Hindawi
Journal of Mathematics
Volume 2023, Article ID 9768364, 1 page
https://doi.org/10.1155/2023/9768364

Retraction

Retracted: Leveraging Digital Library to Enhance Research and Learning Experience of College Students: An In-Depth Study

Journal of Mathematics

Received 10 October 2023; Accepted 10 October 2023; Published 11 October 2023

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] C. Yang, "Leveraging Digital Library to Enhance Research and Learning Experience of College Students: An In-Depth Study," *Journal of Mathematics*, vol. 2022, Article ID 8046962, 8 pages, 2022.

Hindawi
Journal of Mathematics
Volume 2022, Article ID 8046962, 8 pages
https://doi.org/10.1155/2022/8046962

Research Article

Leveraging Digital Library to Enhance Research and Learning Experience of College Students: An In-Depth Study

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Received 18 January 2022; Revised 21 February 2022; Accepted 1 March 2022; Published 21 April 2022

Academic Editor: Naeem Jan

A digital library is a platform that contains collections of books, services, and personnel to support the sharing of knowledge with creation, dissemination, and preservation. In this context, any university library should comprehensively embrace the developmental trend occurring in the library setting, which should be strictly followed by university libraries as a special mission. Digital libraries should also actively promote the updating of the embedded service model and further upgrade the various resources of the university library. Thus, the digital library provides a platform to assist students to develop an inclination towards learning and emotional shaping. Its functional system thus serves both comprehensive and harmonious development of students. Especially, the knowledge service module of the digital library incorporates users' scientific research context. Most of the existing research studies focus on the individual researcher and neglects the context of the entire research team. Knowledge recommendation for the context of team-based scientific research activities can better serve more scientific research activities and team cooperation. In this work, we propose a knowledge recommendation algorithm for digital libraries based on team research-knowledge application in context matching. We leverage the context-aware learning model to construct the corresponding application context of the digital library knowledge and the context model of team scientific research. Subsequently, we select alternative knowledge and neighbor users as active users and further complete knowledge sorting and recommendation. According to the knowledge recommendation system in a digital library, it is confirmed that the proposed method can effectively deliver the knowledge of researchers in the context of the digital library.

1. Introduction

According to the definition proposed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), new media refer to the medium of information dissemination based on digital technology and its network [1]. Common new media platforms include mobile TV, digital TV, and mobile media as well as new online media such as WeChat, Weibo, Wiki, and podcasts based on Web2.0 technology. The new media technology has changed information interaction from conventional one-way communication to two-way interactive communication [2]. Besides, new media technology is extremely efficient in sharing information and supports multiformat digital resources. Moreover, some of the new media platforms support resource linking, which enables users to log in, access, download, and read digital resources when needed. Most of these new media platforms have a rich variety of functions and provide more convenience to users. Their popularity among users can effectively realize the transmission and exchange of information.

New media platforms emerge as a supplemental tool to break down the barriers of information exchange between libraries and readers and can facilitate to reach more book collections. Nevertheless, university digital libraries lack effective reading/browsing promotion and do not enable users to exchange information. Using the available new media platforms to assist the construction of resources on the platform of the digital library can provide more conveniences since conventional libraries cannot compete with them due to the limited funds and not up-to-date technological conditions. Reading promotions and improving both satisfaction of teachers and students significantly could be achieved by developing digital libraries at universities. Libraries cannot ignore their most fundamental role as an instructor since they play an indispensable role as components of universities. Thus, the ministry of education has proclaimed that "conducting information and literacy programs, cultivating information awareness in university students, and the ability to obtain and utilize documents" are some of the university libraries' key roles [2, 3]. Most university libraries have currently provided information literacy education by offering literature retrieval courses and special lectures for undergraduates. However, instructors have to fully consider the requirements of different learning groups in an international environment. Besides, instructors should constantly enrich teaching content, introduce internationally advanced innovative teaching methods, adopt modern information technology, and strive to be diverse. They should make it interesting and provide the instructions with the necessary knowledge that could be applied globally. According to the objective of developing an international university, the language barriers that are encountered should be first eliminated.

With the increasing volumes of exchange activities internationally at the university level, libraries should increase the bilingual literacy education programs applicable to international students. Hence, they may increase international students' information retrieval as well as help international students who are interested in studying abroad to develop themselves by attending mini courses and lectures. Therefore, information retrieval ability means increasing their chances of participating in international exchanges. The digital library should be designed to meet the requirements of special groups. The instructors should not only deal with the university students but should also take into account the requirements of retired staff. Besides, instructors can also cooperate with other school departments to conduct a series of lectures to assist retired staff. Digital libraries can integrate conventional instructing modes with microclasses, flipped classrooms, and MOOCs to substantially improve the retrospectives and reproducibility of courses for knowledge dissemination. The integration with other professional courses and international activities could be utilized to improve knowledge utilization. Typical schemes should start with including information retrieval courses in courses taught in English. Besides, some creative methods should be applied such as incorporating games into international cultural exchange activities.

The knowledge that digital libraries contained has increased rapidly. Moreover, the phenomenon of knowledge overload has become an overwhelming issue. Providing an ideal knowledge dissemination service becomes difficult since the process of matching the searching words of users with resource keywords turns out to be optimized [4]. The knowledge recommendation system of the digital library can analyze and predict the requirements of users and suggest the corresponding knowledge to them. Thus, it has become an effective scientific tool for conducting academic research [5]. However, the increasingly complex scientific research tasks and highly specialized scientific research situations make researchers deal with diverse knowledge requirements. For example, most of the knowledge sources of researchers in science and medicine are the latest papers published in academic journals and conferences, while many social science researchers focus on the value of classic works. More specifically, large-scale scientific research tasks can no longer be completed by a single researcher independently or in cooperation with a small number of researchers since many research projects require a multidisciplinary framework. Thus, many scientific research talents with diverse knowledge backgrounds and complementary roles are required [6]. The context information of the research team is the key to influencing scientific research.

We propose a context-aware learning method that can acquire users' contextual information in real time. The recommendation system that integrates contextual factors can be considered as an important direction in the knowledge services of digital libraries [7]. Hence, the focused key issue is that when scientific research is carried out by teamwork, scientific research will acquire contextual information about the team and its members. Besides, we investigate how to match these knowledge requirements with the knowledge application of the digital library to realize knowledge recommendations. Considering the research context of the scientific team and the knowledge application context utilizing digital libraries, a knowledge recommendation algorithm called TKCM (Team-Knowledge Context Matching) for digital libraries is proposed. Application of the context matching for the team research-knowledge is the motivation of this algorithm. An overview of the proposed TKCM framework is presented in Figure 1.

The proposed method called the TKCM can provide information for the related research of digital library knowledge service according to the research situation and new ideas. The main contributions of this work include the following components: (1) realizing the active recommendation of knowledge according to the application situation of digital library knowledge (this can improve the quality of knowledge service in the digital library; we also emphasize that the knowledge service of the digital library should be oriented to the situation of team scientific research); (2) integrating team situation and individual situation of scientific researchers to meet the knowledge requirements of team research and individual research.

The rest of the paper is organized as follows. Section 2 presents the related work that covers the issues of digital library and information retrieval using models. The proposed method is presented in Section 3. Experimental results and their analysis are presented and discussed in Section 4. Section 5 concludes the research.

2. Related Work

In this section, we present the studies available in the literature whose scope is related to various knowledge recommendation methods and their properties in the formwork of the digital library. Most of the existing research studies focus on the individual researcher and neglects the context of the entire research team. Thus, knowledge

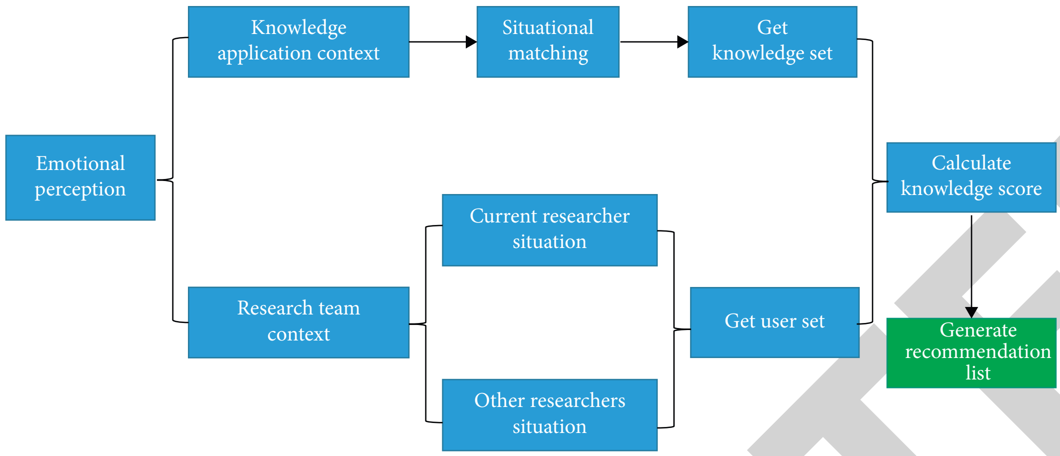

Figure 1: An overview of the proposed TKCM framework.

recommendations for the context of team-based scientific research activities are needed more and can trigger more scientific research activities and team cooperation. Therefore, several studies have been conducted concerning it.

In the era of "big science" characterized by team research and teamwork, the knowledge requirements of scientific researchers are highly individualized, specialized, complex, and volatile. They have strong situational sensitivity. Context refers to any information that can be leveraged to describe the characteristics of an entity's situation. An entity can be a person, a location, or either a physical or virtual object related to user and application interaction [8]. Context can be divided into seven categories: user, user social environment, task, location, infrastructure, physical condition, and time [9]. The context as computing context, user context, physical context, and time was defined in [10]. Digital library service includes the scientific research context. The specific contextual information generally includes such elements as a subject area, scientific research background, scientific research environment, and personnel. Hence, context information can be acquired, processed, and analyzed using smart terminal devices such as sensors, the Internet, and radio frequency identification. All these operations are context-aware [11]. Real-time acquisition of context information through context awareness enables fast-tracking of changes in user requirements and preferences [12]. It can not only effectively enhance the overall performance of the information system but also realize the precise mining of users' personalized requirements as well as improve the user experience of system services. In the domain of digital libraries, context awareness algorithms have been used to acquire user context information, including location Information context, social network context, and so on. They have substantially improved the immediacy and practicability of the user information in the demand model [13]. Knowledge recommendations at the digital library can optimally encode scientific research context. Some researchers introduced the scientific research context into the digital library knowledge recommendation system. They researched the identification of scientific research situations and the construction of situational models. The context elements of digital library knowledge services generally include dimensions such as resource context, user context, and knowledge context [14]. The context-aware system of personalized services for digital libraries can be divided into multiple layers such as sensor access layer, data processing layer, personalized recommendation layer, and application layer [15]. The corresponding service process includes context information acquisition, integration, and personalized semantic matching [16].

Researchers have proposed a variety of knowledge recommendation algorithms for digital libraries to conduct scientific research. Generally, these algorithms can be divided into three categories according to the application of context information. (1) The context information is employed to perform secondary screening on the retrieved list of the recommender system, which uses the item scores predicted by the collaborative filtering algorithm. The context condition entropy is used calculate the weight of each context attribute as well as the user's weighted score of the item in different contexts to generate a recommendation list [17]. The well-known Naive Bayes method with context awareness was combined. Hence, a collaborative recommendation based on the attribute weighted Bayes method is performed in the first place, and subsequently, the influence of context attributes on recommended resources is calculated, and finally, the score list of collaborative recommendations is adjusted [18]. (2) To leverage the context information as a system recommends items to implement contextual recommendations: for the problem of knowledge recommendation in digital libraries, Liu et al. [19] formulated the context similarity calculation to obtain a two-dimensional scoring model of "user-resources" of context sets that are similar to the user's current context. They further generated a recommendation list according to the use of collaborative filtering [20]. The contextual information in integrated into a content recommendation, the similarity between the user's current context and historical context is calculated, and the rankings of users' interest in resources with similar contexts are finally obtained [21]. The contextual information is integrated into the recommendation model to generate new recommendation algorithms.

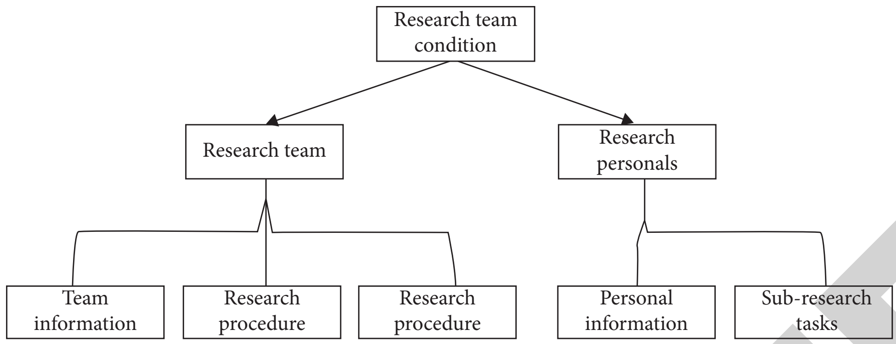

Figure 2: The illustration of the metadata produced by TKCM.

Information recommendation is achieved by matching custom rules with contextual semantic information. The contextual information is used to discover common interests among user groups, and then an information recommendation model is built by leveraging the association and collaboration of common interests [22]. Besides, some of the current novel research and systematic review can be found in [23–25].

3. The Proposed Method

In this section, a novel approach called Team-Knowledge Context Matching (TKCM) is proposed. We propose a context-aware learning method that can acquire users' contextual information in real time. The recommendation system combining contextual factors will be the main direction to match two different types of resources, which are called the knowledge services of digital libraries and research teams.

The research of the team is matched with the knowledge application of the digital library. The knowledge recommendation method called TKCM for the digital library is designed and proposed based on the construction of the situation modeling. Hence, the recommended knowledge can find the actual situation of the scientific research team. The TKCM framework can be expressed by four steps: (1) acquiring contextual information, (2) acquiring knowledge of candidate sets, (3) acquiring neighbor user sets, and (4) generating recommendation lists. The first step collaboratively incorporates the context-aware technique to learn the knowledge application context and team research context utilizing digital libraries. In the second step, the knowledge application of the digital library is matched with the current research of the researchers where the knowledge with high situation similarity is selected as the candidate set. The third step is to match the team research context of other researchers with the context of the current researcher and thus further select researchers with higher contextual similarity as the neighbor user set. The higher the similarity between neighbor users and the current researcher, the greater the influence of their preferences. The fourth step is to calculate the comprehensive preference score of each piece of knowledge in the candidate set according to the preferences of the researchers in the neighbor user set. It is, then, further used to generate a recommendation list. An example of metadata generated by the TKCM recommendation method is elaborated in Figure 2.

The research information includes the knowledge application situation and team research situation of the digital library calculated by the proposed situational awareness technique. It involves two steps, which are called situational information collection and situational information processing. Besides, there are two main ways to collect contextual information. (1) Digital library service records: personal information and knowledge request information are obtained by the registration items of researchers in the digital library as well as user records of search engines. (2) Situation monitoring towards scientific researchers: the location information, working environment, and voice information of researchers in daily life through sensors, radio frequency identification, global positioning system, voice recognition, and other channels are accurately obtained. Thus, we further deliver this information to the digital library in the database. Subsequently, the redundant information in the context is eliminated based on integrating the remaining context information into the knowledge application context of the digital library. Moreover, they are also integrated into the team scientific research context model.

We define the quintuple $C = (T, P, A, R, S)$ to represent the data structure of the situation modeling where $T(\cdot), P(\cdot)\ A(\cdot), R(\cdot)$, and $S(\cdot)$ represent the team's scientific research information, the scientific research process, the scientific research task, the information of researchers, and the sub-research task, respectively. Subsequently, the data structure of the knowledge application situation modeling for the digital library is defined by

$$C_l = (T_l, P_l, A_l, R_l, S_l), \quad (1)$$

where the data structure of the team scientific research situation modeling is represented by

$$C_m = (T_m, P_m, A_m, R_m, S_m). \quad (2)$$

The five situations of library knowledge application and team research are normalized into the so-called situation vectors in a multidimensional space. Thus, their similarities were further compared. More specifically, the knowledge application context and team research context vectors of the digital library are obtained through a backpropagated (BP) neural network that is divided into two components. The first component is to construct a research context database according to the context information obtained by the context perception technique. BP neural network training is performed by integrating the original data in the research context database running several iterations. In the second step, given the historical application of digital library knowledge i and the context elements of researcher j, the maximum value of the closeness between the context category k of the two users and the context categories in the library can be obtained after the training is completed. Afterward, the historical application situation vector l_i and the team scientific research situation vector j are expressed by

$$\mathrm{Sim}\,(ji, li) \cdot m, \ldots . \tag{3}$$

We define $M_a = \{jl_{\mathrm{Sim}}\,(m_a, l_i) > \alpha\}$ as the knowledge candidate set of researcher a, where α represents l_i. The similarity threshold of m_a, $0 < \alpha < 1$, when $\mathrm{Sim}\,(\mathrm{mai}, l.)$ is greater than α, and the digital library knowledge i is incorporated into the knowledge selection set. Thereafter, the amount of knowledge in the knowledge selection set is denoted by t. It is noticeable that the basic idea of recommender systems is to calculate items with similar user preferences to those active users. In this research, we assume that researchers who are similar to team research contexts such as their teams, research directions, and research tasks have similar knowledge requirements. Thus, the similarity computation of their knowledge can be determined by the contextual similarity between researchers. More specifically, the higher the situational similarity between researchers, the higher the similarity of their knowledge requirements. The similarity between $j\prime s$ team situation and the current researcher's team situation m_a can be expressed by the cosine of the respective situation information vector defined by

$$\mathrm{Sim}\left(m_a, m_y\right) = \frac{m_a \times X_m}{\sqrt{\sum m_a^2 \times m_j^2}}, \tag{4}$$

where the team research situation and digital library knowledge application situation of multiple researchers can be integrated into matrix L and M, respectively.

Afterward, we calculate the similarity between the current researcher's team context m_a and the digital library knowledge's application context l_i. Then, the similarity can be expressed as the cosine of its vector angle. It is defined by

$$M_a = \{j_l\,\mathrm{Sim}\,(m_a, l_i) > \alpha\}. \tag{5}$$

It is the knowledge candidate set of researchers, where α represents the similarity threshold between l_i and m_a, $0 < \alpha < 1$. Noticeably, when $\mathrm{Sim}\,(m_a, l_i)$ is greater than α, we put the digital library knowledge i into the knowledge candidate set. We let the number of knowledge in the knowledge candidate set be t.

Then, we obtain the neighbor user set. The basic idea of the recommendation system is to offer items to university students with similar preferences of active users. We assume that researchers who are similar in team research contexts such as team members, directions, and tasks have similar knowledge requirements in the proposed method. The similarity of their knowledge requirements can be determined by the contextual similarity between researchers. More specifically, the higher the situational similarity between researchers, the higher the similarity of their knowledge requirements. The situation similarity between the team of researcher j with a research situation i_e and the team of researcher a with a research situation m_a can be calculated by the cosine of their respective situational information vectors defined by $N_a = \left\{\mathrm{Sim}\,(m_a, m_j) > \beta\right\}$ The neighbor set of the researcher a is denoted by $(0 < 0 < 1)$ where beta denotes the similarity threshold between m_j and m_a. Thus, $\mathrm{Sim}\,(m_a, m_j)$ between 0 and 1. We then put researcher j into the neighbor user settings and set the neighbor user. The number of centralized researchers is set to n. Afterward, we generate a recommendation list. Researchers' preferences for knowledge, including behavioral data such as access, citation, and collection, can be obtained correspondingly. Let P_{ih} represent the preference degree of the researcher j in the neighbor user set to the knowledge i in the alternative set. The recommendation score of knowledge i can be obtained by weighted average. The calculation is defined by

$$\mathrm{Score}_i = \mathrm{Shift}\left[\mathrm{Sim}\left(m_a, m_j\right)\right] P_{ij}. \tag{6}$$

We sort the recommendation score of each knowledge in descending order to obtain the recommended list. The obtained recommendation list can guide the research and learning activities of university students. An overview of the proposed framework is presented in the Algorithm 1.

(i) Input: a digital library and its corresponding parameters, N; university students; learning rate and recommendation parameters; output: recommendation list to learners;

(1) Calculate the data situation context model and construct a quintuple to represent the research and learning attributes;

(2) Calculate the similarity matrix based on the context model to capture the complicated relationships among learners in a digital library;

(3) Calculate the recommendation list and score based on equations presented in (5) and (6), respectively. Use them to guide the learning process of university students.

4. Experimental Results and Analysis

In this section, we discuss the experimental results and provide a comprehensive analysis to better present the practicality of the knowledge recommendation system proposed in this paper.

To verify the knowledge recommendation performance of the proposed TCKM framework, knowledge application information and user information are collected from the official websites of ten universities' digital libraries, and 100 scientific research teams are randomly selected from the user information, and 620 of these teams were found to be

Table 1: Researchers' R01 and its situational context.

Research context	Context type	Context elements	Description
Research participants	Basic information	Team background	The knowledge service team at a digital library
		Research scope	Digital library for knowledge recommendation
		Research history	Context perception; resource recommendation; data mining
		Team members	{R01, R13, R76, R43, R51}
	Research procedure	Sub-procedure set	{Sub-procedure-1, sub-procedure-2, sub-procedure-3,. . ...}
		Start of procedure	{Data, resource,. . ..}
		Termination of procedure	{Data, resources, papers,. . ..}
		Task types	Research of knowledge discovery
	Research task	Task objective	Conduct knowledge discovery at the digital library
		Task target	Knowledge from the digital library; users
		Sub-task	{Sub-task1; sub-task2; sub-task3,. . ..}
Research subjects	Basic information	Education background	University students
		Research experience	Knowledge recommendation; data analysis
		Knowledge structure	Data mining; knowledge recommendation; context modeling
		Team	Research team T01
	Sub-research tasks	Sub-task objective	Research of recommendation algorithms
		Sub-task object	Recommendation algorithms
		Sub-task target	Recommendation algorithms in digital libraries
		Tasks' relation	Implementable recommendation algorithms

Table 2: Knowledge alternative set from researchers R01.

Knowledge ID	T	*P*	A	R	S
K19	T37	Knowledge accumulation	Context perception technique and applications	R73	Data collection
K46	T63	Form items	Personal knowledge recommendation	R04	Personal recommendation algorithm
K92	T10	Conduct experiments	Digital library knowledge recommendation	R67	Recommendation algorithm
K58	T56	Data analysis	Knowledge recommendation by context perception	T12	Algorithm application instance
K67	T28	Form items	Context perception	R73	Context perception

Table 3: University students' R01 neighboring users.

Researchers	$\mathrm{sim}(m_a, m_i)$
R10	0.5865
R90	0.6334
R35	0.7435
R67	0.9032
R04	0.8543

scientific researchers. Domain experts, as a sample for analyzing the application cases of the TCKM recommendation algorithm, randomly select a researcher in each team to conduct recommendation algorithms analysis such as knowledge push for researcher R01 in research team T01. After obtaining the application context knowledge through context-aware technology, we report the current research context of scientific research staff R01 displayed in Table 1.

In the research, we focus on not only the research subject but also the personnel or teams that research subjects. Thus, we combine those two to infer more detailed outcomes in the framework of knowledge discovery. Table 1 illustrates the sub-dimensions of two pillars related to knowledge discovery.

According to equations (1) to (3), the similarity between the knowledge application situation and the team research situation of each university student can be calculated. Afterward, the knowledge with higher similarity is leveraged as the candidate set shown inTables 2 and 3. We thus generate a neighbor user set. According to equations (1)–(4), we abandon the list of researchers with high similarity by calculating the similarity between the research context of researcher R01 and the scientific research context of other researchers whose some representative results are presented in Table 3. We generate a recommendation list and further utilize the context-aware technique to obtain the interest level of each neighboring user shown in Table 3 and each knowledge shown in Table 2 in our experiment. We further calculate the final score of the six kinds of knowledge according to (5). The ranking of R01 knowledge recommendation is K92, K46, K58, K67, and K19. Thus, the recommended knowledge takes into account the team research situation of T01 in the domain of knowledge recommendation in digital libraries. Besides, the individual research situation of R01 in the knowledge recommendation algorithms is calculated in digital libraries. Hence, the TKCM recommendation algorithm can accurately discover the knowledge requirements of university students in the context of team research. These details are shown in Table 2.

The presentation strategy is three-dimensional and diverse, which is called the combination of virtuality and reality, strong game interactivity, and strong platform

Table 4: The list of knowledge recommendation.

Knowledge	Item title	Score
K92	Research context-based digital library knowledge recommendation	24.15
K44	Data recommendation algorithm by digital libraries	22.43
K54	Mobile digital library context-sensitive knowledge recommendation	19.43
K67	Perception-based mobile digital library for user data collection	17.55
K19	Service context research by digital library	18.56

scalability. The combination of reality and virtual techniques can satisfy the creative construction of libraries with different characteristics. The combination of auditory, visual, and tactile senses presents a highly realistic and three-dimensional digital library, which is the best medium for reader training and library publicity. Combining the original system of the library with a rationally developed one in a three-dimensional space, the library service will be more personalized and humanized. The creative display of library digital resources can improve the utilization rate of library resources. As the navigation document claims, the navigation function of the system can click on the retrieved books to navigate the databases university students are interested in. The system will automatically calculate the best path and present it to the user in the form of screenshots and 3D navigation. Thus, they will lead different users to reach different locations where the book could be retrieved. For the interaction between personal centers, users can create their nicknames and personal profile in the personal center. Students then use their virtual identities to participate in virtual community activities, such as interacting and chatting with other readers, broadcasting, and occupying a reading room, fire drills, and escapes.

Noticeably, we also observed interactions of university students that chat with friends, make friends, and find and meet new friends. Also, they conduct interactive online communication to increase the fun. They conduct interactive and virtual consultations, which means that creating a consultation desk on a virtual floor and setting up virtual characters are realized. Hence, readers can click on the consultant desk to ask questions about the digital library. Moreover, the virtual consultant can also propose common consulting questions that are responded to by the digital library instructor online. The functional structure design is shown in Table 2. For the virtual exhibition, the movie screening hall is a virtual screening room for the library. University students thus can choose their films to watch, and the library can also upload videos of student activities to display. The digital library can also build a virtual online lecture hall to display video lectures by experts worldwide. Virtual exhibition hall especially contains a rich collection of ancient books. These ancient books collected by the library can be displayed in a three-dimensional virtual manner and are open to university students for reference, as shown in Table 4.

5. Conclusions

In this work, we utilize the context-aware learning model to construct the knowledge application situation and team research situation for the digital library. We further propose the knowledge recommendation method TKCM for the digital library by leveraging the situation of team scientific research-knowledge application. The proposed method called the TKCM can provide information for the related research of knowledge service in the application of the digital library according to the research situation and new ideas.

The main contributions of this work include the following components: (1) realizing the active recommendation of knowledge according to the application situation of digital library knowledge (this can improve the quality of knowledge service in the digital library; we also emphasize that the knowledge service of the digital library should be oriented to the situation of team scientific research); (2) integrating team situation and individual situation of scientific researchers to meet the knowledge requirements of team research and individual research.

Despite the articulated advantages, the disadvantage of the proposed method is that it mainly studies the application context of digital library knowledge and lacks a careful analysis of the content of knowledge and the context information. Thus, how to comprehensively utilize all the context information of digital library knowledge remains an unresolved challenge. To complete a more accurate digital library recommendation system, further studies related to a detailed analysis of the content of knowledge and the context information are needed to obtain more refined outcomes in future research.

Data Availability

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

Conflicts of Interest

The author declares that there are no conflicts of interest.

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