

Issues on Cataloguing Operations of Technological University and College Libraries in Taiwan

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This paper identified 17 known issues that university and/ or college libraries are often faced with in cataloguing operations and investigated them by surveying 73 technological university and college libraries in Taiwan in May and June, 2006. The feedback from the different institutions was compared and tested by T-test and ANOVA to examine the difference in frequency of occurrence of these issues among the libraries in different types of institutions. Some significant findings in this study are: (1) lack of manpower, accumulating backlogs, high turnover rate of student assistants, difficulty controlling the quality of cataloguing and limited chances of on-the-job

training are the five most frequently occurring issues on cataloguing operations of the technological university and college libraries in Taiwan; (2) private technological institution libraries face more cataloguing operations issues and face them more often than do their public counterparts; (3) technological two-year college libraries on average face cataloguing operations issues more frequently than technological four-year college and technological university libraries. The results of this study indicate that the challenges are minimized with more financial resources and that libraries become quality-oriented as they evolve.

Introduction

Cataloguing is a significant part of the technical services provided by a library. Read (2003, ix) commented:

The upside of the job is that you are the one who provides clues (in the form of catalogue records) which enable your colleagues and your clients to find the information they need quickly and efficiently, and the downside is that cataloguing can often be boring and repetitive. Positive feedback from users of the catalogue is rare.

If we believe that a sense of achievement is an essential motivation for providing quality output, then Read's observation may create quite a challenge for management in charge of cataloguing operations.

As a director of library services in a technological institution the author is interested in understanding how this issue creates a challenge for cataloguing operations in the educational institutions in Taiwan. In addition, it would be interest-

ing to find out if different institutions are faced with different problems in their cataloguing operations. By profiling, compiling and comparing the perspectives of a sizable population of institutions, the identified variances and similarities will help characterize each issue clearly and in depth. Hopefully, this will then lead to the point where productive resolutions can be pursued and developed.

Objective

In order to explore the above-mentioned issues, a questionnaire survey was conducted regarding issues and problems gathered from relevant literatures and from the opinions of the senior heads of the cataloguing department of the libraries in two technological institutions. The objectives of this study are as follows:

1. Determine the significance of the issues faced by the libraries of technological universities and colleges in Tai-

wan in their cataloguing operations, in order to help establish a basis for setting priorities to solve these issues.

2. Investigate the difference in frequency of occurrence of these issues among the libraries of different types of technological universities and colleges, and then analyze the correlations identified so as to provide a deeper understanding of the issue.

Literature review

The basic purpose of cataloguing is first and foremost to provide a record of what resources are available in the collection or collections being described. The second purpose is to enable users of these collections to find information on those subjects they are interested in. Thus, the task of cataloguing can be broken down into two parts: (1) descriptive cataloguing and (2) subject cataloguing (Read 2003).

Morris and Wool (1999) summarized four important values of cataloguing: (1) an effective reference service depends on quality cataloguing; (2) effective collection management depends on quality cataloguing; (3) effective resource sharing depends on quality cataloguing; and (4) effective database automation depends on quality cataloguing. In other words, they felt that cataloguing was an essential building block of a library and the basis for the successful operation of a library.

During the past decade, cataloguing operations have changed considerably. Modern information technologies, including PCs, CD-ROMs, and the Internet, are increasingly providing more powerful and more user-friendly computing platforms to the cataloguers. The cataloguers are increasingly capable of performing multiple tasks on their desktops, such as accessing local systems, bibliographic utilities, online cataloguing publications and OPACs of their own and other libraries (Khurshid 2001). In addition, the explosive development and growth of information technology, including electronic publishing and the development of digital libraries have had major impacts on how information is organized in the library today (Wang 2000).

As a result, cataloguers must face these changes and challenges and must develop effective ways to cope with the new cataloguing requirements. Stamm (2000, 312) commented:

The key to the management of a successful cataloguing operation today consists of three important factors: flexi-

bility, the willingness to take risks and try new things, and the acceptance of the inevitability of change.

To better prepare for the changing future of cataloguing, this study started by collecting the latest pertinent information and expert insights available in the literature. The purpose of this exercise was to compile all known issues that cataloguers might have to deal with and any possible strategies for solving them based on the experience and opinion of professional librarians and experts in the field of librarianship.

In Taiwan, over 80 percent of libraries in technological universities and colleges face a serious lack of manpower (Yang 2004). There have been three surveys conducted on the cataloguing operations in the libraries of universities and colleges in Taiwan during the past five years. The first survey was conducted by Lin (2001). A total of 17 cataloguing department heads from libraries in the universities and colleges in the southern part of Taiwan were interviewed in person. That survey found that "lack of manpower" and "accumulating backlogs" were the most serious issues among these seventeen university and college libraries in Taiwan.

The second survey was conducted by Teng (2003). This survey was based on responses to questionnaires distributed to 46 university and 55 college libraries in Taiwan. This study outlined several common problems including: (1) large backlogs; (2) limited language ability of the cataloguers; (3) weak subject background of the cataloguers; (4) increasingly complicated material formats; (5) limited human resources in the cataloguing department; (6) the boring and repetitive nature of cataloguing; (7) limited chances for on-the-job training for cataloguers; (8) cataloguers with weak professional skills and knowledge; and (9) the issue of cataloguing at the minimal level or at the full level.

The third survey was conducted by Chiang (2004). She surveyed 89 university and college libraries, all of them with experience in outsourcing cataloguing. The results of her questionnaire-based survey indicated that the key reasons for outsourcing cataloguing were lack of manpower, substantial backlogs, increasing costs and a lack of strong language skills and subject background on the part of the cataloguers.

All of these above-mentioned comments are mainly from the perspectives of Taiwanese re-

searchers observing the domestic status. To cover these issues more in-depth, this study also reviewed some foreign papers describing the practical experiences of university and college libraries in dealing with the issues of cataloguing operations. According to the experience of Yale University Library, the main difficulties they faced included human resources issues such as recruitment of new catalogue librarians, qualified support staff, as well as staff training and development. In addition, they also strove to increase their cataloguing production, rationalize the workflows, and improve the managing of their backlogs (Swanekamp 2000).

In the Lied Library in the University of Nevada, Las Vegas, the library administrators restructured their organization to prepare for future role changes, from dealing with printed materials to dealing with digital and electronic materials (Eden & Bierman 2002). While large institutions might pursue specialization, this may not be possible for smaller institutions. For instance, the staff at a small college library, like in Warren Wilson College, performs a variety of tasks wider than that of their counterparts in a larger library in a major university. Since cataloguers at small college libraries often need to cover functions other than cataloguing, maintaining a good quality of cataloguing can become a major challenge. The use of part-time resources, such as student assistants, is a common method to provide additional support to the need for human resources. However, the high turnover rate and the limited professional knowledge of student assistants is an additional challenge to the already overburdened cataloguers who now also have to train these students (Mah 2000).

Finally, this study outlined seventeen issues that university and/or college libraries are often faced with (see Table 1). In addition, these issues can be grouped into four categories. Issues 1 to 4 are related to dealing with the change in format. Issues 5 to 9 are related to efficiency and effectiveness. Issues 10 to 12 deal with the quantitative aspect of human resources, while issues 13 to 17 deal with the qualitative aspect of human resources.

Methodology

The instrument used in this study for data collection is a questionnaire designed by the author based on the study objectives and a review of the

Table 1. Issues of cataloguing operations in university and college libraries.

Issues
<i>Variety of collection formats</i>
1. Challenge of cataloguing electronic resources
2. Challenge of cataloguing internet resources
3. Dealing with various material formats
4. Moving into digitized collection
<i>Processes productivity</i>
5. Accumulating backlogs
6. Increasing costs of cataloguing
7. Difficult to control the quality of cataloguing
8. Incomplete bibliographic records
9. Choice of cataloguing at the minimal or at the full level
<i>Human resources – quantitative aspect</i>
10. Lack of manpower
11. Difficult to find suitable professional cataloguers
12. High turnover rate of student assistants
<i>Human resource – qualitative aspect</i>
13. Cataloguers feel restless on their routine tasks
14. Limited chances of on-the-job training
15. Cataloguers with weak language ability
16. Cataloguers with weak subject background
17. Cataloguers with weak professional knowledge

related literature, as outlined above. The questionnaire is comprised of two parts. Part I attempts to identify the school's attributes (public or private) and category (technological university, technological four-year college or technological two-year college). The second part consists of 17 issues facing the library staff involved in cataloguing operations. In the questionnaire, the participants are asked to describe the frequency of each issue occurring, using a five-point Likert-type scale with 5=occurs always, 4=occurs often, 3=occurs sometimes, 2=occurs seldom, 1=never occurs.

The questionnaire was pre-tested with two senior cataloguing department heads in two libraries of technological institutions, and later modified according to the pre-test comments and suggestions.

At the time this study was conducted, there were 29 technological universities, 42 technological four-year colleges and 16 technological two-year colleges, for a total of 87 technological institutions in Taiwan. According to Huang's survey in 2006, the average size of the collection of the libraries of these technological institutions amounted to

Table 2. Distribution of respondents by categories of institution

	No. of Respondents				Total in Taiwan	
	Public	Private	Total	%	Total	%
Technological university libraries	8	17	25	34	29	34
Technological four-year college libraries	4	35	39	54	42	48
Technological two-year college libraries	0	9	9	12	16	18
Total	12	61	73	100	87	100

Note: n=73

170,500 volumes of books, 12,000 titles of electronic books, 9,300 items of A/V materials, 800 titles of journals (print + electronic), and 52 online databases. In addition, these libraries had an average of 7–8 staff serving on average 300 faculty and 7,500 students [1]. The average size of the cataloguing departments in the majority of these technological institution libraries is around 2–3 staff (Yu 2005). Questionnaires were distributed to the 87 respective libraries by regular mail or e-mail in May and June 2006. A total of 73 libraries responded resulting in an overall rate of response of 84 %.

The quantitative analysis of the questionnaire was conducted by using the SPSS (Statistical Package for Social Science) by means of the following statistical methods:

1. Descriptive statistics were used to profile the institutional background and to rank the frequency of the occurrence of issues with regards to cataloguing operations of technological university and college libraries.
2. A T-test was conducted to examine the difference in frequencies on issues between public and private technological institution libraries.
3. One-factor analysis of variance (ANOVA) was conducted to examine the difference in frequencies for issues that occurred among technological university, technological four-year college and technological two-year college libraries.

Results

Background of the responding libraries

Table 2 shows that the respondents included 12 public and 61 private technological institution

libraries. Technological university libraries accounted for 34%, technological four-year college libraries accounted for 54%, and technological two-year college libraries accounted for 12% of the respondents. Compared with the total number of technological institutions in Taiwan, collectively these respondents, considering the 84% response rate and matching distribution represent a significant portion from the libraries targeted in this study.

Issues faced by cataloguing operations in the responding libraries

Considering the fact that all issues are derived from known challenges, this paper assumes the hypothesis that a norm of an issue should have a mean centring to 3 with a standard deviation of 1 scale. In other words, statistically speaking, 68% of the issues should have their mean fall in the range of 3 ± 0.5 (that is from 2.5 to 3.5). Therefore, any issue's mean, either greater than 3.5 or less than 2.5, indicates the significance of the issue intended to be identified in this study.

The arithmetic average in each category helps to provide a perspective on all issues. As shown in Table 3, "Human resources – quantitative issues" with a category average of 3.65 is in the lead, followed by "Human resources – qualitative issues" with a category average of 3.24, and "Processes productivity" with a category average of 3.22. Surprisingly, "Variety of collection formats" has an average of 3.05 which indicates it has little significance.

In addition, the five most frequently occurring issues in the responding libraries, in order of significance, are "lack of manpower" (M=3.95), "accumulating backlogs" (M=3.56), "high turnover rate of student assistants" (M=3.55), "difficult to control the quality of cataloguing" (M=3.53) and "limited chances of on-the-job training" (M=3.51). The other item means in Table 3 range from 3.44 to 2.66 with no item mean below 2.5.

Difference in frequencies for issues occurring among the responding libraries

Difference between public and private technological institution libraries

In the present study, the respondents are separated into two populations, public institution and pri-

Table 3. Ranking of the issues on cataloguing operations among technological university and college libraries in Taiwan

	Frequency of Occurrences					Mean
	Never(1) %	Seldom(2) %	Sometime(3) %	Often(4) %	Always(5) %	
<i>Variety of collection format</i>	Category average=					3.05
1. Challenge of cataloguing electronic resources	6.8	24.7	42.5	20.5	5.5	2.93
2. Challenge of cataloguing internet resources	12.3	32.9	35.6	15.1	4.1	2.66
3. Dealing with various material formats	0	9.6	47.9	34.2	8.2	3.41
4. Moving into digitized collection	6.8	13.7	38.4	31.5	9.6	3.23
<i>Processes productivity</i>	Category average=					3.22
5. Accumulating backlogs	1.4	19.2	26.0	28.8	24.7	3.56
6. Increasing costs of cataloguing	1.4	31.5	27.4	30.1	9.6	3.15
7. Difficult to control the quality of cataloguing	0	8.2	46.6	28.8	16.4	3.53
8. Incomplete bibliographic records	0	12.3	61.6	20.5	5.5	3.19
9. Choice of cataloguing at the minimal or at the full level	8.2	39.7	35.6	11.0	5.5	2.66
<i>Human resources –quantitative aspect</i>	Category average=					3.65
10. Lack of manpower	0	9.6	23.3	30.1	37.0	3.95
11. Difficult to find suitable professional cataloguers	1.4	17.8	35.6	26.0	19.2	3.44
12. High turn-over rate of student assistants	1.4	12.3	34.2	34.2	17.8	3.55
<i>Human resource – qualitative aspect</i>	Category average=					3.24
13. Cataloguers feel restless on their routine tasks	2.7	17.8	47.9	24.7	6.8	3.15
14. Limited chances of on-the-job training	1.4	9.6	38.4	38.4	12.3	3.51
15. Cataloguers with weak language ability	0	11.0	46.6	34.2	8.2	3.40
16. Cataloguers with weak subject background	5.5	13.7	37.0	37.0	6.8	3.26
17. Cataloguers with weak professional knowledge	5.5	30.1	37.0	23.3	4.1	2.90

Note: 1. n=73; 2. 5=occurs always, 4=occurs often, 3=occurs sometimes, 2=occurs seldom, 1=never occurs

vate institution, and the differences between them are verified by a T-test. The differences between these two groups will be determined by a high T-score.

Significant differences (with Sig. value less than 0.05 in Table 4, also meaning 95% confidence) are identified between public and private technological institution libraries regarding the frequency of issues occurring according to the item mean (see

Table 4). It is evident that private institution libraries face cataloguing operation issues more frequently than do their public counterparts. As shown in Table 4, the T-test results indicated that six items – lack of manpower, high turnover rate of student assistants, difficult to control the quality of cataloguing, limited chances of on-the-job training, difficult to find suitable professional cataloguers, and incomplete bibliographic records – show a

Table 4. T-test of the difference in frequency of issues that occurred between public and private technological institution libraries in Taiwan.

	Public	Private	T	Sig.
	M	M		
Lack of manpower	3.29	4.10	-2.885	0.005**
Accumulating backlogs	3.14	3.66	-1.594	0.115
High turnover rate of student assistants	2.93	3.56	-2.423	0.018*
Difficult to control the quality of cataloguing	3.07	3.64	-2.286	0.025*
Limited chances of on-the-job training	3.00	3.63	-2.470	0.016*
Difficult to find suitable professional cataloguers	2.93	3.56	-2.086	0.041*
Dealing with various material formats	3.36	3.42	-0.286	0.776
Cataloguers with weak language ability	3.14	3.46	-1.134	0.185
Cataloguers with weak subject background	3.43	3.22	0.718	0.475
Moving into digitized collection	3.21	3.24	-0.074	0.941
Incomplete bibliographic records	2.79	3.29	-2.426	0.018*
Cost increased of cataloguing	3.00	3.19	-0.610	0.544
Cataloguers feel restless on their routine tasks	3.00	3.19	-0.700	0.486
Challenge of cataloguing electronic resources	2.93	2.93	-0.012	0.990
Cataloguers with weak professional knowledge	2.71	2.95	-0.821	0.414
Challenge of cataloguing internet resources	2.64	2.66	-0.060	0.953
Choice of cataloguing at the minimal or at the full level	2.29	2.75	-1.6-5	0.113
Total average	2.99	3.32		

Note: 1. public(n)=12, private(n)=61; 2. $p < 0.05^*$, $p < 0.01^{**}$

statistically significant difference between public and private technological institution libraries.

It is worth noting that four out of six issues (lack of manpower, high turnover rate of student assistants, difficult to control the quality of cataloguing and limited chances of on-the-job training) are those already identified in the previous section. When separating these significant issues into Public and Private, it is evident that the statistical means in the Public group do not dem-

onstrate any significance while those in the Private group intensify the significance. In other words, most of the challenges so far identified in the survey are primarily from private institutions and may not necessarily apply to public institutions.

The two new issues highlighted, "difficult to find suitable professional cataloguers" and "incomplete bibliographic records", also have higher means in the Private group than in the Public group. In particular, the Private group's "difficult to find suitable professional cataloguers" mean demonstrates a statistical significance once it is separated from Public.

Differences among technological university, four-year college and two-year college libraries

After testing the responses from three groups, no statistically qualified significant differences were found on any of the seventeen issues among the three groups (see Table 5) – technological university, four-year college and two-year college libraries. However, when every mean that is larger than 3.5 and less than 2.5 has been highlighted, it can be observed that on average there is a tendency for two-year college libraries to face these issues more frequently than four-year college and university libraries.

For technological two-year college libraries there were seven frequently occurring issues. Five out of these seven were those already highlighted in previous sections. They included lack of manpower, high turnover rate of student assistants, difficult to control the quality of cataloguing, limited chances of on-the-job training, and difficult to find suitable professional cataloguers. New to the list were "cataloguers with weak language ability" (M=3.67) and "cataloguers feel restless on their routine tasks" (M=3.56).

For the technological four-year college libraries, there were five frequently occurring issues which appeared to be a subset of the findings for the two-year colleges. Not surprising, the issue of "accumulating backlogs" appeared with a higher frequency in the four-year libraries than in the two-year college and university libraries. For technological university libraries, while they demonstrated a similar overall tendency on the common issues, only three significant issues stood out. These were "lack of manpower" and "cataloguers with weak subject background," both frequently occurring

issues, and one least occurring issue "the challenge of cataloguing internet resources".

In short, the findings indicate that:

- Issues do not vary significantly among institutions with different curricula.
- Key issues appear to be more intense in two-year college libraries, followed by four-year college libraries and then university libraries.
- Technological university libraries have three unique characteristics, albeit with the least overall intensity; "cataloguers with a weak subject background," "dealing with various material formats" and "moving into digitized collection" show higher frequencies than in four-year college libraries and two-year college libraries.

Other issues

At the end of the questionnaire, the survey asked the respondents in an open question to explore other issues they faced that were not on the questionnaire. A total of four different issues were brought forward. These were (1) the automated system did not have functions that were user friendly to both cataloguers and users; (2) some library administrators did not appreciate the value of cataloguing; (3) the quality of cataloguing was ignored by library staff; and (4) the cataloguing department usually gets little support from the library administrators or school authority.

Summary and analysis

Generally speaking, the key issues identified through this study primarily follow the same line: "Human resources issues," in particular quantitative related ones, are on the top of the list, followed by "Processes productivity." Surprisingly, "Increasing variety of collection formats" does not seem to be very important in the scheme of things.

The primary differences among the different technological institution libraries lie in the degree of intensity rather than in the variety. Private institutions have a significantly higher level of issues to deal with than do the public institutions. Two-year colleges face the most problems, followed by the four-year colleges with universities having the least amount of issues to deal with.

In summary, this study found that in terms of cataloguing operations, the libraries of the tech-

Table 5. ANOVA test of the difference in frequency on issues that occurred among technological university, four-year college and two-year college libraries in Taiwan.

	TU M	TC-4 M	TC-2 M	F	Sig.
Lack of manpower	3.76	4.08	3.89	0.779	0.463
Accumulating backlogs	3.48	3.72	3.44	1.213	0.304
High turnover rate of student assistants	3.28	3.62	4.00	2.076	0.133
Difficult to control the quality of cataloguing	3.36	3.64	3.56	0.798	0.454
Limited chances of on-the-job training	3.48	3.49	3.67	0.164	0.849
Difficult to find suitable professional cataloguers	3.20	3.51	3.78	1.243	0.295
Dealing with various material formats	3.48	3.41	3.22	0.356	0.702
Cataloguers with weak language ability	3.36	3.36	3.67	0.583	0.561
Cataloguers with weak subject background	3.56	3.15	2.89	2.144	0.125
Moving into digitized collection	3.36	3.13	3.23	0.424	0.656
Incomplete bibliographic records	3.08	3.23	3.33	0.526	0.594
Cost increased of cataloguing	2.96	3.21	3.44	0.857	0.429
Cataloguers feel restless on their routine tasks	3.20	3.03	3.56	1.361	0.263
Challenge of cataloguing electronic resources	2.84	3.08	2.56	1.216	0.302
Cataloguers with weak professional knowledge	2.80	2.97	2.89	0.247	0.782
Challenge of cataloguing internet resources	2.48	2.72	2.89	0.677	0.512
Choice of cataloguing at the minimal or at the full level	2.56	2.64	3.00	0.680	0.510
Total average	3.19	3.29	3.34		

Note: 1. TU=Technological University, TC-4=Technological four-year College, TC-2=Technological two-year College; 2. TU(n)=25, TC-4(n)=39, TC-2(n)=9

nological universities and colleges in Taiwan were most troubled with the shortage of staff. And, private institutions, particularly the two-year colleges, seemed to be the ones that need resolutions the most.

To understand further the relationship between the private institution library and the issue of human resources, this study referred to information collected by a previous study (Yu 2005). That study

Table 6. Profile of resources in technological institution libraries in Taiwan.

Nature of Institution	Size of Cataloguing Dept. Headcount	Annual Acquisition Budget New Taiwan Dollar
Public university	2.5	\$23,987,500
Public four-year college	1.6	\$8,522,222
Private university	3.3	\$15,720,417
Private four-year college	2.6	\$7,144,560
Private two-year college	1.8	\$5,200,000

Note: 1USD = 32NTD

sampled 54 technological institution libraries in Taiwan and the information collected contains data on the size of the cataloguing department and the annual acquisition budget in each institution library (see Table 6).

The profile displayed in the table adds very interesting insights to this relationship, as follows:

- While private institution libraries' complaints are more centred on being short on human resources, they nevertheless have a higher average headcount than their public counterparts.
- Instead of being based on the headcount, the annual acquisition budget appears to be reverse-correlated to the intensity identified by this study (i.e. the bigger the budget, the less the complaint).

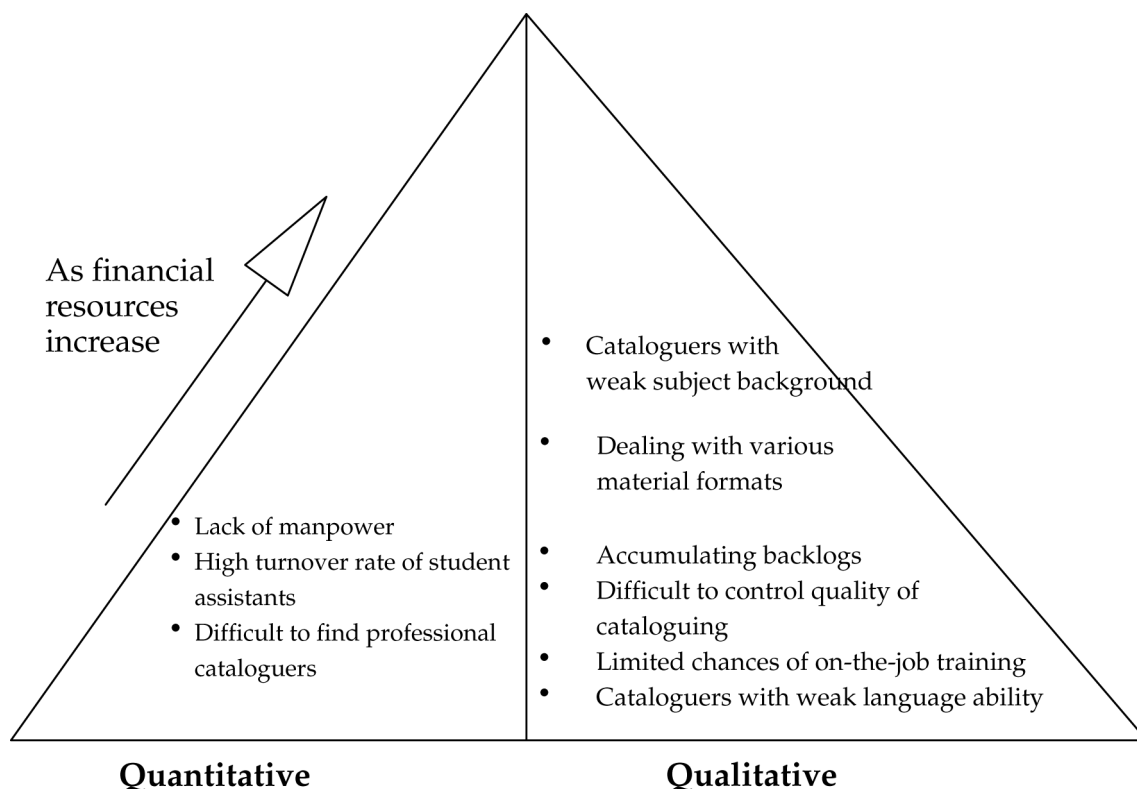
The fact that public institution libraries can achieve a significantly lower intensity of issues compelled the author to explore the root causes beyond the direct answer to the questions. Table 6 points out that the libraries in government-financed public technological institutions enjoy several advantages over their private counterparts in Taiwan. First of all, public institution libraries enjoy not only a higher acquisition budget but also a higher overall library budget which also covers the cataloguing operations. Second, the organization of public institution libraries has its structure based on the public system. This system is both more complete and larger than in private institutions. Consequently, the library in a public institution can afford a more specialized division of responsibilities, and as a result librarians can focus better on their mandated responsibilities.

Third, in Taiwan the quality of a librarian in public institution libraries is tested by a government exam. This ensures a higher level of consistency among all college and university librarians. In addition, they also enjoy better job security as a result of their status as government employees.

With more affluent and sophisticated resources, public technological institution libraries have been taking the lead for implementing advanced ideas and approaches and making them reality. It is not surprising then to see that public libraries, with their higher degree of automation, broader exposure to online cataloguing resources and bigger budgets allowing for collecting more electronic materials, have significantly less trouble with fundamental operational issues, but instead talk about quality issues such as "cataloguers with weak subject background".

In Taiwan, in contrast to the public institutions, the private institutions are financed primarily by the tuition paid by the students. All technological universities and colleges compete to attract the same pool of high school graduates each year. To expand their capacity for student enrolment, many technological colleges have been enticed to upgrade themselves to universities in the last decade. This involves upgrading their resources and facilities to meet the Ministry of Education's requirements. It is often observed that once the qualification hurdle is passed the pace of developmental and the size of the budget for libraries gets adjusted downward. In addition, although some private institutions have more cataloguers, in many cases these cataloguers also have additional responsibilities in these libraries due to the smaller scale, overall staffing levels, and budget. As a result, the intensity of the complaints increases as the size of the school decreases. Small private two-year colleges are a prime example of these challenges. Having the smallest scale, they are still faced with the same basic issues of trying to maintain basic cataloguing operations, i.e. "lack of manpower," "difficult to find suitable professional cataloguer," and "high turnover rate of student assistants," all of which leads to "accumulating backlogs," and "difficult to control the quality of cataloguing." In addition, without the same qualified professionals and leadership as is available in the public system, issues like on-the-job training and consistent standards for bibliographic records fall easily by the wayside.

Figure 1. Key issues in cataloguing operations of technological university and college libraries in Taiwan.



Conclusion

This research began with the assumption that cataloguing operations are critical elements in a library, and that these operations can be difficult to manage. This survey indicates that this assumption might not present a realistic concern for most technological university and college libraries in Taiwan.

Indeed, the most-voiced concerns in this study are centred around the human resources allocated to cataloguing. The issues facing libraries regarding cataloguing operations do not vary significantly in kind but rather in level of intensity. It is worth noting that this study found that the issue intensity is more related to the financial capacity of the library rather than to the number of cataloguers.

In conclusion, the inter-related perspectives of this study are shown in Figure 1.

Suggestions

A few ideas and perspectives of potential solutions on related issues might be of interest to those sharing the similar concerns. They are as follows:

- While the lack of human resources may be the most commonly voiced complaint, this study shows that some of the leading libraries are not necessarily adding warm bodies as a solution. This study supports the very intuitive view that better financed operations translate into easier to run operations. Nevertheless, it is evident that those libraries that best resolved this challenge were those that not only obtain the necessary finances but also knew how to spend it effectively. Often the successful improvement in one year paves the road for funding the following year. Cataloguers should take a more proactive attitude in planning ahead. In many cases, a realistic and specific plan is the key token to attract the required funding in the first place.
- Overall, many leading institutions are pursuing a solution to the problem in two directions: by outsourcing cataloguing operations in an effective manner and by adapting a better automation infrastructure. However, a large number of small-sized libraries can only start with a limited budget at their disposal. The following are two recommendations for starting small and economical:
 1. Outsourcing: start with outsourcing specially formatted and foreign-language materials to outside cataloguing service agencies. These two categories often result in lower productivity for in-house cataloguers due to technical or linguistic capacity. However, it is still important for a library to assign a cataloguer to supervise the whole process of outsourcing in order to control the quality of cataloguing

and to guarantee that the schedule will be on time and within budget.

2. Automation: consider joining both international (e.g. OCLC Online Computer Library Center) and domestic (e.g. NBINet National Bibliographic Information Network) cooperation alliances for sharing bibliographic records with other libraries within Taiwan and globally. It enables a small library to tap into a huge pool of bibliographic records and enables it to provide additional benefits to its own library and others.

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Note

1. The unpublished statistical data was surveyed and collected by Professor Hung-Chu Huang, Library Director of Tamkang University and President of Library Association of the Republic of China (Taiwan), in 2006.

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