

# Thinking, Consciousness and Ability in the Construction of University Discipline Service Ecology

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**Abstract.** Based on the discipline service of the library, this paper studies the composition of the discipline service ecology of universities, and believes that the discipline service ecology of universities is a dynamic and open system. It is proposed that building a healthy and harmonious discipline service ecology is the basis for universities to continue to carry out discipline services. It also analyzes the thinking, consciousness and ability necessary for building a good discipline service ecology, and makes a theoretical discussion for the creative development of discipline service.

## 1 Introduction

Disciplinary service originated abroad and has gone through a long process of development. Its content and model are also changing with the development of the times. The discipline service should be carried out for a long time, not only by administrative measures, but also to form a healthy, harmonious and sustainable discipline service ecology. To create a discipline service ecology, the subject of discipline service and the object of discipline service are required to think together and work together. In particular, the subject of discipline service should have discipline service thinking, form discipline service awareness, and then have discipline service ability.

## 2 Proposing the concept of discipline service ecology in universities

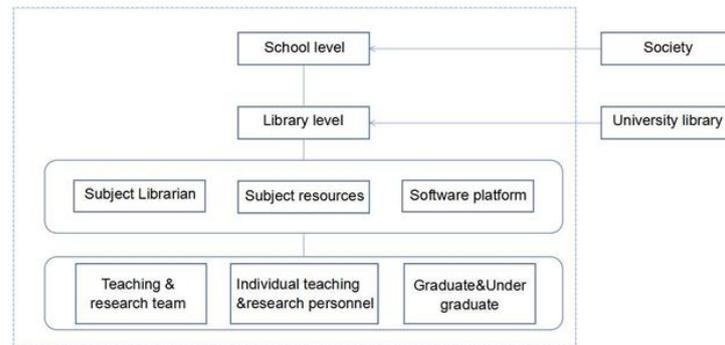
### 2.1 Composition of university discipline service ecosystem

Subject service is an innovative service mode, which deeply reflects the core value concept of university library. Subject service must adapt to the needs of academic information in teaching and research. The service content is diversified, the service means are

modernized, the service methods are diversified, and the service scope is deepened. This is a service mode unanimously recognized by the domestic and foreign map research library community. In the process of developing discipline service, the discipline service ecology of universities has been formed objectively.

In universities, the library provides subject services through the use of subject resources and software platforms by subject librarians. The teaching and scientific research achievements of the service objects and their evaluation of subject services reflect the role and value of the library and promote universities to pay more attention to the construction and development of the library. The university level is the superior of the library. It not only determines the development of the library, but also interacts with the society to provide external assistance for the development of the library. The library level can also establish contact with external libraries. Therefore, it can be considered that the discipline service ecology of and universities is composed of "universities - libraries - discipline librarians - service objects" according to a certain relationship. This ecosystem is an open system, and the outside is the library of society and fraternal universities. Figure 1 shows the composition of the university discipline service ecosystem.

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**Fig 1.** Composition of discipline service ecosystem

## 2.2 Necessity of building a university discipline service ecology

Analyzing the current situation of discipline service in universities at home and abroad, we can find that it is an arduous project to carry out discipline service continuously. Although a discipline service ecology has been formed in the process of discipline service, it is not necessarily benign. Some scholars believe that "although the practice of discipline service has gone through more than 20 years in China, few libraries have really adhered to it and achieved success" [1]. Discipline service is very important, but why can't we persist? In fact, this deeply reflects the necessity of building a university discipline service ecology.

The healthy, harmonious and sustainable development of discipline service ecology needs to be jointly created by different subjects involved in discipline service [2]. Otherwise, subject service will either be hot for a while by virtue of administrative orders, or it will stay on the surface or in form, and will not play its due role.

The discipline service ecology composed of universities, libraries, subject librarians, and service objects is dynamic. Active interaction can keep the discipline service ecology in dynamic balance and make the discipline service sustainable.

(1) University leaders are the superiors of the library. They decide the scale, orientation and development direction of the library according to the situation of the university, coordinate the relationship between the library and various departments in the university, and put forward requirements and expectations for the library.

(2) As a department of the university, the library is the most important element in the discipline service ecology and plays a leading role. The library should determine the subject service level that is suitable for the development level of the university under the conditions that are suitable for the situation of the university; Secondly, we should guide the standardized development of discipline services through policies, rules and regulations, publicity and other means, and guide discipline librarians to make full use of modern information technology and network platforms to carry out their work creatively. Thirdly, we should guide the service objects of disciplines rationally and scientifically, guide the service objects to understand,

attach importance to and support the work of discipline service, and have rational expectations for the level of discipline service at this stage. At the same time, it is essential to maintain close communication with the libraries of sister universities, communicate with the society at the university level, and maintain openness in the process of building a good discipline service ecology.

(3) Subject librarians are the main body of subject services. Librarians' subject service ability is the key to the smooth development of subject service. Subject librarians need to actively operate under the norms of the library, explore new concepts, new technologies and new methods of subject services, develop more subject service projects, comprehensively improve service quality and ability, and give subject service objects a certain right of evaluation and choice in terms of subject service quality.

(4) The teaching and research teams, individuals and students of universities are the objects of discipline services. When discussing discipline services, we cannot exclude the factors of service objects. Teachers, students and scientific researchers not only need the services of libraries and subject librarians, but also can actively communicate with libraries and subject librarians, and even participate in the management of subject services to promote the in-depth development of subject services.

Therefore, the process of building the discipline service ecology is the process of expanding the consensus area of discipline service, which requires the study of the thinking characteristics, service consciousness and service ability of universities, libraries, subject librarians and service objects.

## 3 Several key factors in the construction of university discipline service ecology

### 3.1 Discipline service thinking

The four aspects of "university - library - subject librarian - service object" that constitute the discipline service ecology within the university are also four subjects. From the perspective of thinking, "university - library - subject librarian - service object" is also four different thinking subjects. The position and angle of

different thinking subject stations are different, and the level of thinking is different, so the understanding of discipline service will inevitably be different, thus affecting the quality and effect of discipline service. Different thinking subjects have overlapping understandings of discipline services, that is, there is a certain consensus area. The size of the consensus area directly affects the quality of discipline services and the enthusiasm of continuing to carry out discipline services. Therefore, expanding the consensus area of "universities - libraries - discipline librarians - service objects" is the requirement to improve the level of discipline services.

The reflection of discipline service discourse group is the discipline service thinking group. In fact, it is the "group thinking" of different subjects on the subject of discipline service, such as "universities - libraries - discipline librarians - service objects". The significance of proposing and studying discipline service thinking is to provide theoretical support in terms of thinking and cognition for discipline service, and enhance the awareness of actively and effectively developing discipline service. The topic of subject service thinking will vary with different historical stages and different service requirements. It reflects the changes in the core values of university libraries and the demand for academic information in teaching and research.

### *3.1.1 University leadership thinking*

The thinking of university leaders plays an extremely important role in library work. Their thinking mainly determines the development strategy, direction, scale and investment of the library in terms of development strategy, and puts forward tasks and requirements for library work. The university can communicate with the external society, create a good social environment for the library work, and guide the library to create a good discipline service ecology.

### *3.1.2 Library level thinking*

As an important department supporting the development of university teaching and scientific research, the library plays an important role in deepening discipline construction and supporting the strategic planning of the university. It should have strategic, management, hardware and other aspects of thinking, as well as open thinking and team thinking.

Strategic and forward-looking thinking. At the library level, it is necessary to have strategic and forward-looking thinking. According to the academic service achievements and development trends of universities at home and abroad, it is necessary to conduct theoretical research on academic services, clarify the development strategy of academic services, and formulate a reasonable development plan for academic services in combination with the actual situation of universities.

Management thinking. Formulate rules and regulations and discipline service mechanisms conducive to the development of disciplines, including internal incentive mechanisms and external coordination

mechanisms; Organize discipline librarians to conduct discipline service training; Mobilize the enthusiasm of librarians for discipline service. We should realize that management is service, and every link in the process of discipline service is an important part of building a good service ecology.

Resource construction and hardware thinking. Attach great importance to the construction of resources and resource libraries, and attach great importance to the construction of relevant hardware facilities under the conditions of modern informatization.

Open mind. The library should actively maintain close contact and communication with the society (through the university level) and external libraries, realize the cross-border integration between the library and different fields, expand the openness of the library, exchange what is needed, share resources, cooperate with each other, and strive for foreign aid, so as to do a good job in external work for in-depth development of discipline services, and make discipline services innovative and developed.

Team thinking. The library should set up a discipline service team so that the discipline librarians can have a synergistic effect in the discipline service, rather than fighting alone [3].

### *3.1.3 Library level thinking*

Subject librarian is the main body to carry out subject service. We should have positive thinking in the research and practice of discipline services. Subject to the technology and influence in the age of big data, subject librarians mainly have strategic thinking, service thinking, Internet thinking, big data thinking and small data thinking in subject services.

(1) Strategic thinking. The strategy of subject librarians is a kind of strategic thinking to solve specific problems. From the bud to maturity, strategic thinking generally has five stages: "goal, strategy, plan, action and tracking". After the final goal is determined, it is necessary to determine the directional pointer to complete the goal. The plan is a specific plan under the guidance of the strategy, and then uses actions to implement the plan. Tracking is to track and assess the quality and results of each action process to ensure that the final goal is achieved. The subject librarian can use such questions as "Why should we provide subject services?" "How to do discipline services" and "how to achieve results" and other issues to determine strategies, improve strategies in the implementation process, require discipline librarians to think positively, according to their own resources, use their own specific strategic thinking methods to break through the key points of each discipline, and integrate all kinds of resources and services available to them, so as to solve the specific problems of service objects and make discipline services play a powerful role.

(2) Service thinking. In the discipline service, it is particularly emphasized to focus on the service object, attach importance to the value of people in the service, recognize the relationship between the discipline

librarians and the service object, respect the diversification and personalization of the service object's needs, and innovate the service mode. Provide the service object with the required information, so that the service object can obtain the most useful information in the shortest time, and even provide services beyond the expectation of the service object.

(3) Internet thinking. To think about and solve problems with the form, function and role of the Internet is called "Internet thinking". Under the Internet environment, the static thinking of traditional discipline services is transformed into dynamic thinking, and the Internet thinking is appropriately applied to the library discipline services, bringing new thinking mode, behavior characteristics and service experience to the library discipline services. ① Learn flow thinking. Attract service objects through the content required by service objects, improve the service flow, and attract more service objects to pay attention, so as to improve the utilization rate of literature resources. ② The platform uses thinking. Use modern information platforms to provide better multimodal service conditions and one-stop services for the integration of traditional media such as books and new media such as electronic resources [4,5].

(4) Big data thinking. In the discipline service of university library, the richness of teachers and students' demand for book information, the uncertainty of time dimension and the accuracy of service put forward higher requirements for discipline service personnel. The big data thinking mode can, according to the above situation, excavate its inherent laws from the massive data, innovate the discipline services of university libraries, and enable the discipline librarians to provide humanized discipline services for teachers and students [6]. As the supply side main body of discipline services in university libraries, discipline librarians are workers who organize, manage and evaluate discipline resources. Generally speaking, they are not experts in a certain discipline [7]. They should be able to accurately transmit information, and based on the needs of service objects, they should access and organize the information they hold in the library, so as to provide more comprehensive information and knowledge for discipline service objects. This puts forward higher requirements for the professional quality of subject librarians, that is, in the process of subject service, they can skillfully use professional technology to improve the subject knowledge database and effectively connect the subject knowledge resources with the subject service objects.

(5) Small data thinking. Respecting the diversified and personalized needs of service objects is actually a small data thinking. In this sense, small data is actually the supplement and extension of big data. In the process of aggregation, classification and data set establishment, the analysis results obtained by combining the perception, collection and integration of individual behavior preference data of service objects are highly targeted [8]. Driven by such small data thinking, discipline services have more in-depth analysis on the behavior preference data of service objects, and the

recommended academic resources and knowledge services have more sophisticated advantages. Reasonable supportive policies, comprehensive academic resource system and personalized chemistry service team are the key elements of high-quality personalized service [9]. As small data can be processed and analyzed in micro fields that cannot be covered by big data, it can form a benign complement with big data in the personalized recommendation service process of academic resources. By organizing information data in micro fields, we can more accurately analyze the personalized needs of service objects.

### *3.1.4 Thinking at the service object level*

The service objects of discipline services are generally teaching research teams and individuals, including students. The service objects have positive thinking and negative thinking on the thinking level.

#### *(1) Positive thinking*

The active thinkers among the subject service objects will actively communicate with the subject librarians, propose their own service needs, and make full use of the service opportunities and resources provided by the subject librarians to meet their academic information needs. At the same time, it will timely feed back the service quality and put forward suggestions for improving the service. The library should pay attention to encouraging the positive thinking of the service objects, carefully listen to the opinions and suggestions, summarize the experience, and improve the discipline service. This spontaneous demand for library services from service objects will greatly stimulate the sense of value and service enthusiasm of subject librarians, so that subject services can truly enter teaching and integrate into the front-line.

#### *(2) Negative thinking*

The service objects may also have negative thinking, that is, passively waiting for discipline services. Colleges and departments do not actively support the work of subject librarians, make full use of the service opportunities of subject librarians, and do not actively feedback the service quality. In this case, subject librarians need to further work, inspire the positive thinking of service objects with high-quality services, and communicate well to achieve better service results.

## **3.2 Discipline service awareness**

Having the consciousness of discipline service is the premise for discipline librarians as the subject of discipline service to do a good job of discipline service, and reflects the realm of discipline service. Discipline service consciousness mainly includes responsibility consciousness, learning consciousness, literature resource guarantee consciousness, innovation consciousness, crisis service consciousness, etc.

(1) Sense of responsibility. Libraries and subject librarians must have a holistic and overall view of university construction, define the significance of subject services, shoulder the important responsibility of subject

services, and open up a modern chemical subject service model that meets the needs of the development of new disciplines. It is urgent for teaching and research personnel to do what they want, and it is necessary to take the initiative to carry out discipline services for teaching and research personnel in a timely manner.

(2) Learning awareness. Subject librarians should have the awareness of continuous learning, understand new things, and learn new theories, methods, and technologies. In the Internet era, it is particularly important to learn cloud computing related technologies. Cloud computing is integrated with library discipline services [10]. Through information retrieval, data mining, intelligent agents, knowledge discovery, etc., it is integrated into users' virtual space environment to support users' scientific research and learning. Cyberspace constructs a new mode of discipline services for knowledge-based organizations, processes collected information resources, and reorganizes them into discipline units. Through the big data service system, all kinds of user data generated and accumulated in daily services, including user reading dynamics, opinion feedback, cultural level, personal hobbies and other information, are stored and mined in massive amounts of data, intelligently analyze data, images, videos, etc., customize personalized data search services for users, and on this basis, subject service objects are introduced to participate.

(3) Innovation awareness. In the discipline service, we should have the spirit of innovation and consider how to creatively carry out the discipline service from the perspective of the subject service object. Considering the situations and problems in the process of discipline service, think about how to maximize the utilization of resources and how to make discipline service efficient, centralized and professional; Grasping the key points in discipline service to break through, seeking truth from facts, solving problems, and not taking forms; In the discipline service, we should find our own shortcomings in time, find the blind spots of the discipline service that have not been considered and involved, find the right entry point and practical strategic objectives, and open up a new realm and new situation of the library's discipline service work.

(4) Awareness of ensuring literature resources. The rich collection resources of the library are the key to the efficient performance of subject services, so the construction of subject resources can be used as a breakthrough to fully understand and affirm the importance of the construction of subject resources. In the information age, the discipline resources of university libraries can not only stay in the paper literature resources, but also invest in the construction of digital literature resources to meet the requirements of university teachers and researchers to access the discipline literature resources in their own offices through the Internet. Electronic resources and paper resources coexist, and strive to achieve the coordination of the construction of different carrier literature resources of the same discipline, so that the construction of discipline resources and discipline services can be effectively integrated and developed.

(5) Emergency service awareness. The prevalence of the COVID-19 has raised the need for emergency service and crisis service awareness for disciplinary services. The crisis service training and various forms of emergency drills can be carried out to enhance the awareness of crisis and crisis service and improve the emergency service ability [11,12].

### 3.3 Discipline service ability

(1) Comprehensive service capability. Subject service should be effective, and the service ability of subject librarians is the key and decisive factor, which is equivalent to a temporary kick in a football match and plays a vital role in building a good subject service ecology.

In the Internet era, subject librarians should "specialize in one subject and be versatile" and strive to become expert librarians in the industry. In the discipline service, we should not only observe the development trends at home and abroad keenly, but also conduct research and analysis based on the actual conditions of the university. We should not only analyze the tangible resources of the library, but also deeply master the intangible resources (team members, innovation ability, scientific research ability, technical support ability, management ability). We should adapt to different types of service objects, pay attention to communication strategies and methods, pay attention to emotional and psychological changes, obtain high recognition, and prepare for effective discipline services.

(2) Resource integration and utilization capability. Subject service is based on subject knowledge resources. Subject librarians have a certain grasp of library collection resources and network resources. After the service objects put forward demands, librarians need to sort out resources of different categories and channels to improve the utilization rate of subject knowledge resources. If there are overlapping contents in network resources and library collection resources, librarians need to use big data to sort out various resources, so as to provide convenience for users to distinguish and extract.

(3) High information resource acquisition and processing capacity. Be proficient in information technology and acquire digital resources timely and accurately; Relying on the digital chemistry service platform, it provides subject services of physical space and virtual space for service objects to achieve in-depth interaction with service objects.

(4) Try to have a certain discipline background. Subject librarians should not only have the professional knowledge background of library and information, but also strive to master a certain subject background and have certain expertise to be close to the service object. That is, in an ideal situation, subject librarians should have the ability to control, coordinate and transform subject knowledge, and more accurately provide valuable professional information resources. Subject librarians should go deep into scientific research and teaching activities, provide teachers and researchers with

all-round subject information navigation services, and truly reflect the innovative service spirit and personalized service characteristics of subject librarians.

(5) Demand analysis capability. We should have the ability to analyze the change of teachers' and students' concerns. During the epidemic, the way and place of university libraries' services for teachers and students have changed, and the needs and concerns of teachers and students for scientific research and learning have also changed. For example, after adopting online services, readers pay attention to the service content and service items that the current library can provide, how to deal with overdue books and pictures, and how to access the library remotely and through mobile terminals.

(6) Ability to collaborate and coordinate. In discipline services, subject librarians are required to have good communication and coordination capabilities, including in library and inter library coordination capabilities, strengthen cooperation with relevant departments in the school and off campus service agencies, coordinate service work, and provide systematic and in-depth information services to service objects in the form of service teams.

## 4 Conclusion

Discipline service is an innovative service mode of library, and it is a systematic project to build a healthy and harmonious discipline service ecology. The "university - library - subject librarian - service object", which constitute the discipline service ecology, interact with each other and actively communicate with the external society, so as to form a good discipline service ecology. A healthy and harmonious discipline service ecology needs to improve and optimize the existing discipline service work, so as to promote the in-depth and lasting development of discipline service.

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## References

- 1.CHEN GX, HUANG XX, YANG SJ. *J Acad Lib Inf Sci*, **38**, 120(2020)
- 2.Zhou Y.*Ser. Libr.***83**,38(2022)
- 3.Wang Y., Lou X., Han X.,et al. *ACM Int. Conf. Proc. Ser*, 36 (2021)
- 4.Tang M. *ACM Int. Conf. Proc. Ser.*292, (2020)
- 5.ZHONG H, WANG TY, MA XF. *Lib Sci Res*, 21,75(2021)
- 6.Zhao D. *Proc. - Int. Conf. Mach. Learn., Big Data Bus. Intell.*, MLBDBI.415(2020)
- 7.Hu Q. *Libr. Hi Tech.*38,334(2020)

8.Kitchin R., Lauriault T.P. *GeoJournal.***80**,463(2015)

9.Wu J. *Proc. - Int. Conf. Inf. Technol. Med. Educ., ITME.*722(2019)

10.Chen S., Xie S. *Proc. IEEE Int. Conf. Serv. Oper. Logist., Informatics, SOLI.*95(2013)

11.LUO XH. *JIANGSU STL.*38,1(2021).

12.Liao, Z., Gao, M.*Int. Conf. Syst. Informatics, ICSAI.*2664 (2012)