A Comparative Study on the Perception of the Job Seeking College Degree Candidates and the Librarians Concerning Library Specialized Services

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ABSTRACT

This research has investigated the perceptions of subject specialization services and the opinions of students majoring in library and information science preparing for librarianship, librarians operating in the field, and library directors on the status and ways of nurturing subject specialization for librarians, among others. To this end, based on the results of previous research and the survey questionnaire analysis, we have presented a policy to train subject librarians. First, we have proposed a plan for systematizing the current educational system within the department of library and information science. We have also suggested ways to secure subject expertise based on curriculum management, minor programs, multi-major programs, and interdisciplinary major programs based on the standard curriculum model. Second, we have presented a subject specialization educational system for field librarians, and further suggested details for the development of an educational program that can help build subject expertise and the operation of educational methods as well as the personnel in charge of implementing the educational programs. Third, we have proposed institutionalization of the qualifications of the subject librarian where the qualification requirements have been organized considering academic background, major program, library career, and career experience in the subject specialization service, further suggesting the implementation and maintenance of the system.

1. Introduction

1.1 The Need for Research

The concept of subject librarian was first conceived through a discussion on theses from the 1960's. Thereafter, various studies, including the necessity, roles, qualities, qualifications, types, and training of subject librarians have been carried out. In recent years, there has been an increasing demand for subject specialized manpower due to the specialization of library services in the field

following the specialization trend of library services and demand for subject expertise.

The validity and the necessity of introducing subject librarians have already been stressed through a number of studies, and a broad consensus seems to have formed in the realm of libraries (Tennant et al., 2006; Noh et al., 2008). Furthermore, in order to provide professional information services, public libraries are also required to institutionalize education and qualification systems in order to train librarians with expertise and practical skills in the field. While the provisions for specialized services for public libraries is on the rise, there are relatively few subject librarians within specialized services.

In this way, as the demand of the users' need for professional information increases and the tendency of expanding specialized services in public libraries has become a major issue in the realm of libraries (Noh, 2017), it is necessary to investigate the status of specialized services in libraries and the status and demand for subject librarians.

1.2 Purpose of the Research

This research has the aim of examining the status of specialized services within libraries, the demand for subject librarians and the status of their employment, including requirements for specialized services and subject librarians, as well as further development plans for job seeking degree candidates, field librarians, and library directors.

First, we have examined job seeking degree candidates' perceptions of the specialization services of libraries and subject librarians, their willingness to satisfy the qualification requirements expected of a subject librarian and necessary licenses, their willingness to work as subject librarians, and the capacities of subject librarians, among others.

Second, the field librarians were surveyed about the needs of the subject librarian, opinions on the specialization of library services in progress, the field of specialization demand, the areas of supplementation and improvement for specialization services and librarians, and the competence of the subject librarians, among others.

Third, the library directors were interviewed on their overall opinion of specialized services and the idea of having a subject librarian; that is, the necessity and opinion on the hiring of subject librarians, the necessary job skills, and the qualification requirements of subject librarians.

Furthermore, we have endeavored to investigate the differences of opinion among constituents within the world of libraries through comparisons of their perceptions on the subject of specialization services and subject librarians by inquiring with job seeking degree candidates, field librarians, and library directors. We intend to use this as a basis for the development of subject specialization services and subject librarians.

2. Literature Reviews

In this study, we have analyzed existing data by focusing on research in the field of specialization of libraries and research related to subject librarians for providing such specialization services.

First, research on the specialization of public libraries and the development of public libraries has been carried out. First, Cho (2008) performed research to investigate the development and status of public libraries and to promote the specialization of public libraries. Based on this, we have suggested the improvement of environments in order to improve accessibility, introduction of specialization programs suitable for local areas, introduction of marketing strategies for public relations, hiring specialized personnel, exchange with outside organizations, and the establishment of management mindsets for specialization strategies. In addition, we have proposed and analyzed similarities and differences between other countries and regional environments. Hong (2008) investigated the concept of library specialization and the characteristics of public libraries in order to explore the development of specialization of public libraries. For improving the specialization of public libraries based on this, we have proposed to actively collect data, arrange librarians, secure financial resources, develop various specialization related programs, form a cooperative network with local community organizations, actively promote public participation, and encourage voluntary participation of local residents. For developing the specializations of public libraries, we have presented the development and dissemination of programs for the socially underprivileged, and the development of human resources for local communities and residents as educational and cultural institutions.

In addition, studies on library specialization services include research on the status of specialization services, research on the development of specialized service programs, and research on the improvement of specialization service qualities. First, Cha (2005) investigated the operation of specialization services in Gyeonggi–do's public libraries and examined the current state of specialization services of foreign public libraries and compared and analyzed the specialization services of Korea and other foreign libraries. Through a SWOT analysis based on this, we have analyzed the problems of specialization services within public libraries in Korea and proposed more desirable specialization services based on environmental creation, introduction of various programs, introduction of marketing, cooperation with external organizations, and recruitment of specialist personnel.

Park (2007) investigated domestic and foreign cases of development of specialized reading programs and differentiated special services programs to promote reading through the development of specialized service programs for public libraries. Based on this, we have proposed a special program for public libraries and continuous program planning. In addition, we have proposed specialized service programs, professional staffing, library management, and creativity of services in accordance with the characteristics of each public library.

Lee (2017) conducted research to evaluate the quality of public library services in order to improve the quality of services in public libraries. Based on this, we have selected areas of specialization subjects appropriate to the area, librarians actively involved and interested, selection of the location of the library to enhance accessibility, and creation of a special internal environment for the library.

On the other hand, there has been much research and discussion on the qualifications of subject librarians. In particular, there is a great deal of interest from the field and academia concerning the qualifications of subject librarians and the system for issuing licenses. As the information environment evolves and develops, the user's information needs are diversified and specialized, and the

user's ability to access and select information has also improved significantly. That said, the information services of the library should be developed more delicately, even though the subject librarian system in the field has not been established at this point in time. Discussion of the qualifications for subject librarians through previous research are as follows.

First, it is desirable to set certain qualifications, then issue certificates of license after qualification. Yoon (2003) said that it is desirable to issue a medical specialization librarian certificate through the evaluation of the qualification management committee for medical librarians within the Korean Medical Library Association. As a matter of fact, the Korean Medical Library Association presents the conditions for recognition as a medical librarian, and qualification is granted only if 60 points or higher is achieved. The eligibility requirements of medical librarians qualification assessment items are shown in Table 2-5. In addition, Noh (2015) presented the fact that policy information librarians should be trained and licensed as librarians in policy information librarianship, and that additional points should be granted if hired as staff for the National Library of Korea, Sejong which is a policy information specialized library.

Second, it is appropriate to have both a library and information science degree and a degree in the subject of the librarian. In the study of Han (1986) and Yoon (2003), it was said that it is desirable to acquire both a library and information science degree and a degree in the subject of the librarian. Lee (1998) has proposed the following: a bachelor's degree in library and information science or higher, 3 years or longer of library experience, and suitability for the subject service, followed by a master's degree in other subject areas.

Third, Shim (2009) and Jung (2007) discussed the need for standardization, external validation, and cooperation with external organizations while emphasizing the necessity of an organization dedicated to the task of training librarians.

Related opinions on the systematization of librarian qualifications derived from previous research are summarized in the following Table 1. In summary, it is important that recognition of qualifications be specified by issuing those required to be obtained in subject areas. In addition, standardization of subject specialized librarian qualifications and establishment of policies such as external certification (external agency cooperation) should also be in place.

Table 1. Opinions on the Subject librarian Qualification System Derived from Previous Researches

Opinions Researcher	License Certification Issuance	Acquisition of Degrees in Subject Areas	Need for Task Force or Body in Charge	Eligibility Standardization and External Validation
Han, Sang Wan (1986)	-	○	-	-
Lee, Yong Jae (1998)	-	○	-	-
Yoon, Young Dae (2003)	○	○	-	-
Shim, Won Shik (2009)	-	-	○	○
Jung, Jae Young (2007)	-	-	-	○
Noh, Younghee (2005)	○	-	-	-

3. Methods

In order to accomplish the purpose of this research, we have investigated and analyzed subject librarians and the literature related to library specialization, further to the status of subject librarians and their employment status, their hiring status and demand.

1) Literature Survey and Analysis

We have investigated and analyzed previous research related to subject librarians and library specializations. In order to investigate the related research, we have collected and examined research, academic papers, research reports, policy and legal data, and web information resources, among others.

2) Survey Method and Survey Structure

Questionnaires within the survey on librarians' employment as subject librarians were conducted with students, field librarians, and library directors. 500 students, 400 field librarians, and 100 library directors (operating managers) for a total of 1,000 people were surveyed on the demand and employment status for subject librarians. The method for each survey subject was as follows.

First, we surveyed students in the departments of library and information science both offline and online. In the case of offline, we conducted questionnaires with students of the departments of library and information science of 14 universities taking into account the specific areas, and mailed and collected questionnaires with return envelopes to each university by mail. For the online questionnaires, questionnaires were produced via the KSDC DB (http://ksdcdb.kr).

Second, the questionnaires for field librarians were conducted for public libraries, university libraries, and librarians of specialized libraries. We conducted online surveys targeting 400 people in total with 250 public libraries (60%), university libraries (30%), and specialized libraries, respectively. In order to conduct the survey, we obtained the addresses of public libraries, university libraries, and specialized libraries in the National Library Statistics System (https://www.libsta.go.kr/). Based on the obtained address book, and after explaining the purpose of the questionnaire and asking for cooperation directly to the librarians, we sent out the questionnaire URL via e-mail. The sampling method for each library type was extracted based on the systematic sampling method.[1) In the case of public libraries, 978 addresses were obtained and 250 public libraries were requested on the phone to cooperate in the survey. In the case of university libraries, 220 addresses of 4-year universities were obtained and 100 university libraries were requested to cooperate in the survey. In the case of specialized libraries, 602 directories were obtained and 50 specialized libraries were called to cooperate in the survey.

Third, the questionnaires for library directors were conducted with public libraries, university libraries, and special libraries. 60 directors (60%) at public libraries, 30 directors (30%) at university libraries, 10 directors (10%) at specialized libraries were surveyed. We conducted the online survey

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1) Method of extracting samples according to a certain sampling interval after assigning serial numbers to all cases of the system sampling population (Jung and Cho 2007)

with a total of 100 people. The survey was conducted in the same way as with the librarians. In the case of public libraries, 978 addresses were obtained and 260 public libraries were requested to cooperate in the survey. In the case of university libraries, 220 address books of 4-year universities were obtained and 30 university libraries were requested to cooperate with the survey. In the case of specialized libraries, 602 directories were obtained, and one special library was called for cooperation in the survey. As a result, a total of 1,040 people responded, including 579 students, 392 field librarians, and 69 library directors (See Table 2).

Table 2. Survey Structure

Classification	Question	Subjects		
		Library Directors	Librarians	Students
General	Gender	●	●	●
	Age	●	●	
	Grade			●
	Final education	●	●	
	Library type	●	●	
	Location of library / university	●	●	●
	Position		●	
	Work in progress		●	
	Current working period (as library director)	●	●	
	Length of time working (as library director)	●	●	
Questions related to specialized services and subject librarians	Whether your library provides subject specialization services	●	●	
	Theme specialization services provided by your library	●	●	
	Subject specialization service related programs provided by your library	●	●	
	Whether a librarian in charge of subject specialization services is available in your library	●	●	
	Level of perception of the user on subject specialization services at your library	●	●	
	Satisfaction with the use of your subject specialization services provided by your library	●	●	
	Method of promoting your subject specialization services	●	●	
	Difficulties in providing subject specialization services	●	●	
	Reason for providing subject specialization services	●		
	Effect of providing subject specialization services	●		
	Intention to maintain, expand and sustain your subject specialization services	●		
	Reasons for not implementing subject specialization services	●		
	Intention to carry out subject specialization services in the future	●		
	Need to provide subject specialization services at public libraries	●	●	●
	Topics that are useful when providing subject specialization services at public libraries	●	●	●
	Reasons as to why public libraries do not need to provide subject specialization services	●	●	●

Classification	Question	Subjects		
		Library Directors	Librarians	Students
	Whether a special librarian dedicated to the subject specialization services at the public library is placed	●	●	●
	Reasons for no need to place a specialized librarian for the subject specialization services at public libraries	●	●	●
	Suitability of subject specialization services	●	●	●
	Intention to be in charge of specialization services / if student intention to be in charge after being hired		●	●
	Reasons for not intending to be in charge of specialized services		●	●
	Whether the contents of subject specialization services are perceived			●
	Whether business details and roles of subject librarians are perceived			●
	What efforts are made if intention exists to be in charge of subject specialization services			●
	Whether the current curriculum of library and information science will be helpful if the future subject specialization services will be undertaken			●
	Reasons if the current curriculum will not be helpful			●
Questions related to qualifications of subject librarians, supply method, and hiring	Whether eligibility requirements for subject librarian are needed	●	●	●
	Level of experience in working at a library that can be recognized as a subject librarian	●	●	●
	Level of professional experience which can be recognized as for subject librarian	●	●	●
	Level of education of subject librarian	●	●	●
	Method of recognizing the current librarian as a subject librarian	●	●	●
	Reasons for thinking that the qualification system and requirements of the subject librarian are not needed	●	●	●
	Level of current librarians' intention to undertake additional activities to achieve the qualification as a subject librarian		●	●
	Method of managing qualification for a subject librarian	●	●	●
	Preliminary college and graduate school educational method for securing competency as subject librarian	●	●	●
	Intention to perform to acquire the subject librarian			●
	Competency needed for subject librarian	●	●	●
	What competency needed to become a subject librarian has been secured		●	●
	Add or strengthen contents to college education for nurturing subject librarians	●	●	●
	Intention to hire a subject librarian responsible for subject specialization services	●		
	Reasons for not intending to hire subject librarians	●		
	Competency needed for hiring a subject librarian from the manager's perspective	●		
	Whether guidelines, policy book, and legalization are needed for specialized library / subject specialization services and subject librarians	●	●	●
	Curriculum to teach in the department of library and information science in line with the changing society aside from subject librarian	●	●	●
Total Number of Questions		41	39	31

4. Results

In this research, the same questionnaire was developed to compare the perception of job seeking degree candidates, field librarians, and library directors. We intended to compare the perceptions of the three groups according to the items, and the perception between job seeking degree candidates, field librarians and library directors.

4.1 Comparison of Perception of Job Seeking Degree Candidates, Librarians and Library Directors

In order to compare the perception of job seeking degree candidates, field librarians and library directors, the same questions are 14 items excluding multiple response items (See Table 3).

In the case of specialized services and subject librarians, there are three questions, including the necessity of providing subject specialization services for public libraries, the placement of specialized librarians in charge of specialized services in the public libraries, and the suitability of specialized services.

As for the subject librarian qualifications, supply and demand methods, and recruitment related items are a total of 11 questions as follows. Qualifications necessary as a subject librarian in terms of the degree of experience, the academic level of the subject librarian, how to recognize the subject librarian's qualifications for the current librarian position, the qualification management method of the subject librarian, the preliminary education method of the university and the graduate school for the subject librarian's capacity, and finally, to add and strengthen any contents in university education for the training of the subject librarians.

Table 3. Questions for Comparing the Perceptions of Students, Librarians, and Library Directors

Classification	Question	#
Questions related to specialized services and subject librarians	Need to provide subject specialization services at public libraries	3
	Whether a special librarian dedicated to the subject specialization services at the public library is placed	
	Suitability of subject specialization services	
Questions related to qualifications of subject librarians, supply method, and hiring	Whether eligibility requirements for subject librarian are needed	11
	Level of experience in working at a library that can be recognized as a subject librarian	
	Level of professional experience which can be recognized as for subject librarian	
	Level of education of subject librarian	
	Method of recognizing the current librarian as a subject librarian	
	Method of managing qualification for a subject librarian	
	Preliminary college and graduate school educational method for securing competency as subject librarian	
	Competency needed for subject librarian	
	Add or strengthen contents to college education for nurturing subject librarians	
	Whether guidelines, policy book, and legalization are needed for specialized library / subject specialization services and subject librarians	
	Curriculum to teach in the department of library and information science in line with the changing society aside from subject librarian	
Questions for Comparing Perceptions Among the Groups of Job Seeking Degree Candidates, Librarians, and Library Directors		14

4.1.1 Specialized Services and Subject librarians

1) Need to Provide Subject Specialization Services

As a result of analyzing whether it is necessary to provide subject specialization services; 52.17% of library directors were affirmative, as well as 38.27% of librarians and 77.55% of students were affirmative, each respectively. While the perceptions of the library directors and students were more affirmative, that of the librarians were less affirmative. This seems to be the result of the excessive workload of the librarians who are undertaking the actual business in the field. The *p* values of the three groups were 0.000 and lower than 0.05, indicating a significant difference between the groups.

Table 4. Whether Provision of Subject Specialization Services is Needed (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		*P* (chi square)
	N	%	N	%	N	%	N	%	
Yes	36	52.17	150	38.27	449	77.55	635	61.06	.000
No	33	47.83	242	61.73	130	22.45	405	38.94	
Total	69	100.00	392	100.00	579	100.00	1040	100.00	

2) Need to Place Subject librarians for Subject Specialization Services

As a result of analyzing whether or not a subject librarian should be placed, 56.52% of library directors, 39.54% of librarians and 66.32% of students were affirmative. While the perception that the subject librarians should be placed was higher for the library directors and students, for the librarians it was lower. The *p* values of the three groups were 0.000 and lower than 0.05, indicating a significant difference.

Table 5. Whether Placement of Subject librarians is Needed (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		*P* (chi square)
	N	%	N	%	N	%	N	%	
Yes	39	56.52	155	39.54	384	66.32	578	55.58	.000
No	30	43.48	237	60.46	195	33.68	462	44.42	
Total	69	100.00	392	100.00	579	100.00	1040	100.00	

3) Personnel in Charge of Subject Specialization Services

As a result of analyzing the perception on who should be responsible for the subject specialization services, 56.41% of library directors thought of the librarians and 38.46% of them thought of the subject specialists, whereas 52.90% of librarians thought of the librarians and 40.65% of them thought of the subject specialists, and 47.66% of students thought of the librarians and 42.19% of them thought of the subject specialists, respectively. All three groups perceived that librarians

should be in charge of subject specialization services.

Table 6. Person Suitable for Subject Specialization Services (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Librarians	22	56.41	82	52.90	183	47.66	287	49.65	.277
Theme related experts	15	38.46	63	40.65	162	42.19	240	41.52	
Program execution experts	1	2.56	2	1.29	1	0.26	4	0.70	
Anyone is possible	1	2.56	4	2.58	16	4.17	21	3.63	
Other	0	0.00	4	2.58	22	5.73	26	4.50	
Total	39	100.00	155	100.00	384	100.00	578	100.00	

4.1.2 Subject Librarian Qualifications, Methods of Supply and Recruitment

1) Qualifications of Subject librarian

As a result of analyzing the perception of the qualification requirements of subject librarians, 71.01%, 86.99%, and 77.37% of each of the three groups thought the qualification requirements were necessary, and p values were 0.000 and lower than 0.05, indicating a significant difference.

Table 7. Whether Subject librarian Qualification System and Eligibility Requirements Are Needed (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Yes	49	71.01	341	86.99	448	77.37	838	80.58	.000
No	20	28.99	51	13.01	131	22.63	202	19.42	
Total	69	100.00	392	100.00	579	100.00	1040	100.00	

2) A Library Career As SomethingThat Can be Recognized in Subject Librarians

As a result of analyzing the perception of the degree of work experience at a library that can be recognized as a subject librarian, 38.78% of the library directors considered 4 ~ 7 years, and 20.41% each for 7 ~ less than 10 years, and 10 ~ less than 19 years, and 12.24% for 1 ~ less than 4 years, whereas 25.81% of librarians considered more than 4 years ~ less than 7 years, 22.58% for more than 10 years to less than 13 years, 18.48% for more than 1 year ~ less than 4 years, respectively. In the case of students, 50.67% of them considered over 1 year ~ less than 4 years, 20.98% for over 4 years ~ less than 7 years, and 20.09% did not care. While the library directors and librarians had the highest work experience of more than 4 years ~ less than 7 years, the students had more than 1 year ~ less than 4 years to be recognized as a subject librarian. The p value was 0.000, which was lower than 0.05, indicating a significant difference in perception among these groups.

Table 8. Length of Library Career Acceptable for Recognition for Subject librarian (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Don't care	2	4.08	44	12.90	90	20.09	136	16.23	.000
Less than 1 year	1	2.04	2	0.59	12	2.68	15	1.79	
Over 1 year ~ less than 4 years	6	12.24	63	18.48	227	50.67	296	35.32	
Over 4 years ~ less than 7 years	19	38.78	88	25.81	94	20.98	201	23.99	
Over 7 years ~ less than 10 years	10	20.41	60	17.60	18	4.02	88	10.50	
Over 10 years ~ less than 13 years	10	20.41	77	22.58	5	1.12	92	10.98	
Over 16 years ~ less than 19 years	1	2.04	1	0.29	0	0.00	2	0.24	
Over 19 years	0	0.00	6	1.76	2	0.45	8	0.95	
Total	49	100.00	341	100.00	448	100.00	838	100.00	

3) Experience of Subject Specialization Services That Can be Recognized as Subject librarian

As a result of analyzing the perception of career experience of subject specialization services work which can be recognized as a subject librarian, it was discovered that 44.90% of library directors considered 4 years ~ less than 7 years, 18.37% for less than 1 year ~ less than 4 years and more than 7 years ~ 10 years, and 10.20% for more than 10 years ~ less than 13 years, whereas 39.00% of librarians considered more than 4 years ~ less than 7 years, 24.63% more than 1 year ~ less than 4 years, and 12.32% for more than 7 years ~ less than 10 years. In the case of students, 52.23% considered more than 1 year ~ less than 4 years, 21.65% more than 4 years ~ less than 7 years, and 14.96% did not care. The library directors and librarians considered that the subject specialization service work experience was the highest in more than 4 years ~ less than 7 years, whereas the students considered more than 1 year ~ less than 4 years with less career experience may suitably qualify as a subject librarian. The *p* value was 0.000, which was lower than 0.05, indicating a significant difference in perception among these groups.

Table 9. Experience in Performing Subject Specialization Services Acceptable for Recognition as Subject librarian (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Don't care	3	6.12	34	9.97	67	14.96	104	12.41	.000
Less than 1 year	1	2.04	1	0.29	23	5.13	25	2.98	
Over 1 year ~ less than 4 years	9	18.37	84	24.63	234	52.23	327	39.02	
Over 4 years ~ less than 7 years	22	44.90	133	39.00	97	21.65	252	30.07	
Over 7 years ~ less than 10 years	9	18.37	42	12.32	19	4.24	70	8.35	
Over 10 years ~ less than 13 years	5	10.20	41	12.02	6	1.34	52	6.21	
Over 16 years ~ less than 19 years	0	0.00	2	0.59	1	0.22	3	0.36	
Over 19 years	0	0.00	4	1.17	1	0.22	5	0.60	
Total	49	100.00	341	100.00	448	100.00	838	100.00	

4) Educational Level of Subject librarians

As a result of analyzing the required educational background for the subject librarians, 32.65% of library directors considered a bachelor's degree in library and information science (class 2 regular librarian) + a bachelor's degree in the corresponding subject (including double major), 24.49% considered a bachelor's degree in the library and information science (Class 2 regular librarian) + a master's degree or higher in the corresponding subject, and 18.37% considered a bachelor's degree in the library and information science (Class 2 regular librarian), whereas 45.16% of the librarians considered a bachelor's degree in the library and information science (Class 2 regular librarian) + a bachelor's degree in the corresponding subject (including double major), 29.91% considered a bachelor's degree in the library and information science (Class 2 regular librarian) + a master's degree or higher in the corresponding subject, and 9.38% considered a master's degree or higher in the library and information science + a bachelor's degree or higher in the corresponding subject, whereas 64.73% of the students considered a bachelor's degree in the library and information science (Class 2 regular librarian) + a bachelor's degree in the corresponding subject (including double major), 14.73% considered a bachelor's degree in the library and information science (Class 2 regular librarian) + a master's degree or higher in the corresponding subject, and 12.95% considered a bachelor's degree in the library and information science (Class 2 regular librarian). All three groups had the highest interest in a bachelor's degree in library and information science (Class 2 regular librarian) + a bachelor's degree in the corresponding subject (including double major). The p value was 0.000, which was lower than 0.05, indicating a significant difference in perception among these groups.

Table 10. Level of Education for Subject librarian (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Bachelor's in LIS (Class 2 regular librarian)	9	18.37	28	8.21	58	12.95	95	11.34	.000
Bachelor's in LIS (Class 2 regular librarian) + Bachelor's in corresponding subject (including double major)	16	32.65	154	45.16	290	64.73	460	54.89	
Bachelor's in LIS (Class 2 regular librarian) + Master's or higher in corresponding subject	12	24.49	102	29.91	66	14.73	180	21.48	
Master's or higher in LIS + Bachelor's or higher in corresponding subject	6	12.24	32	9.38	22	4.91	60	7.16	
Master's or higher in LIS + Master's or higher in corresponding subject	3	6.12	16	4.69	5	1.12	24	2.86	
Other	3	6.12	9	2.64	7	1.56	19	2.27	
Total	49	100.00	341	100.00	448	100.00	838	100.00	

5) Method of Recognizing the Current Subject Librarian's Qualifications

As a result of analyzing the current librarians' perceptions of the proper method for recognizing the qualifications of subject librarians, 44.90% of library directors considered the subject specialized services (subject specialization service) work experience, 32.65% considered all of the subject specialization services (subject specialization service) work experience + degrees, and 18.37% considered degrees in the corresponding subject. 42.82% of the librarians considered all of the subject specialized services (subject specialization service) work experience + degrees, 33.43% considered the subject specialization service (subject specialization service) work experience, and 21.70% considered degrees in the corresponding subjects. 44.20% of the students considered the subject specialization service (subject specialization service) work experience, 31.03% considered degrees in the corresponding subject, and 24.33% considered all of the subject specialized services (subject specialization service) work experience + degrees. The library directors and students demonstrated the highest interest in the recognition of the hematic specialization services (subject specialization service) work experience, whereas the librarians demonstrated the highest interest in all of the subject specialized services (subject specialization service) work experience + degrees, requiring relatively higher qualifications for the subject librarians. The *p* value was 0.000, which was lower than 0.05, indicating a significant difference in perception among these groups.

Table 11. Method of Recognizing Current Librarian's Qualification as Subject librarian (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		*P* (chi square)
	N	%	N	%	N	%	N	%	
Recognize for performing work for subject specialization service (subject specialization service)	22	44.90	114	33.43	198	44.20	334	39.86	.000
Acquire degrees in corresponding subject	9	18.37	74	21.70	139	31.03	222	26.49	
Need to have both subject specialization service (subject specialization service) experience + degrees	16	32.65	146	42.82	109	24.33	271	32.34	
Other	2	4.08	7	2.05	2	0.45	11	1.31	
Total	49	100.00	341	100.00	448	100.00	838	100.00	

6) Qualification Management Methods for Subject librarians

As a result of analyzing the perception of how the qualifications of subject librarians should be managed, it was discovered that, in the case of library directors, 46.38% considered the national qualification system − continuously recognized after qualification, 21.74% considered the national qualification system − regularized qualification examination, 13.04% considered establishment of self-qualification criteria in the library − continuous recognition after qualification. In the case of librarians, 48.47% considered the national qualification system − continuous recognition after qualification, 19.90% considered the national qualification system − regular qualification reviews, and

14.80% considered the establishment of self-qualification criteria in the library – continuously recognized after qualification. In the case of students, 46.63% considered the national qualification system – continuous recognition after qualification, 24.70% considered the national qualification system – regular qualification reviews, and 12.95% considered the establishment self-qualification criteria in libraries – regular qualification review, respectively. The *p* value was 0.005, which was lower than 0.05, indicating a significant difference in perception among these groups.

Table 12. Method of Managing Subject librarian's Qualification (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		*P* (chi square)
	N	%	N	%	N	%	N	%	
National qualification system – regularized qualification review	15	21.74	78	19.90	143	24.70	236	22.69	.005
National qualification system – continue to recognize after qualification	32	46.38	190	48.47	270	46.63	492	47.31	
Establish self-qualification in library – regularized qualification review	4	5.80	36	9.18	75	12.95	115	11.06	
Establish self-qualification in library – continue to recognize after qualification	9	13.04	58	14.80	73	12.61	140	13.46	
Civilian qualification system – regularized qualification review	1	1.45	9	2.30	5	0.86	15	1.44	
Civilian qualification system – continue to recognize after qualification	4	5.80	11	2.81	8	1.38	23	2.21	
Other	4	5.80	10	2.55	5	0.86	19	1.83	
Total	69	100.00	392	100.00	579	100.00	1040	100.00	

7) Preliminary Training Methods for the Subject librarian in College and Graduate Schools

As a result of analyzing the perception of how preliminary subject librarians should be educated in colleges and graduate schools, the average of 3.78 turned out to be the highest for the library directors requiring subject specific knowledge base and information sources across curriculum, 3.58 for requiring field training and internships with related institutions, and 3.52 for requiring a master's degree or higher in a specific subject, and so on.

The librarians were required to complete a course that can teach background knowledge of the subject and the information source in the current curriculum on an average of 3.85, that also required multiple majors (multiple majors) on an average of 3.73, and required field training and internships with related institutions on an average of 3.57.

Students required to complete a course that can teach the knowledge background and information source of a specific subject in the current curriculum with an average of 3.78, required field training and internships with related institutions with an average of 3.66, and required multiple majors (multiple majors) with an average of 3.32.

Through this, all three groups demonstrated the highest in requiring to complete the necessary courses by organizing the curriculum that can educate around knowledge backgrounds and information sources on specific topics existent in the current curriculum. In addition, the *p* value was found

to be lower than 0.05 across all items, except that the field training and internships were required with the related institutions, indicating a significant difference in perception among these groups.

Table 13. Preliminary College and Graduate School Education Method for Securing Competency for Subject librarian (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	M	std	M	std	M	std	M	std	
Organize curriculum and require completion to enable teaching on knowledge background and information sources for certain subject matters in the current curriculum.	3.78	0.97	3.85	0.90	3.78	0.78	3.81	0.84	.001
Require completion of multiple majors (double major).	3.51	0.95	3.73	0.85	3.32	0.90	3.49	0.90	.000
Acquire a master's degree or higher in a specific subject matter.	3.52	1.02	3.37	0.93	2.95	0.87	3.14	0.93	.000
Require completion of field training and internships with related institutions.	3.58	0.88	3.57	0.91	3.66	0.80	3.62	0.85	.187
Retrain after employment.	3.61	0.88	3.87	0.80	3.68	0.79	3.75	0.80	.000

8) Competency Required for Subject librarians

As a result of analyzing perceptions of the competency required for subject librarians, it was found that among library directors, the subject area knowledge was the highest with an average of 4.61, followed by the understanding of information sources at 4.30, and information utilization technology at 4.25. For librarians, the subject area knowledge was 4.55, understanding of information sources at 4.39, and information utilization technology at 4.29. Students showed an average of 4.46 for subject area knowledge, 4.20 for understanding information sources, and 4.19 for library work related skills. In all three groups, it was found that the subject area knowledge was recognized as the most necessary competency for the subject librarian. In addition, among the 9 items, the p value was lower than 0.05 in communication skills, language skills, information utilization skills, understanding of information sources, contents planning, development and management ability, contents promotion and marketing ability, indicating a significant difference in perception among these groups.

Table 14. Competency Needed for Subject librarians (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	M	std	M	std	M	std	M	std	
Library work skills	4.20	0.61	4.13	0.69	4.19	0.67	4.17	0.67	.540
Subject area knowledge	4.61	0.52	4.55	0.61	4.46	0.65	4.50	0.63	.456
Communication skills	4.22	0.57	4.28	0.65	4.07	0.69	4.16	0.67	.000
Language skills	4.14	0.67	4.09	0.68	3.93	0.72	4.00	0.70	.012
Information utilization skills	4.25	0.58	4.29	0.67	4.11	0.67	4.19	0.67	.003
Understanding of information sources	4.30	0.58	4.39	0.64	4.20	0.70	4.28	0.67	.005
Ability to plan, develop and operate contents	4.04	0.72	3.86	0.83	3.45	0.77	3.65	0.82	.000
Contents promotion and marketing ability	3.97	0.66	3.79	0.84	3.29	0.83	3.53	0.86	.000
Data curation capability	4.20	0.65	4.23	0.74	4.11	0.75	4.16	0.74	.273

9) Addition and Enhancement of University Education for Training the Subject Librarians

As a result of analyzing the perception of what needs to be added or strengthened in the university curriculum to train the subject librarians; it was found that with library directors, the average for the subject specific librarian related education was the highest at 4.20, information and information sources at 4.10, and library and communication at 4.03, whereas for the librarians, it was noted that 4.23 for the subject specific librarian related education, 4.14 for information and information sources, and 3.99 for information technology related education. Among students it was found that 3.99 for subject specific librarian related education, 3.76 for library and communication, and 3.73 for information and information sources was determined. In all three groups, the average level of subject librarian related education was the highest, indicating that universities should add or enhance subject librarian related education in order to train the subject librarians regardless of group. Also, in the case of the p value, all items except for the operation of the library and information science systems were lower than 0.05, indicating a significant difference in perception among the groups.

Table 15. Contents to Add and Strengthen within College Education for Nurturing Subject librarians (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	M	std	M	std	M	std	M	std	
LIS system operation training	3.75	0.69	3.64	0.81	3.68	0.76	3.67	0.77	.754
Subject librarian related training	4.20	0.76	4.23	0.76	3.99	0.71	4.09	0.74	.000
Communication with library	4.03	0.62	3.97	0.74	3.76	0.72	3.86	0.73	.000
Information technology related education	3.99	0.74	3.99	0.67	3.70	0.72	3.83	0.71	.000
Information and information sources	4.10	0.71	4.14	0.66	3.73	0.73	3.91	0.73	.000
Library promotion, planning, marketing, and evaluation	3.87	0.64	3.82	0.83	3.45	0.82	3.61	0.83	.000

10) Need for Guidelines, Policy Literature, and Legalization of the Specialized Library / Subject Specialization Services and Subject librarians

As a result of analyzing the need for guidelines, policy books, and legalization of specialized library / subject specialization services and subject librarians, 59.42% of library directors, 70.66% of librarians, and 74.44% of students considered them necessary. Therefore, it was discovered necessary to establish guidelines, policy books, and legalization for subject librarians regardless of the groups. Also, the p value was 0.000 and there was a significant difference in perception between the groups.

Table 16. Whether Policies for Subject Specialization Services and Subject librarians Are Needed (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	N	%	N	%	N	%	N	%	
Not needed at all.	2	2.90	8	2.04	2	0.35	12	1.15	.000
Not needed.	8	11.59	28	7.14	11	1.90	47	4.52	
Normal.	18	26.09	79	20.15	135	23.32	232	22.31	
Needed.	35	50.72	220	56.12	328	56.65	583	56.06	
Very needed.	6	8.70	57	14.54	103	17.79	166	15.96	
Total	69	100.00	392	100.00	579	100.00	1040	100.00	

11) Subjects to Teach in the Department of Library and Information Science Following a Changing Society

As a result of analyzing the perception of what subjects should be taught in the department of library and information science, and in order to adapt to a changing society, we continued our research beyond subject librarians to include this further data collected: the average of 4.16 was the highest for library directors for analysis and utilization of big data, 4.16 for cultural program planning, and 4.13 for understanding of information sources by subject. Librarians showed the highest for data analysis and utilization at 4.20 on average, followed by cultural program planning at 4.16 and understanding of subject information sources at 4.15. Students had an average of 4.04 for analysis and utilization of big data, 3.91 for understanding of subject information sources, and 3.89 for understanding of knowledge information vulnerable class services.

In all three groups, we can see that the department of library and information science aims to cultivate talented people who can lead the present and future together according to the changing times. Also, the *p* value of all items except for the development of lifelong educational programs and the understanding of the knowledge information vulnerable class service was lower than 0.05, indicating a significant difference in perception between the groups.

Table 17. Courses LIS Department Must Teach in Line with Changing Society (Library Directors-Librarians-Students)

Item	Library Directors		Librarians		Students		Total		P (chi square)
	M	std	M	std	M	std	M	std	
Big data analysis and utilization	4.19	0.67	4.20	0.74	4.04	0.71	4.11	0.72	.018
Cultural program planning	4.16	0.70	4.16	0.76	3.87	0.77	4.00	0.78	.000
Understanding the source of information by theme	4.13	0.68	4.15	0.67	3.91	0.66	4.01	0.68	.000
Communication theory and techniques	3.94	0.59	3.97	0.73	3.68	0.75	3.81	0.75	.000
Community sociology, education, and psychology	3.75	0.76	3.70	0.83	3.46	0.84	3.57	0.84	.000
Lifelong education program development	3.71	0.82	3.68	0.84	3.51	0.82	3.59	0.83	.052
Understand storytelling	3.70	0.71	3.62	0.82	3.38	0.83	3.49	0.83	.000
Capstone design	3.48	0.82	3.40	0.80	3.24	0.80	3.32	0.82	.023
Understanding of knowledge information vulnerable class service	3.78	0.78	3.82	0.72	3.89	0.74	3.86	0.73	.207

4.2 Comparison of the Students' and Librarians' Perceptions

A total of two questions were used to compare the perceptions of the job seeking degree candidates and librarians.

As for the specialized services and subject librarian related questions, whether to be responsible for specialized services / if students now, whether to be responsible after being hired is one question. For the question on the subject librarian qualifications, supply methods and hiring, there is one question on whether to carry out additional activities for qualification of subject librarian by current librarians.

Table 18. Questions for Comparing the Perceptions of Students and Librarians

Classification	Question	#
Questions related to specialized services and subject librarians	Whether intending to be responsible for specialized services / if student, whether intending to be responsible after employment	1
Questions related to qualifications of subject librarians, supply method, and hiring	Level of current librarian's intention to undertake additional activities to achieve qualification for subject librarian	1
Total Number of Questions		2

1) Intention to Carry Out Additional Activities to Qualify as a Subject librarian

If the following additional activities (degree acquisition, professional training, field experience, and program execution skills, among others) are needed in order to qualify as a subject librarian among current librarians, we then needed to analyze the perceptual differences around how much they are willing to perform as librarians; 4.02 was for professional training, 3.87 for the duties required for subject specialized services for a specific period of time in the field, and 3.81 for the technical training needed for the program's execution. For students, 3.93 for the duties for subject specialized services for a specific period of time in the field, 3.89 for subject related professional training, and 3.69 for technical training for the program's execution. The librarians perceived that the specialized lectures of subject librarians should be supplemented with practical training for subject specialization services for students.

In addition, the *p* value was lower than 0.05 for the subject related professional training, indicating a significant difference in perception between the groups.

Table 19. Intention to Undertake Additional Activities to Qualify for Subject librarian (Students-Librarians)

Item	Librarians		Students		Total		t	P (chi square)
	M	std	M	std	M	std		
Acquire degrees in subject areas	3.37	1.02	3.38	0.93	3.37	0.97	-.142	.192
Professional education related to subject matters	4.02	0.84	3.89	0.82	3.94	0.83	2.353	.006
Be responsible for subject specialization services for a certain period in the field	3.87	0.83	3.93	0.81	3.91	0.82	-1.087	.418
Train techniques related to executing program	3.81	0.86	3.69	0.84	3.74	0.85	2.155	.099

2) Required Competence for Subject librarians

As a result of analyzing the perceptions of the degree to which the subject librarians should have the necessary competence to judge on their own; with librarians, library work skills were 3.73, communication skills were 3.54, and information utilization skills were 3.45, whereas for students, communication skills were 3.35, language skills were 3.31, and library work skills were 3.23. As for the librarians, the field experience turned out to be higher than that of the students, and so the library work skills required for the necessary competence seemed to have turned out to be the highest. In addition, there was a significant difference in perception among

the groups across 9 items except for language skills.

Table 20. Level of Competency Needed for Subject librarians (Students-Librarians)

Item	Librarians		Students		Total		t	P (chi square)
	M	std	M	std	M	std		
Library work skills	3.73	0.78	3.23	0.87	3.43	0.87	9.251	.000
Subject area knowledge	3.11	0.88	2.84	0.86	2.95	0.88	4.649	.000
Communication skills	3.54	0.79	3.35	0.87	3.43	0.84	3.580	.002
Language skills	3.34	0.81	3.31	0.85	3.32	0.84	.504	.378
Information utilization skills	3.45	0.76	3.18	0.83	3.29	0.81	5.254	.000
Understanding of information sources	3.43	0.81	3.15	0.81	3.26	0.82	5.318	.000
Ability to plan, develop and operate contents	3.16	0.86	2.86	0.88	2.98	0.89	5.272	.000
Contents promotion and marketing ability	3.16	0.86	2.82	0.93	2.96	0.92	5.992	.000
Data curation capability	3.15	0.84	2.82	0.88	2.95	0.88	5.933	.000

4.3 Comparison of Librarians and Library Directors

The same question for comparing the librarians' and library directors' perceptions is a total of 4 items except for multiple response items. In the question related to the specialized services and the subject librarian, four questions, such as the availability of subject specialization services, the perception of the use of subject specialization services, and the satisfaction level of the utilization of subject specialization services were included.

Table 21. Questions for Comparing the Perceptions of Librarians and Library Directors

Classification	Question	#
Questions related to specialized services and subject librarians	Whether your library provides subject specialization services	3
	Level of perception of the user on subject specialization services at your library	
	Satisfaction with the use of your subject specialization services provided by your library	
Total Number of Questions		3

1) The Need to Provide Subject Specialization Services

As a result of analyzing whether the public library should provide subject specialization services (subject specialization services), 34.78% of the library directors were affirmative, and 65.22% of them were negative, whereas 26.53% of the librarians were affirmative, and 73.47% of them were negative.

Table 22. Whether Provision of Subject Specialization Services is Needed (Librarians-Library Directors)

Item	Library Directors		Librarians		Total		P (chi square)
	N	%	N	%	N	%	
Yes	24	34.78	104	26.53	128	27.77	.158
No	45	65.22	288	73.47	333	72.23	
Total	69	100.00	392	100.00	461	100.00	

2) Opinion on the User's Perception Level of Subject Specialization Services

As a result of analyzing whether the user perceives the subject specialization services, 62.50% of the library directors were affirmative, and 8.33% were negative, whereas 48.08% of the librarians were affirmative and 13.46% were negative, indicating that both groups had a high perception level. The *p* value was 0.731, indicating that there was no significant difference between the groups.

Table 23. Opinions on the User's Level of Perception for Subject Specialization Services (Librarians-Library Directors)

Item	Library Directors		Librarians		Total		*P* (chi square)
	N	%	N	%	N	%	
Not perceived at all.	0	0.00	2	1.92	2	1.56	.731
Not perceived.	2	8.33	12	11.54	14	10.94	
Normal.	7	29.17	40	38.46	47	36.72	
Perceived.	12	50.00	38	36.54	50	39.06	
Very well perceived.	3	12.50	12	11.54	15	11.72	
Total	24	100.00	104	100.00	128	100.00	

3) Opinion on the User's Satisfaction of Subject Specialization Services

As a result of analyzing whether the users are satisfied with the subject specialization services, 62.50% of the library directors were affirmative, and 4.17% were negative, whereas 53.85% of the librarians were affirmative and 6.73% were negative, each respectively, indicating that both groups had a high perception of satisfaction. In addition, the *p* value was 0.670 and there was no significant difference among the groups.

Table 24. (Opinions on the User's Level of Satisfaction for Subject Specialization Services Librarians-Library Directors)

Item	Library Directors		Librarians		Total		*P* (chi square)
	N	%	N	%	N	%	
Not satisfied at all.	0	0.00	1	0.96	1	0.78	
Not satisfied.	1	4.17	6	5.77	7	5.47	
Normal.	8	33.33	41	39.42	49	38.28	
Satisfied.	12	50.00	51	49.04	63	49.22	.670
Very satisfied.	3	12.50	5	4.81	8	6.25	
Total	24	100.00	104	100.00	128	100.00	

5. Discussion

We have endeavored to propose ways of nurturing the subject librarians based on the subject specialization related literature, the status of nurturing among subject librarians, and a survey on the demands of subject librarians. Prior to making a policy proposal, we would like to discuss

some issues related to the curriculum, retraining, and the qualification system.

1) Status of Library Specialization and the Demand for Specialized Services

Libraries in particular, the public library's specializations have been to provide a unilateral aid to meet the cultural needs for people's learning and enjoyment, and at the same time, to create appropriate library services according to subjects and themes (Park, 2007; Park, 2005; Hong, 2008). Additionally it has been argued that the specialization of public libraries through differentiation and centralization is a means to positively cope with and resolve various social needs (Rockefeller, 2008).

In this connection, in terms of the need for library specializations, it is a time to improve customer service and customer satisfaction by enhancing the quality of services, developing and managing information that can be produced only in libraries as public library services, and to convert them into specialized programs and services for the users, as it is essential that the work be an information producer that can provide for the users. Second, as the library work has been shifting from the library information manager to the information services centered on user demand, the libraries should develop tasks considering the characteristics of each field and region, reflecting the demands for specialization.

Specialization of libraries, especially for public libraries, began in 1998 and was a nationwide specialized library project of the Ministry of Culture and Tourism (currently the Ministry of Culture, Sports and Tourism) from 1998 to 2000, with 13 libraries designated and operated in 14 metropolitan areas and provinces except Seoul and Ulsan. Looking at the current operational status, 4 out of 13 libraries have been terminated and 9 of them are operating well. Thereafter, the Ministry of Culture, Sports and Tourism and the Korean Library Association developed a pilot project called '2017 Specialized Library Development' to promote the provision of specialized services tailored to the needs of users. This was done by researching characteristics of the local environment (cultural and demographic characteristics, resources under possession, and policy directions of self-governing bodies, among others) selecting and supporting 10 libraries.

Meanwhile, based on the results of the survey, we surveyed students, librarians, and library directors on the demand for library specialization. The respondents' overall perception of subject specialization services was high, and there seems to be some willingness to be in charge of subject specialization services. In addition, there was a high rate of response on the need for public libraries to provide subject specialization services, and that subject librarians should be encouraged, and as for subject librarians, a librarian with a background of library and information science would be more appropriate than ones with a subject background. The results of the survey suggest that public libraries should be specialized in specific subject areas, but it may be appropriate to place librarians who provide subject specialization services to take charge of the service by possessing a particular subject background.

According to the questionnaire survey, the survey respondents have a very high positive attitude towards subject specialization services. However, there are opinions that the budget is not secured to recruit personnel, that it is difficult to make a clear distinction between the role and task of the subject librarian, and that it is desirable for the current manpower to take charge of the task. Considering these, we should actively seek ways to improve the conditions of libraries that provide

specialized services.

2) Eligibility Requirements and Qualification Systems for the Subject Librarians

To provide subject specialization services, it is necessary to understand what librarians require for qualification. According to the literature survey, it seems appropriate to have both a degree in library and information science and a degree in a related subject for the subject librarian's qualification. Han (1998) and Yoon (2003) suggested that a bachelor's degree in library and information science or higher, 3 years or longer of library work experience, and a subject service ability working further toward a master's degree in other subject areas.

According to the questionnaire survey on perception, qualification requirements of subject librarians are expected, and the level of academic qualifications desired to be a subject specialized librarian are a bachelor's degree in library and information science (Class 2 regular librarian) + a bachelor's degree in the corresponding subject (including double major) or a bachelor's degree in library and information science (Class 2 regular librarian) + a master's degree in the corresponding subject. In order to become a subject librarian, it was also said that at least three to four years of experience should be accumulated in the subject area.

Looking at these results, it is necessary to have both a degree in the field of library and information science and a degree in the subject area in order to provide subject specialization services. However, it would be difficult to recognize a bachelor's degree as a measurement of an expert, so it seems necessary to acquire a master's degree in whichever area possible. In addition, one must have at least three years of experience in the subject area to facilitate subject specialization services, therefore, one should take this into account when qualifying for as a subject librarian.

In addition, there is a significant opinion that the qualification system must be introduced, and the system of continuous recognition after qualification through a national regulated qualification system, and establishing self-qualification criteria in libraries for continued recognition even after qualification. There were also opinions on the need for a continual management system such as mandatory completion of relevant related subjects, continuous retraining, and post-training completion of the library and information science curriculum.

3) Current Status of Subject Librarians

Claims and demands for subject specialization services are growing, but in order to provide subject specialization services immediately at this point in time, there must be a subject librarian pool. Therefore, it is necessary to understand the status of the training of the subject specialization manpower and the status of the workforce. Subject specialization manpower would mean a librarian with a subject background of more than a master's degree. While it is not possible to clearly identify the qualifications of the subject librarians mentioned above, it is necessary to identify the approximate status of the subject specialization manpower.

First, according to the qualifications issued by the Korean Library Association, qualifications that can be identified as professional librarians for Class 1 regular librarians are 2,312 as of 2015, and there seems to be at least this level of professionalism among librarians.

Second, the professional librarians seem to have a high possibility of being recognized as subject

librarians because they have worked for such a long time in the field with a degree in library and information science. As of 2013, the total number of human resources in specialized libraries which has been provided by the National Library Statistics System of the Ministry of Culture, Sports and Tourism is 166, of which the number of librarians is 80, including non-regular workers. However, since there are over 600 specialized libraries, the number of unidentified librarians would be much higher. In addition, the Korean Medical Library Association operates a qualification system for medical librarians to enhance the professionalism of medical subjects as part of their subject librarians. As of 2017, a total of 81 medical librarian certificates were registered with the Korean Medical Library Association. The status of the human resources of the law school annexed libraries is divided into the library staff and the librarians who hold a Class 1 certificate. Most law school annexed libraries have at least one person with a Class 1 certificate, and the Seoul National University Law School's annexed library had four librarians with the highest number of Class 1 certificate holders.

Meanwhile, more than 30% of field librarians and more than 60% of library directors had a master's degree or higher when respondents who answered the questionnaire with a master's degree or higher were looked at. Considering the number of librarians and the number of library directors across the nation, the number of librarians with a master's degree or higher is likely to reach several tens of thousands.

Looking at these results, if the librarian qualification system has been established and libraries will provide subject specialization services nationwide, we may be able to answer to what extent the pool of experts is available. That is, if the qualification criteria are set based on a master's degree and career, and the appropriate treatment has been set, and the specialists in the subject area are placed, the pool of experts would be sufficient. Rather than start training new professional manpower, it seems necessary to utilize the existing manpower and continuously train manpower through regular training and re-training processes.

4) Status of Training the Subject librarians

Looking at the current curriculum and re-training process in the departments of library and information science in Korea, we do not have a structure to train subject librarians. It is not an educational system that requires a master's degree in library and information science such as in the United States, but it is an undergraduate centric system in Korea. In addition, it is not possible to provide educational content for the training of subject librarians under the current curriculum of the under-graduate and educational systems. Therefore, it is necessary to consider the process of retraining to include double majors.

It seems that there are about 2 or 3 courses that allow a background in a subject matter if the current curriculum is reviewed. In the case of the National Library of Korea's Librarian Training and Culture Department, there is no educational course to train subject librarians. In the case of the Korean Medical Library Association or the National University Law School Library Council, the retraining process may not provide an educational process for nurturing specialized librarians. However, since the Korean Medical Library Association sets its own standards and manages the certification, benchmarking the Association would be very beneficial.

Under the current educational system, it is possible to suggest a curriculum for the training of subject librarians. First, it could be a double major or multiple major system. In other words, it could be a way to earn two master's degrees, or more than 4 years' experience in a subject specialization library career, with major library and information science, with two majors of interest. In the case of Sangmyung University, all the enrolled students are required to take a double major, and some universities have also introduced a mandatory double major system. In view of this, the entire department of library and information science in Korea may need to consider introducing a mandatory double major system. It would also be worth considering, to whatever extent possible, requiring all students to complete a master's degree.

6. Conclusion and Proposal

6.1 Conclusion

The purpose of this research was to investigate the perceptions and the current status of subject specialization services further toward ways of nurturing subject librarians. In this chapter, based on the results of the previous research and the survey questionnaire analysis, a policy for the development of the subject librarian has been proposed.

First, it is necessary to reorganize the current curriculum of the department of library and information science. That is, we need to revise the entire curriculum by applying a standard curriculum operation model. We need to classify the requirements into a major requirement-core major-major elective. Major requirements should cover foundational courses in all aspects of library and information sciences. The core major should cover major courses as per a career path (path), and a major elective should cover courses to equip librarians with diverse competencies. Since subject librarians face an important roadmap for each career path, it is proposed that subject librarian's theories and specific subject related courses should be assigned as core subjects, and the continuous reinforcement of field centric curriculum and capstone design should be actively utilized.

Second, I would like to propose a retraining program for current librarians who can benefit from further training as subject librarians. Considering the environment of the librarian training system in Korea and the current environment of library specialized services, the recruitment of new subject librarians needs time from institutionalization to stabilization, and so the primary purpose has been to develop educational programs for librarians who want to take charge of subject specialization services. The education program consists of about 30 hours for each theme. The development of the education program needs to prioritize the subjects that are currently being serviced frequently or that are already carried out as a subject service. Education should be executed by subject experts and professional librarians with professional level experience working together to organize and discuss the contents.

Lastly, the institutionalization of subject librarians is proposed as follows. A subject librarian qualification system that exceeds the existing librarian qualification system is necessary. The basic requirements for the qualification of subject librarians are work experience and education. In order

to stabilize the system and motivate path support, and stabilize employment, it is necessary to establish a legally defined license certification for the establishment of subject expertise in the undergraduate curriculum while setting the academic background requirement at a minimum of a master's degree in library and information science with a corresponding subject. In addition, it is necessary to contribute to the stabilization and predictability of the qualifications system by explicitly disclosing the plans of the subject specialization library and the social demand of subject librarians.

6.2 Proposal

In this study, we have performed an overall demand survey for subject librarians and subject specialization services. Broadly ranging surveys on the current status and recognition of the subject librarian and the subject specialization services, perceptions, intentions for employment, intentions to be responsible for duties, eligibility requirements for subject librarians, qualification systems, job applications, and intentions to hire, among others, were performed on three groups of job seeking degree candidates within the library and information science department, librarians in the field, and library directors, followed by a comparative analysis of the differences in perception among these respondent groups.

Based on the results of the survey questionnaire, we propose three aspects of training for the subject librarian. First, it is a plan to train subject librarians through improvement of the current system of the library and information science education. Second, it is hoped to train the librarians through a retraining of field librarians, and third, to establish the subject librarian qualification system. In greater detail, we recommend applying a standard curriculum model for the library and information science department that is a core major curriculum development, with a theme specialization librarian development and NCS based CDR construction plan. In addition, we recommend a utilization plan of the undergraduate system, utilization of field training and internship systems, a utilization plan of capstone design, a subject librarian training module proposal, qualifications for subject librarians, and management of qualifications. As a result, we propose important discussion points and future research projects as follows.

First, it is necessary to discuss what task or body will supervise subject librarian education and manage the qualifications system. An educational program should be developed for each subject, and an organization should be organized to establish and continuously manage the qualifications system for the librarian's employment stability. Whether it is organized as a sole agency or as a subordinate organization under the Ministry of Culture, Sports, and Tourism, the Korean Library Association, and the National Library of Korea, among others, is an issue which requires further discussion and studies.

Second, it is necessary to discuss and study ways to cooperate with experts and expert groups on the corresponding subject matter. It is not easy for librarians who majored in library and information science only, because the subject specialization services require more knowledge and service expertise than other library services. Even though librarians are responsible for practical services, it is necessary to cooperate with experts in order to improve the level of service. For example, cooperation is

needed in developing educational programs and promoting external certification work for the qualifications of subject librarians. The selection of partner organizations, the tasks for cooperation, and the conditions of cooperation need to be discussed and studied.

Third, it is necessary to study how to select and recruit subject librarians through a civil service examination. Subject librarians can become a new field of entry for the job seeking degree candidate or librarian who are currently employed in temporary circumstances under an unstable employment situation. We need to predict the exact demand and determine the likelihood. Since civil servant librarians have a relatively more stable status, if the selection of subject librarians can be carried out through the civil service examination, the ability as a subject librarian can be verified and the reliability of recruitment can be trusted. In depth empirical research should be conducted to develop excellent subject librarians.

Fourth, it is necessary to legalize the recognition of qualifications of subject librarians within institutions, such as by granting additional points at the time of hiring. Acquisition of a license through qualification means to acknowledge professionalism, so if the institution does not offer just treatment, the effort to qualify as a subject librarian would be nothing more than a pointless effort. The library laws or library regulations should operate to acknowledge the expertise of subject librarians, and further research should be conducted to develop specific methods and implementation guidelines.

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