

Retraction

Retracted: Library Document Resource Construction and Data Sharing Based on Semantic Web Technology

Mobile Information Systems

Received 11 July 2023; Accepted 11 July 2023; Published 12 July 2023

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] X. Fan, "Library Document Resource Construction and Data Sharing Based on Semantic Web Technology," *Mobile Information Systems*, vol. 2022, Article ID 2168655, 11 pages, 2022.

Research Article

Library Document Resource Construction and Data Sharing Based on Semantic Web Technology

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Received 10 May 2022; Revised 3 June 2022; Accepted 8 June 2022; Published 23 June 2022

Academic Editor: Amit Gupta

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With the deepening of the reform and development of higher education, many colleges and universities have taken the merger as an opportunity to promote the leap-forward development of their schools. Some colleges and universities that have not merged have also taken the newly-built campus as a new growth point to promote the rapid development of their schools. The library's collection structure reflects a library's document support ability, and the formation of the collection structure depends on the accumulation of document resources. Based on semantic web technology, this paper studies the construction of library literature resources. Among the institutions that choose to give priority to the development of library literature resources in the development strategy of main literature resources, the proportion of long-term preservation practice has reached 65.23%, compared with 57.42% of all other institutions. Due to the small number of samples, we cannot make a simple statistical inference, but it may reflect from the other side that the institutions that pay attention to digital resources are slightly more active in implementing preservation activities than other institutions. Based on the semantic web technology, the integrity and continuity of important documents and characteristic resources were kept and we paid attention to the collection of publications and academic documents related to our school. Under the double restriction of document resources guarantee, the acquisition behavior of guarantee systems at all levels will gradually strengthen self-control, actively establish the concept of coordination and sharing, and gradually move from randomness to standardization.

1. Introduction

With the deepening of the reform and development of higher education, many institutions of higher learning have taken the merger as an opportunity to promote the leap-forward development of their schools. Some institutions of higher learning that have not merged have also taken the newly-built campus as a new growth point to promote the rapid development of their schools. Literature resource construction is the foundation of all the library services and one of the important guarantees for school discipline construction. The library's collection structure reflects a library's literature support ability, and the formation of the collection structure depends on the accumulation of literature resource construction [1, 2]. The library literature resources of the whole school should be effectively integrated

and rationally distributed, and the characteristics and advantages of the collections should be reorganized to form a library literature resource guarantee system with high integration, reasonable structure, complete system, and scientific layout, which is suitable for the leap-forward development of multi-campus universities [3]. The library is the literature information center of the school, an academic institution serving teaching and scientific research, and an important base for school informatization and social informatization. The work of university library is an important part of the school teaching and scientific research. The construction and development of university library should be adapted to the construction and development of the university, and its level is an important symbol of the overall level of the university. The library collection construction and the literature guarantee system are the keys to

do a good job in the allocation of library literature resources for knowledge innovation and are also the needs of library survival and development [4, 5].

With the continuous development of semantic web technology, ontology-based semantic technology and knowledge technology have gradually become the focus and hotspot in the research field of digital library technology and have also become the necessary means to solve how to provide deep-seated knowledge services in the era of network information explosion [6]. The basic idea of semantic web technology is to try to add a layer of semantic description to semantic web resources, which not only facilitates people's use and processing, but also enables computers to "understand" the meaning of web resources to a certain extent, so as to help automate information sharing and reuse and enable the network to provide dynamic, personalized, and active services. Semantic portal reveals the deep-seated relationship between the information contents through ontology and realizes the semantic retrieval and browsing of information through relevant semantic technology standards [7, 8]. Traditional portal is a labor-intensive process when building rich structured hypertext, while semantic portal hopes to establish a highly interconnected content collection through automatic or semi-automatic tool package [9, 10]. Ontology is an effective means to represent domain conceptual model and structured domain knowledge proposed in the context of semantic web technology. Specifically, ontology is a conceptual model that describes concepts and the relationship between concepts and describes the semantics of concepts through the relationship between concepts [11, 12]. Ontology is a collection of common knowledge in related fields, which determines the commonly recognized terms in the field, determines the relationship between these knowledge and terms from multiple dimensions, and provides common understanding and reasoning of knowledge in the field.

The application of semantic web technology in library literature resources construction is mainly embodied in three aspects: semantic description standard, ontology construction, and the generation of related data. Accurate classification of data information, semantic relations, and domain ontology construction are the keys to the quality of semantic web. University libraries must implement the national education policy, fulfill the educational function and information service function and serve for cultivating talents with all-round development in morality, intelligence, physique and aesthetics, developing educational, scientific, and cultural undertakings, and building socialist material and spiritual civilization. By introducing knowledge evaluation, the library can filter and sort the high-quality resources that users need and push them to users, so that users can obtain better services [13]. Based on the semantic web technology, the integrity and continuity of important documents and characteristic resources were kept and we paid attention to the collection of publications and academic documents related to our school. University libraries should organize collections scientifically and reasonably, which is not only conducive to the management and protection of literature information, but also conducive to the full use of

literature information [14]. In the knowledge innovation system of semantic web technology, database construction also belongs to a way of knowledge organization and knowledge dissemination. As an important information resource in the network environment, database is naturally an important index to measure the network status of libraries. The foreign dialog database, the full-text database of Chinese academic journals published by Tsinghua University, China, etc., all occupy the commanding heights of database information products, and their contribution to the development of social information resources and the commercial value they bring are limitless.

The innovations in this paper are as follows:

- (1) This paper constructs the construction model of semantic web technology. The data representation method using semantic web technology to construct model deepens the depth of data integration and widens its application to a greater extent. The theories and the methods of semantic web technology also provide digital libraries with theories and technologies beyond traditional library services.
- (2) The construction of the school literature resources is discussed and analyzed. This paper mainly discusses the construction of document resources in the micro sense, that is, the collection, organization, management, and storage of documents by various document information institutions, which is what we usually call collection construction. Book collection construction is a market behavior of interview decision-making on the basis of understanding the demand. It must deeply understand the demand. Under the dual constraints of benefit evaluation and supervision and document resource guarantee, the interview behavior of security systems at all levels will gradually strengthen self-control, actively establish the concept of coordination and sharing, and gradually move from randomness to standardization.

The overall structure of this paper consists of five parts.

The first chapter introduces the background and significance of library literature resources construction. The second chapter mainly describes the research status of library literature resources construction at home and abroad. The third chapter discusses the realization of semantic web technology in the construction of library literature resources. The fourth chapter makes an experiment on literature construction and analyzes the results. The fifth chapter is a summary of the full text.

2. Research Status of Library Literature Resources Construction at Home and Abroad

Lee and Deborah put forward that in order to build a collection system with its own distinctive features and resources to meet the needs of the university, university libraries must fully study the discipline construction and development of the university [15]. Asemi et al. put forward

the idea of overall development and co-construction and sharing, and gradually built a literature resource system and a modern service system with optimized structure and reasonable layout in the university libraries throughout the province [16]. Kosenko et al. put forward that the process of book collection construction is an information screening process around the needs and meeting the needs, and the screening around information needs is the development process of social information resources [17]. Streimikiene et al. showed that the countermeasures of literature resources construction should first study and analyze the key disciplines of the university where they are located, and it is the fundamental purpose of library literature resources construction to serve the key disciplines and ensure their construction needs [18]. Beyene puts forward that the network information resources in the actual collection cannot be completely digitized, nor can they completely cover the printed literature; the difference in the utilization between the digital information and the printed information carriers and modes of communication determines the significance of the existence of real collections [19]. Joyce puts forward higher requirements for the library's document guarantee function. It is more urgent to establish a document resource guarantee system for knowledge innovation. Its collection construction goal should be: to establish realistic collection and virtual collection [20]. Smith and Van Aken proposed that the continuous development of school discipline construction puts forward higher requirements for purchasers. High quality and compound are the requirements of the new situation for purchasers. Therefore, purchasers must adapt to the requirements of the new situation, constantly increase knowledge reserves, broaden knowledge, and adhere to increasing their comprehensive knowledge level [21]. Castelnuovo and Lim put forward that the co-construction and sharing of document resources of university libraries in Northwest China is under the condition that the economy and society of Northwest China seriously lags behind that of eastern China. Lubis et al. put forward the concept of "collaborative development of Regional University Libraries" in the process of getting rid of the survival dilemma and seeking the goal of their own growth and development [22]. Lubis et al. proposed that the document resources of university libraries should be jointly constructed and shared, requiring participating libraries to share their collections within their members, which makes the original readership expand rapidly. This sharing objectively breaks the traditional idea of "collection," the utilization rate of document resources is greatly improved, and the "emphasis on collection and light use" is transformed into "emphasis on collection and reuse," so as to achieve a double breakthrough in theory and practice [23]. Garcia Lillo et al. proposed to formulate a reasonable collection evaluation system index, which should have a practical basis for the purpose, principle, standard, and method of collection evaluation. Through the effective evaluation of reader satisfaction, book borrowing, and the coverage of relevant professional documents, it provides strong support for the construction of literature resources for discipline construction [24].

In view of the former's research on the construction of library literature resources, this paper studies the construction of library literature resources based on semantic web technology, and through the work of subject librarians, we can better improve the literature information demand of the subject construction. Through the division of labor and cooperation of all parties, keep up with the pace of discipline development, understand the trend of discipline development, improve the level of literature resources construction, build a reasonable collection structure, and better guarantee the construction and development of key disciplines. In the semantic web technology system, according to the literature utilization of different libraries, the funding for different libraries is decided. In theory, the guarantee and the utilization ratio are inversely proportional. The higher the guarantee rate, the lower the utilization ratio. A common view of semantic web is that it is impossible to semantically code billions of contents, which is not a small problem. If the function of semantic web depends on manual coding of all the past, present, and future data, it will be doomed to failure. Libraries in institution of higher learning should change the invariable strategy mode in the past. Based on the semantic web technology, the macro strategy should be consistent with the discipline development of institution of higher learning, but the micro strategy should form a dynamic balance according to the needs. Determining the allocation of literature resources according to the utilization of literature is conducive to the close combination of collection construction and demand, avoiding the waste of literature resources, and stimulating the strengthening of library service for readers.

3. Implementation of Semantic Web Technology in the Construction of Library Document Resources

3.1. Concept and Model of Semantic Web Technology. In the process of semantic retrieval, in order to achieve high reasoning and retrieval efficiency, a good query object is very necessary, that is, a clear semantic description of resources can improve the efficiency of retrieval. From this perspective, semantic description is the basis of semantic retrieval, and good retrieval is based on good semantic description. This is one of the main reasons why this paper focuses on semantic description. The "semantics" referred to by semantic web technology is "machine processability," rather than natural language semantics and human reasoning. For data, semantics expresses what machines can do with these data [25]. The goal of semantics is to make the information understood by the computer. Meet the requirements of "effective access and retrieval of heterogeneous and distributed information on intelligent." The main service objects of the university library are teachers and students. They locate users through user login information, establish user interest model through user search information and user's department, and locate the database of excellent students in the relevant fields or disciplines or teachers with outstanding scientific research achievements, so as to realize personalized

recommendation to users. The personalized recommendation process of the university library based on semantic web technology is shown in Figure 1.

The construction of literature and information resources is one of the important guarantees of discipline construction. The construction of literature and information resources facing the discipline direction is the most basic element of the university library and the basis and guarantee of serving the discipline construction. The development of discipline construction in an institution of higher learning is inseparable from the support of library literature and information resources. Without the support of literature and information resources, it is impossible to build a high-level discipline [26]. The data representation method using semantic web technology deepens the depth of data integration and widens its application to a great extent. The theories and methods of semantic web technology also provide digital libraries with theories and technologies beyond traditional library services. Semantic web technology has four functional structures, which are basic function, grammatical function, data expression function, and formal function. The construction model of the semantic web technology is shown in Figure 2.

The semantic web technology construction model diagram is mainly divided into four layers, the details of which are as follows.

3.1.1. Basic Functions. It contains the universal code used to eliminate the limitation of past coding methods and the string used to identify network data: URI. Among them, universal code enables computers to complete the conversion and processing of data resources between different languages and platforms.

3.1.2. Grammatical Function. It covers three parts: extensible markup language, network simulator, and extensible markup language mode. Among them, extensible markup language has the characteristics of marking electronic documents and structuring them. Network simulator is a simulator that operates through discrete events. The last extensible markup language pattern is used to define the legal group of XML documents.

3.1.3. Data Expression Function. It has two parts: RDF and RDFS. Because XML is not suitable for the explicit expression of the meaning of a statement, a new function is needed to operate it. With the emergence of RDF, the expression process of statements has become standardized. RDFS is used to define words used in the process of statement expression, so that computers can understand the meaning of the data.

3.1.4. Formal Function. This is the core function of semantic web technology. Based on the data expression function, it deeply describes the relationship between ontology and them.

The basic assumption of semantic relevance algorithm is that when two words are connected by a short path in

WordNet synonym set, they have relatively large semantic relevance, and the semantic similarity is directly proportional to the semantic relevance

$$Rel_{HS}(W_1, W_2) = C - len - K \times d, \quad (1)$$

where: C and k are two constant parameters, d represents the number of turns in synset, and $len(W_1, W_2)$ is the path length.

Semantic similarity algorithm: when the path length is the same, the closer to the tree root, the smaller the semantic similarity. Therefore, the restriction condition of depth is introduced.

$$Sim_{LC}(W_1, W_2) = \log \frac{len(W_1, W_2)}{2Depth}, \quad (2)$$

where $Depth$ is the depth of words in the semantic tree of WordNet.

Resnik semantic similarity algorithm, the basic assumption is: the semantic similarity of two concepts is determined by the part of concepts they share.

$$Sim_R(W_1, W_2) = -\log(p(lso(W_1, W_2))), \quad (3)$$

where $lso(W_1, W_2)$ is the nearest common ancestor of (W_1, W_2) and $p(W)$ is the probability of W appearing in a specific ontology library.

Semantic distance algorithm: this algorithm is equivalent to calculating the semantic distance by using the conditional probability of child nodes after a common ancestor is given, and the semantic similarity is inversely proportional to the semantic distance:

$$Dist_{JC}(W_1, W_2) = 2 \log. \quad (4)$$

Semantic similarity algorithm: it can be regarded as a positive expression method of $D_{ist_{JC}}$ variant.

$$Sim_L(W_1, W_2) = \frac{2 \log}{\log(p(W_1))}. \quad (5)$$

Combined with the actual needs of the problem to be solved, the calculation formula of the correlation between the two words is summarized as follows:

$$SIM(x, y) = \frac{2 \times \text{con}(x, y)}{\omega_{in}(x)}. \quad (6)$$

In the formula, $\text{con}(x, y)$ refers to the frequency of x, y appearing in the same window unit in the selected document; $\omega_{in}(x)$ refers to the number of windows in which x appears in the selected document.

Considering the combination of similarity SIM and weight factor, the inter word correlation $SIMW(x, y)$ is finally obtained

$$SIMW(x, y) = SIM(x, y) \times \text{Weight Factor}(y). \quad (7)$$

Among

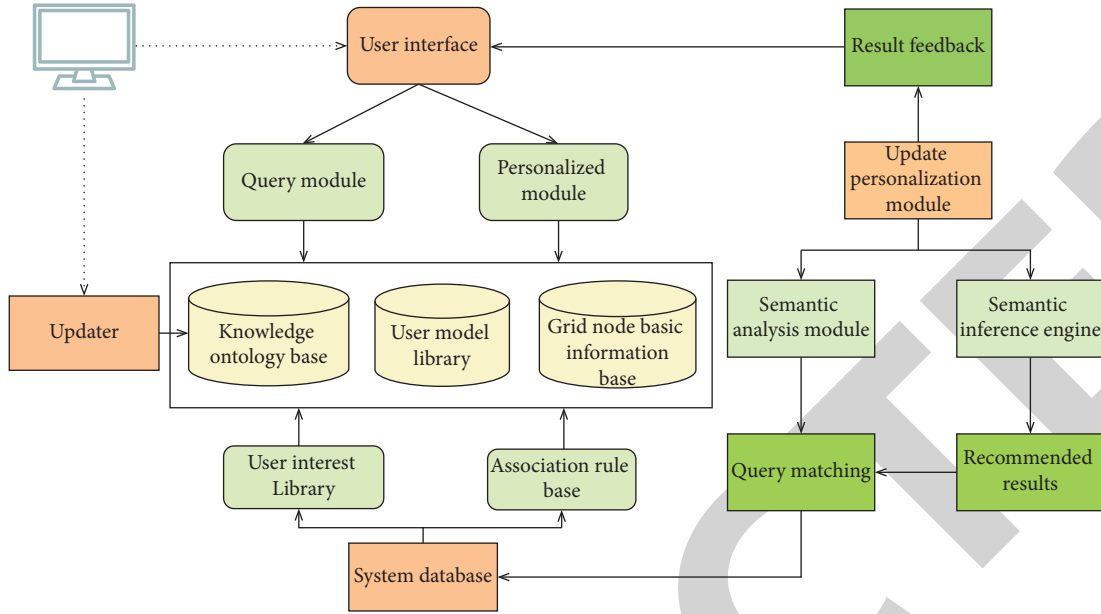


FIGURE 1: Flowchart of library document resource construction based on semantic web technology.

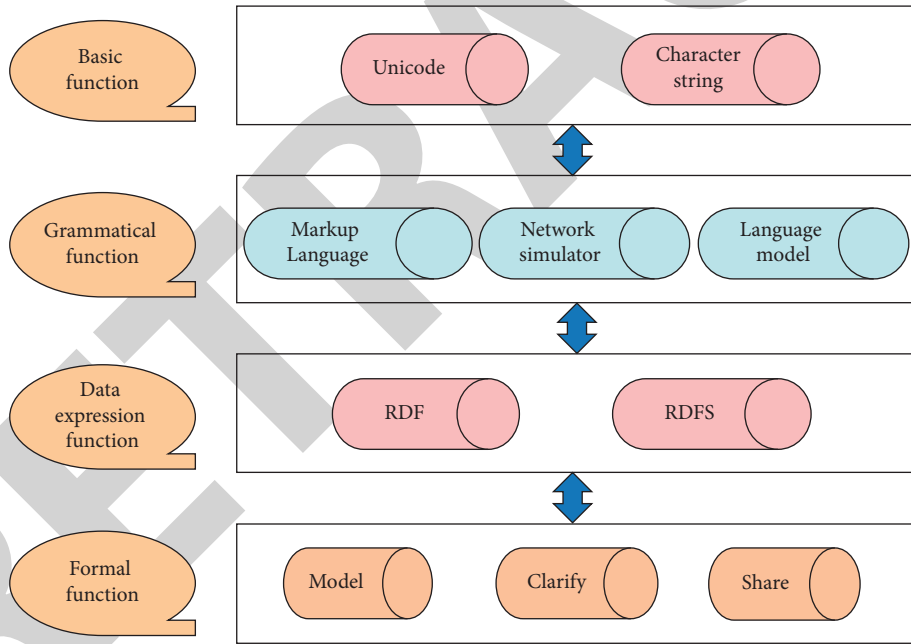


FIGURE 2: Semantic web technology construction model diagram.

$$\text{Weight Factor}(y) = \sqrt{\frac{\text{freq}(y)}{N_y}}, \quad (8)$$

where $\text{WeightFactor}(y)$ is the weight of the word y ; $\text{freq}(y)$ refers to the number of times y appears in the selected document; N_y indicates the number of occurrences of the word y in all documents of the whole corpus.

The two main indexes for evaluating the retrieval system are precision and recall, which are defined as

$$P = \frac{a}{b} \times 100\%, \quad (9)$$

$$R = \frac{a}{c} \times 100\%,$$

where a refers to the number of relevant problems retrieved; b refers to the number of all problems retrieved; c refers to the number of relevant questions in the question answer database.

At the same time, some library systems based on semantic technology have appeared abroad, the most typical of

which is JeromeDL, which realizes semantic retrieval and information interconnection of library systems through ontology technology and RDF language. The mode of adding semantics to text has been reflected in some software applications. Microsoft Office, for example, has a mode to display addresses, data, names of people, and places. If you need to find a name in the software, the software can provide the e-mail address of the name or open an empty e-mail address to give that name. Ontology is an effective means to represent domain conceptual model and structured domain knowledge, which is put forward under semantic web technology. Specifically, ontology is a conceptual model that describes concepts and the relationship between concepts, and describes the semantics of concepts through the relationship between concepts. Ontology technology has developed into one of the mainstream technologies of knowledge representation, knowledge management, knowledge sharing, and knowledge reuse and is becoming a core of common concern in research fields such as natural language processing, Web information retrieval, database and knowledge base management, heterogeneous data integration, digital library, GIS, and semantic web technology. Its advantages are that it can support semantic information management, reasoning implicit information, improving the automation degree of information management, and supporting the management of empirical information. Ontology is a complete set of words and terms that describe the knowledge in a certain field. According to the structure of the knowledge field, the compiler groups these words and terms into hierarchical categories and specifies the characteristics of categories and their relationships. The actual expression of the semantic web is much more complicated than it looks. They use RDF format and are often encoded in XML format. They widely use URL, an important processing method of computers, but it is a very friendly interface for readers.

Semantics is a distributed architecture composed of a large number of data that can be understood by machines. In this architecture, the relationship between data is expressed by some terms, and a complex network connection is formed between these terms. Computers can get the meaning of data through these terms and can use logic to reason on this connection, so as to complete some work that could not be completed directly. However, the semantic web does not appear as fast as people expect. The World Wide Web association has promoted its standards, but there are few practical application technologies of the semantic web. Part of the reason is the complexity of those important patterns, and those aspects of our application cannot effectively hide this complexity.

3.2. Construction of School Literature Resources.

Document resources are an important part of the school running conditions of institutions of higher learning, and their quality is directly related to the level of teaching and scientific research. The construction of document resources is one of the main tasks of university library. In the construction of document resources of university library, the

regulations point out that university library should formulate the construction scheme of document information resources according to the development objectives of the university and the needs of teaching and scientific research, and according to the overall arrangement of collection foundation and regional or systematic distribution of document resources, so as to form a collection system with the characteristics of the university. The application of modern information technology directly affects the scale of library collection and the level of document information guarantee ability. Therefore, the construction of library document resources should fully consider the environment of networked information resources. In resource construction, we should overcome the ideas of "small and complete" and "large and complete." Due to the strong heterogeneity of data resources in various departments of institutions of higher learning, to build a big data mining, analysis, and decision-making system based on university library, we need to collect, extract, clean, correlate, and analyze all kinds of data in various departments, explore the potential value of data, provide a solid analysis and decision-making driving model for the development of university library, and provide decision-making and analysis basis for the university and the library managers. The construction of document resources includes both micro and macro meanings. This paper mainly discusses the construction of document resources in the micro sense, that is, the collection, organization, management, and storage of documents by various document information institutions, that is, what we usually call collection construction. Book collection construction is a market behavior of interview decision-making on the basis of understanding the demand. It must deeply understand the demand. Under the dual constraints of benefit evaluation and supervision and document resource guarantee, the interview behavior of security systems at all levels will gradually strengthen self-control, actively establish the concept of coordination and sharing, and gradually move from randomness to standardization.

Because the personalized recommendation platform of the library makes use of the collaboration and data sharing of many departments in an institution of higher learning, and deeply aggregates the data information, it makes the interest model of student users more accurate, so that student users can obtain the useful resources in the library more accurately and conveniently. The evaluation object of collection efficiency and guarantee rate is libraries at all levels, not a virtual guarantee system, which determines the responsibilities and rights of guarantee systems at all levels. Fundamentally change the negative wait-and-see attitude towards the collection of new literature information carriers and the acquisition of information resources, and think that the network information resources can completely replace the library literature resources, thus neglecting the construction of library literature resources. And establish a book collection system suitable for the actual situation, so as to truly become an important document guarantee for school teaching and scientific research. At the same time, we should fully understand the publishing situation, carefully analyze readers' needs, study the existing collection structure, and

gradually form a collection structure with the characteristics of our school to meet the requirements of our school through continuous accumulation. The quality of literature resources construction directly affects the library collection structure and quality, and determines the overall service level of the library. The formation of the collection structure of university library depends on the long-term accumulation of literature resources construction. Only by doing the literature resources construction well in a down-to-earth manner can the service quality of university library be guaranteed. Every library should not only take part in the co-construction of literature information resources, make full use of the conditions provided by the network to realize the sharing of literature resources, but also master a reasonable scale of resource sharing, and strengthen the overall construction of literature information resources. Only in this way can the construction of library information resources achieve the goal of co-construction and sharing.

4. Results Analysis and Discussion

4.1. Experimental Analysis of Literature Construction. The State Council approved the division of disciplines in China into 12 categories, namely: philosophy, economics, law, pedagogy, literature, history, science, engineering, agronomy, medicine, military science, and management. According to this classification standard, the discipline categories of institution of higher learning listed in the sample table of institution of higher learning in Zhejiang, Shanghai, Guangdong, Sichuan, and Chongqing are counted. The results are shown in Table 1.

As can be seen from the statistical results in Table 1, among the five regions, the sample universities in Shanghai have the largest number of disciplines, reaching 12, accounting for 92.34% of the total number of disciplines, while Chongqing, which has the least number, has 10 disciplines, accounting for 83.25% of the total number of disciplines.

According to the sample university catalogues listed in the table, the number of readers in the school is counted, and the results are shown in Table 2.

It can be seen from Table 2 that the sample size of institution of higher learning in Zhejiang and Sichuan accounts for 28.67% of the total sample, and the proportion of readers accounts for 45.68% and 28.69% of the sample, respectively. The proportion of sample size of institution of higher learning in Shanghai, Guangdong, and Chongqing is 15.25%, but the proportion of readers is 6.25%, 9.68%, and 15.03%, respectively. This clearly shows that the scale of university library readers varies greatly from region to region.

The utilization situation is the main index to evaluate the value of literature resources in the university libraries. With the help of the circulation subsystem of the library, this experiment made statistics on all kinds of borrowing and returning situations from January to April 2021. Through the statistical results, we can intuitively see the circulation of various categories. In order to save space, only the following 4-month superimposed statistical line chart based on the 4-month statistical table is retained here. The horizontal axis is

10 categories, and the vertical axis is the circulation number. The experimental results are shown in Figure 3.

As can be seen from Figure 2, due to the limitation of the library's automation system, the original table picture of statistical data cannot be saved. However, from the intuitive graph, we can still see that the circulation situation of each month is strikingly similar. The four-month peak is in category H, followed by category D, category F, category F, category B, and category J. The big difference is the statistical data of March because it is a holiday.

To evaluate the economic effect of the investment scheme with the index of return on investment, it is necessary to compare it with the benchmark rate of return determined according to the historical data of similar projects and the wishes of investors. The method in document [6], the method in document [8], and the semantic web technology method in this paper are used for the experiment. In order to describe the change trend of the return on the investment of document resources of each member library after the operation of the document resource co-construction and sharing mode, the experimental results are shown in Figure 4.

As can be seen from Figure 4, in the broken line chart of the change of the return on investment in the co-construction and sharing of three kinds of document resources, we can intuitively see that the return on investment in document resources of each member library before and after joining the cooperation mode generally shows an upward trend, of which the upward trend of this method accounts for the highest.

In order to understand the practice of long-term preservation of digital resources in the Chinese libraries, this survey first counts the number of institutions that have carried out preservation activities in the investigated institutions. At present, the experimental results of the curve of preservation practice in libraries are shown in Figure 5.

As can be seen from Figure 5, most of the university libraries and the public libraries are carrying out preservation practice, while most professional libraries have not yet carried out preservation practice. Among the institutions that did not carry out preservation activities, 65.35% believed that due to the less practice of long-term preservation in China, it was necessary to observe for a period of time before deciding whether to carry out preservation activities; 36.48% of the institutions listed the financial factor and "digital resources have corresponding printed resources as backup" as the reasons for not carrying out preservation; 16.32% of the institutions affected their preservation because other institutions have preserved the same digital resources. In addition, another clearly pointed out that the main reason hindering its preservation activities was the lack of institutional guarantee.

This experiment investigates the funding of document resources in the university libraries. The experimental results are shown in Table 3.

According to the data in Table 3, in 2021, the purchase funds of library literature resources in three universities reached more than 30 million, and the per capita annual

TABLE 1: Statistics of disciplines in Colleges and Universities.

Region	Zhejiang	Shanghai	Guangdong	Sichuan	Chongqing
Sample size	5	6	5	4	3
Total of disciplines	11	12	11	11	10
Not involved in discipline	Military science	Military science	Military science and philosophy	Military science	Military science

TABLE 2: Number of readers in university reader library.

Region	Zhejiang	Shanghai	Guangdong	Sichuan	Chongqing	Amount to
Sample size	5	6	3	3	3	22
Teacher	13, 032	6, 34	2, 115	3, 257	3, 932	28, 373
Student	214, 966	142, 133	30, 782	47, 057	71, 182	506, 122
Add up to	228, 112	147, 168	32, 895	50, 315	75, 113	535, 494

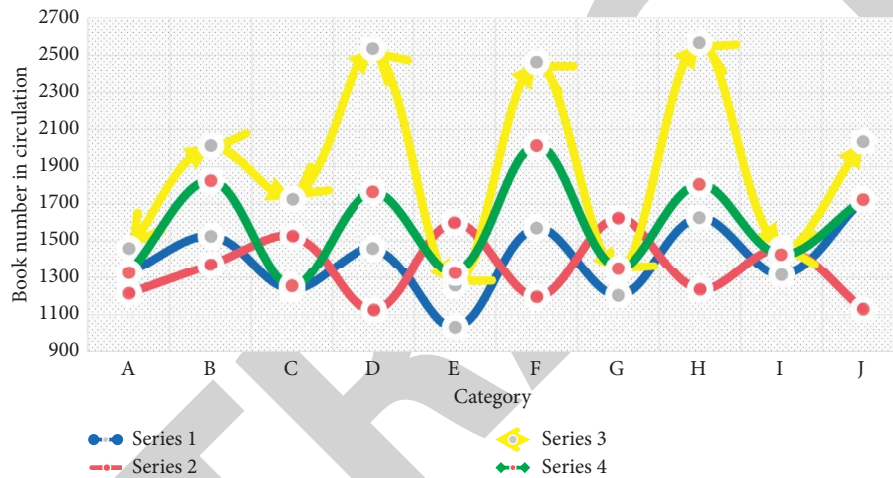


FIGURE 3: Changes of library book borrowing.

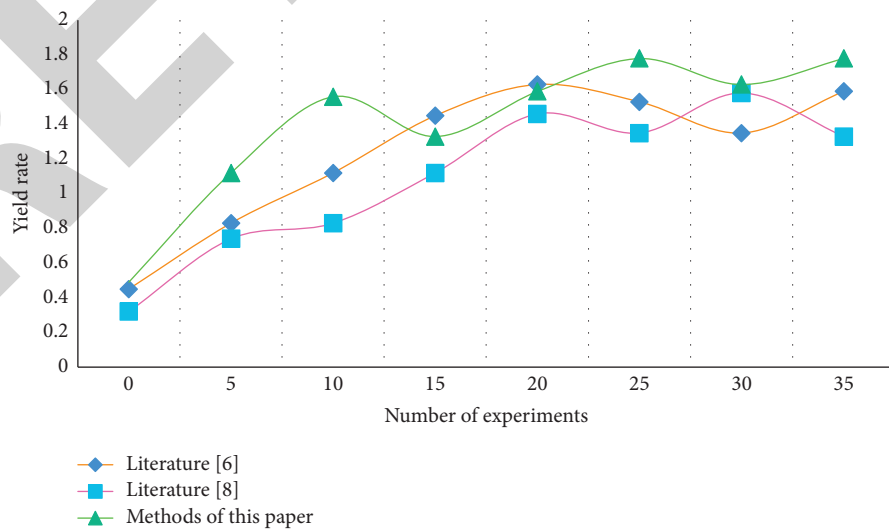


FIGURE 4: Line chart of the change of return on investment in co-construction and sharing of different literature resources.

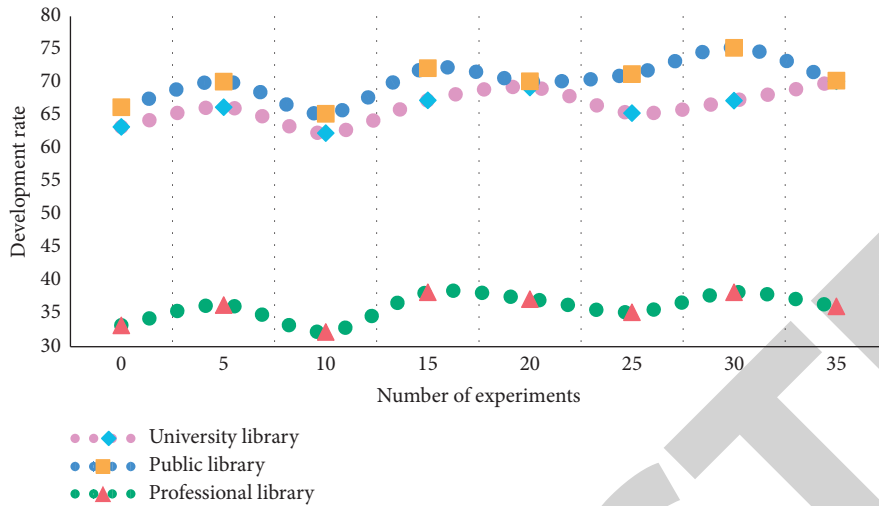


FIGURE 5: Change curve of preservation practice carried out by the library at present.

TABLE 3: Funding of document resources in the university libraries.

School	Library funds	Number of students	Per capita expenditure
Zhejiang jiaotong university	17, 159, 262	50,855	336.31
Northwestern polytechnical university	10, 322, 638	27,965	385.42
Shanghai normal university	10, 536, 472	34,715	321.92
Total funds		38,018,372	
Per capita expenditure		347.88	

expenditure of literature resources of students was close to that of 300 yuan. This fully proves that the funds for purchasing literature resources in the university libraries are huge, and the funds per student are relatively high.

For the long-term preservation modes of resources, such as institutional preservation, third-party preservation, and cooperative preservation, this survey invites institutions to sort the three types of preservation modes according to their preference. The experimental results are shown in Figure 6.

It can be seen from Figure 6 that, on the whole, Chinese libraries prefer to adopt the cooperative preservation mode. When the tendency index reaches 50, the tendency of the university libraries accounts for 58.5%, that of professional libraries accounts for 59.4%, and that of public libraries accounts for 66.54%. The number of preferred institutions' own preservation modes in public libraries is slightly higher than that of cooperative preservation; In the other two types of libraries, the number of institutions that choose the cooperative preservation mode still accounts for the majority.

This experiment is conducted according to the development trend of literature resources, and the experimental results are shown in Figure 7.

It can be seen from Figure 7 that among the institutions that choose to give priority to the development of library document resources in the development strategy of main document resources, 65.23% have carried out long-term preservation practice, compared with 57.42% of all

institutions. Due to the small number of samples, we cannot make simple statistical inferences, but it may reflect that institutions that pay attention to digital resources are slightly more proactive in implementing preservation activities than other institutions.

4.2. Empirical Conclusion. From the experimental results, the resources in the literature composition of the vast majority of institutions have been equivalent to those in the printed library, and most of the institutions will adopt the strategy of common development of printed resources and resources, and some institutions will take the strategy of giving priority to the development of library literature resources. The practical urgency of long-term preservation of library literature resources is self-evident. The vast majority of institutions will preserve or selectively preserve and purchase library literature resources, and more than half of institutions also prefer the library to undertake the responsibility of long-term preservation, which reflects the positive attitude of China's large library and information institutions towards long-term preservation. Each campus library is a parallel relationship regardless of the primary and the secondary. Under the guidance of the university's document resource construction planning and objectives, the document resource construction of each library is coordinated and cooperated to form a relatively independent

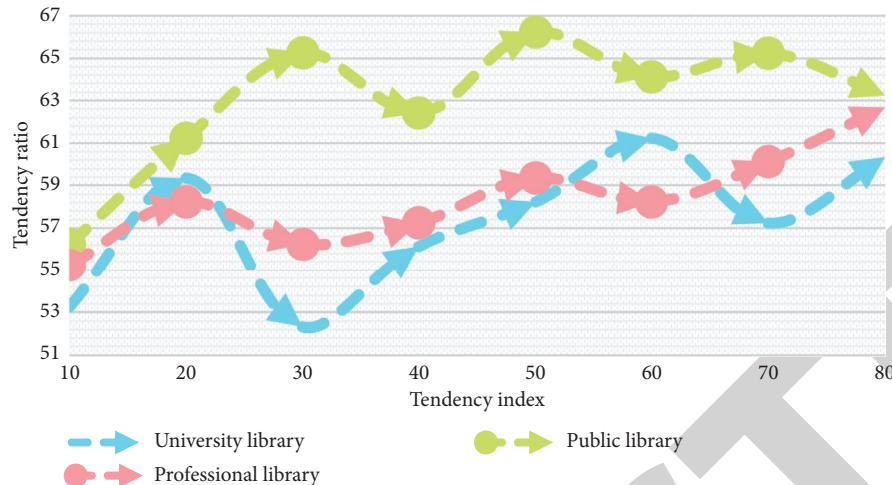


FIGURE 6: Library's tendency towards different preservation modes.

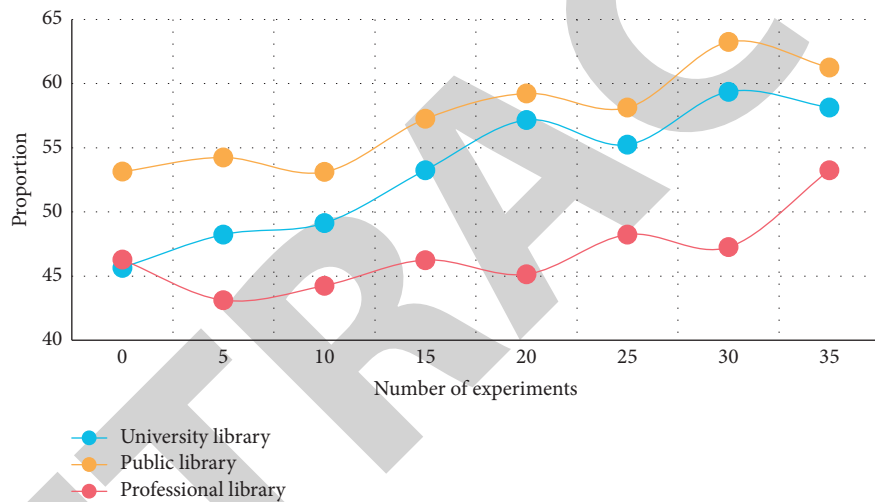


FIGURE 7: Development of main document resources in different libraries.

and distinctive book collection construction system. This model is suitable for multi-campus institution of higher learning arranged according to the school running levels of full-time education, vocational education and adult education.

5. Conclusions

Literature resource construction is a work with strong theory and practice. With the development of science and technology and the progress of society, the specific connotation of literature resource construction has changed correspondingly. Based on semantic web technology, this paper studies the construction of library literature resources. Among the institutions that choose to give priority to the development of library literature resources in the development strategy of main literature resources, the proportion of long-term preservation practice has reached 65.23%, compared with 57.42% of all institutions. Due to the small number of samples, we cannot make a simple statistical

inference, but it may reflect from the other side that the institutions that pay attention to digital resources are slightly more active in implementing preservation activities than other institutions. Under the semantic web technology, the carriers of literature information have also appeared diversified, which provides great convenience for the work of the acquisitioner. For decades, all kinds of libraries have basically formed their own literature resource structure and characteristics due to specific readers. This structure and characteristics are consistent with the needs of their clients, and have formed the literature guarantee system of each unit or even the region. At the same time, relying on the semantic web technology, the workflow such as the selection of bibliographic data, the formation and submission of orders, and the duplicate checking of bibliographies are all faster, which greatly shortens the literature procurement cycle and ensures the accuracy and scientificity of the procurement. With the development of document resources sharing, the construction of "characteristic" document resources oriented by semantic web technology needs will become the

natural division of labor in the construction of document guarantee system, which will improve the guarantee level of document resources as a whole.

Data Availability

The datasets used and analyzed during the current study can be obtained from the author upon reasonable request.

Conflicts of Interest

The author declares that they have no conflicts of interest.

Acknowledgments

This work was supported by 2019 Information Science and Library Science Foundation of Sichuan University: Research on Organization Ordering and Semantic Release of Characteristic Collection Resources based on Linked Open Data (no.Sktq201905).

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