Library and Information Science Examination: A Report on Provisional Implementation in Japan

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ABSTRACT

This paper aims to describe the details of the challenging Library and Information Science (LIS) examinations, which the Japan Society of Library and Information Science (JSLIS) has conducted annually on a trial basis since 2007, and discuss some of observations. For such purposes, its objective, coverage of subject areas, examination style and reporting of results to students are described. We also discuss our experiences and observations of the provisional implementation of the LIS examination over the past four years. The results of the examination indicated that senior students achieved higher scores than junior students in general, and that the students from university LIS faculties achieved generally higher scores than did those from the *Shisho* certificate courses, which cover a more limited subject area of LIS than LIS specialty programs. These results suggest that the examination is a good measure of student proficiency, which reflects the quality of the educational programs. The problems to be solved before full-scale implementation can be summarized as follows: 1) the lack of standard textbooks covering the scope of the examination; 2) the low economic base for an annual examination; 3) lack of awareness of the need for this examination in standardizing the curricula for LIS education; and 4) the lack of a mechanism to implement the examination nationwide to facilitate participation by students living far from examination venues.

Keywords: Standardization of LIS education; Outcome evaluation; LIPER; LIS examination, Japan; Japan.

INTRODUCTION

Aims of this study

Quality assurance is essential to maintain professional reliability and credibility of librarians trained in library and information science (LIS) educational institutions or programs. One way to ensure quality is through the accreditation of educational programs by professional organizations, a method that is accepted widely in the USA and Canada. Another way is to use outcome evaluation through an examination that measures the students' understanding of the content of LIS educational and training programs. Following the proposals of the Library and Information Professionals Education Reform (LIPER) research project, the Japan Society of Library and Information Science (JSLIS) initiated annual LIS examinations on a trial basis in 2007, and more than 1,000 students have taken them since. This paper describes the details of the challenging examinations and discusses our observations.

Background

The LIS training/educational programs in Japan are categorized into five types. According to Nemoto (2009), these are the following:

1) *Shisho* (a certificate for librarians working for public libraries) training—provided by more than 250 universities and colleges (including two-year colleges). The *Shisho* qualification is stipulated in the Public Library Law enacted in 1950. The ordinance by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) also specified the curriculum and number of credits in this program. The present 20-credit curriculum will be expanded to strengthen the IT and information service areas in the curriculum in 2012.
2) *Shisho-kyoyu* (certificate for teachers working for school library management) training—provided by more than one hundred universities, colleges and training centers for teachers. The *Shisho-kyoyu* qualification is stipulated in the School Library Law enacted in 1953. The ordinance by MEXT also specified the number of credits and curriculum for this program. Until now, a 10-credit program has been specified.
3) An undergraduate program—LIS as a major subject provided by fewer than ten universities.
4) A master's level graduate program in LIS provided by fewer than ten universities.
5) A doctoral level graduate program in LIS provided by fewer than five universities.

These five types of educational programs exist in parallel and complexity the situation in Japan.

LIPER Project

In this environment, the LIPER project was launched in 2003 as a three-year project to create a blueprint for restructuring the LIS educational programs. Based on a series of studies, LIPER reached the following understanding of current LIS education in Japan (Miwa, Kasai and Miyahara, 2008):

1) The legal basis of Japanese LIS education was established by the Public Library Law and the School Library Law, both of which were enacted more than 50 years ago. The structure of LIS education has not changed since it was established.
2) The legal framework for current LIS education is limited to those library professionals or *Shisho* working for public or school libraries.
3) Current LIS education has expanded from traditional print-oriented library education to ICT and knowledge-oriented informatics, in not only Western but also Asian countries.
4) The *Shisho* certificate receives limited recognition in Japanese society, because of problems inherent in the education system. Very small numbers of graduates with the *Shisho* certificate have the opportunity to be hired by public or other types of libraries.
5) On the other hand, Japanese colleges and universities produce more than 12,000 graduates certified as *Shisho* annually.
6) Because the framework of Japanese LIS education is based on a training program, LIS courses have seldom been included in formal university or college programs.
7) The current curriculum for the formal library-training program, stipulated by the MEXT ordinance and offered by colleges and universities, is problematic even for public librarians.

Two goals were proposed on the basis of these results:1) to "establish the LIS examination for students so that they are able to self-evaluate learning from LIS education and obtain better employment opportunities," and 2) to "introduce a new standard curriculum for professional education in LIS that emphasizes the core topics of information organization, information resources and services, information systems and retrieval, management and IT, and facilitates understanding of user behavior" (Nemoto, 2009).

IMPLEMENTATION OF A PROVISIONAL LIS EXAMINATION

Report of the JSLIS ad-hoc committee

Based on the proposals of LIPER, the JSLIS Executive Board organized an ad-hoc committee to consider the implementation of a LIS examination by the Society in 2006. The committee's report, submitted to the JSLIS Executive Board, indicated the necessity of the society's involvement in the examination to improve the quality of LIS education in Japan. The committee also proposed some requirements for implementation of the examination, including the following.

- The examination should improve the quality of education for information specialists, by verifying the level of knowledge and skills obtained by information professionals.
- Eligibility for the examination should not be restricted to *Shisho* certificate holders, but open to everyone who is interested in the LIS field.
- The scope of the examination should be the "core" areas identified by LIPER for the moment, but should be reconsidered in future with a view to including related areas such as record management, archiving and museum studies.
- Responsibility for the production of examination questions should be assumed by the society, but implementation and administration should be performed in cooperation with or delegated to other institutions.

In addition, the ad-hoc committee pointed out issues for further consideration and discussion, such as estimation of workload, workforce and examination administration costs, investigation of effects of the examination and cooperation with other organizations in related areas. Such cooperation could investigate the possibility of expanding the present examination to one covering information professionals in various areas such as archivists and professionals in record management.

Implementation in 2007

In response to the ad-hoc committee's proposals, JSLIS first administrated the provisional LIS examination in 2007, in close cooperation with the research team succeeding the LIPER project. The "core", which comprises eight areas, has been the targeted scope of the examination (see Table 1).Twenty-four examination questions covering the eight areas were produced. Each question had five choices, and students were asked to select the correct response. An answer sheet was designed to enable students to mark an answer column for each question and to allow the answers to be processed by computer. The examination questions were sent to 10 participating universities or colleges providing LIS educational programs, and 549 students took the examination in 2007.

Table 1: Core areas of LIS education, as identified by LIPER

Areas	Course	Major content
Fundamentals of Library and Information Science	Fundamentals of Library and Information Science	Understanding the basis of information flow, legislation and policies pertaining to libraries and information
	Fundamentals of Information	Understanding information and knowledge in society
	Internship	Gaining practical experience in libraries or information service agencies
	Research methods	Understanding the research methods required by information professionals
Information users	Information-seeking behavior	Understanding information-seeking behavior and its models
	User instruction	Understanding the curriculum for user instruction and methods of information literacy training
Organization of information resource	Organization of information resource: A	Understanding bibliographic descriptions, cataloguing rules and name authority control

	Organization of information resource: B	Understanding content analysis and its representation (classification, subject headings, descriptors)
	Organization of information resource: practicum	Practicing cataloging, classification and subject indexing
	Organization of information resources: special practicum A	Practicing cataloging of special collections such as rare books, manuscript and nonbook type materials
	Organization of information resources: special practicum B	Practicing cataloging, indexing and abstracting in some subject areas
Information media	Information media	Understanding the characteristics of various types of media
	Collection development	Understanding the theory and historical background of collection development, book selection and the book trade
	Information media special	Developing a deep understanding of the characteristics of media, including selection and preservation
Information services	Information services	Understanding the basics of information services and their requirements in human society
	Information services: practicum	Practicing information services in areas such as knowledge of reference tools, questions and answers, compilation of pathfinders
Information systems	Basics of information systems for libraries	Understanding the basics of information systems for libraries, databases and information networks
	Information retrieval	Understanding the basic techniques of information retrieval
	Database development: practicum	Practice of database development, including utilization of DBMS
	Information retrieval: practicum	Practicing information retrieval
Management	Basics of library management	Understanding the management of libraries and information agencies
	Management of intellectual information resources	Understanding the basics of intellectual information resources management, including copyright, correct management, licensing and consortia
	Planning of library/information services: practicum	Practicing library/information services and their marketing
Digital information	Digital library management	Understanding digital libraries, digital resource management, copyright and technical standards for digital resources
	Digital content: basics	Understanding basic information technology such as information networks, databases, natural language processing for processing digital content
	Digital content: applied	Understanding the collection, organization, storage, preservation and provision of digital content

As an output of the examination, a results sheet was produced for each student. The results sheet contains a score, standard deviation, rankings of the student relative to all participants and to students at his/her university, and a radar chart showing the differences between his/her marks and the average in eight areas. The sheet was designed to help students evaluate their strengths and/or weaknesses in basic LIS knowledge. The participating universities and colleges received a summary of their students' results. A detailed note on each question was accessible to participating students via the Internet to allow them to review the results and to study further.

Implementation in 2008

There were two major changes in the 2008 examination. First, the number of examination questions was increased to 50. Second, the three examination venues were set up in Tokyo, Osaka and Tsukuba instead of the participating universities and colleges, to simulate the planned future examination. Such a simulation was expected to reveal any problems in the delivery of examination and to allow estimation of the workload and cost of administration. In 2008, 277 students from 20 universities and colleges took the examination. The same outputs were provided for participating students and educational institutions as in the 2007 examination.

Implementation in 2009

There was no major change in the scheme of examination and outputs in the 2009 implementation except that some of the provisional examination was administered by the Information Science and Technology Association, Japan to reduce the workload of the LIS Examination Committee of JSLIS. Financial assistance was provided by the Library Advancement Foundation to cover the cost of the examination. In 2009, 302 students from 25 universities and colleges took the examination.

Implementation in 2010

There were three major changes in the 2010 examination. First, a workbook was published in order to show students the scope of the examination. In this workbook, based on the 2008 examination questions, a detailed explanation and recommended book list for further study was provided for each question. Second, an examination fee (2000 yen) was charged for each participant. It aimed to simulate the process of receiving applications with payment and to estimate the decrease in number of participants caused by the new charge. Third, the examination was open to everyone interested in LIS. This meant that this was the first provisional implementation of an examination in which librarians or information specialists could participate in addition to LIS students.

A total of 270 applied, but only 238 took the examination in 2010. About 55% of the participants were students from universities or colleges at graduate or undergraduate level and the remainder came from various libraries/information organizations or other institutions, including government offices and private companies. The same outputs as the previous year were provided for each participant and educational institutions applied for the examination as a group. In addition, the participants who recorded higher scores (more than 90%) were commended. Such commendations were intended to encourage the participants to study further.

ANALYSIS OF EXAMINATION RESULTS

Average scores

The average scores of the examinations over four years are shown in Table 2. There is a large discrepancy between the scores for 2009 and 2010. This may be because the questions were easier in 2010 than in 2009 or previous years, and the high scores achieved by the participants in the nonstudent group increased the average score.

Each question was composed to meet the criteria that 80 percent of the participants could choose the correct answer if they had studied the topic of the question. However, there have been questions with a lower rate of correct answers. The proportion of such questions was drastically decreased in the 2010 examination. This indicated that the committee members became skilled in formulating questions after several years of experience and could formulate the questions at a consistent level of difficulty.

Table 2: Average score

Year	Average score
2007	57.1
2008	54.6
2009	52.5
2010	70.2

Note: Because the number of possible marks is not the same every year, the average score is converted to a percentage.

Score distribution

The score distribution is not normal, and there are multiple peaks (see Figures 1, 2 and 3). The first peak in the results of the 2008 and 2009 examinations is formed by students majoring in LIS. That in the 2010 examination represents the nonstudent participants.

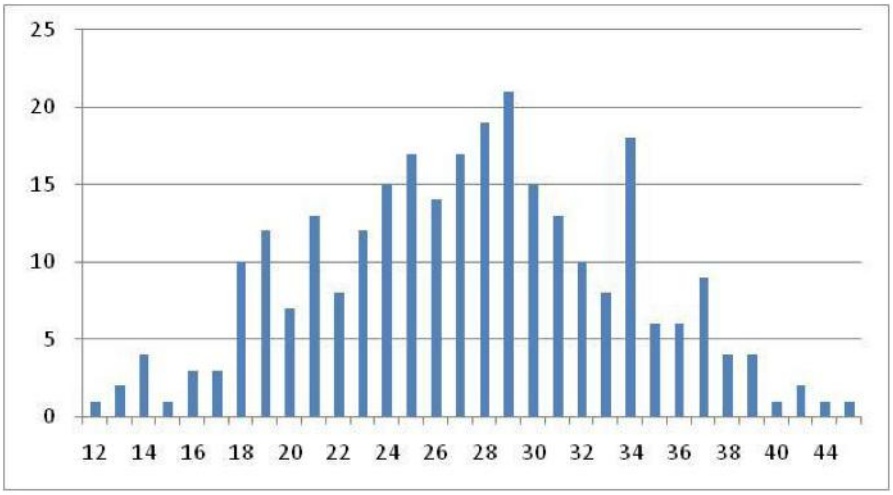

Figure 1: Distribution of Scores (2008)
Note: Full score is 50

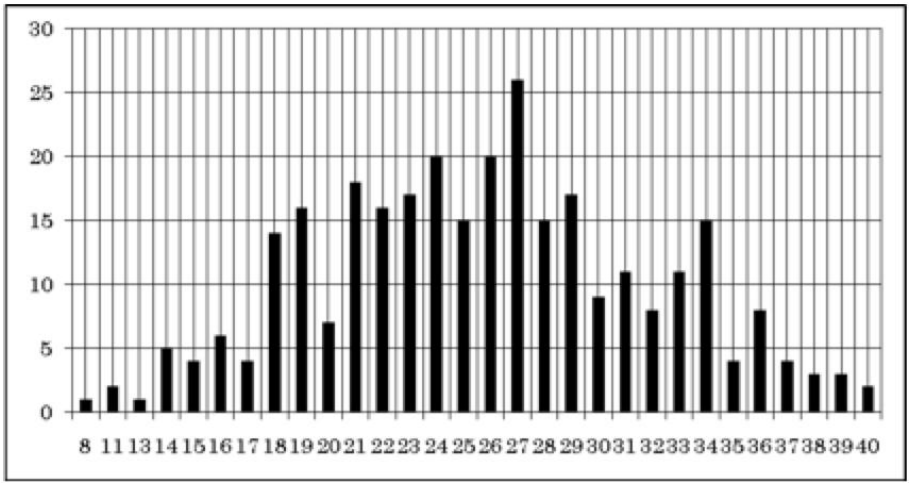

Figure 2: Distribution of Scores (2009)
Note: Full score is 49.

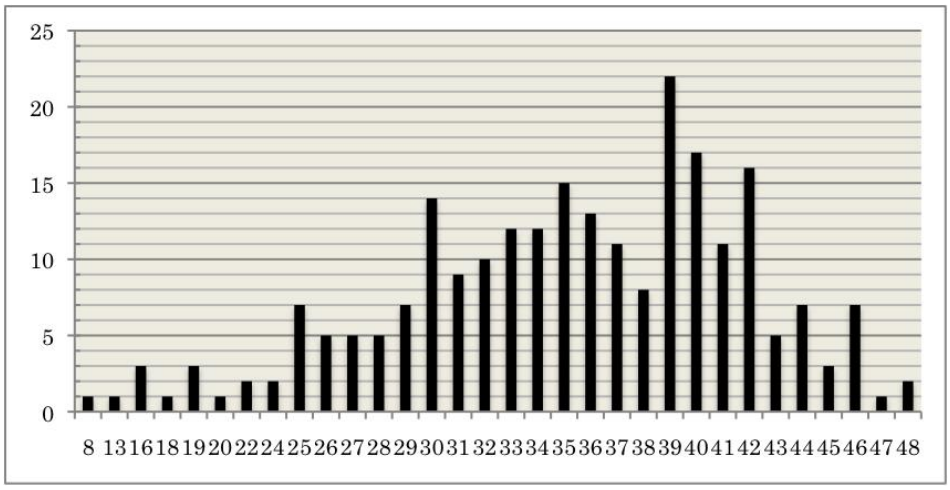

Figure 3: Distribution of Scores (2010)
Note: Full score is 50.

Among the students, the LIS-major students generally achieve higher scores every year. For example, the average score of these students is 10 points higher in the 2008 and 2009 examinations than for those majoring in humanities (see Table 3).

Table 3: Average score by subject background (2008 and 2009)

Subject background		2009		2008	
		Number	Average score	Number	Average score
Social Science	Law	9	49.4	11	52.6
	Economics & Management.	14	52.7	5	48.0
	Sociology	19	49.0	13	55.0
	Subtotal	41	50.4	29	52.8
Humanities		134	49.6	104	50.0
LIS		92	61.0	113	60.0
Others	Informatics	2	62.2	2	60.0
	Science & Technology	3	38.2	4	61.0
	Food & Agriculture	2	38	0	–
	Others	35	76.1	25	50.0
Total		302	52.5	277	54.6

Note: Average score is converted to a percentage

The comparison of average scores by duration of LIS study is shown in Table 4. This indicates that senior students generally achieved higher scores than junior students. Interestingly, the range of average scores among LIS-major participants and those in other disciplines is not large in the 2010 examination, to which allowed nonstudents were admitted (See Table 5). Those who have a science and technology background, although there are very few, tend to achieve higher scores, particularly in the areas of organization of information resources, information media, information systems and digital information.

Table 4: Average score by study years (2008 and 2009)

	2009		2008	
	No.	Ave. score	No.	Ave. score
One year	34	48.0	43	46.4
Two years	98	50.2	101	52.2
Three years	140	54.1	108	58.8
Four years & more	30	58.8	48	60.0
Total	302	52.5	277	54.6

Note: Average score is converted to a percentage

Table 5: Average score by subject background (2010)

Background	No.	Ave. score	SD
LIS	84	75.8	5.1
Humanities	92	68.0	7.4
Social Science	23	65.4	6.8
Science &Technology	7	73.4	5.1
Others	20	60.8	7.8
Not specified	12	70.6	4.7
Total	238	70.2	6.9

DISCUSSION

The results of the provisional examination indicated that senior students who had studied LIS for a longer period in general achieved higher scores than junior students and that those majoring in LIS achieved generally higher scores than did those from the *Shisho* certificate courses, which cover a more limited subject area of LIS than major programs. These results suggest that the examination is a good measure of student proficiency and reflects the quality of the educational programs. For nonstudent participants, it seems the examination is a good opportunity to evaluate and to review their knowledge and skills.

Four years of formulating examination questions has enabled committee members to produce questions at the expected level consistently. The administration of the examination has been stable and is improving, and cooperation with other organization is functioning well.

Through the provisional implementation, however, we have confronted some problems to be solved before full-scale implementation is undertaken.

Lack of standard textbooks covering the scope of the examination

We recognize the need for standard textbooks as a reference framework in formulating examination questions. At the same time, from the comments of examination participants, we recognize that such textbooks would help students or participants prepare for the examination. To accommodate such needs, the preparation of standard textbooks has begun as part of the research project named LIPER3, which is next in the series of LIPER projects. It should be also noted that such textbook must be based on the discussion concerning the core competencies on LIS profession, which is still lacking in Japan.

The lack of an economic base

We have only a low economic base from which to conduct the examination. The past four examinations were implemented with external financial assistance from the Grants-in-Aid for Scientific Research, which is a form of government funding scheme for research, and from the Library Advancement Foundation, one of the major funding agencies for library activities.

According to our rough calculation based on the experience of the past three years, the amount of 2,000,000 Japanese Yen is required annually to implement the examination. Without external financial assistance, 500 participants paying an examination fee of 4,000 Japanese Yen are needed to implement the examination on a cost recovery basis. Considering the rather limited number of participants in the recent examinations, urgent consideration of ways to increase the number of participants is required to achieve sustainability. It is recognized that incentives such as linking the examination records to job opportunities would be a good way to attract the students to the examination, but would require a longer time to realize, if it is feasible.

Lack of awareness of the need for this examination in standardizing ILS education curricula

It seems that the examination is gaining wider attention among those who are concerned with LIS education, but the need for this examination in standardizing curricula has not been recognized. Harmonization between the proposed core areas of LIPER targeted in the

examination and the new 24-credit curriculum for *Shisho* training stipulated by the MEXT ordinance should be sought.

Lack of a mechanism for implementing the examination nationwide

As mentioned in the previous chapters, we established examination venues in Tokyo, Osaka and Tsukuba for the convenience of participants. It is very desirable, however, to have more venues to enable students from around the country to participate in the examination easily. One possible way to achieve this is to share the administrative roles with universities in several regions to provide venues to cover all the areas of Japan.

CONCLUSION

As mentioned above, we still have some problems to be solved before implementing the LIS examination in full scale. We have also expected that the provisional implementation of the examination would stimulate the discussion on the standardization of curricula or on the improvement of the quality of LIS education in Japan. It is not, however, always successful.

The revision of the Public Library Law in 2008 changed the legal status of the *Shisho* training conducted for more than 50 years, incorporating its curriculum into formal university educational programs and introducing the new curriculum in 2012. The evaluation is thus more important than previously. The provisional implementation over four years shows that the examination is a good way to evaluate the outcomes of the program and proves that it is possible to formulate examination questions consistently. However, more participants are needed to continue provision of the examination in a sustainable manner.

It should be noted that the international trend in LIS education is toward professional education at master's level. The professional schools at master's level were legislated in 2003 in Japan. As of May 2010, 130 universities have 184 schools or programs in various areas such as law, education, public health, business management, and public policy (Ministry of Education, Culture, Sports, Science and Technology, 2010). Even though, considering Japan's long tradition that in higher education professional education is borne by undergraduate programs, it is not easy to upgrade our LIS education to master's level in a short period. An initiative such as this examination is therefore just one-step in improving the quality of LIS education along the long road to achieve the global standard.

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