education Management Based on Distributed Network**

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To construct the network organizational structure of college students' educational management and realize the informatization development of college students' educational management, the construction method of network organizational structure of college students' educational management is proposed based on the distributed network. MySQL and PostgreSQL are used as the bottom data structure models of the network-based organizational structure of college students' education management, and the multisource information scheduling method, which is used to construct the transaction identifier (TID) labeling tuple model of college students' education management network. The initial topological structure model of the network-based organizational structure nodes of college students' education management network is constructed by the 4-tuple model, and the linear structure decomposition of the construction nodes of the network-based organizational structure of college students' education management is carried out. The correlation characteristics of the transmission channel of the network organization structure of college students' education management are extracted; the three-layer architecture system of data layer, network layer, and application layer is adopted; the architecture model of the network organization structure of college students' education management is established; the multinode distributed network transmission technology is used to build a tree structure model, so as to realize the design of the network organization structure model of college students' education management and the scheduling of multisource information parameters; and the fuzzy multi-attribute decision-making method to realize the adaptive scheduling of the network organization structure of college students' education management is adopted, so as to improve the storage management, fault tolerance, and safe access ability of the network organization structure of college students' education management. The test results show that the network organizational structure of college students' educational management is designed by this method, which improves the ability of information transmission and scheduling and improves the informatization level of college students' educational management.

#### 1. Introduction

Management without education is management without soul, and education without management is weak education. The educational management of colleges and universities is related to the important mission of cultivating qualified talents. Colleges and universities must recognize the situation, keep up with the pace of times, accurately grasp the characteristics of times, groups, and psychology of contemporary college students, constantly enrich the educational content, and improve the educational means. The construction of network organizational structure of college students' education management is the key to promote the informatization development of college students' teaching management. With the development of network-based organizational structure of college students' education management, combining cloud platform and big data information processing methods, it is necessary to construct network-based organizational structure of college students' education management, realize college students' education management, and optimize the design of network topology. In the process of constructing network-based organizational structure of college students' education management, it is necessary to analyze the characteristics of the data graph model by the method related to the network-based organizational structure of college students' education management [1]. Using semantic feature analysis, node optimal deployment control, and the optimal design of query languages (such as SQL, XPath, XQuery, and SPARQL) to realize the construction of network organization structure of college students' education management and studying the methods of network organization structure of college students' education management are of great significance in improving the ability of data storage and management [2–4].

College students' educational management network organization structure is a communication network that uses wireless sensor nodes to realize data transmission. College students' educational management network organization structure carries a large amount of data information [5]. It is necessary to reorganize the topological structure of college students' educational management network organization structure, build an optimized network structure model of college students' educational management network organization structure, reduce the path overhead of college students' educational management network organization structure transmission, and improve the transmission capacity of college students' educational management network organization structure. Studying the topological structure design method of the network organization structure of college students' educational management is of great significance to improve the transmission capacity of the network organization structure of college students' educational management, and the related research on the structural design of the network organization structure of college students' educational management has attracted great attention. The topological structure design of the network organization structure of college students' educational management is based on the optimized network design [6]. By adopting the node topological model of constructing the network organization structure of college students' educational management, large-capacity data storage and highbandwidth network transmission can be realized. Reference [7] used the shortest path method to construct the network organizational structure of college students' education management; this method has a high cost for large-scale reorganization of the network organizational structure of college students' education management, and its adaptability is not good. Reference [8] puts forward a search algorithm for students with similar living habits based on the campus behavior information network, which uses big data analysis and deep learning technology to expand and fuse more data sources according to students' existing similar living habits, so as to obtain students' behaviors. This method is computationally intensive and prone to redundancy.

Therefore, this paper puts forward the construction method of network organization structure of college students' education management based on distributed network topology. The 4-tuple model is used to construct the initial topology distribution structure model of the network organization structure node of college students' education management. The improved ant colony algorithm is used to construct the network organization structure of College Students' education management, and the distributed optimization design of the nodes of the network organization structure of college students' education management is realized. The test results show that the designed structure can improve the transmission performance of the network organization structure of college students' education management.

### 2. Overall Design Framework and the Network Organizational Structure Construction Model System of College Students' Education Management

2.1. Overall Design Framework of College Students' Educational Management Network Organizational Structure Construction. In order to realize the construction of network organization structure of college students' education management, the overall structure model of network organization structure of college students' education management is constructed, and the bus structure model of network organization structure of college students' education management is established by the VIX bus design method [9]. The ARM control protocol is adopted to control the program loading of network organization structure of college students' education management at the bottom end of network organization structure of college students' education management. By integrating and distributing the limited resources of the data center through the data layer [10], under the ANSI-SQL standard protocol, the client realizes the resource allocation of the network organizational structure of college education management through DSG (Direct Serialization Graph) diagram, and the network organizational structure of college education management supports the resource description framework (RDF for short). In the Knowledge Graph Database (KGDB), a network-based organizational structure management system of college students' education management and a knowledge graph storage model of the network-based organizational structure of college students' education management is constructed by using the method of attribute graph and entity graph model design.

The application environment of MySQL is: Linux as the operating system, Apache or nginx as the web server, MySQL as the database, and PHP/Perl/Python as the server-side script interpreter. Since these four software are free or open source software (floss), a stable and free website system can be established without spending a penny (excluding labor costs) in this way, which is called "lamp" or "LNMP" combination in the industry.

The PostgreSQL storage system is composed of the following sub modules:

- (1) Page management sub module defines the organization structure of PostgreSQL buffer pages and provides methods for page operations.
- (2) Buffer management sub module manages the buffer of PostgreSQL, including local buffer and shared buffer.

- (3) Storage device management sub module: the database records are stored on the storage medium. The storage device management sub module will shield the differences of interface functions of different physical storage devices (block devices and stream devices) and provide unified access interface functions to the upper buffer management sub module.
- (4) File management sub module: the general operating system has a limit on the number of files allowed to be opened by a process, while the PostgreSQL server sometimes needs to open a large number of files. Therefore, in order to break this bottleneck, the PostgreSQL file management sub module encapsulates the file reading and writing operations. Here, an LRU linked list is established to manage the open files through a certain replacement algorithm. The number of files that can be opened is not limited by the operating system platform.

To sum up, MySQL has the advantages of supporting multiple threads, having fast query speed, and supporting multiple storage engines. PostgreSQL supports multitype indexing and avoids the transmission of a large number of original SQL statements. To this end, in this paper according to the unique identification id (primary key) and the attribute property owned by the entity are used as index objects, MySQL and PostgreSQL are used as the bottom storage method of the network organization structure of college education management. The transaction identifier (TID) labeling tuple model is constructed according to the types of entities and relationships, and the platform construction of the network organization structure of college education management is divided into user domain, service domain, management domain, distributed network transmission domain, and object domain by adopting the three-layer architecture system of data layer, network layer, and application layer, and an entity parameter set of no type is constructed. According to the semantic information of RDF data, the network organizational structure of college students' education management based on multimodel graph is constructed, and the structural model is shown in Figure 1.

According to the structural model of the network organization structure of college education management shown in Figure 1, a three-tier architecture system is adopted, and the query terminal of the network organization structure of college education management is established by using relations and JSON key values. In order to save storage space, the tag node classification method is adopted to classify the entity set of the network organization structure of college education management, and the unique identification id (primary key) and entity model are obtained by the attribute diagram storage method based on relations [11–13]. The extended SQL and Gremlin guery scheme are adopted to construct the attribute graph model of the network organizational structure of college students' education management. Based on the definition of RDF graph and attribute graph, the attribute list obtained is shown in Table 1.



FIGURE 1: Structural model of network organizational structure of college students' education management.

2.2. Model System of Network Organizational Structure Construction of College Students' Education Management. Contemporary college students are in a new era of educational reform, their ideas are generally positive, healthy, and conducive to their own development, but the development of The Times also impacts college students' physiology, psychology, and bring some adverse effects. It should be noted that some of the original management methods and education methods are not suitable for the education and management of college students in reality. Modern education and management mode suitable for the development of The Times should be introduced to improve the education and management system of college students. According to Figure 2, the three-tier construction system of the network organization structure of college education management is established under the service-oriented architecture (SOA), and the system platform construction of the network organization structure of college education management is realized under the bus architecture through the integration control of mobile terminals, and the operation and maintenance system construction scheme is collected. Through reading and writing operations under different network platforms, the network transmission layer is constructed, and the network architecture adopts the Internet of Things, Internet and wireless sensor networks, and the XML and Web middleware of the network organization structure of college education management is established [14]. Based on the microservice architecture system, the XML bus control model of the network organization structure of college education management is established, and a three-tier architecture system of the network organization structure of college education management is constructed as shown in Figure 2.

The application layer is used to manage the daily teaching situation of students, and its main tasks are: formulating rules and regulations to manage college students; select and allocate educational management resources to select and assess tutors. In the network layer, teachers use the

structure

Take the label of edges in RDF graph

Symbol	Meaning	Symbol	Meaning
$G = (V, E, \Sigma)$	Mapping graph of vertex pairs	$\phi(t)$	Triple classification
$G = (V, E, \eta, src, tgt, \lambda, \gamma)$	Attribute graph g	$I_C(s)$	Or vertex and label feature sets
t = (s, p, o)	Triad	hist $(C)$	Finite set of entities
$\alpha = (a, Lab, Map)$	Attribute point pattern	DC Scluster (Cj,Ck)	Query the distance between data attributes Cj and Ck
$\beta = (d, \text{Lab}, a, \text{Map})$	Attribute graph edge mode	$\lambda: (V \cup E) \longrightarrow L$	Label mapping of names and attribute values
			Index vector mapping of college students'
Т	Triple finite set	$\gamma: (V \cup E) \times K \longrightarrow Val$	educational management network organizational

lab:  $E \longrightarrow \Sigma$ 

Knowledge map matching

TABLE 1: List of attributes of network organizational structure of college students' education management



FIGURE 2: Three-layer construction system of network organizational structure of college students' education management.



FIGURE 3: Distributed linear education management mode.

network platform to build an information data management center and guide and educate college students' lives and studies by evaluating their educational management information. Through dynamic resource information query and other methods, the data layer can improve the information feedback and activity training ability of college students' education management, cultivate the habit of independent thinking and team cooperation ability of college students, shape team spirit, and improve the effect of college students' education management. On this basis, combined with the attribute list distribution of the network organization structure of college education management shown in

Table 1, the architecture model of the network organization structure of college education management is established, and the entity set under the unified storage scheme is constructed by combining the multi-node distributed network transmission technology [15-17]. Through the acquired entity set data, a distributed linear education management mode is constructed, so as to improve the typed parameter index of college students' education management mode. The specific linear education management mode is shown in Figure 3.

As shown in Figure 3, the distributed linear education management model has clear responsibilities and clear tasks,

μ

which is convenient for the supervision and management of students. It can effectively avoid the hindrance of students' development space, especially for colleges and universities with an increasing number of students and increasing social expectations. It can improve the educational management ability and effect of college students, give full play to their initiative and creativity, and achieve good educational management effect.

The attribute map  $G = (V, E, \eta, src, tgt, \lambda, \gamma)$  of the network organization structure of college education management is obtained by the method of entity type parameter identification. College students will be assigned and managed according to their majors in classes or grades, so as to enhance the extensive communication and mutual learning among college students. Where: V represents the top limited set of management modules of the network organization structure system of college education management; E represents a finite set of edges responsible for managing and maintaining the application layer and satisfies; represent the distribution mapping between the function mapping process and resource scheduling [18], such as the directed graph Ebetween the access nodes of the network organizational structure of college students' education management. The src:  $E \longrightarrow V$  function represents the fuzzy grey relational mapping of university students' educational management network organizational structure access. The obtained mapping can be expressed as the mapping from edge to terminal vertex. A variable can be a tuple or a record, and the transactions marked set of is  $\gamma(v, \text{property}) = val, \gamma(e, \text{property}) = val)$ . Then the set of operation variables in the construction of the network-based organizational structure platform for college students' education management is, and the value of the attribute property on the vertex V (or edge E) is val. All conflicts in the scheduling S are formed into a directed vector set, and compatibility processing is carried out based on the attribute values composed of "reading" and "writing" to improve the college students' education management network [19-22].

### 3. Optimization and Realization of the Network Organizational Structure Construction of College Students' Education Management

3.1. Algorithms Related to Network Organizational Structure Design of College Students' Education Management. Under the dynamic resource distribution structure system, the data classification and retrieval of college students' educational management network organization structure is realized by fuzzy clustering. Fuzzy clustering is one of the clustering analysis methods, which integrates fuzzy mathematics with K-means and divides data into disjoint category data sets, that is, each data will eventually belong to one and only cluster through calculation. Fuzzy clustering expands the breadth of the algorithm. By using membership, each data can be assigned to all clusters, so that each data may eventually belong to multiple clusters. In the network organizational structure, college students can receive educational guidance according to their future development and

interests, which is conducive to mobilizing their enthusiasm and forming an interactive educational atmosphere [23]. Designing the network organization structure access and optimizing the retrieval algorithm of college students' education management can effectively improve the interactivity and feedback of college education management. Through the information interaction between the network information platform and the network-based organizational structure system of college students' educational management, this paper analyzes the dynamic characteristics of data, provides basic data for the content of college students' educational management, and promotes the improvement of the educational management system. Directed graph analysis is a method to judge the relationship between objects, and it is the basic research object of graph theory. A graph is composed of vertices, nodes, and straight lines or curves connecting these nodes. If each edge of a graph is given a direction, then the graph obtained is called a directed graph, and the connectivity of algorithm calculation can be strengthened through the directed graph. Therefore, based on the directed graph analysis, this paper constructs the operation and maintenance management model of the network organizational structure of college students' educational management and obtains the optimal scheduling fusion model of the network organizational structure of college students' educational management.

Link\_
$$r_{ik} = \frac{\sum_{p=1}^{q} \left( aE_p + bC_p + cB_p + dM_p \right)}{q^2},$$
 (1)

where *p* is the number of variables in the data access node, and *q* is the transaction multivariate partial order ring, that is,  $q = Hop_{ik} - 1$ ; *Ep* represents the energy distribution of the bivariate characteristic distribution of two transactions at node P, and A is the distribution weight of any number of transactions and variables; *Cp* indicates the type of cross exception in node *p*. By using similarity fusion, the twotransaction univariate feature distribution of the network organization of college students' education management is expressed as follows:

$$D_{k} = \alpha Hop_{ik} + \beta \text{Load\_intensity}_{k} + \gamma \text{Link\_}c_{ik} + \eta \frac{1}{\text{Link\_}r_{ik}},$$
(2)

where *Hopik* represents the transmission sequence between the access node *i* and the gateway *k* in the network organizational structure of college students' education management, and  $\alpha$  is the fitness weight; Link\_*rik*Link\_rik represents forwarding packets.

Definition 1. Set the data flow samples of the network organizational structure of college students' education management in the time period  $S = \overline{X_1}, \overline{X_2}, \ldots, \overline{X_k}, \ldots$ , respectively. The search block function of the network organizational structure of college students' education management is  $T_1, T_2, \ldots, T_K, \ldots$ , and the structural parameters of the graph model solution are dimension [24], which are recorded as  $\overline{X_i} = (x_{i1}, x_{i2}, \ldots, x_{id})$ . The transmission capacity between the associated nodes of the network organizational structure of college students' education management and another point are as follows:

$$\operatorname{dist}\left(\overline{X_{i}}, \overline{X_{j}}\right) = \sqrt{\sum_{k=1}^{d} \left(x_{ik} - x_{jk}\right)^{2}},$$
(3)

wherein  $x_{ik}$  and  $x_{jk}$  represent the differentiated characteristic quantity of the cluster center of the network organization of college students' education management, and  $X_i$ and  $X_i$  are cluster connection components. The sparse matrix is used to collect data, and the sampling time interval of the distribution data of the network organization of college students' education management is T. After the initial clustering, the distance from the center point of the compressed transmission cluster  $M_1, M_2, \ldots, M_q$  of the network-based organization of college students' education management after M rounds of transmission is dist  $(\overline{X_i}, M_i)$ ,  $(1 \le j \le q)$ , and the distance of merging the two clusters of the bottom access sequence of the network-based organization structure of college students' education management is obtained by distributed compressed sensing measurement as follows:

$$Clustdist(M_i, M_i) = mergedistance,$$
(4)

wherein mergedistance is Steiner tree of node.

Given a data map G = (V, E) of the network organization model of college education management and a set of query keywords  $Q = \{q_1, \ldots, q_l\}$ , a Steiner tree with the current access node as the root node is obtained. When the transmission power in the network organization structure construction node of college education management tends to a constant value, the cooperation between the historical data of *i*-node and the reliable neighbor data decreases, and the edge set between nodes is

$$D_{j} = \log\left(\sum_{i=0}^{j-1} E_{i} - \sum_{i=1}^{j} L_{i} p_{i}\right),$$
(5)

wherein  $E_i$  is the energy of the network organization of college students' educational management,  $L_i$  is the node dispersion, and  $p_i$  is the power spectrum of the network organization structure of college students' educational management. The discrete control model of the network-based hybrid sink node of college students' education management network is constructed. When the equilibrium scheduling factor  $m_j$  is less than 1, the spatial spectrum of the data of the network-based hybrid sink node of college students' education is extracted, and the probability density function of optimal data transmission is obtained as follows:

$$f(p_i) = \frac{-L_i}{2}\log(1+p_i).$$
 (6)

Assume that the initial position of the routing node of the network organization structure of college education management is Z, and the link cost of the node is expressed

as  $\{S_1, S_2, \ldots, S_L\}$  by 4 tuples. A graph is composed of a finite set of vertices and a set of edges between vertices, where G represents a graph, V is the set of vertices in graph G, and E is the set of edges in graph G. No vertex or edge is allowed in the graph. If the edge between vertices  $V_i$  and  $V_j$  has no direction, it is called an undirected edge. The adjacency matrix of undirected graph is a symmetric matrix because its edges do not distinguish directions. 0 in the adjacency matrix indicates that the edge does not exist, and all 0 main diagonals indicate that there is no self-loop in the graph. Therefore, undirected graph has the advantages of simple structure and convenient operation. The network organization structure node of college education management adopts undirected graph design, and the Euclidean distance from U to V in the structure diagram G = (V, E) of the network organization structure of college education management is represented. Euclidean distance is a commonly used definition of distance, which is the true distance between two points in m-dimensional space. The Euclidean distance in two and three dimensions is the distance between two points. Euclidean distance is simple, easy to operate, and widely used. The initial weight of the output layer and the bandwidth of link communication are used for adaptive optimization. Combined with fuzzy feature extraction method, the cluster node transmission control of college students' educational management network organization structure is carried out, and the cluster head node v = head(e) represents the head of the entire transmission link E of college students' educational management network organization structure. The undirected graph of college students' educational management network organization structure is designed, and the minimum hop number from U to V in the graph G = (V, E, W) is used to represent the network organization structure of college students' educational management. In the connected graph area, the topological structure is constructed. The node set representing the network organizational structure of college students' education management represents any two-point edge set. According to the extracted correlation feature of the wireless network transmission hybrid convergence node, the gain control in the data transmission process is carried out by using the spectrum beamforming method, so that the node optimal deployment and topology reorganization of the network organizational structure of college students' education management are realized [25], and the stability of network output is improved. Micro-Clusters algorithm is a method of data transfer between existing sites. Through the cluster analysis of micro-clusters, it makes full use of network data resources, defines the boundaries between data clusters, and ensures the security of data transfer. Then, Micro-Clusters algorithm is used to access and design the network organizational structure of college students' education management.

3.2. Implementation of Development Software for Network Organizational Structure of College Students' Education Management. On the basis of algorithm design, the network organization structure construction and software development design of college education management are carried out. Under the three-dimensional SOA framework agreement, the bottom protocol development of network organization structure of college education management is carried out, and the protocol processing and bus control module of network organization structure of college education management is established. Under the integration agreement of Spring and Hibernate framework, construct the service agency center of the network organization structure of college students' education management, establish the man-machine interaction center of the network organization structure of college students' education management by adopting the hierarchical architecture system, and use MultiGen Creator technology to generate the manmachine interaction module of the network organization structure of college students' education management [26]. Based on analyzing the access environment parameters, the client control of the network organization of college students' education management is carried out in the manmachine interaction control center. The access demand of the requester who serves the network organization of college students' education management and control the object access in the process of information interaction is analyzed, so as to obtain the software implementation structure system of the network organization structure retrieval of college students' education management as shown in Figure 4.

The platform supports basic database functions such as adding, deleting, and searching, and can perform multiple operations on multiple tables at the same time. The database interactive terminal can carry out the permission correction operation, and the school administrator has the permission to add, delete, and check and can authorize these permissions to other teachers. The service requester can query the updatable field set to get the basic data information of education. The network structure model of college students' education management embodies the idea of setting up education links with college students as the center and according to their own development needs, which is in line with the development trend of humanization and personalization of education management. On the basis of meeting a certain educational and social environment, the application of college students' educational management structure model has created a broader space for the development of college students.

#### 4. Simulation and Result Analysis

In order to test the performance of this method in the construction of college students' educational management network organization structure; in the environment of MATLAB R2019b, the corresponding program is simulated with MATLAB coding algorithm in the environment with the main frequency of 1. The hardware and software parameters in the test process are as shown in Table 2:

The transmission rate of data acquisition symbols in network-based organizational structure of college students' educational management is 20 k Baud, the output carrier



FIGURE 4: Software implementation structure system of network organizational structure of college students' education management.

TABLE 2: Details of hardware and software parameters.

Computer system	Project	Parameter	
	CPU	i3 2120	
Hardware aspects	Basic frequency	3.3 GHz	
	Physical memory	32 GB	
	Operating system	Windows 10	
	Development language	C++	
Software aspects	Corpus extraction tool	NLP	
	Vector training tool	FastText	
	Database processing tool	SQL server 2019	

frequency is 24 KHz, the output signal-to-noise ratio is -15 dB, the parameter attribute matching feature set size in network structure is 160, and the distribution sequence of network-based organizational structure of college students' educational management is shown in Table 3.

According to the experimental parameters in Table 3, the network organization structure of college education management is designed under different distribution dimensions of network organization structure of college education management. Taking the collected real-time related data of college education management as input, the code sequence of network data transmission and output is obtained as shown in Figure 5.

Taking the data of Figure 5 as input, the optimized control transmission is realized in the network, and the output characteristic sequence is shown in Figure 6.

From the analysis of Figures 5 and 6, it can be seen that the combination design of network organization structure of college students' education management by this method has good output performance and high stability of data transmission. On this basis, the energy expenditure of network organization structure of college students' education management is analyzed, and the comparison is shown in Figure 7.

According to the analysis of Figure 8, the output energy cost of constructing the network organizational structure of college students' education management by the improved method is small, and the output error code and transmission delay are tested, and the comparison results are shown in Figure 8.

Network node	Morphological components	Correlation dimension	Dimension	Information entropy
1	5.6626	4.037	12.433	2.150
2	8.6303	4.076	12.064	2.758
3	3.7464	4.828	12.586	2.441
4	0.6493	4.378	12.176	2.002
5	5.8649	4.792	12.580	2.329
6	0.8582	4.846	12.730	2.931
7	8.1668	4.647	12.016	2.213
8	5.7069	4.735	12.302	2.782
9	4.9235	4.127	12.388	2.306
10	4.2008	4.711	12.575	2.504
11	3.5323	4.475	12.220	2.547
12	9.6712	4.951	12.484	2.340
13	7.4159	4.233	12.844	2.639
14	0.3219	4.991	12.017	2.787
15	1.5257	4.320	12.121	2.990
16	7.6172	4.235	12.889	2.750
17	9.1560	4.087	12.043	2.147
18	7.3147	4.081	12.667	2.904
19	2.1150	4.044	12.406	2.957
20	7.8358	4.602	12.608	2.700

TABLE 3: Distribution sequence of network organizational structure characteristics of college students' educational management.



FIGURE 5: Output symbol sequence of network data transmission. (a) Network input sequence 1. (b) Network input sequence 2.



FIGURE 6: Output characteristic sequence of network organizational structure of college students' education management. (a) Network input sequence 1. (b) Network input sequence 2.



FIGURE 7: Comparison of energy expenditure.



FIGURE 8: Comparison of output performance of network topology reorganization. (a) Error rate comparison. (b) Comparison of transmission delay.



FIGURE 9: Organization structure of education management network.

Analysis of the above simulation results shows that using this method to construct the network organization structure of college students' education management can improve the connectivity of the network with better output stability and a lower transmission error rate (35 ms). The main reason is that the fuzzy clustering method can improve the information interaction effect between the network information platform and the network-based organizational structure association system of college students' educational management, and can effectively search the resources of college students' educational management.

Using this method, a university is taken as the research object to design its educational management network organization structure. The results are shown in Figure 9.

According to the analysis of Figure 9, the organizational structure of the education management network designed in this paper is divided into three layers, which is basically consistent with the education management mode shown in Figure 3. Therefore, this method has good effectiveness.

#### 5. Conclusions

In this paper, the construction method of network organization structure of college students' education management based on a distributed network is put forward. The three-tier architecture system is adopted, and the query terminal of the network organization structure of college students' education management is established by using relations and JSON key values. The entity set of the network organization structure of college students' education management is classified by the method of label node classification, and the attribute diagram model of the network organization structure of college students' education management is constructed by the attribute diagram storage method based on relations. The four-tuple model is used to construct the initial topological distribution structure model of the network organizational structure nodes of college students' education management, and the linear structure decomposition of the network organizational structure nodes of college students' education management is carried out. The related feature quantity of the transmission channel of the network organizational structure of college students' education management is extracted, and the node topological structure design of the network organizational structure of college students' education management is realized by using the spectrum feature decomposition method. The improved optimization algorithm is used to construct the network organizational structure of college students' educational management, to realize the distributed optimization design of the nodes of the network organizational structure of college students' educational management, and to improve the transmission performance of the network organizational structure of college students' educational management. The analysis shows that the network organizational structure construction of college students' education management by this method can improve the connectivity

of the network with good output stability and a low transmission error rate, so it has good application.

#### **Data Availability**

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

#### **Conflicts of Interest**

The authors declared that they have no conflicts of interest regarding this work.

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#### References

- [1] T. A. N. G. Wangjing, B. Xu, T. O. N. G. Meihan, M. Han, L. Wang, and Z. H. O. N. G. Qi, "Popular science text classification model enhanced by knowledge graph," *Journal* of Computer Applications, vol. 42, no. 4, pp. 1072–1078, 2022.
- [2] J. I. A. O. Shoulong, Y. Duan, Q. Sun, Z. Zhuang, and C. Sun, "Knowledge representation learning method incorporating entity description information and neighbor node features," *Journal of Computer Applications*, vol. 42, no. 4, pp. 1050– 1056, 2022.
- [3] B. Yan, C. Guo, and B. Zhang, "Analysis on the structure and clustering characteristics of university infrastructure cooperation network based on SNA-DBSCAN," *Journal of Civil Engineering and Management*, vol. 38, no. 3, pp. 78–83, 2021.
- [4] B. Huang, Y. Xie, Y. Tang, and L. I. Yanjia, "Data storage information serialization completeness and efficiency evaluation simulation," *Computer Simulation*, vol. 37, no. 4, pp. 159–163, 2020.
- [5] H. Liu, "Globalization and world citizenship education," *International Journal of Learning and Teaching*, vol. 42, no. 5, pp. 94–97, 2020.
- [6] J. L. Chen and Y. Jiang, "Multi-label learning by exploiting causal order of labels," *Journal of Software*, vol. 33, no. 4, pp. 1267–1273, 2022.
- [7] R. Guo and X. Hu, "An effective method to find the k shortest paths in a generalized time-window network," *Acta Electronica Sinica*, vol. 48, no. 7, pp. 1387–1395, 2020.
- [8] X. Wang, L. Duan, D. Cui, and Li Lu, "Dun yijie, qin ruiqi. Search of students with similar lifestyle based on campus behavior information network," *Journal of Computer Research* and Development, vol. 57, no. 11, pp. 2442–2455, 2020.
- [9] Y. Ji, N. Jing, and Q. Wang, "Design and research of serialparallel hybrid bus structure for heterogeneous SoC," *Information & Technology*, vol. 44, no. 6, pp. 41–45, 2020.
- [10] Y. U. Man, K. Huang, and X. Zhang, "Design and implementation of etc data layer platform based on microservice architecture," *Computer Applications and Software*, vol. 38, no. 7, pp. 29–34, 2021.

- [11] W. Chen, Y. Wang, X. Wang, and H. Wang, "Multi-label node classification based on generative adversarial network," *Computer Engineering and Science*, vol. 43, no. 2, pp. 280–287, 2021.
- [12] P. P. Liu, Z. Zhao, and N. Wang, "Visualized data analysis for wikidata human relations based on labeled property graph," *New Generation of Information Technology*, vol. 4, no. 12, pp. 13–18, 2021.
- [13] F. E. N. G. Xin, Y. Gao, Y. A. N. G. Wu, Y. Jiang, and J. Zhang, "An object attribute relation graph based description method of video," *Journal of Chongqing Institute of Technology*, vol. 34, no. 1, pp. 64–70, 2020.
- [14] D. Wei and Y. Ma, "Research on feature expression methods in XML document classification," *Computing Technology and Automation*, vol. 39, no. 03, pp. 91–96, 2020.
- [15] Y. Tang, "On ideological and political education system construction of college students from the perspective of network public opinion," *Journal of Huanggang Polytechnic*, vol. 24, no. 1, pp. 43–46, 2022.
- [16] J. Jiang and H. Zhao, "A distributed sensor nodes localization algorithm based on super nodes," *Control and Decision*, vol. 35, no. 12, pp. 2898–2906, 2020.
- [17] P. Liu, "Research on the work mode innovation of college counselors in the era of "Internet+"," Office Automation, vol. 27, no. 9, pp. 59–61, 2022.
- [18] J. Z. J. Yang, "Calculation of three-dimensional shape correspondence based on data-driven functional map," *Laser & Optoelectronics Progress*, vol. 57, no. 18, pp. 326–333, 2020.
- [19] H. Ye, G. Wang, C. Zhao, Z. Wang, and Y. Zhao, "Research on the construction of human-computer interactive assistant duty system based on machine learning algorithm," *Machine design and manufacturing engineering*, vol. 51, no. 3, pp. 131–134, 2022.
- [20] Y. Hu, J. Jiang, and X. Dong, "A short-term power load forecasting method based on combining clustering and SVM parameter optimization," *Electric Power Information and Communication Technology*, vol. 20, no. 5, pp. 54–60, 2022.
- [21] Y. Kang, Q. Yang, F. Zhang, and S. Song, "Application of SVR model based on box-cox transformation and lasso regression in monthly runoff prediction," *Journal of Basic Science and Engineering*, vol. 30, no. 1, pp. 27–39, 2022.
- [22] W. Liu, W. Yang, X. Zhao, and G. Yang, "Research on evaluation model of electric power transaction based on multi eigenvector benefit evaluation," *Electronic Design Engineering*, vol. 29, no. 5, pp. 169–173, 2021.
- [23] H. A. O. Zhifeng, Z. Huang, R. Cai, Z. Fu, W. Wen, and K. Tang, "Dynamic scheduling and collaborative allocation system for distributed resource based on YARN," *Computer Engineering*, vol. 47, no. 2, pp. 226–232, 2021.
- [24] Z. Li, T. Zhou, C. Zhang, H. Ma, and W. Zhao, "Improve multi-label image classification using adversarial network," *Journal of Computer-Aided Design & Computer Graphics*, vol. 32, no. 1, pp. 16–26, 2020.
- [25] J. Feng, J. Yang, R. Zhang, and W. Zhang, "A spectrum sharing incentive scheme Against location privacy leakage in IoT networks," *Journal of Computer Research and Development*, vol. 57, no. 10, pp. 2209–2220, 2020.
- [26] R. Xie, "Design of Java EE based human resource management system with friendly man?machine interaction," *Modern Electronics Technique*, vol. 44, no. 8, pp. 114–118, 2021.