

THE CORRELATION BETWEEN LIBRARY & INFORMATION EDUCATION AND OUTSOURCING IN ACADEMIC LIBRARIES

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Introduction. In recent years, academic libraries in Japan have increasingly been outsourcing functions. Authors have revealed regional differences in the state of outsourcing in academic libraries in former research. We wanted to determine if these differences were due to regional differences in library & information education so we tested this hypothesis.

Method. The authors sent a questionnaire to 704 academic libraries asking which of their services were outsourced and received 358 responses. We calculated the survey results regionally and compared them with some indicators like the number of people who acquired librarian certification, the number of universities that offer library certification courses, the number of universities, and the population density.

Results. There were significant correlations within regions between the state of outsourcing, particularly of public services, and the number of those who acquired library certification, the number of universities that offered library certification courses, and the total number of universities.

Conclusion. There is a correlation between the state of outsourcing in academic libraries and the state of library & information education. In a region that has many people with library certification, and many universities that offer library certification, academic library outsourcing will be widely used. There is little equality in the state of library & information education by region and it is possible that an over-supply of library & information education degrades the status of librarians.

Introduction

In recent years, university management has been required to be more efficient and outsourcing of skilled library services has increasingly been used in academic libraries in Japan. The term outsourcing is used here to refer to outsourcing user services, i.e. the external procurement of services traditionally provided within the library and information services. Furthermore, there are 26 libraries which outsourced all of their skilled services in a survey conducted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2008 and the number has been increasing.

According to Sato & Itsumura's 2008 survey, 90% of academic libraries outsourced some services. Non-professional services like binding or circulation services are frequently outsourced, but professional services like original cataloging (outsourced 26.9%) or reference services (19.5%) are also outsourced.

One of the reasons outsourcing has been increasingly used in academic libraries is that there are too many people who have library qualifications. The legally recognized qualification of librarian (Shisho) only applies to public libraries in Japan, but many academic libraries require candidates to get Shisho because there is no official qualification for academic librarians in Japan. According to Itsumura et al., researching in 2005, 76% of academic librarians have Shisho qualifications. Any students can get the Shisho qualification by taking a minimum of 20 credits as requested by the ordinance, so more than 10,000 students obtain the qualification every year. But the number of students who can get full-time jobs in libraries is only hundreds. As a result, many people who have Shisho qualification work in libraries as part-time workers, temporary staff and outsourcing staff. In Sato & Itsumura's 2008 research, some library outsourcers said that people who had the qualification but could not get full-time jobs had become cheap labor and so made the library outsourcing market larger.

However, not all academic libraries have been able to secure outsourcing staff with Shisho qualifications. According to Sato & Itsumura's survey, the state of academic libraries' outsourcing varies with the regions, and libraries in rural areas have not been able to get enough outsourcing staff. Conversely, in the region where a lot of Shisho qualified people exist, it is assumed that academic library outsourcing will increase easily.

Therefore, we hypothesize that there is some relationship between the state of academic libraries' outsourcing and that of library & information education. The aim of this research is to reveal one of the decision making criteria for academic libraries' outsourcing, and the influence of the over-production of Shisho qualified graduates.

Literature Review

There have been some previous studies about decision making factors in academic libraries' outsourcing. Benaud et al. (1998) conducted a survey of ARL and non-ARL libraries. It showed that technical service outsourcing is more prevalent in libraries that have larger collections than those with smaller collections, and in ARL libraries than non-ARL libraries. Libby & Caudle (1997) studied academic libraries' cataloging outsourcing and showed that the size of the collection and number of new titles received annually affected the decision to outsource. Blecic et al. (1997) conducted a survey of North American academic health sciences libraries, and they showed that "outsourcing of resource selection [was] not currently being considered by any library surveyed" because of "budgetary limitations".

In Asia, Ti Yu (2005) studied catalog outsourcing in Taiwanese institutes of technology and technical colleges and showed "availability of human resources" was the key decision factor for libraries in making catalog outsourcing decisions. Kim conducted a survey for Korean academic libraries in 2003, and for Japanese academic libraries in 2006. Both of these showed that outsourcing was prevalent in cataloging. Particularly in Japan, outsourcing was more often used in private universities than national and public universities. A survey conducted by a project team in Rikkyo University in 2008 also showed that private university libraries used outsourcing more often than national university libraries. In addition, Hasegawa (2007) studied special libraries including research libraries and revealed that there was a difference in the state of outsourcing depending on the floor space. And the survey conducted by Sato & Itsumura for Japanese academic libraries in 2008 revealed there was a difference in the state of outsourcing depending on each university, and concluded that academic library outsourcing was most widely used in private, medium scale and educationally-oriented universities in urban areas.

As stated above, the factors that have been assumed to be related to the outsourcing in academic libraries are as follows:

- 1) Scale of libraries (size of collection, number of new titles received annually, budgets, availability of human resources, and floor space)
- 2) Classification of universities (national, public or private)
- 3) Function of universities (education-oriented or research-oriented, ARL or non-ARL etc.)
- 4) Location

This research handles location of universities among the above. In addition, we analyze the influence of library & information education in each region including the number of those who acquire the Shisho qualification, and the number of institutions which have library & information education courses, as compared to academic library outsourcing.

Method

The state of outsourcing in academic libraries

As the data of the state of outsourcing in academic libraries in Japan, we use Sato and Itsumura's 2008 survey results. The survey was conducted from June to August 2007. The questionnaires were distributed to 704 academic libraries. Respondents were asked to indicate which of their services were

outsourced by choosing "done by staff", "outsourced" or "service is not offered" for each potential library service. We received 358 valid responses: a response rate of 51% and calculated the outsourcing rate of technical/public services by region. In that study, we divided Japanese academic libraries into 8 regions: Hokkaido, Tohoku, Kanto & Koshin'etsu, Tokyo, Hokuriku & Tokai, Kinki, Chugoku & Shikoku, and Kyushu according to the national university regional division. But some bundled regions like Kanto & Koshin'etsu are thought to have a different approach to outsourcing. Therefore, in this research, we separate those bundled regions and calculate outsourcing rate (outsourced / (done by staff + outsourced) * 100) of technical/public services operations in each of 11 regions (See Appendix: Region list).

The state of library & information education

For the data of the state of library & information education in each of the 11 regions, in this report we use the number of those who acquired the Shisho qualification and the number of institutions which had Shisho certification courses in 2005. The data was retrieved from the survey conducted by Nihon toshokan kyokai toshokangaku kyoiku bukai (Japan Library Association Library Education Committee) in 2008.

There are four ways to acquire the Shisho qualification in Japan. Students can get the required credits:

- 1) in a university
- 2) in a two-year-college
- 3) in distance-learning
- 4) in short term courses.

Very few people use distance-learning or short courses.

We counted 6 main characteristics in each of the 11 regions:

- 1) Those who acquired the Shisho qualification in university (Shisho acquired in university)
- 2) Universities which offer Shisho certification courses (Universities offer Shisho courses)
- 3) Those who acquired Shisho qualifications in two-year-colleges (Shisho acquired in college)
- 4) Two-year-colleges which offer Shisho certification courses (Colleges offer Shisho courses)
- 5) Total number of those who acquired the Shisho qualification (Total number of Shisho)
- 6) Total number of institutions which offer a Shisho certification course (Total number of institutions)

Population / population density

The population and population density of each region may also affect outsourcing in academic libraries because many outsourcers and people who have Shisho qualifications are in urban areas. Therefore we confirmed the relationship between population, population density and the state of outsourcing in each region. The population data was retrieved from 2005 population census of Japan (Somusho Tokeikyoku, 2006).

The number of universities

The number of universities in a region can also affect outsourcing in the academic libraries because outsourcers will gather for work in regions where there are many universities. That is why we counted the number of universities in each region. The data was retrieved from Gakko kihon chosa conducted by MEXT in 2008.

We calculated each indicator and analyzed the correlation between them using SPSS15.0J.

Results

The state of outsourcing in academic libraries

Table 1 shows outsourcing rates of technical services in each of the 11 regions. Regarding technical services, the outsourcing rates are higher in Tokyo, Kinki and Tokai. In Tokai, the cataloging outsourcing rate is lower than in the other two regions. In Tokyo, the selection outsourcing rate is lower than in the other two regions. All the rates are lower in Hokuriku and Koshin'estu, and some are lower in Chugoku and Shikoku.

Table 1.

	Hokkaido (N=26)	Tohoku (N=26)	Tokyo (N=52)	Kanto (N=54)	Koshin'estu (N=18)	Hokuriku (N=9)	Tokai (N=37)	Kinki (N=65)	Chugoku (N=22)	Shikoku (N=11)	Kyushu (N=38)	Total (N=358)
Technical services planning	0.0	4.2	6.8	4.2	5.9	0.0	6.1	8.6	0.0	0.0	3.0	4.7
Selection	0.0	8.3	4.4	8.3	5.9	0.0	15.2	10.2	0.0	0.0	2.9	6.5
Abstracting and indexing	7.1	8.3	14.8	7.1	0.0	0.0	17.6	10.7	0.0	0.0	5.9	8.7
Authority control	18.8	14.3	23.5	12.1	0.0	0.0	26.9	23.4	6.7	0.0	3.7	15.4
Classification	21.7	12.5	47.8	22.9	11.8	0.0	36.4	44.3	14.3	0.0	14.3	27.4
Original cataloging	20.0	14.3	45.5	29.8	0.0	0.0	20.7	42.4	17.6	10.0	16.7	26.9
Copy cataloging	31.8	23.8	55.6	32.6	0.0	11.1	31.3	52.5	16.7	20.0	25.8	34.7
Withdrawal	4.3	5.0	14.3	10.6	5.9	0.0	15.6	16.9	0.0	18.2	8.6	10.8
Mending and simple book binding	21.7	17.4	31.1	21.3	6.3	0.0	45.2	40.7	10.0	18.2	22.9	26.3
Acquisitions	12.5	12.5	37.0	16.3	5.9	0.0	27.3	34.4	0.0	18.2	14.3	20.9
Physical processing	37.5	25	52.2	26.5	17.6	11.1	48.5	53.2	15.0	36.4	25.7	36.7
Shelving and shelf reading	13.0	16.7	41.3	22.9	11.8	22.2	48.5	52.5	14.3	36.4	28.6	32.3

Table 2.

	Hokkaido (N=26)	Tohoku (N=26)	Tokyo (N=52)	Kanto (N=54)	Koshin'estu (N=18)	Hokuriku (N=9)	Tokai (N=37)	Kinki (N=65)	Chugoku (N=22)	Shikoku (N=11)	Kyushu (N=38)	Total (N=358)
Public services planning	0.0	4.2	9.1	4.2	5.9	0.0	6.3	16.4	5.0	0.0	3.0	6.9
User education tool development	0.0	9.1	11.1	4.5	6.3	0.0	9.4	20.0	15.0	0.0	3.0	9.3
Instruction	7.7	6.7	5.1	8.6	16.7	0.0	12.0	25.0	10.0	0.0	5.3	11.8
Orientation	0.0	8.3	9.1	10.4	5.9	0.0	27.3	34.9	9.5	9.1	11.4	15.3
Bibliographic verification for ILL and document delivery	9.1	9.1	25.0	10.4	5.9	11.1	25.0	37.5	4.8	0.0	17.1	18.8
Reference services	0.0	8.3	17.8	12.5	5.9	11.1	30.3	42.2	9.5	9.1	17.1	19.5
User support for DB use	18.2	13.0	31.8	13.0	5.9	11.1	42.4	41.3	9.5	9.1	17.1	24.1
User support for catalog use	9.1	12.5	26.1	17.0	11.8	22.2	39.4	42.9	9.5	18.2	14.3	23.8
ILL and document delivery operation	13.6	9.1	41.3	18.4	5.9	22.2	28.1	46.9	4.8	0.0	17.1	25.0
Circulation services	33.3	16.7	62.5	40.0	17.6	22.2	58.8	59.4	14.3	18.2	34.3	42.1

Table 2 shows the outsourcing rate of public services in each of the 11 regions. Regarding public services, the outsourcing rate is highest in Kinki and second highest in Tokai. Except for non-professional services like "circulation services" and "ILL and document delivery operations", the public services outsourcing rate is lower in Tokyo than Kinki and Tokai, unlike for technical services.

Among other regions, it is a little higher in Kanto but in others, the public services outsourcing rate is low.

Comparing Sato & Itsumura's 2008 study, this analysis revealed differences between Hokuriku and Tokai as a result of separating the regions.

The state of library & information education, population/population density, the number of universities

Table 3 shows the state of library & information education, population/population density and the number of universities in each of the 11 regions.

As shown in Table 3, there are regional differences in the total number of institutions that offer Shisho certification courses and total number of people who acquired Shisho qualifications. Kinki, Kanto and Tokyo have more than 40 institutions which offer Shisho certification courses. Kyushu and Tokai have more than 20. Hokuriku has no universities that offer Shisho certification courses and only 2 two-year-colleges which offer them. Hokkaido, Koshin'estu and Shikoku also have less than 10 institutions. With respect to the number of people who acquired Shisho qualifications, Kinki, Tokyo, Kanto, Tokai and Kyushu have more than 1000 qualified people. 80% of all the people who acquired the qualification are in these 5 regions. On the other hand, there are only 27 people who acquired Shisho certification in Hokuriku. It is the one and only region that has less than 100 people who acquired the qualification.

Population density is by far highest in Tokyo and lowest in Hokkaido, not surprisingly. The number of universities is larger in Kinki, Tokyo, Kanto, Tokai and Kyushu and smaller in Shikoku and Hokuriku.

Table 3.

	Universities offer Shisho courses	Colleges offer Shisho courses	Total number of institutions	Shisho acquired in university	Shisho acquired in college	Total number of Shisho	Population	Population density	The number of universities
Hokkaido	3	6	9	157	226	383	5,627,737	67.4	36
Tohoku	8	6	15	366	276	642	9,634,917	144.0	45
Tokyo	29	9	42	1506	251	2148	12,576,601	5,750.7	134
Kanto	23	14	44	1078	296	1799	28,918,235	956.4	114
Koshin'estu	2	4	6	69	88	157	5,512,088	180.1	34
Hokuriku	0	2	2	0	27	27	3,107,347	246.2	21
Tokai	15	4	21	730	74	1028	15,021,270	511.9	84
Kinki	40	14	49	1663	235	2902	20,893,067	764.3	149
Chugoku	8	5	14	416	117	599	7,675,747	240.5	51
Shikoku	2	3	5	135	15	150	4,086,457	217.3	16
Kyushu	11	8	22	537	187	1039	14,714,528	331.0	81
Total	141	75	229	6,657	1,792	10,874	127,767,994	338.1	765

Correlation between outsourcing rate and each indicator

Table 4 and Table 5 show the correlation between the outsourcing rates of each service and the number of institutions that offer Shisho certification courses, the number of people who acquired Shisho qualification, population/population density, and the number of universities in each region. Statistically significant correlation is single underlined when $p < 0.05$, and double underlined when $p < 0.01$. The indicator names are underlined when they have significant correlation with more than 10 services' outsourcing rates.

As shown in the tables, the number of universities that offer Shisho certification courses, the total number of institutions that offer Shisho certification courses, the number of people who acquired Shisho qualifications in universities, the total number of people who acquired Shisho qualifications,

and the number of universities, correlate with the rates of more than 16 services' outsourcing. However, the numbers of two-year-colleges which offer Shisho certification courses and people who acquired Shisho certification in two-year-colleges both correlate with only 2 or 4 services.

Regarding technical services, the outsourcing rates of "classification", "original cataloging" and "copy cataloging" often correlate with many indicators. Particularly, 5 underlined indicators have high correlation coefficients with those 3 services (correlation coefficient > 0.8).

In public services, the correlation coefficients between the number of universities which offer Shisho certification and services' outsourcing rates are often higher than others. In addition, outsourcing rates of "public services planning", "bibliographic verification for ILL and document delivery" and "ILL and document delivery operation" have high correlation coefficients with 5 underlined indicators (correlation coefficient > 0.7).

In many cases, population and population density do not correlate with outsourcing rates. Particularly in public services, there is no significant correlation between those 2 indicators and outsourcing rates.

As shown above, there are significant correlations between the regional outsourcing rates and the number of universities which offer Shisho certification courses, the number of those who acquired Shisho qualifications in university, and the number of universities. Particularly, cataloging services, "public services planning" and ILL services have high correlation coefficients with each indicator.

However, it is worth noting the correlation between indicators. Table 6 shows the correlation between indicators and that there are very high correlations between the number of universities and each of the other underlined indicators (correlation coefficient > 0.95).

Table 4.

		Technical services planning	Selection	Abstracting and indexing	Authority control	Classification	Original cataloging	Copy cataloging	Withdrawal	Mending and simple book binding	Acquisitions	Physical processing	Shelving and shelf reading
Universities offer Shisho courses	Pearson Correlation	<u>0.7667</u>	0.5475	<u>0.6535</u>	<u>0.6836</u>	<u>0.8605</u>	<u>0.9174</u>	<u>0.8606</u>	0.5819	<u>0.7227</u>	<u>0.8054</u>	<u>0.6943</u>	<u>0.6923</u>
	Sig. (2-tailed)	0.0059	0.0813	0.0292	0.0204	0.0007	0.0001	0.0007	0.0604	0.0120	0.0028	0.0178	0.0182
Colleges offer Shisho courses	Pearson Correlation	0.5668	0.3850	0.4140	0.4634	<u>0.6238</u>	<u>0.7924</u>	<u>0.6994</u>	0.3783	0.4909	0.5464	0.4253	0.3336
	Sig. (2-tailed)	0.0690	0.2423	0.2056	0.1511	0.0403	0.0036	0.0166	0.2513	0.1252	0.0820	0.1923	0.3161
Total number of institutions	Pearson Correlation	<u>0.7112</u>	0.5213	<u>0.6317</u>	<u>0.6330</u>	<u>0.8123</u>	<u>0.9131</u>	<u>0.8331</u>	0.5294	<u>0.6633</u>	<u>0.7440</u>	<u>0.6070</u>	0.5753
	Sig. (2-tailed)	0.0141	0.1001	0.0371	0.0366	0.0024	0.0001	0.0015	0.0940	0.0261	0.0087	0.0477	0.0640
Shisho acquired in university	Pearson Correlation	<u>0.7471</u>	0.5198	<u>0.6877</u>	<u>0.6990</u>	<u>0.8808</u>	<u>0.9446</u>	<u>0.8856</u>	0.5884	<u>0.7260</u>	<u>0.8269</u>	<u>0.7097</u>	<u>0.6906</u>
	Sig. (2-tailed)	0.0082	0.1013	0.0193	0.0167	0.0003	0.0000	0.0003	0.0569	0.0114	0.0017	0.0144	0.0186
Shisho acquired in college	Pearson Correlation	0.4169	0.2821	0.4733	0.5284	0.5331	<u>0.6736</u>	<u>0.6180</u>	0.0632	0.3409	0.3859	0.3001	-0.0256
	Sig. (2-tailed)	0.2022	0.4007	0.1414	0.0947	0.0913	0.0231	0.0427	0.8536	0.3050	0.2412	0.3700	0.9406
Total number of Shisho	Pearson Correlation	<u>0.7451</u>	0.5165	<u>0.6466</u>	<u>0.6702</u>	<u>0.8504</u>	<u>0.9253</u>	<u>0.8699</u>	0.5600	<u>0.7118</u>	<u>0.7927</u>	<u>0.6781</u>	<u>0.6593</u>
	Sig. (2-tailed)	0.0085	0.1038	0.0316	0.0240	0.0009	0.0000	0.0005	0.0732	0.0140	0.0036	0.0218	0.0274
Population	Pearson Correlation	0.5774	<u>0.6241</u>	0.5209	0.4713	0.5741	<u>0.6653</u>	0.5714	0.4339	0.5716	0.5082	0.3706	0.4101
	Sig. (2-tailed)	0.0629	0.0401	0.1004	0.1434	0.0648	0.0255	0.0663	0.1824	0.0662	0.1105	0.2619	0.2103
Population density	Pearson Correlation	0.4312	0.0601	0.5049	0.4357	<u>0.6355</u>	<u>0.6670</u>	<u>0.6460</u>	0.3424	0.3181	<u>0.6252</u>	0.5072	0.3850
	Sig. (2-tailed)	0.1855	0.8606	0.1132	0.1804	0.0356	0.0250	0.0318	0.3026	0.3404	0.0397	0.1113	0.2423
The number of universities	Pearson Correlation	<u>0.7687</u>	0.5564	<u>0.6987</u>	<u>0.6802</u>	<u>0.8796</u>	<u>0.9101</u>	<u>0.8425</u>	0.5316	<u>0.7206</u>	<u>0.7805</u>	<u>0.6531</u>	<u>0.6412</u>
	Sig. (2-tailed)	0.0057	0.0754	0.0168	0.0213	0.0004	0.0001	0.0011	0.0924	0.0124	0.0046	0.0293	0.0335

Table 5.

		Public services planning	User education tool development	Instruction	Orientation	Bibliographic verification for ILL and document delivery	Reference services	User support for DB use	User support for catalog use	ILL and document delivery operation	Circulation services
Universities offer Shisho courses	Pearson Correlation	<u>0.8700</u>	<u>0.7135</u>	0.5704	<u>0.7297</u>	<u>0.8385</u>	<u>0.7859</u>	<u>0.7380</u>	<u>0.6833</u>	<u>0.8379</u>	<u>0.8159</u>
	Sig. (2-tailed)	0.0005	0.0137	0.0669	0.0108	0.0013	0.0041	0.0095	0.0205	0.0013	0.0022
Colleges offer Shisho courses	Pearson Correlation	<u>0.6348</u>	0.4674	0.4993	0.4769	0.5633	0.4859	0.3975	0.3130	0.5699	0.5674
	Sig. (2-tailed)	0.0359	0.1472	0.1179	0.1380	0.0711	0.1297	0.2261	0.3487	0.0672	0.0687
Total number of institutions	Pearson Correlation	<u>0.7587</u>	0.6011	0.4735	<u>0.6140</u>	<u>0.7342</u>	<u>0.6617</u>	<u>0.6249</u>	0.5421	<u>0.7542</u>	<u>0.7747</u>
	Sig. (2-tailed)	0.0068	0.0505	0.1413	0.0445	0.0101	0.0266	0.0398	0.0850	0.0073	0.0051
Shisho acquired in university	Pearson Correlation	<u>0.8304</u>	<u>0.6843</u>	0.4877	<u>0.6775</u>	<u>0.8146</u>	<u>0.7422</u>	<u>0.7336</u>	<u>0.6529</u>	<u>0.8334</u>	<u>0.8371</u>
	Sig. (2-tailed)	0.0016	0.0202	0.1281	0.0220	0.0023	0.0089	0.0102	0.0294	0.0014	0.0013
Shisho acquired in college	Pearson Correlation	0.3802	0.3198	0.2694	0.1182	0.3475	0.0986	0.2286	-0.0463	0.3663	0.3697
	Sig. (2-tailed)	0.2488	0.3377	0.4230	0.7294	0.2951	0.7731	0.4989	0.8925	0.2679	0.2631
Total number of Shisho	Pearson Correlation	<u>0.8415</u>	<u>0.6768</u>	0.5473	<u>0.6954</u>	<u>0.8279</u>	<u>0.7555</u>	<u>0.7136</u>	<u>0.6367</u>	<u>0.8279</u>	<u>0.8097</u>
	Sig. (2-tailed)	0.0012	0.0222	0.0814	0.0175	0.0017	0.0072	0.0137	0.0352	0.0017	0.0025
Population	Pearson Correlation	0.5262	0.3868	0.4220	0.5752	0.5350	0.5580	0.4496	0.4156	0.5043	0.6019
	Sig. (2-tailed)	0.0964	0.2400	0.1961	0.0641	0.0900	0.0745	0.1653	0.2037	0.1137	0.0501
Population density	Pearson Correlation	0.3766	0.2624	-0.0958	0.0313	0.4130	0.1868	0.3895	0.2599	0.5829	0.5962
	Sig. (2-tailed)	0.2536	0.4357	0.7794	0.9273	0.2068	0.5823	0.2364	0.4403	0.0598	0.0529
The number of universities	Pearson Correlation	<u>0.8117</u>	<u>0.6457</u>	0.5186	<u>0.6692</u>	<u>0.8320</u>	<u>0.7384</u>	<u>0.7256</u>	<u>0.6209</u>	<u>0.8325</u>	<u>0.8498</u>
	Sig. (2-tailed)	0.0024	0.0319	0.1022	0.0243	0.0015	0.0095	0.0115	0.0415	0.0015	0.0009

Table 6.

		Universities offer Shisho courses	Colleges offer Shisho courses	Total number of institutions	Shisho acquired in university	Shisho acquired in college	Total number of Shisho	Population	Population density	The number of universities
Universities offer Shisho courses	Pearson Correlation	1.0000	<u>0.8540</u>	<u>0.9681</u>	<u>0.9906</u>	0.5881	<u>0.9957</u>	<u>0.7740</u>	0.5389	<u>0.9745</u>
	Sig. (2-tailed)		0.0008	0.0000	0.0000	0.0571	0.0000	0.0052	0.0872	0.0000
Colleges offer Shisho courses	Pearson Correlation	<u>0.8540</u>	1.0000	<u>0.9236</u>	<u>0.8303</u>	<u>0.7939</u>	<u>0.8865</u>	<u>0.8858</u>	0.3073	<u>0.8581</u>
	Sig. (2-tailed)	0.0008		0.0001	0.0016	0.0035	0.0003	0.0003	0.3579	0.0007
Total number of institutions	Pearson Correlation	<u>0.9681</u>	<u>0.9236</u>	1.0000	<u>0.9728</u>	<u>0.6949</u>	<u>0.9791</u>	<u>0.8745</u>	0.5491	<u>0.9792</u>
	Sig. (2-tailed)	0.0000	0.0001		0.0000	0.0176	0.0000	0.0004	0.0802	0.0000
Shisho acquired in university	Pearson Correlation	<u>0.9906</u>	<u>0.8303</u>	<u>0.9728</u>	1.0000	0.5955	<u>0.9877</u>	<u>0.7618</u>	<u>0.6328</u>	<u>0.9816</u>
	Sig. (2-tailed)	0.0000	0.0016	0.0000		0.0532	0.0000	0.0064	0.0367	0.0000
Shisho acquired in college	Pearson Correlation	0.5881	<u>0.7939</u>	<u>0.6949</u>	0.5955	1.0000	<u>0.6369</u>	<u>0.6347</u>	0.3465	<u>0.6252</u>
	Sig. (2-tailed)	0.0571	0.0035	0.0176	0.0532		0.0351	0.0359	0.2965	0.0397
Total number of Shisho	Pearson Correlation	<u>0.9957</u>	<u>0.8865</u>	<u>0.9791</u>	<u>0.9877</u>	<u>0.6369</u>	1.0000	<u>0.7955</u>	0.5355	<u>0.9816</u>
	Sig. (2-tailed)	0.0000	0.0003	0.0000	0.0000	0.0351		0.0034	0.0896	0.0000
Population	Pearson Correlation	<u>0.7740</u>	<u>0.8858</u>	<u>0.8745</u>	<u>0.7618</u>	<u>0.6347</u>	<u>0.7955</u>	1.0000	0.1950	<u>0.8210</u>
	Sig. (2-tailed)	0.0052	0.0003	0.0004	0.0064	0.0359	0.0034		0.5656	0.0020
Population density	Pearson Correlation	0.5389	0.3073	0.5491	<u>0.6328</u>	0.3465	0.5355	0.1950	1.0000	0.5848
	Sig. (2-tailed)	0.0872	0.3579	0.0802	0.0367	0.2965	0.0896	0.5656		0.0588
The number of universities	Pearson Correlation	<u>0.9745</u>	<u>0.8581</u>	<u>0.9792</u>	<u>0.9816</u>	<u>0.6252</u>	<u>0.9816</u>	<u>0.8210</u>	0.5848	1.0000
	Sig. (2-tailed)	0.0000	0.0007	0.0000	0.0000	0.0397	0.0000	0.0020	0.0588	

Discussion

In this research, we revealed the regional state of outsourcing in academic libraries, the regional state of library & information education, and the correlation between these in Japan. The state of outsourcing in academic libraries and the state of library & information education vary from region to region, and these do not always correlate with the population or population density. Academic library outsourcing is used more in the regions that have many people who acquired Shisho qualifications, and universities that offer Shisho certification courses than in the regions which have fewer of these. There may be some relationship between regional higher education, library & information education and academic libraries' outsourcing. In the region where many students acquire Shisho qualifications, many people who have Shisho qualifications cannot work at libraries as full-time staff, and they become the human resource for outsourcing. This research showed that an over-supply of library & information education could degrade the status of librarians. On the other hand, there are some regions where students cannot acquire library qualifications in Japan. We must consider library & information education not only from a national view but also its regional appropriateness.

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Appendix: Region List

Region	Prefecture
Hokkaido	Hokkaido
Tohoku	Aomori
	Iwate
	Miyagi
	Akita
	Yamagata
	Fukushima
Tokyo	Tokyo
Kanto	Ibaraki
	Tochigi
	Gunma
	Saitama
	Chiba
	Kanagawa
Koshin'estu	Niigata
	Yamanashi
	Nagano
Hokuriku	Toyama
	Ishikawa
	Fukui
Tokai	Gifu
	Shizuoka
	Aichi
	Mie

Region	Prefecture
Kinki	Shiga
	Kyoto
	Osaka
	Hyogo
	Nara
	Wakayama
Chugoku	Tottori
	Shimane
	Okayama
	Hiroshima
Shikoku	Yamaguchi
	Tokushima
	Kagawa
	Ehime
Kyushu	Kochi
	Fukuoka
	Saga
	Nagasaki
	Kumamoto
	Oita
	Miyazaki
	Kagoshima
Okinawa	

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