Research on Sustainable Development of Knowledge Ecological Sharing in Smart Library

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Abstract. With the diversified development of knowledge resources, the knowledge ecosystem is also being updated and developed. This paper analyzes the connotation of knowledge ecology and further discusses the knowledge ecological sharing mechanism and knowledge flow mechanism. Through the analysis and construction of the knowledge ecological sharing system of smart libraries, the content of knowledge ecological sharing was further studied.

Keywords: Smart Library · Ecological Sharing · Sustainable Development

1 Introduction

Ecology has always been regarded as a comprehensive discipline and has been widely used in various fields of social sciences. George Pór used the concept of natural ecosystems to form a new discipline of knowledge ecology [1]. Like natural ecosystems, knowledge ecosystems are composed of knowledge populations, knowledge chains and knowledge networks. Among them, the diversity of knowledge populations is the basis for the prosperity of knowledge ecology. Difference promotes competition and cooperation between knowledge groups. Similarity increases the communication between knowledge groups. The relevance makes this cooperative and competitive relationship continue.

Knowledge ecology is based on the study of the relationship and behavior of knowledge application and knowledge innovation. Knowledge ecology is committed to designing and maintaining a knowledge ecosystem with self-organization and self-development capabilities. Knowledge ecology promotes the free flow of information and technology. It provides a basic structure for mutual promotion and mutual influence of knowledge models. Knowledge ecology is knowledge about the value-added of knowledge, and its core is to generate new knowledge and value through effective coordination and communication.

2 Knowledge Ecological Sharing Mechanism

Knowledge ecological sharing is a process in which tacit knowledge is continuously transformed into explicit knowledge, and finally into systematic knowledge wealth. It

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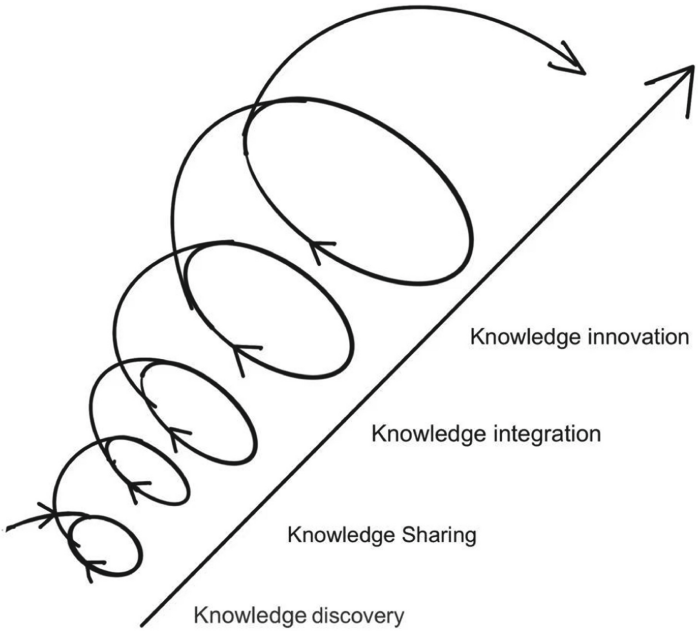

Fig. 1. KNOWLEDGE INNOVATION PROCESS OF SMART LIBRARY

includes the process of mutual transformation of knowledge between individuals and between individuals and systems. The distribution of knowledge among knowledge subjects is asymmetrical. Any organization or individual has a certain amount of knowledge and a unique knowledge structure. There are no two knowledge subjects that are identical in knowledge amount and knowledge structure in the world. Therefore, there is a knowledge gap between different knowledge subjects. The imbalance in the amount of knowledge and the difference in knowledge constitute the basis of the ecological sharing of knowledge. Poor knowledge makes knowledge sharing possible. Knowledge ecological sharing is based on the flow and circulation of knowledge. It uses scientific sharing methods and sharing technologies. It realizes the sustainable development and ecological evolution of the knowledge ecosystem through the orientation of users' knowledge needs and at the same time, with the help of appropriate media.

The knowledge ecological sharing mechanism is the process of collecting, classifying and storing existing knowledge. It includes the process of knowledge discovery, the process of knowledge sharing that expands the amount of knowledge through knowledge dissemination and exchange, and the process of knowledge integration that focuses on the knowledge units obtained in the sharing process. Through these three stages, the final knowledge innovation is realized, new knowledge is generated, and the "evolution" of knowledge is promoted. The knowledge innovation process of the knowledge ecosystem is shown in Fig. 1.

Knowledge sharing has gone through the above whole process in the knowledge ecosystem, and knowledge sharing has completed a stage of "spiral upward". After that, the sharing process will start from a higher starting point. This cycle goes back and forth,

so knowledge is updated in this process, the elements within the knowledge ecosystem continue to evolve, and the knowledge ecosystem can continue to develop [4].

In the process of knowledge ecological sharing, the effective sharing of knowledge can only be realized under the cooperation and interaction of external conditions, knowledge, people and carriers. The ideal external conditions create environmental factors for knowledge sharing. At the same time, it provides environmental protection for the sharing of knowledge ecology. Knowledge is the content of knowledge ecological sharing. The sharing and dissemination of knowledge forms the knowledge flow in the system. Participants in the knowledge ecological sharing are the main body of the knowledge ecological sharing. It is the source of power for the ecological sharing of knowledge. The carrier supporting the smooth flow of knowledge is a means of ecological sharing of knowledge. It is the technical basis for the realization of knowledge ecological sharing.

3 Knowledge Flow Mechanism

The knowledge flow of a library refers to a process in which the information, technology, experience, culture, system and other knowledge existing in an organization are transmitted to another individual library organization that needs this knowledge in a certain way. The power of knowledge flow is horizontally manifested as the flow caused by the knowledge gap between high-potential libraries and low-potential libraries. Vertically, it is the knowledge flow driven by competition between libraries and the pull of user demand. As a result, high-potential libraries will spread their wings in the front, and low-potential companies will follow up on the goose development. A "pull (high-potential organization vs. low-potential organization)-squeeze (low-potential organization vs. high-potential organization)" effect has formed, resulting in a "potential difference—bridging the potential difference—generating a higher potential. "Poor-bridging the potential difference on a higher potential" a dynamic virtuous circle. In this way, the knowledge flow of the library will continue and proceed in a healthy way. As shown in Fig. 2.

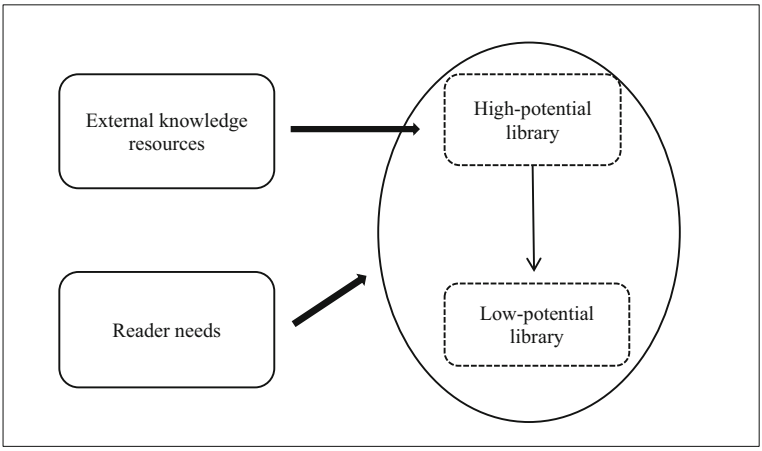

Fig. 2. KNOWLEDGE FLOW MECHANISM OF SMART LIBRARY

In the process of library knowledge flow, high-potential libraries play the most important role. They are the forerunners of knowledge flow among members. They continuously introduce new knowledge resources and digest and innovate to produce new knowledge. While increasing their own knowledge stock, they enrich the knowledge within the alliance. High-potential libraries provide a convenient learning environment for low-potential libraries. Make the flow of knowledge in low-potential libraries go smoothly. Obviously, to achieve this state, the most important thing is to ensure the power of high-potential libraries. Due to the existence of knowledge gap, the process of knowledge transfer among members of the knowledge alliance is mainly manifested in the introduction of knowledge by high-potential libraries. In the case of a flow of knowledge, low-level libraries follow up and learn. This forms a dynamic cycle process. This will promote the continuous flow of knowledge. Knowledge flow in libraries has the following characteristics.

3.1 Synergy

The flow of knowledge promotes the coordination and cooperation of various ecological entities, produces a synergistic pull effect. It makes the overall ecosystem in a disordered state, enhances its competitiveness and vitality, and realizes the coordinated development of the ecological entities in the system [3].

3.2 Dynamic

Dynamic service means that knowledge service has a life cycle and is constantly metabolized, which promotes the dynamic distribution, interaction, competition and innovation of knowledge resources in the continuous update [2]. Knowledge flow is a continuous, dynamic and flowing process.

3.3 Diversity

With the development of knowledge in all walks of life, the manifestations of knowledge include not only explicit knowledge, but also tacit knowledge. In addition to text, knowledge expression also includes sounds, videos, pictures, etc. It even includes the integration and regeneration of various forms of resources. Knowledge presents the characteristics of diversity. Therefore, the flow of knowledge also presents diversity and complexity.

4 Smart Library Knowledge Ecological Sharing System

From the perspective of knowledge carriers, library knowledge can be divided into two categories: (1) Explicit knowledge. Knowledge embodied in books, periodicals, documents, project research reports, memos, and information research results. (2) Tacit knowledge. The work experience, skills and know-how formed by the librarian in the long-term work practice. At the same time, as a knowledge collection, the library's knowledge elements are composed of various knowledge units. The library knowledge

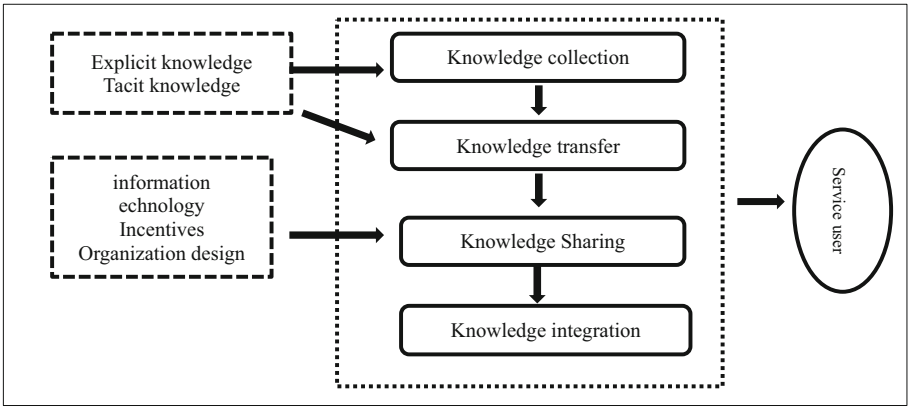

Fig. 3. KNOWLEDGE ECOLOGICAL SHARING SYSTEM OF SMART LIBRARY

ecosystem is the sum of the various elements of knowledge management and their interrelationships within the scope of the library. It includes individual knowledge, knowledge management technology, library culture, organizational structure, knowledge strategy, etc. The individual knowledge is the organism of the ecosystem.

The principles of knowledge ecology provide ideas for libraries to establish a knowledge ecological sharing mechanism. That is, a complete knowledge exchange network system has been established. Effectively capture, communicate and share various explicit and tacit knowledge. Thus, a library knowledge ecological sharing platform with knowledge discovery, knowledge sharing, knowledge integration and knowledge innovation as the core is formed. Regarding the library organization as a knowledge ecosystem, the different knowledge capabilities in the ecosystem are the knowledge populations of the ecosystem. Each knowledge group maintains a dynamic equilibrium relationship in the system. At the same time, the system provides a communication network to preserve and create knowledge. Through the implementation of knowledge ecological sharing, the library can realize knowledge from individual ownership to group ownership. Achieve an increase in the total amount of knowledge capital of the library. Enrich the structure of library knowledge capital. There by enhancing the service capacity and service quality of the library.

The main elements of the library knowledge ecological sharing system are: smart library facilities, service concepts, collection databases, electronic resources, and user feedback. If the above elements exist in isolation, if there is no close connection between the elements, it will not be possible to form a unified library knowledge ecological sharing system [5]. The ecological sharing of library knowledge is a process. As shown in Fig. 3. From the perspective of the process, it is consistent with the knowledge capital accumulation and service process of the library. The result is to promote knowledge innovation and service innovation.

5 Conclusion

This paper studies the ecological sharing mechanism of knowledge. The sharing and integration of knowledge promotes knowledge innovation. The knowledge innovation process of the knowledge ecosystem is a spiral upward structure. This paper studies the mechanism of knowledge flow. The characteristics of library knowledge flow are fluidity, synergy and dynamics. Finally, this article analyzes the process of knowledge ecological sharing in smart libraries. The theoretical and practical research on knowledge ecology needs to be further developed. I hope that more academic colleagues will conduct in-depth research.

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