A Study of the Educational Quality Evaluation on LIS in China

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Abstract. This paper design evaluation system of education in Library and Information Science, in order to provide references to improve the construction and evaluation system of LIS education. It is found that, if a school wants to complete the university education in library and information science in high quality, it should carry out the whole control from two dimensions.

Introduction

The university education is the important way to cultivate high-level talent and enhance talent competition. In the context of the information society, the LIS has developed unprecedentedly and rapidly, and LIS education comes to the new challenges and development opportunities. The education of the LIS has the following three characteristics. Firstly, the enrollment amount is rapidly expanding. Secondly, the earthshaking changes of the theoretical and technical background in the education of library and information science: the information carrier has undergone tremendous changes (the coexistence of paper and electronic documents), the information types have enriched (text, video and sound, etc.), and the user's information needs emphasize individualized. In the context of the new information needs and information technology, the education of library and information science, covers all types of technical theory and practice. Finally, there is an imbalance between the cultivation and social needs of students in library and information science. The society is more and more emphasis on the practicality of informational talent demand, and requires that talents should have the ability of continuous learning and information analysis. For example, the China Archives of Publications (National Press and Publication - SARFT Publications Data Center) requires 16 professionals in the background of data analysis, science and technology information in the 2017 Campus Recruitment. Under these circumstances, the LIS education needs to integrate with social needs dynamically. Under the impact of information technology and the expansion of enrollment amount in China, there are also many problems in students of library and information science like limited educational resources, etc.

There are some problems in the evaluation related to the education in library and information science, such as the evaluation subject is single, and the proportion of subjective evaluating indicator is larger. ① the evaluation subject is more single: There are two main subjects in the current evaluation of education in library science and information technology – one is the civil evaluation agencies. For example, there is a library information first-level discipline-ranking list in the China Science Evaluation Center, Wuhan University -“Evaluation Report of China University Education”. The other is the evaluation of education from the Education Degree and University Development Center. The actual training units of students in library and information science did not participate well in the evaluation, and the libraries or the industry association did not participate in the evaluation, so the evaluation lacks professional. ② the proportion of subjective evaluating indicator is larger: There are many impacts from the subjective factors of evaluating indicators during the evaluation process, so it should not singly quantitative or qualitative analyze the evaluation of education quality, but to organically integrate the two aspects. The evaluating indicator of library and information science is the same as that of other disciplines when training students, so it cannot highlight the training characteristics in library and information science. Otherwise, the overall evaluating system is not very complete during the evaluation process, so it should coordinate the relationship between the educational evaluation in library and information science and various aspects.
Currently, there are few papers for the evaluation of library and information science, and there is almost no evaluation for the evaluation of education. To a certain extent, the current evaluation index system ensures the education quality in library and information science, but there still are some problems. ① Through the literature analysis, it can be found that, most papers focus on the course setting and the analysis of education models, but lack the overall evaluation of education development in library and information science from the more macro standpoint. ② During the evaluation process, the systematic collating and rational analysis are lack, and the relevant indicators are derived from the daily experience. ③ The current evaluation on education in library and information science is lack of relevance, which is similar to or the same as other disciplines. The education in library and information science should not only reflect the characteristics of the discipline, but also should have the coordination and unity with the training quality evaluation of other disciplines in the overall.

In fact, it can be said that the library and information science has experienced significant develop and change in recent years. As a comprehensive characteristic discipline, it should targeted propose the corresponding characteristics evaluation method. To solve the problems existing in the education evaluation, in this paper, on the point of training quality, connotation and influencing factors of indicators, the analytic hierarchy process was introduced, and a set of evaluation system for education quality in China’s library and information science was proposed.

Design of Evaluation System of Education in Library and Information Science

Constructing Principles

RG Lewis and DH Smith elaborated in the Total quality in higher education that, the whole process of training should accompany the comprehensive evaluation in education. Moreover, the training of students in library and information science should be in accordance with the professional evaluating practice and the theoretical comprehensive analysis. Because the library and information science has the development characteristics of comprehensive disciplines, so when cultivating the students, it should not only evaluate the internal factors like students, teachers and equipment investment, but also should consider the talent demand from the community for the students in library and information science. According to these various considerations, it should construct a multi-angle, multi-level, multi-factor and whole evaluation system when evaluating the education quality.

Determination of Evaluating Indicator

According to the displayed evaluating principles of education in library information, and combining with the specific practice situations, the final structured evaluating index system was determined in this paper by the expert interviews and questionnaire, as well as synthesizing some advice, as shown in Figure 2 (the three-level indicators are shown in Table 1).

①Quality of students: To a certain extent, the quality of students will affect the later training and developing quality. Quality is the prerequisite to improve the overall education quality of students in library and information science, so it says that, the choice of high quality students is the key part of securing the quality of students. It mainly starts from two aspects in the quality evaluation of students: students' knowledge structure and skills structure. It should be noted that, because the library and information science is a comprehensive discipline, so it should encourage the students with interdisciplinary backgrounds to register. Students with a comprehensive academic background can better integrate the various aspects of knowledge and promote the front-line development of library and information science research. In addition, because China is actively encouraging people to make in innovations, it needs to examine practical ability of students other than emphasizing on their learning and research ability. Library and information science is a practical discipline, and “learn in order to practice” is the most critical step. The focus on student’s science and technology innovation and entrepreneurial skills from the choice of students is contributed to forming a strong innovation and practice ethos in the future cultivating and developing process. For example, in the United States, the library and information science is not set with bachelor degree, so the students in the related
professionals have more diverse subject background, thus promoting the reference and integration between library and information science and other disciplines. In “2016 2nd International Symposium on Library and Information Science in China and US Digital Times”, it was proposed that the compound talents will be the training objectives. The wide training model has become an inevitable trend in the high-level academic training.

Training quality: the training quality focuses on the evaluation of the school and the faculty after enrollment. For the cultivation of students in high level, the demand on the hard environment and soft power of schools and colleges is very high. The important factors influencing the training quality of students in library and information science are the first-class faculty construction, the good hardware and software facilities, as well as the positive innovating practice teaching environment, etc. It is important to train students during school relative to choose students. The output of academic and scientific research, the engagement of various types of practical activities are the important manifestation of education quality. It should strengthen the flexibility of curriculum during the specific training process, on the one hand, it can adapt to the teaching characteristics of the Institute, and on the other hand, it meets the diverse needs of students. In the teaching practice, the information school of The University of Sheffield in England sets up MA Librarianship, MA Library and Information Services Management, MSc Digital Library Management and other professional in the education stage, respectively. The degrees offered contain both Master of Arts and Master of Science, so during the teaching process, it is not only more targeted, but also makes students have diverse choices.

Development quality: The ultimate goal of cultivating s in library and information science is to provide professional talents for society. The factors like the employment situation of students, whether they can well qualified for their own posts, have a huge impact on the community to evaluate a school of its education in library and information science. If a school pays attention to the evaluation of development quality, it can better balance the development of education in library and information science in the dynamic developing change, and promote the improvement of training quality.

Construction and Realization of Quality Evaluation Index System of Students in Library and Information Science

Principle and Thought of AHP Analysis

Analytic hierarchy process is a multi-objective decision analysis method that combines with quantitative and qualitative, and uses multi-factor classification to determine the weight. In most cases, analytic hierarchy process is used when the data amount is not enough, and must be quantified by empirically judged and quantized. The main idea is to establish the hierarchical structure model according to the subordinate relationship of the various impression factors in the complex system, to construct the two-by-two judgement matrix, and solve the sort weights of importance of each element on this basis.

It is very appropriate to select the analytic hierarchy process to construct the index system for the complexity of the evaluation of education in library and information science. Although hereinbefore, the evaluation system of education quality in library and information science was contracted from different perspectives and combined with various factors, it still should differentially treat different indicators in the specific practice process. Use the analytic hierarchy process can determine the weight of indicators in each level, and can better improve the education quality in the context of limited energy. Use AHP can determine the weight set of evaluation system of education quality in library and information science, which can be specifically divided into the following steps, and is the steps of AHP weight calculation under normal circumstances: create a hierarchical model, construct the judgment matrix at each level, single-level sorting and consistency checking, hierarchy total sort and consistency check. Hereinafter mainly describes the realization of education quality evaluation in library and information science, according to these steps.
Construction of Evaluation System of Education in Library and Information Science Based on AHP

According to system model of education quality evaluation in library and information science and refer to AHP, the specific evaluation index system and the hierarchical structure were determined. Afterwards, based on the reality of cultivating s in library and information science, in this paper, the relative judgment of each factor was determined through questionnaires and expert correspondence. The importance judgment is based on the 1 ~ 9 scaling procedure, and the discriminant matrix can be obtained according to the structure of important judgment.

Table 1. Quality evaluation index weight of LIS education.

<table>
<thead>
<tr>
<th>Quality evaluation index weight of education in library and information science</th>
<th>First-class index</th>
<th>Weight</th>
<th>Second-class index</th>
<th>Weight</th>
<th>Third-class index</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of students</td>
<td>0.0695</td>
<td>Knowledge structure</td>
<td>0.0579</td>
<td>Subject background</td>
<td>0.0115</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skill quality</td>
<td>0.0116</td>
<td>Colleges and universities</td>
<td>0.0464</td>
<td></td>
</tr>
<tr>
<td>Training quality</td>
<td>0.3484</td>
<td>Faculty</td>
<td>0.0971</td>
<td>Innovation and entrepreneurship</td>
<td>0.0048</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student selectivity</td>
<td>0.2311</td>
<td>Scientific invention and award</td>
<td>0.0058</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environment of education</td>
<td>0.0251</td>
<td>Teacher professional title</td>
<td>0.0120</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Situation of graduates</td>
<td>0.4657</td>
<td>University student-faculty radio</td>
<td>0.0404</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social assessment</td>
<td>0.1164</td>
<td>High-level academic paper</td>
<td>0.0445</td>
<td></td>
</tr>
<tr>
<td>Developm ent quality</td>
<td>0.5821</td>
<td>Related field-employment rate</td>
<td>0.1164</td>
<td>Paper presentation</td>
<td>0.1542</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Once-employment rate</td>
<td>0.3493</td>
<td>Innovation practice participation</td>
<td>0.0185</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovative practice ability of university</td>
<td>0.0582</td>
<td>Research project participation</td>
<td>0.0584</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction of characteristic curriculum system</td>
<td>0.0063</td>
<td>Key discipline construction and laboratory construction</td>
<td>0.0188</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Job competency</td>
<td>0.0582</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

When solving the greatest characteristic root $\lambda_{max}$ and the corresponding eigenvector $W$ of the judgment matrix by the YAAHP software, the value of each sub-vector corresponded by $w$ is the weight value of the indicator. The weight values of indicator at all levels are shown in Table 2. After the calculation, a consistency check is also required. Because the construction of discriminant matrix is carried out by subjective experience of people, so there will be some estimation error, and the intrinsic consistency cannot be done properly. The weight of various factors obtained by the analytic hierarchy process can be considered effective only by the consistency test. The CR value of each matrix is less than 0.10 and through the test.

When evaluating the education in library and information science, the data can be collected one by one based on the constructed index system. The evaluation results are obtained by the three-level evaluation grade, and the quantitative evaluation results can be obtained by multiplying the evaluation results and the weight. The evaluation system is scientific, and the evaluation process highlights the characteristics of library and information science on the level of education. The evaluation system is comprehensive and objective, which accurately reflects the overall situation of the education in library and information science, and is facilitate the discrepant comparison between different colleges.

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and universities, as well as provides decision-making information reference to the relevant education management departments.

**Signature Analysis of Quality Evaluation Index System in LIS Education**

First, pay attention to the development of students  As can be seen from Table 1, the weight of development quality is significantly greater than the training quality in the primary index layer. The most important one is the development quality in the evaluation of university education in library and information science. Largely, The majority of colleges and universities have always paid attention to the university students and teaching quality in library and information science, and they pay more attention to the employment rate in the development quality. Nevertheless, in this paper, the displayed data reflects that, the community also pays attention to the follow - up development ability of students in the talent training. In the context of the information society, the technical conditions like information technology, mobile communication technology change rapidly, the user's information need is personalized, and the information service is diversified and intelligent. The demand of the background knowledge and professional competence of talents in this field is very high. The community is paying more and more attention to students' ability of continuous learning and innovation and practice after entering society. These conditions put forward a new focus for universities and colleges to develop the quality evaluation system of university students in library and information science, and provide an important reference to the actual personnel training. During the teaching process, it not should teach students knowledge, but also should teach students the way of thinking, should guide students to use knowledge of library and information science, and carry out practical and innovative activities combined with other disciplines.

Second, pay attention to student academic achievement  Likewise, as can be seen from Table 1, every aspect is attached great importance to the academic paper results when evaluating student selectivity. The weight of the academic paper results accounted for 15.42%. If a school wants to improve the student's academic output effectively, it should strengthen the mentor's guidance and the construction of characteristic curriculum system. In the daily teaching, the school should start from the structural requirement of talent quality and adjust the curriculum system when constructing the characteristics curriculum system, so as to achieve dynamic balance. Moreover, the school should strengthen the links of practice teaching, and cultivate university students to solve practical problems, as well as encourage students to take interdisciplinary courses. The cross and integration of disciplines is the trend of development. If a student participates in cross-specialty research activities, he/she can cultivate his/her ability in comprehensively using knowledge and skills. In this paper, the obtained data is in line with the daily evaluation from colleges to the students, which shows that the college should further strengthen the degree of recognition in relevant aspects.

Third, pay attention to the construction of faculty :Although it can be seen from Table 1 that, the evaluation on university education quality in library and information science mainly is the evaluation on students, including the second-level indicator subject background, colleges and universities, innovation and entrepreneurship, scientific invention and award-winning, paper presentation, creative practice participation, employment rate of related services, once-employment rate, innovative practice and post competency. However, it still can be found that, the weight of construction of faculty has achieved a higher level. Colleges and universities should start from multiple angles when paying attention to the construction of faculty: pay attention to the mentor's own scientific research ability, and pay attention to the coaching skill of mentor to university students. Clear the academic frontier guidance from mentors to university students, use the scientific research methods and academic norms, as well as guide the university students to shape value and norm behaviors.

**Reflections on University Education Quality Improvement of LIS in China**

Whole-process grasp the education training of university students in library and information science, pay attention to the introduction of scientific evaluation system. In the above build process of evaluation quality index system of education in library and information science, it is found that, if a
school wants to complete the university education in library and information science in high quality, it should carry out the whole control from two dimensions: in vertical, from students, colleges and the community, and in horizontal, from the time that a student enrolls in and to the office. The training units should no longer passively accept the education evaluation from other departments and institutions, but should be based on the school characteristics and combine with the needs of job market. A school should develop students' continuing learning ability and increase their job competency through the evaluation of students in their knowledge literacy, skill literacy and so on at school. This also shows that, the indicators do not exist isolated, so the relevant institutional departments should have the overall education quality control.

References

