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Subject Exploration in the Field of Library and Information from the Perspective of the Theory of Social Cognition

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Abstract: *In the theory of social cognitive hierarchy, topic detection is an important part of research. It can provide readers with more information and enable them to obtain a better cognitive experience. The subject detection tasks in the field of library and information in our country are constantly developing, and great achievements have been made. In order to improve the efficiency of subject detection in the field of library and information, this paper proposes a subject detection method under the perspective of social cognitive level. This article mainly uses statistical analysis and survey methods to analyze the key factors of subject detection. The experimental results show that the reasonableness score of the four factors proposed in this paper is about 15 points on average. This shows that the factors studied in this article are closely related to topic detection.*

Keywords: *Social Cognition Level, Library Information, Information Field, Subject Detection*

1. Introduction

In information science, subject detection is a very important research method. It can provide readers with more comprehensive and direct information by starting with the subject detection theory and concept system of social cognitive hierarchy, subject analysis and text mining. This article starts the relevant discussion with the field of library and information as the starting point, and summarizes the subject detection theory in the field of library and information to a certain extent.

There are many theoretical results of subject detection in the field of library and information under the horizon of social cognitive hierarchy theory. For example, Lu Quan can reflect their psychological state in the process of information processing by effectively measuring the cognitive load of users [1]. Based on the Social and Cognitive Career Theory (SCCT), Jin Zelong constructs and verifies the factor structure model of students' business decisions by analyzing university survey data [2]. Shen Yufei said that business informatics and information science are two disciplines that focus on people, information, and technology. The convergence of research topics between the two is conducive to the cooperation of interdisciplinary researchers, and it is also conducive to the accumulation of theory to find information [3]. Therefore, this article starts with the theory of social cognitive hierarchy to probe into the subject of library and information field is a new research angle.

This article first studies some basic theoretical knowledge of social cognitive hierarchy. The second is to carry out related research on the construction of library and information science knowledge graph. Then the subject detection in the field of library and information is expounded, and the method, content and approach are analyzed. Finally, the subject detection in the library and information field is detected through investigation, and the results are obtained.

2. Subject Detection in the Field of Library and Information from the Perspective of Social Cognitive Hierarchy

2.1 Theory of Social Cognitive Hierarchy

The social epistemology was put forward by the American librarian Jesse Hauk Shera. Its core importance is to place the emergence, development, growth, coordination, ranking and provision of

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knowledge within the framework of social knowledge [4-5].

The first level: a broad understanding of needs. At this stage, social cognition is in a state where there is no clear knowledge (information) demand. The second level: personalized information needs. In this context, the demand for personalized information is greater than entertainment and experience [6-7]. The third level: general technical knowledge requirements. Existing research generally believes that knowledge comes from information, but it is greater than information [8-9]. The fourth level: the need for knowledge innovation. When a user uses a record resource for the purpose of knowledge innovation, the user is performing a certain "reproduction activity" on the record resource. The knowledge level at this time is significantly higher than the previous steps to the organization of systematic knowledge and the search for information. It is important to carry out in-depth knowledge consultation and scientific and technological information services through professional means. Progressive development from low to high [10-11].

2.2 Construction of Knowledge Graph of Library and Information Science

Based on a large number of organized information resources, providing individual users with various services based on information services is the cornerstone of library independence. In view of the rich and varied practical activities of libraries, if you examine yourself from different angles, you can often give different theoretical explanations. In summary, the macro and micro perspectives are observations of library professional practice activities [12].

Knowledge graphs are based on content analysis, citation network analysis, information visualization, etc., which visualize and graphically depict the relationship between knowledge, and become a popular research method in scientometrics today. In the field of library and information science, knowledge graph is also called knowledge domain visualization or knowledge domain mapping.

(1) The objects represented in the knowledge graph include all the research objects and analysis units of the most common scientometrics in the current research:

Persons who engage in scientific and technological activities and serve as knowledge carriers; clear or coded knowledge, such as articles, patents, learning courses, databases or similar applications, etc.; processes or methods, including processes or methods for discovering and solving problems, organizational business processes, and Related knowledge, etc.

(2) A typical knowledge graph has the following attributes:

Dynamic: This is an essential feature relative to the general graph. The knowledge graph reveals the dynamic structural information implicit in the basic knowledge in the form of a static graph through the relationship between the nodes.

Spatiality: The display form of the knowledge map can be linear two-dimensional graphics or three-dimensional three-dimensional graphics, both of which reveal the spatial structure of knowledge through symbolic display.

Relevance: Whether it is a two-dimensional knowledge graph or a three-dimensional knowledge graph, it shows the relationship between points on the map. The distance between the points can express the intimacy of the relationship, and the thickness of the line can express the strength of the romantic relationship.

(3)Knowledge graph construction method

Before drawing the knowledge graph, the data must be decomposed and visualized, and corresponding technical support is required. The technologies currently used for knowledge graph research include social network packages, multi-dimensional scale analysis, factor analysis, path network, co-citation analysis, vector space, latent semantic analysis, subject content analysis, multiple clustering methods, etc.

2.3 Subject Detection in the Field of Library and Information

The subject detection of library and information refers to the cognition, analysis and prediction of the target, to dig out its hidden in the books and periodicals, and use this information to create value. The subject of the library and information field is broad and diverse, covering a wide range, including social, economic, cultural and other aspects. There are different target user groups at different levels.

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The basic principle of intelligence subject detection is to analyze and identify target information to determine whether it is a specific object, so as to predict what kind of impact the field may have. Construct a complete and logically clear conceptual framework based on the cognitive hierarchy theory. From different perspectives, several methods and related concepts that are representative and can better reflect the essential characteristics of things, reveal internal laws and predict development trends, are studied. Subject modeling in the field of library and information is reader-centric. In the reading process, we must fully consider the readers' potential knowledge needs or hobbies and cognitive abilities to construct the library theme model. In the process of library and information subject detection, different types of text information resources are classified.

(1) Approaches to subject detection in the field of library and information

In the field of information retrieval, it is necessary to read a lot of journals, papers, etc., and obtain more knowledge about library information by consulting related library books and other information resources. At the same time, it should be noted that when choosing a suitable subject as the research object, we should try our best to avoid blindness and randomness that may cause unnecessary losses. In addition, some topics related to the author or reader can be collected from books and periodicals for reference and analysis. The so-called theme concept refers to the purposeful research and exploration of a certain event in a certain field with a certain meaning. Therefore, we can establish related models to describe the relationship between this cognitive activity and individuals and whether they can be related to each other and other aspects to achieve target detection. Because in the management of the library, the number of readers is a very large number. Therefore, the library and information field must establish multiple models for analysis and research. This requires us to have a better grasp and understanding of knowledge points in different disciplines. At the same time, we must pay attention to the impact of the differences between different documents, and take corresponding countermeasures to achieve the overall optimization effect. Subject detection in the field of library and information is to analyze the text, convert it into digital information and express it in a certain way. Therefore, in order to realize the effective use of various book information resources in the library, it is necessary to construct an efficient, convenient, fast and fast retrieval method to meet the needs of readers. For library and information work, the most basic and most important thing is the establishment and application of data processing and decision support system (E-RM). E-RM is based on data processing technology and information analysis technology. It is to classify, extract and output text, and finally get a complete and harmless degree that can reflect readers' reading habits and interests. And other characteristic indicators. By using this system to realize the classification of various types of books in the library and the collection of various types, quantity statistics and related literature data data collection, it can provide strong support and guarantee for the detection of library and information topics.

(2) Method of detection

Use the method of intelligence analysis to filter all kinds of information in the book and divide it into three levels: subject, content and text. It can be found that readers at different levels show completely different or even completely opposite or contradictory views on the same issue. When analyzing the knowledge of social cognitive hierarchy, the first thing to be clear is the important significance of library readers to book information resources. The reader is a relatively independent, complete and systematic conceptual system. Therefore, in the reading process, we need to understand library users' needs for book information and their own interests from different perspectives, and then formulate and implement corresponding strategies based on these conditions. The second is to discover the potential value potential of the book theme and analyze the social cognitive hierarchy theory, so as to provide directional guidance or suggestions for future development.

In the process of detecting the subject of library information, different forms and methods can be used for detection. Document retrieval can make it easier for readers to understand the meaning and thought content of the article. At the same time, it can improve reading efficiency and help readers better understand the author's writing intentions and ideas. Multi-topic detection, because the research object in the field of library and information is readers, the audience is wide, and there are many knowledge points involved, so multiple methods of joint detection are required. When analyzing the content contained in the book information resource library, multiple single goals can be used to complete the analysis. This method can effectively improve the prediction accuracy and accuracy. But when the number of readers is large and the range of discourse power with a certain level is small, the effect will be worse.

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3. Subject Detection System Survey

3.1 Rationality Analysis

In order to examine the rationality of the influencing factors of the subject detection method of library and information science, we use the methods of questionnaire survey, reliability analysis, and mean value analysis to demonstrate. We designed and improved the questionnaire, and understood the interviewee's attitude towards the rationality of the factors influencing the subject detection of library and information science.

3.2 Variable Measurement and Questionnaire Design

According to the research purpose, the questionnaire lists key words in library keyword recognition and computer science, crossword analysis, correlation analysis, and technical influencing factors. In order to ensure the correctness of the survey data and facilitate the analysis of the influence relationship between variables, according to the extremely unreasonable(VU), unreasonable(U), rarely unreasonable(SU), general reasonable(GR), and small reasonable(SR), reasonable(R), very reasonable(VR), the assessment is more and more consistent.

After the survey is over, after taking back all the questionnaires, removing too many blanks or selecting questionnaires that do not belong to the scope of the survey through sample selection conditions, first enter the data and verify the final valid questionnaire. Then perform statistical analysis on the data.

3.3 Analysis Method

The first includes descriptive statistics of sample recovery rates and basic information about the respondents. Regularly collect the basic information of the interviewees to collect the basic information of the interviewees, and examine the efficiency of the selection of the interviewees related to the university education and the interviewees.

Reliability analysis and mean analysis of this survey. If A is the measured value, B is the true value, and C is the random error of the measurement, the relationship between the true value and the measured value is:

$$A = B + C \tag{1}$$

$$\varsigma_A^2 = \varsigma_\nu^2 + \varsigma_C^2 \tag{2}$$

The variance of the measured value is equal to the sum of the variance of the true value and the variance of the random error, so the reliability coefficient is:

$$\alpha_A = \varsigma_\nu^2 / \varsigma_A^2 = 1 - (\varsigma_C^2 / \varsigma_A^2) \tag{3}$$

The higher the reliability of the test, the more reliable the test result. On the basis of evaluating whether the questionnaire is credible, evaluate the level of the mean to evaluate whether the result is reasonable.

4. Result Analysis

4.1 Survey Data Analysis

Input the data obtained from the survey into the computer, and perform reliability analysis and mean analysis on the two groups of structural factors and related structural factors. Judging from the scoring situation of the adjusted scale, the composition of the question item structure factors of the respondents mainly concentrated on very sensible, sensible and slightly sensible. The details are shown in Table 1:

As shown in Figure 1, we can see that some factors appear unreasonable or very unreasonable. Interviewees believe that the impact of technical factors on subject identification is not entirely reasonable. In addition, most people think that it makes more sense to start topic identification from

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topic words, related word analysis, correlation analysis, and technology.

Table 1: Reasonable Distribution of Element Structure

	VR	R	LR	GR	LU	U	VU
Key word	15	16	18	7	4	2	1
Synthesis analysis	16	15	10	8	3	2	0
Correlation analysis	11	19	15	5	2	1	0
Technology	12	16	16	7	3	2	2

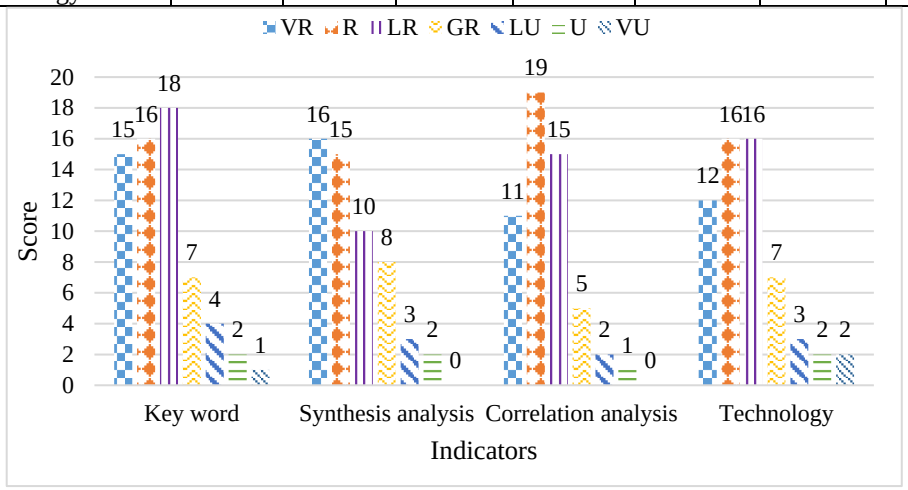

Figure 1: Reasonable Distribution of Element Structure

4.2 Analysis of the Mean Value of Factor Structure

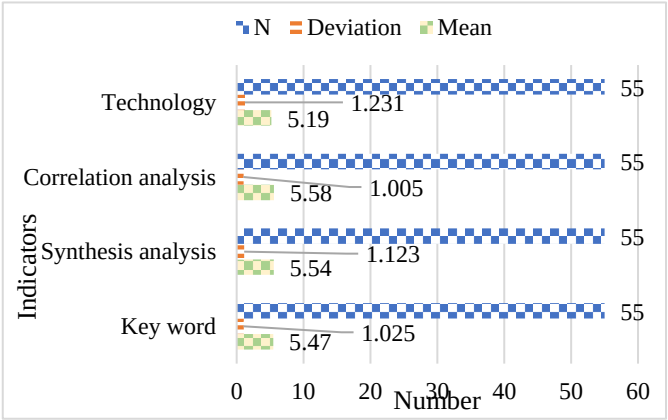

Figure 2: Mean Analysis of Factor Structure Factors

As shown in Figure 2, we can see that the survey results of factor structure factors show high stability in the reliability analysis, and the questionnaire reliability is high. In the mean analysis, the average value of each factor is relatively high, and the standard deviation is relatively small, indicating that the respondents generally agree with the factors affecting the internal factor structure of knowledge services.

5. Conclusion

There are many ways to detect the subject of library information, but due to the strong permeability of the field of library information, it is often necessary to analyze and process a large amount of data when searching for libraries. Subject detection in the library and information field has problems such as one-sided pursuit of individualization, ignoring diversity and attention. There is a lack of effective methods and approaches in information retrieval. In the process of library and information subject detection, we should observe and study with a positive, healthy, and positive attitude, and discover the interrelationships between things. We must strengthen the construction of library informatization.

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