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The *JoEMLS* is an Open Access (OA) Dual, double-blind reviewed and international scholarly journal dedicated to making accessible the results of research across a wide range of Information & Library-related disciplines. The *JoEMLS* invites manuscripts for a professional information & library audience that report empirical, historical, and philosophical research with implications for librarianship or that explore theoretical and practical aspects of the field. Peer-reviewed articles are devoted to studies regarding the field of library science, information science and IT, the book trade and publishing. Subjects on instructional technology and information communication, pertaining to librarianship are also appreciated. The *JoEMLS* encourages interdisciplinary authorship because, although library science is a distinct discipline, it is in the mainstream of information science leading to the future of *InfoLibrary*.

**Open Access Archiving**

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(1) authors can archive both preprint and postprint version, the latter must be on a non-commercial base;
(2) publisher's PDF version is the most recommend if self-archiving for postprint is applicable; and
(3) published source must be acknowledged with citation.
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EDITORIAL

In and Beyond This Issue

In recent years, the JoEMLS has regularly announced its rejection rates for each issue. It always shows the JoEMLS editor’s attitude for the past few years: we do not intend to distinguish whether a journal is “good” or “bad” simply by its rejection rate high or low; on the contrary, we consider it our responsibility to tell the readers there exists the rejection percentages in our journal, that is all. It is a hard job to be an editor of an academic journal, who often teases himself as a match-maker, but not a bridegroom himself. She/he often worries about whether her/his devotion to the journal business is not transparent and open enough to the public. Based on this sort of concept, if we emphasize the “Trust-worthy operations”, a kind of audit system for editorial works, other than rejection rate, there should be; for example, the namelists of all reviewers in the last volume issue as a whole, the publication lag (the average time span of delaying effect on publishing), the mean or median number or, the 75% percentile of publication lag, and even the revealing of reviewers’ commentaries and the rebuttals from the authors as a method of scholarly communications and publicities, etc. The aforementioned methods are not newly invented or unprecedented, they are used by renowned international journals for years. We believe it takes much more sacrifice in achieving any active tasks with positive purpose. We hope in the future the editorial effectiveness and its managing system can be improved by means of fulfilling the purpose of “Trust-worthy Operations”.

Owing to the creativity and perseverance in the past years, the JoEMLS has been considered as a benchmark for scholarly journal publishing in Taiwan. Encouraged and advised by many peers and counterparts in this academic field, the editors have strived to carry out the “double blind” review procedures for each article—going through both “review of article form” and “substantial review”. The former comprises title, abstract, keywords, author’s names, job position, affiliation of organization in Chinese and English, and e-mail address should be verified, and that the theme, length, citations, and referencing style of the article should meet the requirement in the academic scope of this Journal. After the article passed the “form review”, the editorial staff will send it to the members of editorial board for their advice and suggestions on its theme. If accepted, it will be sent to the reviewers who were recommended by the editorial board. If there are no candidates suggested by the board members, the candidate of reviewers will be determined by the editors. Each article should be assessed at least by two reviewers for the “substantial review”.
The editor and his team handled the basic and minimum “review of article form” only, they do not do any subjective assessment on the theme and substantial contents of any submissions. In this way, arbitrary editorial and blunders could be avoided, editorial efficiency could by reached, and author’s rights could be guaranteed. The assessment on substantial contents should be conducted by our academic peers in this field so that objectiveness and practical suggestions can be achieved. In other words, except the form of an article does not meet our requirements, the editor of this journal will not capriciously reject it before sending it to the board and reviewers for suggestions and assessment. We will definitely respect the author’s rights and the mechanism of peer-review.

The result of “substantial review”, either its contents or detailed items, will be noted and recorded on the “Referee’s Evaluation Form”. The result will include: novelty, significance of the research, clarity of presentation, adequacy of citations, appropriate for JoEMLS, and of sufficient interest to publish, etc. The reviewers may offer some suggestions on the format of its citations. As to the questions about the format of citations for reference, the JoEMLS has devoted a lot of efforts, trained many staff for citation experts and set up systems related to the format. If the author’s reference format of any article does not meet the standard (requirement), this Journal will help the author to improve it. Yet, it is certain that we are facing lots of challenges and hardships in keeping the standard in journal for referencing styles.

This issue (Volume 49, Issue 4) has dealt with 14 articles, including five accepted and nine rejected. The rejection rate is still around 64.3%. The first article is by Pao-Nuan Hsieh (謝寶煖), Ching-Yin Wang (王靜音), Fu-Hsuan Chuang (莊馥瑄) doing research on all articles in the JoEMLS in the past 40 years, analysing the characteristics of each one. Another article is about design and practice of journal OAIS by Sinn-Cheng Lin (林信成) and Wen-Yan Huang (黃文彥). Another is about a network analysis among online sociology journals, by Pei-Chun Ko (柯佩均), Ray-May Hsung (熊瑞梅), Ke-Wei Lu (盧科位).

Still another is about university librarians’ job satisfaction, job autonomy, and job performance by Yu-Ping Peng (彭于萍). The other is about college students’ preference of environmental ambiance in libraries by Yi-Chu Lin (林詣筑) and Ming-Hsin Chiu (邱銘心). Namely, there are two brilliant and interesting main themes in this issue: the development of scholarly journal; the management of university libraries.

Jeong-Yeou Chiu
JoEMLS Chief Editor
The Profile of the Papers Published on
the Journal of Educational Media & Library Sciences

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Abstract

Research is the important process of knowledge exploration. Domain knowledge development can be improved by using research design and proper statistical methods meticulously as well as clearly and systematically displaying research results. In order to find out the evolving trend of Library and Information Science, its research design and statistical method is a topic worth exploring. By applying bibliometric and content analysis, this study investigates the 1,540 research papers published in the Journal of Educational Media & Library Sciences (JoEMLS) in the last 40 years. According to its history and mission statement, the researchers separate time span from 1970 to 2010 into four period, exploring the features of those published papers, including the type of articles, article languages, topics, structures, research designs and statistical methods. The results show as follow. During period 1, the type of articles are diversities. Moreover, the top 3 categories of research papers are the study of “Library and Information Science” (66%), follows by the “Education” (15%). As for the paper structure, there are 2.73% papers applying ILMRAD and only 8 papers of them applying IMRAD. The most commonly adopted research design is Survey Method, among them, the study of “Library and Information Science” used more often (46.63%). As to the most commonly used statistical method is Descriptive Statistics (60.11%), secondly the T-Test (9.27%).

Keywords: Research design; Statistical methods; Journal of Educational Media & Library Sciences; Bibliometrics; Content analysis

* Part of this article had been presented at The International Conference of the 40th Anniversary of Journal of Educational Media & Library Sciences, March 7-8, 2011.
* To whom all correspondence should be addressed.
SUMMARY

Research is an important process of knowledge discovery. Knowledge within a discipline is developed and accumulated further by using precise research methods and proper statistical analysis techniques meticulously as well as displaying research results clearly and systematically. Quality research papers play an important role in promoting and sustaining an academic discipline. To find out the evolving trend in the discipline of Library and Information Science, the applications of research methods and statistical analysis techniques turn out to be a topic which is worth discussing. By applying bibliometrics and content analysis, this study investigates 1,540 research papers published in the Journal of Educational Media & Library Sciences (JoEMLS) in the last 40 years. Based on the history, objectives and evolution of the journal, the researchers divide the years from 1970 to 2010 into four time periods and exam the features of the published papers by the article types, languages, subjects, structures, research methods and statistical analyses.

The results were shown as follows. Period 1 showed the most diverse article types including eleven different ones. There were only three types of articles during Period 2. In Period 3, only the research type of papers was published. During Period 4, seven different article types were found, and it showed a great variety of the articles again.

In terms of article languages, from the very first edition, 818 Chinese papers (53%), 419 English papers (27%), and 303 translation papers (20%) have been published, shows as Figure 1. Period 1 focused on translated papers. During Period 2, the journal turned to invite English papers from international scholars therefore English papers were more than Chinese papers. In Period 3, the number of English papers decreased and Chinese papers dominated in numbers since the Period 4.

![Figure 1  Languages Analysis of Research Papers in JoEMLS](image)
In term of subjects, shows as Figure 2, the number of papers related to Library and Information Science (LIS) published in JoEMLS has the highest percentage (about 66% among all papers), followed by the ones related to education (15%) over three decades. Looking at the 810 research papers from three periods, the percentage of research papers about LIS has been on the decrease every year: For Period 2, 3 and 4, the numbers were 74.09%, 58.79% and 54.79% respectively. Of the papers related to LIS, the ones about “library services” took up a large part (about 46%) and the fastest growing subjects were “information processing and information industry”.

The average number of pages for papers published in JoEMLS went from 4.17 pages in 1970 to 29 pages in 2010. From Period 1 to Period 2, the average number of pages has increased from less than 5 pages to 15 pages. In Period 3, the average research papers were 16 pages. The number of pages has gone up to 20 pages since the Period 4.

As for the structure of papers, of all the research papers published in JoEMLS, 42 research papers (2.73%) adopted the ILMRAD structure while only 8 papers (0.52%) adopted the IMRAD. In Period 1, none of IMRAD or ILMRAD were adopted in any papers. In Period 3 and 4, the papers used the ILMRAD more than the IMRAD.

The most commonly used research method is survey, which was used in 149 papers in total. The second most commonly used method was interview. However the number of papers that used the interview method is only half of the number of papers that used the survey method. In addition to the survey and interview methods, the authors from different periods used different methods. Among all the periods, Period 4 accounted for the highest number of research methods. Period 2 contained only 9 papers that used the historical method. There were 46.63% of the “Library and Information Science” papers adopted the survey method. About 12% of the “Education” related papers adopted the survey method.
method. The “Information Science and Technology” papers used the survey method the most while the interview method is widely used in the “Book and Publishing Research”. Cross analysis of research methods and subject categories in JoEMLS shows as table 1.

### Table 1  Cross Analysis of Research Methods and Subject Categories in JoEMLS

<table>
<thead>
<tr>
<th>Research method</th>
<th>LIS</th>
<th>Education</th>
<th>Cataloging</th>
<th>Information</th>
<th>Science &amp; Technology</th>
<th>Book &amp; Publishing</th>
<th>Research</th>
<th>Business</th>
<th>Archive</th>
<th>others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>97</td>
<td>25</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview</td>
<td>40</td>
<td>12</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Content analysis</td>
<td>26</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Case study</td>
<td>15</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>25</td>
<td></td>
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</tr>
<tr>
<td>Experimental research</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Bibliometric</td>
<td>9</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>14</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Historical research</td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Action research</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Evaluation</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System analysis &amp; modeling</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnography</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>53</td>
<td>8</td>
<td>13</td>
<td>21</td>
<td>8</td>
<td>4</td>
<td>10</td>
<td>325</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The papers published in JoEMLS adopted various statistics analysis techniques including descriptive statistics, inferential statistics, single variable analysis and multivariate statistical analysis. The most used analysis technique was quantitative descriptive statistics which was adopted by 214 papers (60.11%). The Chi-square test applied by only 27 papers (7.58%). There were 33 papers (9.27%) used T-test, 30 papers (8.43%) used analysis of variance (ANOVA), only 1 paper used analysis of covariance (ANCOVA), and 24 papers (6.74%) used correlation analysis. There were 8 papers (2.25%) adopted multivariate analysis of variance (MANOVA) and 2 papers considered the covariance and applied multivariate analysis of covariance (MANCOVA). Other multivariate analysis techniques which were occasionally adopted in Period 3 and 4 included factor analysis, discriminant analysis, cluster analysis, and multidimensional scaling, etc. The most adopted statistics analysis techniques in LIS were descriptive statistics, Chi-square test, T-test, analysis of variance (ANOVA) and correlation analysis. Table 2 shows the cross analysis of statistics analysis techniques and subject categories.

The manifestation of LIS’s domain knowledge needs support from the quality of academic papers. The applications of research methods and statistics analysis techniques have crucial influence on the quality of academic papers. Therefore, in order to find out the evolving trends of LIS, its research methods and statistics analysis techniques is a topic worth discussing. Besides, the academic paper’s writings should adopt explicit structures which most frequently consist.
Table 2  Cross Analysis of Statistics Analysis Techniques and Subject Categories in JoEMLS

<table>
<thead>
<tr>
<th>Statistics analysis techniques</th>
<th>LIS Education</th>
<th>Cataloging</th>
<th>Information Science &amp; Technology</th>
<th>Book &amp; Publishing</th>
<th>Research Business</th>
<th>Archive others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive statistics</td>
<td>144</td>
<td>34</td>
<td>11</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Chi-square test</td>
<td>20</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>18</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>30</td>
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<tr>
<td>ANOVA</td>
<td>18</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MANOVA</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>8</td>
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<tr>
<td>Correlation analysis</td>
<td>18</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Regression analysis</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor analysis</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
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<td>Cluster analysis</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Discriminant analysis</td>
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<td></td>
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<tr>
<td>Multidimensional scaling</td>
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<td>13</td>
<td>14</td>
<td>15</td>
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<td>1</td>
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</tbody>
</table>

of IMRAD and ILMRAD. To follow the structures not only helps the researcher elaborate research thoughts and findings, it also helps the readers to know well the research development. Although this study investigates the research papers published in *JoEMLS*, which is the earliest LIS journal adopted by TSSCI and has discreet peer review, the LIS’s trends and developments can be found by the analysis of structures, research methods and statistics analysis techniques of *JoEMLS*.

**ROMANIZED & TRANSLATED REFERENCES FOR ORIGINAL TEXT**


邱炯友 [Chiu, Jeong-Yeou](2010)。編者言：本期紀要與展望 [Editorial: In and beyond this issue]。教育資料與圖書館學 [Journal of Educational Media and Library Sciences], 48(1), 1。

教育資料科學稿約 [Note for Contributors of Educational Media Science] (1980)。教育資料科學月刊 [Bulletin of Educational Media Science], 18, 1, 版權頁 [Copyright page]。淡江大學資訊與圖書館學系 [Department of Information & Library Science, Tamkang University] (2010)。教育資料與圖書館學徵稿須知 [Editorial policy of Journal of...


Design and Implementation of an Information System for Open Access Journals

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Abstract
Based on the model of Open Archival Information System (OAIS) and the Directory of Open Access Journals (DOAJ), this study designs and implements an information system for integrating directories of open access (OA) journals. The issues examined in the study include metadata formats, dissemination of information package, method of connecting systems across different platforms, and data exchange protocols. The proposed system can benefit the system developer in designing and developing OA systems on the web which could be connected to the DOAJ platform with ease. Sharing and using of OA journals would thus be greatly increased as a result. The online system of the Journal of Educational Media and Library Sciences (JoEMLS) is used in the study as the environment for implementing the proposed model, originating and modifying from the OAIS. By analyzing the four main user types of JoEMLS system, we develop four distinct subsystems for ingesting, archiving, managing, and accessing JoEMLS. The result of the research project is that the integrated system can not only work successfully with the original JoEMLS system but also can be connected to the platform of DOAJ seamlessly.

Keywords: Open Access; Journal management system; OAIS; Metadata; DOAJ

SUMMARY
Open Access (OA) is an emerging model of scholarly publishing in recent years. With Open Access, scholarly work can be retrieved and used freely. Meanwhile, libraries can also expand their free online collections of scholarly journals. In order to enhance the visibility, the use, and the impact of OA journals, the library of Lund University in Sweden created the DOAJ (Directory of Open Access Journals) as an integrated platform for high-quality and peer-reviewed OA journals from all over the world freely available for scholars.

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From the viewpoint of system designers, we believe that the design and implementation of a journal information system should be built based on an open infrastructure so that the OA journals that are dispersed otherwise can be integrated and accessed easily. Theoretically, the design would be better if it can match up with the Reference Model by OAIS (Open Archival Information System), which is approved and used globally. However, not many OA journal information systems are designed this way; thus it becomes difficult to share and disseminate resources and information across different platforms. Therefore, for the purpose of connecting dispersed OA journals, this study aims to propose an integrated model of OA journal information system that is based on OAIS reference model and on the platform of DOAJ. Issues concerning the format of metadata, transmission of information packets, methods of integrating systems, and guidelines for protocols are addressed in order to design an journal information system that could be easily connected to DOAJ platform thus increase the use and dissemination of OA journals. In order to verify the effectiveness of the proposed system, the study adopts JoEMLS as the working environment for an OAIS-based journal information system.

The key features of the OAIS Reference Model lie in the nature of open access and resource sharing across different archival systems. Such a model allows the information producer to interact with the information consumer, and vice versa. Both of the two parties can be developed based on the OAIS Reference Model, such as the OA journal information system discussed in this study. If such an OA journal information system is to design based on the OAIS Reference Model for the purpose of integration, each connecting system needs to have six major entities within the system, which are: Ingestion, Archival Storage, Data Management, Administration, Preservation Planning and Access. In addition, the information packages across systems should be SIP (Submission Information Package), AIP (Archival Information Package), and DIP (Dissemination Information Package) for different purposes. In such a model, all OA journal information systems can deliver information using the same protocol. However, the OAIS Reference Model does not provide interface specification for exchanging data; it takes an open attitude and leaves the specifications for system developers. Thus, the rather feasible solution is to integrate all the existing agreements and standards, such as OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting), SOAP (Simple Object Access Protocol), OpenURL, SRU/SRW (Search and Retrieve URL/ Search and Retrieve Web) for the delivery of the digital catalogue of OA journals or the of full text documents.

The goal of DOAJ platform is to include all OA journals around the world. It has specifications like DOAJ XML Schema as the standard for exchanging
metadata on its platform. From the perspective of OAIS, the design of DOAJ platform fulfills the structure of an open access archival system because (1) for the input of information, the SIP is submitted by following the metadata specification made by DOAJ. It is parsed by the Ingestion Module, and saved in the Archival Storage. This process integrates the metadata of each OA journal into the DOAJ database; (2) for the output of information, the Access Module follows the OAI-PMH protocol and functions as the data provider. It also outputs the DIP with the metadata that matches the specifications of Dublin Core or the format of DOAJ Article. Through the process, users in various digital libraries can access and retrieve the needed information.

This research used the JoEMLS as the working environment and developed an OA journal information system based on the OAIS Reference Model. In 2006 the JoEMLS became the first journal in Taiwan accepted by DOAJ. However, the early version of JoEMLS website did not provide the needed connection to the DOAJ platform, let alone providing various metadata formats for switching or supporting the globally approved data exchange protocol like OAI-PMH. For the purpose of improving the connectability across systems and increasing the access and the use of the metadata as well as the full text of JoEMLS, this research was set out to meet the needs of redesign and to implement the journal information system of JoEMLS based on the OAIS Reference Model. Issues such as metadata, data package transmission, methods of connecting system, and guidelines for data exchange protocol were all taken into consideration.

Based on OAIS framework, the research team divided JoEMLS OA system into four sub-systems based on different functions:

1. Archival sub-system: The study used Apache servers and MySQL database to save information such as metadata, e-content of the full text, back-ups, etc.

2. Ingestion sub-system: External data was imported and saved by the Ingestion Module.

3. Management sub-system: Two modules were designed, including (1) Data Management Module for adding, modifying, and deleting information; and (2) Authorization Management Module for controlling the users’ account and access.

4. Access sub-system: Six modules were designed, including (1) General Search Module in which users can search and read the metadata as well as the full text of the articles; advanced search was also provided; (2) RSS Module, providing users the service of subscribing for latest articles; (3) Citation Format Module, which offered the main citation formats; (4) Open Search Module, which was offered for those who support
open search protocol through XML definitions; (5) Metadata Transform Module, which functioned as a translator among different metadata formats and provides single or mass output of appropriate metadata; and (6) OAI-PMH Data Provider Module, providing metadata based on OAI-PMH protocol, and by doing this the system qualifies as an OA data provider.

After completing each module, the research team integrated, tested, implemented, and connected each sub-system to the DOAJ platform. Since 2009 this system has been officially online for three years with great success. By examining the system statistics, it is estimated that the system has more than 60,000 visits in the past three years, which can be accounted for more than 290,000 page views. In this research we only implemented the data exchange protocols of OAI-PMH and Open Search. For future research projects, the team plans to work on other protocols such as SRU, SOAP, and OpenURL. Also, more research can be done in the area of adopting XML with data exchange protocols to further develop web service for designing various applications. The ever more popular smart phones have also attracted much research attention. Thus, the research team also considers providing a smart phone version for the journal management system in the future. On the other hand, the research team has completed recording the metadata of all the back issues of JoEMLS. Therefore, more analysis can be done to understand the development of the multiple disciplines covered by JoEMLS. Further analysis, research of data mining, content analysis, and authorship are among the many possibilities of using the system. Lastly, the tools for analyzing system log such as Google Analytics and AWStats are installed in the system and can be useful for studying user behavior. Researchers who are interested in citation analysis can use the citation database in the system for bibliometrics related studies.

**ROMANIZED & TRANSLATION NOTES FOR ORIGINAL TEXT**


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A Network Analysis of Inter-Journal Citations of Sociology Journals in Taiwan

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Abstract
This study explores structures of citation networks of Taiwan sociology journals, conceiving these citation networks as the citation behavior of inter-sociology journals in the professional sociology community. We investigate the structural changes in numbers and density of citations and formations of subgroups over time. The data set covers 20 Taiwan sociology journals between 2001 and 2006 and traces their citations of sociology journals from 1993 to 2006. We demonstrate our results by visualizing the citation networks and then employing structural equivalence, blockmodeling and positional and role analysis to analyze different blocks and roles. This research indicates two major findings: 1. The centrality of core professional sociology journals in the citation networks has been rising over time. 2. The primary position is composed of core professional sociology journals. Additionally, the journals of social work and social welfare cite each other within their own subfields.

Keywords: Social network analysis; Blockmodeling; Citation networks; Sociology journals

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**SUMMARY**

**Introduction**

Within East Asia, China, Japan and South Korea have been relying on objective indicators, such as the SCI (Social Science Index) to evaluate the performance of their research communities (Kim, Park, & Thelwall, 2006; Negishi, Sun, & Shigi, 2004; Park, 2008; Zhou, & Leydesdorff, 2007). Citations are a key dimension in the evaluation process, as they can be regarded as an indicator of the importance of research. Taiwan, like other East Asian countries, also relies on citation measures. In fact, the Taiwan government has gone so far as to introduce the Taiwan Social Science Citation Index (TSSCI), in which citations for Chinese-language social science articles are tracked (National Science Council, 2000).

This creates an opportunity to investigate changes in the local scientific community through academic journals in East Asia. In library and information sciences, the traditional approach is to improve citation measurements in order to evaluate the performance of journals and individual scientists (Garfield, 1955; Hargens, & Schuman, 1990; Leydesdorff, 2007; Price, 1965). For sociologists, on the other hand, mapping the overall structures formed through individual researchers’ informal and formal communications and organizational collaboration is disproportionally addressed (Breiger, 1976; Burt, 1978; Crane, 1969, 1972).

Our study is in line with the sociological approach, especially using organizational sociology to project the structuration process through inter-organizational competition. “Structuration”, as proposed by DiMaggio and Powell (1983), explains a process in which organizations gradually have higher instances of cooperation with other organizations to cope with increasing uncertainty in one field. Moreover, an organization may evolve into a hierarchical structure in which researchers will observe different patterns. Thus, in the process of structuration, these two-fold dimensions can be seen: increasing inter-organizational interaction and the formation of hierarchy.

As there are few empirical studies investigating the changes in Taiwanese academic journals over time, our study intends to answer two research questions: (1) What is the distribution of inter-journal citation networks over time? (2) What are the hierarchical positions of journals over time?

We used inter-journal citation data from the TSSCI, which contains citations by sociology journals between 2001 and 2006, of sociology journals published between 1993 and 2004. Social network analysis is applied to visualize the overall networks at different time points and to differentiate the position of journals.
Literature Review

DiMaggio and Powell (1983) suggest the investigation of structuration in modern organizations in two dimensions. One is to focus on the frequency of interaction between organizations. Findings on patents in the semi-conductor industry and on drug innovation in the pharmaceutical industry show that increasing inter-organization ties, such as co-citations of patents and collaboration projects, help companies advance their competitive capability (Mina, 2009; Podolny, Stuart, & Hannan, 1996).

The other dimension is to detect existing hierarchical structures. Several studies categorize scientists’ communication and journal citations into several categories, i.e. primary subgroups, follower subgroups, and isolation subgroups, based on different behaviors in terms of sending and receiving ties. Breiger (1976) and Burt (1978) both found that scientists in primary subgroups are leading scholars and tend to interact within the group. On the other hand, scientists in follower subgroups are less prestigious, and a high number of contacts are made by this group to scientists in the primary groups. Isolation subgroups consist of scientists who hardly interact with each other or with other subgroups. Doreian and Fararo (1985), in analyzing the hierarchical structures of American sociology journals over time, concluded that comprehensive sociology journals gradually became the primary subgroup in the core of inter-journal citation networks. In sum, the various findings on hierarchical structures help to explain the differentiation among scientists and journals.

Governmental reports have tracked the changes in Taiwanese sociology journals over the last decade. Some journals have ceased publication and others have merged since the TSSI was introduced (Chang, Hwang, Yu, & Lo, 2002; Hsung, Tu, Song, & Huang, 2007). However, no empirical studies have mapped and analyzed the overall structure over time. Based on the two dimensions mentioned earlier, we expect that the number of inter-journal citations will be increasing, and that citations will be denser over time. Moreover, we expect that a clear hierarchy will be identified. A comparison will then be made between subgroups and the types of sociology journals to interpret the hierarchy.

Method

Data

We used the database established for the evaluation of academic journals by the National Science Council (Hsung et al., 2007). This database includes 20 sociological, social work, and social welfare journals published in the Chinese language between 2001 and 2006 (Table 1) and contains citations of articles published between 1993 and 2004.
Table 1  Sociological and Social work Journals

<table>
<thead>
<tr>
<th>Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal of Social Sciences and Philosophy</td>
<td>JSSP</td>
</tr>
<tr>
<td>Journal of Population Studies</td>
<td>JPS</td>
</tr>
<tr>
<td>Taiwanese Journal of Sociology</td>
<td>TJS</td>
</tr>
<tr>
<td>Taiwan: A Radical Quarterly in Social Studies</td>
<td>TRQSS</td>
</tr>
<tr>
<td>Taiwanese Sociology</td>
<td>TS</td>
</tr>
<tr>
<td>Soochow Journal of Sociology</td>
<td>SJS</td>
</tr>
<tr>
<td>Thought and Words</td>
<td>TW</td>
</tr>
<tr>
<td>The NCCU Journal of Sociology</td>
<td>NCJS</td>
</tr>
<tr>
<td>Journal for Philosopic Study of Public Affairs</td>
<td>JPSPA</td>
</tr>
<tr>
<td>Formosan Education and Society</td>
<td>FES</td>
</tr>
<tr>
<td>Taiwanese Journal of Educational Sociology</td>
<td>TJES</td>
</tr>
<tr>
<td>Journal of Women’s and Gender Studies</td>
<td>JWGS</td>
</tr>
<tr>
<td>Journal of Cyber Culture and Information Society</td>
<td>JCCIS</td>
</tr>
<tr>
<td>Survey Research</td>
<td>SR</td>
</tr>
<tr>
<td>Social Policy and Social Work</td>
<td>SPSW</td>
</tr>
<tr>
<td>Soochow Journal of Social Work</td>
<td>SJSW</td>
</tr>
<tr>
<td>NTU Social Work Review</td>
<td>NTUSW</td>
</tr>
<tr>
<td>Taiwanese Social Work</td>
<td>TSW</td>
</tr>
<tr>
<td>Taiwanese Journal of Social Welfare</td>
<td>TJSW</td>
</tr>
<tr>
<td>Formosa Journal of Mental Health</td>
<td>FJMH</td>
</tr>
</tbody>
</table>

Method and Measurement

Visualization

UCINET (version 6.17) is used for network visualizations (Borgatti, Everett, & Freeman, 2002).

Degree centrality

Degree centrality calculates the frequencies of nodes (Freeman, 1979). We standardized degree centrality for comparisons. Centralization calculates the density of an overall network (Wasserman, & Faust, 1994).

Positional and role analysis

In order to identify different hierarchical positions, we relied on positional and role analysis (Wassweman, & Faust, 1994). These analyses use structural equivalence and blockmodel techniques to separate journals and group them into several subgroups. We used CONCOR (Convergence of iterated Correlations) in UCINET for this task.

Furthermore, we identified roles for subgroups based on the analogy of scientists’ subgroups: primary group, broker, sycophant, and isolation (Burt, 1978). Nodes in the primary subgroup contain a high degree of citing within the subgroup, but a low degree of citing other subgroups. The broker subgroup has a high degree of citing other subgroups, and citations are evenly distributed. The sycophant subgroup has a high degree of citing other subgroups, but a low degree
of citing within the subgroup, and a low degree of receiving citations. The isolation subgroup has a low degree of citing and receiving citations.

Results

Increasing Degree Centrality and Centralization of Inter-journal Citations

From the visualizations (Figure 1 to Figure 3), we see an increasing number of citations, in which specific journals receive more citations over time. Table 2 gives us an overview of degree centrality and centralization. The changes are evident: In the first time interval, 1993-1996, the highest degree centrality is 26.3 (Journal “JSSP”). In the third time interval, 2001-2004, Journal “TS” has the highest degree centrality with 46.4. Overall, the citation networks move toward a denser network when we look at centralization. The increase is from 22.43% in the first time interval to 40.99% in the third time interval.

Figure 1   Citation Networks: 2001-2006 Journals
Citing 1993-1996 Journals

Figure 2   Citation Networks: 2001-2006 Journals
Citing 1997-2000 Journals

We replace the term “sycophant subgroups” to “follower subgroups” in the results and conclusions because the former has a negative meaning in Chinese and the latter keeps the definition by Burt (1978) while maintaining a neutral meaning for the observed subgroups.
Figure 3 Citation Networks: 2001-2006 Journals Citing 2001-2004 Journals

Table 2 Citations and Degree Centrality for Sociology Journals from 1993-1996, 1997-2000, and 2001-2004

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number of citations received</td>
<td>Degree centrality</td>
<td>Number of citations received</td>
</tr>
<tr>
<td>JPS</td>
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<td>15.8</td>
<td>1</td>
</tr>
<tr>
<td>JSSP</td>
<td>5</td>
<td>26.3</td>
<td>5</td>
</tr>
<tr>
<td>TJS</td>
<td>4</td>
<td>21.1</td>
<td>3</td>
</tr>
<tr>
<td>TRQSS</td>
<td>2</td>
<td>10.5</td>
<td>6</td>
</tr>
<tr>
<td>TS *</td>
<td>2</td>
<td>10.5</td>
<td>6</td>
</tr>
<tr>
<td>TJES *</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>SJIS</td>
<td>0</td>
<td>0.0</td>
<td>4</td>
</tr>
<tr>
<td>TW</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>NCJS</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>JPSPA *</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>FES *</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>JWGS</td>
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<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>JCCIS *</td>
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<tr>
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<tr>
<td>SJISW</td>
<td>3</td>
<td>15.8</td>
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</tr>
<tr>
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<td>1</td>
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<tr>
<td>TJSW *</td>
<td>0</td>
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<td>1</td>
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<tr>
<td>TSW</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>FIMH</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Centrality 22.438% 23.269% 40.997%

*Journal not published before 1993.

Differentiation of Subfields in Inter-Journal Citation Networks

Figure 4 shows the citation networks of four subgroups by image matrix and the stratification among them. The \{SR, TJS and TS\} subgroup is the primary
subgroup, while the \{FES, JPS, JWGS, JPSPA, NCJS, SJS and TRQSS\} subgroup is the follower subgroup. Compared to these first two groups, the other two groups are more isolated: the \{NTUSW, SJSW, SPSW, TJSW and TSW\} subgroup has self-citations and no interaction with other subgroups, and the \{FJMH, JCCIS, JSSP, TICES, and TW\} subgroup has no self-citations or interaction.

Among the primary subgroup, two core professional sociology journals, “TS” and “TJS”, have the highest degree of centrality from 2001 to 2004, which means that these two journals are ranked in the same prestigious position. These two journals are in the leading position in terms of citation networks. Journals in the follower subgroup include core professional sociology journals, inter-university or inter-institute journals, and synthesis journals. These two subgroups, primarily sociology journals, share the majority of citations. We also find that the isolation subgroup \{NTUSW, SJSW, SPSW, TJSW and TSW\} is composed of social work and social welfare journals. It does not have relevant interaction with sociology subgroups. Therefore, we conclude that a hierarchical structure exists in which there is a distinct differentiation between sociology and social work and social welfare.

We have found that degree centrality for sociology journals increases over time. Two core professional sociology journals have attained leading positions, receiving frequent citations, while other journals are followers in terms of citing or being isolated. Moreover, social work and social welfare journals are identified as an independent subfield in the structure.

Further research in combination with policy-related data would be helpful in answering to what extent science policy impacts citation networks. Podolny’s (1993) analyses of “status signals” demonstrated that when a field starts ranking organizations, consumers perceive the rankings to reflect the reliability of organizations and choose those organizations that are more highly ranked. As science policy in recent years has addressed the issues of journal evaluations, a similar status signal effect is applicable to citation networks. Further, the “Matthew
effect” reminds us to track whether policy making leads to a disproportional citation distribution.

Finally, we call for long-term data collection of Chinese journal citation networks. Our study is limited to journals between 2001 and 2006. Longitudinal data would enrich empirical studies of Taiwan’s sociology development.

**ROMANIZED & TRANSLATED REFERENCES FOR ORIGINAL TEXT**

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The Relationship between Job Satisfaction, Job Autonomy and Job Performance in University Librarians

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Abstract

Shortage of librarians is the biggest management challenge for university libraries in Taiwan. University libraries require librarians to continuously improve their skills to keep up with the changing academic environment and to meet customers’ needs. Using structural equation modeling (SEM), this study examines the relationship between job satisfaction and job performance at facet level for university librarians in Taiwan. Results indicated that job satisfaction is positively related to job performance. Findings also indicated that job autonomy moderates this relationship. The study also used competing statistical models and difference analysis. Finally, the study provides management recommendations for the librarianship profession.

Keywords: Job satisfaction; Job autonomy; Job performance; Contextual performance; Task performance

SUMMARY

Foreword

Facing a shortage in manpower, managers of university libraries need to encourage staff to upgrade their skills and take on additional tasks in order to adapt to a changing environment and improve the organizational performance and service quality of academic libraries. This study focuses on the relationship between job satisfaction and job performance for librarians and the purposes of the study are as follows:

(1) To use structural equation modeling to examine the relationship between job satisfaction and job performance at facet level for university librarians in Taiwan.

(2) To examine the effect of job autonomy on the aforementioned relationship (1).
Literature Review

Job satisfaction is defined as employees’ psychological and physical satisfaction toward their working environment (Hoppock, 1935). Job performance, including contextual and task performance, refers to employees’ individual behaviors, which are helpful for achieving organizational goals. Job autonomy refers to the ability of staff to manage their work schedule independently and make decisions regarding the methods they use to perform their duties (Hackman & Oldham, 1975).

Research Methodology

![Conceptual framework](image)

**Figure 1 Conceptual framework**

Questionnaires were used in this study and all participants were university librarians. The response rate was 70.32%. Data analyses included narrative statistics, reliability and validity analysis, and structural equation modeling (SEM).

Research hypotheses:

H1: University librarians’ job satisfaction is positively related to job performance.

H2: Job autonomy mediates the relationship between job satisfaction and performance.

Results and Analysis

The majority of librarians were married, female, 31-40 years of age, and college/university graduates. Tests on NCI($\chi^2$/df) · NFI · CFI indicated that the test model fit within the acceptable range. The effect of the interaction between job satisfaction and job autonomy on job performance was found to be significant.

![Empirical Analysis of the main model](image)

**Figure 2 Empirical Analysis of the main model**
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Table 1  Moderating effect of Job Autonomy

<table>
<thead>
<tr>
<th>Path relationships</th>
<th>Standardized structural coefficients ($r$ value)</th>
<th>$\Delta \chi^2$ (t value)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic satisfaction → contextual performance</td>
<td>0.55 (9.33)</td>
<td>0.23 (3.99)</td>
<td>11.99* significant</td>
</tr>
<tr>
<td>Intrinsic satisfaction → task performance</td>
<td>0.25 (4.10)</td>
<td>0.13 (2.19)</td>
<td>4.65* significant</td>
</tr>
<tr>
<td>Extrinsic satisfaction → contextual performance</td>
<td>0.27 (4.75)</td>
<td>0.17 (2.93)</td>
<td>6.71* significant</td>
</tr>
<tr>
<td>Extrinsic satisfaction → task performance</td>
<td>0.15 (2.45)</td>
<td>-0.01 (-0.09)</td>
<td>5.44* significant</td>
</tr>
</tbody>
</table>

Note: * $p<0.05$

The theoretical model was a concise and appropriate framework and statistically different from the competition models: I · II · III of $\Delta \chi^2$ ($\Delta $df)

Table 2  Comparison between the Theoretical Model and the Competition Models

<table>
<thead>
<tr>
<th>Evaluation indicator</th>
<th>Evaluation criteria</th>
<th>Theoretical model</th>
<th>Competition model I</th>
<th>Competition model II</th>
<th>Competition model III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute goodness</td>
<td>Not significant</td>
<td>1071.70</td>
<td>12765.84</td>
<td>3051.80</td>
<td>10583.83</td>
</tr>
<tr>
<td>GFI</td>
<td>&gt;0.90</td>
<td>0.89</td>
<td>0.41</td>
<td>0.74</td>
<td>0.45</td>
</tr>
<tr>
<td>AGFI</td>
<td>&gt;0.90</td>
<td>0.87</td>
<td>0.32</td>
<td>0.70</td>
<td>0.37</td>
</tr>
<tr>
<td>SRMR</td>
<td>&lt;0.05</td>
<td>0.05</td>
<td>0.22</td>
<td>0.11</td>
<td>0.19</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt;0.08</td>
<td>0.05</td>
<td>0.23</td>
<td>0.11</td>
<td>0.22</td>
</tr>
<tr>
<td>Relative goodness</td>
<td>&gt;0.90</td>
<td>0.98</td>
<td>0.84</td>
<td>0.95</td>
<td>0.87</td>
</tr>
<tr>
<td>NFI</td>
<td>&gt;0.90</td>
<td>0.99</td>
<td>0.83</td>
<td>0.95</td>
<td>0.86</td>
</tr>
<tr>
<td>NNFI</td>
<td>&gt;0.90</td>
<td>0.99</td>
<td>0.84</td>
<td>0.96</td>
<td>0.87</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt;0.90</td>
<td>0.98</td>
<td>0.82</td>
<td>0.82</td>
<td>0.82</td>
</tr>
<tr>
<td>Relative goodness</td>
<td>&gt;0.50</td>
<td>0.90</td>
<td>0.78</td>
<td>0.78</td>
<td>0.78</td>
</tr>
<tr>
<td>PNFI</td>
<td>&gt;0.50</td>
<td>0.77</td>
<td>0.36</td>
<td>0.36</td>
<td>0.39</td>
</tr>
<tr>
<td>PGFI</td>
<td>&gt;2~3</td>
<td>2.68</td>
<td>31.60</td>
<td>7.59</td>
<td>26.26</td>
</tr>
<tr>
<td>NCI</td>
<td>(χ²/df)</td>
<td>(1071.70/400)</td>
<td>(12765.84/404)</td>
<td>(3051.80/402)</td>
<td>(10583.83/403)</td>
</tr>
<tr>
<td>$\Delta \chi^2$ (Adf)</td>
<td>significant</td>
<td>--</td>
<td>11694.14(4) *</td>
<td>1980.10(2) *</td>
<td>9512.13(3) *</td>
</tr>
</tbody>
</table>

Note: * $p<0.05$

Eight characteristics were used as independent variables with job satisfaction/performance/autonomy as the dependent variables.

Table 3  Characteristics of librarians for difference analysis

<table>
<thead>
<tr>
<th>Research variables</th>
<th>Intrinsic satisfaction</th>
<th>Extrinsic satisfaction</th>
<th>Job autonomy</th>
<th>Task performance</th>
<th>Contextual performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Unmarried</td>
<td>5.289</td>
<td>1.292</td>
<td>4.910</td>
<td>0.053</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>5.382</td>
<td>4.880</td>
<td>5.250</td>
<td>5.568</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>5.531</td>
<td>4.875</td>
<td>4.750</td>
<td>5.450</td>
</tr>
<tr>
<td>Education level</td>
<td>High school</td>
<td>5.152</td>
<td>1.140</td>
<td>5.068</td>
<td>0.140</td>
</tr>
<tr>
<td></td>
<td>College graduates</td>
<td>5.319</td>
<td>4.825</td>
<td>5.074</td>
<td>5.644</td>
</tr>
<tr>
<td></td>
<td>Post-graduates</td>
<td>5.389</td>
<td>4.973</td>
<td>5.357</td>
<td>5.734</td>
</tr>
<tr>
<td>Job features</td>
<td>Customer service</td>
<td>5.326</td>
<td>3.841</td>
<td>6.425</td>
<td>5.082</td>
</tr>
<tr>
<td></td>
<td>Technical service</td>
<td>5.268</td>
<td>4.771</td>
<td>5.160</td>
<td>5.611</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>5.508</td>
<td>5.213</td>
<td>5.274</td>
<td>5.604</td>
</tr>
<tr>
<td>Type of tertiary institution</td>
<td>Public</td>
<td>5.357</td>
<td>0.402</td>
<td>5.056</td>
<td>3.125</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>5.331</td>
<td>4.771</td>
<td>5.135</td>
<td>5.711</td>
</tr>
<tr>
<td>Work experience</td>
<td>University</td>
<td>5.314</td>
<td>-1.189</td>
<td>4.889</td>
<td>-0.048</td>
</tr>
<tr>
<td></td>
<td>Technical college</td>
<td>5.393</td>
<td>4.923</td>
<td>5.172</td>
<td>5.804</td>
</tr>
</tbody>
</table>

Note: *p<0.05

Librarians in public universities had higher extrinsic satisfaction than their private university colleagues; those 51 years of age and older had higher extrinsic satisfaction than those between 31 and 40 years old. Librarians in technical colleges had a higher task performance than those who work in general universities and colleges. Unmarried librarians had a higher task performance than married ones. With regards to job autonomy, librarians with a post-graduate education were more autonomous than those without; and librarians with more than 11 years of work experience had higher autonomy than those with 5 years of work experience or less.

**Conclusion**

This study showed that university librarians’ job satisfaction is positively related to job performance and is moderated by job autonomy. These findings suggest that to achieve higher job performance, managers should use strategies to motivate librarians and promote intrinsic satisfaction. Work flows can also be redesigned to allow appropriately qualified librarians to increase their job autonomy. The work environment should foster a strong concept of job performance. Follow-up studies could consider other variables which may affect job performance in order to improve the explanatory power of the model.

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A Study of College Students’ Preference of Servicescape in Academic Libraries

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Abstract
With the passage of time, library services and architecture change from collection-centered to user-centered. While technology greatly changes users’ channels of acquiring and preferences of using information, users consistently demand the physical library space, even with the decline of the usage rates. Related research indicated that in addition to the services and collections, the design and ambiance of the servicescape will also affect the user intent and attitude toward libraries’ physical space. With this regard, this study aims to understand from the users’ perspective of the way that servicescape and ambiance should be designed. This study used “Photo-elicitation” as its data collection method, which utilized the photographs taken by respondents as a tool for in-depth interview. Photo-elicitation is believed to have the ability to narrow the gap between the respondents and the researchers, while helping to embody the abstract concepts. It is hoped that by adopting this method, respondents can be guided to clearly describe their preference of servicescape in academic library setting. Nine college students were interviewed and a total of 213 photographs were solicited and used as data source. This study confirms that college students are more sensitive to the visual aspect of servicescape design. The functional aspect of the servicescape is most valued, while the aesthetic aspect creates better service experience. Customer service attitude and library’s management approach are two critical factors that college students valued most regarding the aspect of social interaction. In addition to exploring college students’ preference of servicescape, this study also attempts to construct a framework that serves as guidance for designing and evaluating servicescape in academic libraries.

Keywords: Academic libraries; Servicescape; Ambiance; Photo elicitation

SUMMARY
With the passing of time and advancement of technology, library services and architecture have moved from being collection-centered to user-centered.

* To whom all correspondence should be addressed.
While technology has greatly changed users’ methods of acquiring and preferences for using information, the demand for a physical library space remains, even with the decline in usage. Related research indicates that in addition to the services and collections, the design and ambiance of the servicescape will also affect user intent and attitude towards libraries’ physical space. It is in this regard that this study proposes to understand, from a user perspective, the way that library servicescape and atmosphere should be created. More specifically, this study aimed to achieve two research objectives: (1) understand the perception, design, and social interaction dimensions of servicescape that users prefer in academic libraries; and (2) explore the nature and definition of servicescape in academic libraries from a user perspective.

Three themes were reviewed in the literature: servicescape and its impact on users (or customers); the design of servicescapes; and the importance of servicescape to library users. The review drew upon a range of published literature in the areas of librarianship, business and management, and design. In this study, servicescape is conceptualized as a type of interaction between customers and service providers within a particular environment. It is the perceptual, design, and social nature of the environment that may impact how customers experience the service. The design of a servicescape in a library can be achieved through physical enhancement, facilities and furniture, functionality, and aesthetics. Understanding the servicescape of academic libraries is critical to the library community. Not only does it reveal the multi-faceted role of a library as a place, but it also identifies the possibilities that libraries represent in the lives of their users.

This study used “Photo-elicitation” as its data collection method, which utilizes the photographs taken by respondents as a tool for in-depth interview. Photo-elicitation is considered a method of visual research, and is believed to have the ability to bridge the gap between research participants and researchers, while helping to embody abstract concepts. By adopting this method, it is hoped that research participants can be guided to clearly describe their preference of servicescape in an academic library setting.

Nine college students were sampled into this study based on three criteria: (1) Full-time status: were full-time undergraduate students in colleges or university at the time of data collection; (2) Frequent user: used any of the library services in the library at least three times a week; (3) Serious user: stayed in the library at least two hours for each session of library use. Before data collection began, a pilot study was conducted to ensure the clarity, reliability, and validity of the data collection plan, including the instructions on what to take pictures of, and the questions for interview. Three undergraduate students participated in the
pilot study and the results informed minor modifications in data collection. The modifications were as follows: the number of photos submitted was increased from 5 to 15; and the photo-taking stage was shortened from 14 days to 10 days to prevent errors from memory loss.

The research required a three-stage data collection process. First, participants were introduced to the research objectives and the research participation activities. This stage was called the “preparation stage”. In the second stage, participants went to take photos of “corners of academic libraries” that they were most impressed or satisfied with, or that they most disliked or were dissatisfied with. Each participant was required to submit at least 15 photographs to the researchers for the purpose of interview and clarification but was allowed to take as many photographs as they wanted. This stage was called the “photo-taking stage”. In the third stage, researchers met with each participant for a semi-structured interview, going through each submitted photograph to elicit more information regarding the concepts, conceptualization, and preference for servicescape in academic libraries. Each interview took one to one and a half hours. This stage was called the “photo elicitation interview”. Completion of all three stages of data collection required 10-14 days.

After data collection was completed, 213 photographs taken by the participants were solicited and interview conversations were transcribed and analyzed based on the three themes of servicescape as identified from the literature: perception, design, and social interaction dimensions. Findings suggested the nature and definition of each dimension in detail. The perception dimension related to the multitude of human senses in sight, hearing, smell, and touch. The design dimension illustrated the functionality and aesthetic aspects of the library facilities and space. The social dimension demonstrated the interaction with servicescape. This dimension encompassed personal space, behavior, and library administration and management.

In addition to exploring college students’ preference of servicescape, this study also attempted to construct a framework that serves as guidance for designing and evaluating servicescape in academic libraries. Users come to libraries and interact with library services for different purposes and their service experience is impacted by the core services, servicescape, and personnel. This study identified five user-oriented definitions reflecting the meaning of servicescape in academic libraries. Diversity related to the multiple roles of academic libraries in students’ lives. Functionality focused on the services and functions the library provided. Social-orientedness related to the library as part of one’s memory of college life. Free-of-Charge focused on the “affordable fashion” nature of library services, suggesting that the low-cost
services provided in a comfortable environment is the strongest advantage libraries have compared to other types of information services. Popularization of library services suggested that “libraries providing services” was a declarative act, and with this idea in mind, “having services provided” was more important than “providing better services”.

In conclusion, this study confirms that college students are more attracted to the visual aspects of servicescape design compared to the other three senses. The functional aspect of the servicescape also had a great impact on college students, especially the facilities and the furniture, considering their primary purpose in visiting the library is academic. At the same time, the aesthetic aspect creates a better service experience and facilitates a positive state of mind. Attitude towards customer service and the library’s management approach were the two factors that college students valued most with regard to the social interaction aspect.

There are three major implications of these findings for servicescape design in academic libraries. First, a balance between functionality and aesthetics may improve user satisfaction and usage rate. Second, direct communication between libraries and users is an effective strategy to understand users and find solutions to minimize misunderstanding. Third, incorporation of transparency in the design of personal space may improve user privacy while enabling fluidity of light.

Three directions for further research are suggested based on the findings of this study. In addition to library users, librarians and other support staff are also primary users of the library space and facilities. Further research may utilize the same approach, photo-elicitation, to investigate their preferences for the design of their work environment. In combining the perceptions of both the providers and users of the service, a whole picture of how library space should be designed can be envisioned. This study interviewed 9 college students and a total of 213 photos were solicited. To improve the reliability of the results and distinguish the significant dimensions, larger studies need to be conducted. Lastly, as photo-elicitation proves to be an effective method for uncovering the underlying meaning of servicescape and space from the users’ perspective, it may be a valuable tool to study other types of libraries, such as public or school libraries, for rethinking the connection between libraries and their users.

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潘淑惠 [Pan, Shu-Hui](2005). 大學圖書館使用者空間需求之研究 [A study of users space needs for the academic library]. 未出版之碩士論文 [Unpublished master’s thesis], 國立臺灣大學圖書資訊學系 [Department of Library and Information Science, National Taiwan University], 台北市 [Taipei].

戴慧怡 [Tai, Huei-I](2009). 圖書館環境設計之探討：人書關係與空間建構 [Exploring the architecture design of library: The reader-book relations and construction of space]. 未出版之碩士論文 [Unpublished master’s thesis], 國立台灣科技大學設計學院建築系 [Department of Architecture, College of Design, National Taiwan University of Science and Technology], 台北市 [Taipei].


教育資料與圖書館學

Chicago格式(note)範例*

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1. 圖書 (Books)
   (1)作者為一人
       丁學東, 文獻計量學基礎 (北京市：北京大學出版社，1993)，206。
   (2)作者為二人
       胡適兆，吳祖善，圖書館學概論 (台北市：漢美，1989)，28。
   (3)作者為三人
       黃世雄，黃鴻珠，宋雪芳，圖書館與圖書館學 (台北縣：國家圖書館，台北市，2000)， 70。
   (4)作者為四人以上
       翁明賢等著，國際組織目標 (台北市：五南，1995)，25。
   (5)作者為團體
       American Library Association, Young Adult Services Division, Services Statement Development Committee, Directions for Library Service to Young Adults (Chicago: American Library Association, 1978), 25.
       經濟部數位內容產業推動辦公室，2004年台灣數位內容產業白皮書 (台北市：經濟部工業局，2004)，1-23。
   (6)編輯著作
       楊國楨等編，社會及行為科學研究法 (台北市：東華，1981)，25。
   (7)引用書中之前言、序等部分

(8) 翻譯作品

(9) 書中之單本著作
   張芸雲主編，台灣產業研究，第3冊，文化產業：文化生產的結構分析 (台北市：遠流，2000)，24。

(10) 編輯著作或論文集中之單篇論文
   朱元鴻，「文化工業：因繁榮而即將作廢的類概念」，在 文化產業：文化生產的結構文脈。張芸雲主編。(台北市：遠流，2000)，11-45。

(11) 以電子形式出版的書籍

(12) 書評

2. 期刊論文 (Journals)

(1) 連續編碼之期刊文章
   陳昭珍，「從實體到虛擬：該資訊組織發展現況與展望」，中國圖書館學會會報 68期（2002年6月）：26-36。

(2) 各期單獨編碼之期刊文章
   邱炯友，「公共出借權計畫之本質與價值」，教育資料與圖書館學 38卷，3期（2001）：273-276。

(3) 期刊中之特刊

3. 雜誌中的文章 (Magazines)
   楊淑娟、孫曉萍，「資深員工請留下」，天下雜誌，2005年4月15日，134-137。

4. 報紙報導 (Newspapers)
1985, sec. 1A, p. 3.
孟祥傑,「論文篇數 , 台大最多 , 長庚第五 , 政大排 48」, 聯合報, 2003 年 10 月 21 日, 第A6版。

5. 百科全書或字典 (Articles in Encyclopedias and Dictionaries)

6. 會議或研討會論文 (Published Reports and Proceedings)
(1) 正式出版之會議或研討會論文集
黃慕萱,「引用文獻初探」, 運用當代圖書館事業論集, 王振鴻教授七秩華誕祝壽論文集編輯小組編 (台北市：正中，1994)，807-816。
(2) 會議或研討會中發表之論文 (未出版)

7. 博碩士論文 (Thesis or Dissertation)
鄭麗敏,「近二十年來台灣地區圖書館學與資訊科學期刊論文引用參考文獻特性分析」 (碩士論文, 淡江大學, 1994), 76-80。

8. 電子資源 (Electronic Documents)
(1) 由資料庫取得的電子全文
Rosabel Flax, Guidelines for Teaching Mathematics K-12 (Topeka: Kansas State Department of Education, 1979) [database online], available from Dialog, ERIC, ED 178312.
(2) 由 Internet 取得的期刊文章
若欲加上檢索日期，應於網址後以括弧方式將日期標出。
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網站或網頁文獻在引註時應包括四部分，作者、網頁標題、網站擁有者 (Owner of the site), 以及網址。

杨昌勇，「學術論著注釋和索引的規範與功能」，學術批評網，http://www.acriticism.com/article.asp?Newsid=2044&type=1000 (檢索於2005年3月21日)。
若網頁文獻無法得知作者時，應以「網站擁有者」為作者，這時上述之第三部分可省略。
財團法人國家實驗研究院科技政策研究與資訊中心，「美國科學資訊所(ISI)引用文獻索引(Citation Index)簡介」，http://www.stic.gov.tw/stic/1/nscjaw/isiintro.htm (檢索於2005年3月21日)。

(4) 部落格的文章或回覆

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(2) 強調二次作品


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同一註釋連續出現時，以「同上註」呈現；非連續出現時，以簡寫呈現。

W. Edmund Farrar, “Antibiotic Resistance in Developing Countries,” _Journal of
Infectious Diseases 152 (December 1985): 1103-1109.

2 Ibid., 1105.


1 吳美美，‘E世代國家現代化指標：資訊素養與資訊政策’，圖書館學報 40 期（2002）：1-9。

2 同上註，7。

3 胡述兆、吳祖善，圖書館學導論（台北市：漢美，1989），28。

4 吳美美，‘E世代國家現代化指標’，8-9。
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1. 圖書 (Books)
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   (2) 作者為二人

   (3) 作者為三人至六人

   (4) 作者為七人或七人以上
   吕亞力、李瑞麟、林永波、林嘉誠、段重祺、段家鎮等 (1992)。論文寫作研究 (增訂初版)。台北市：三民。

(5) 作者為團體

   中華民國自然步道協會編著 (2000)。台大校園自然步道。台北市：城邦。

(6) 多冊著作

   黄文儀 (2000)。專利實務 (二版, 1-2冊)。台北市：三民。

(7) 編輯著作

   楊國樞、文崇一、吳聰賢、李亦園編 (1981)。社會及行為科學研究法。台北市：東華。

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* 本中文範例主要取自張保隆、謝寶媛 (2006)。學術論文寫作APA規範。台北市：華泰文化。 特此致謝。英文範例以Publication Manual of the American Psychological Association (6th ed.) 為準；範例若不足，請參閱後面二書。採用本刊格式時，亦請注意年代 (西元年號)、出版品 (標題體) 有別於其餘字體 (新細明體) 之特別要求；以及期刊論文若同時具有卷期，只須著錄出版年，不須著錄月份，但若僅有卷而無期數，則需同時著錄出版年與出版月份 (或季節)。


佛斯 (Vos, J.)、戴頓 (Dryden, G.)（1997）。學習革命（The learning revolution）（林麗鸞譯）。台北縣汐止鎮：中國生產力中心。（原作1994年出版）

Sterne, J. (1998)。網際網路客戶服務。（資策會產品處中文化部門譯）。台北市：翔威。（原作1994年出版）

(9) 叢書中之單本著作


張荊雲主編（2000）。文化產業：文化生產的結構分析（台灣產業研究，3）。台北市：遠流。

(10) 叢書之單本著作中之單篇文章


朱元鴻（2000）。文化工業：因繁榮而即將作廢的類概念。在文化產業：文化生產的結構文脈（張荊雲主編，頁11-45）（台灣產業研究，3）。台北市：遠流。

(11) 個人論文集中之單篇文章

王振鴻（1984）。圖書館與圖書館學。在圖書館學論叢（頁3-48）。台北市：台灣學生。

(12) 編輯著作或論文集中之單篇文章


王珮玲（2000）。PUSH科技及其在圖書館之應用。在李德竹編著，資訊科學與圖書館學專題論輯（頁243-291）。台北市：文華。

(13) 書中之章節


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2. 期刊論文（Journals）

(1) 連續編號之期刊文章


劉仁傑（2000，12月）。台灣日系企業的發展與轉型之探討。管理學報，17，695-712。
(2) 各期專欄編稿之期刊文章
謝寶煕 (1997)。從服務接觸談圖書館之服務環境管理，大學圖書館，1(4)，31-51。
莊道明 (2000，12月)。新世紀圖書館社會影響力與價值的重視。國家圖書館館刊，2，109-121。

(3) 尚未出版之期刊文章
謝寶煕 (出版中)。歷史研究法及其在圖書資訊學之應用。中國圖書館學會會報。

(4) 引用期刊之特刊 (Special issue) 或特定主題 (Special section)

3. 雜誌中的文章 (Magazines)
楊淑娟，孫曉萍（2005，4月15日）。資深員工請留下，天下雜誌，321，134-137。

4. 報紙報導 (Newspapers)
(1) 紙本報紙刊登的文章，有作者
余光中（2001，8月11日）。春到齊魯，聯合報，37版。
(2) 紙本報紙刊登的文章，無作者
盡力而為：擺蕩在理想與現實間的政策選擇（社論）（2001，8月11日）。聯合報，2版。

5. 百科全書或字典 (Articles in Encyclopedias and Dictionaries)
(1) 整套百科全書或字典
胡遜兆等編（1995）。圖書館學與資訊科學大辭典（1-3冊）。台北市：漢美。
(2) 百科全書中署名之文章
張保隆（2003）。Service facilities服務設施。在管理哲學（頁358）。台北市：華泰文化。
(3) 百科全書中未署名之文章
6. 會議或研討會論文 (Published Reports and Proceedings)

(1) 正式出版之會議或研討會論文集

張保隆、謝寶媛、盧昆宏 (1997). 品質管理策略與圖書館業務機能相關性之研究，在銘傳管理學院編，1997海峽兩岸管理科學學術研討會論文集 (頁190-195)。台北市：編者。

(2) 會議或研討會中發表之論文（未出版）

李華偉（2000，12月）。圖書館在知識管理中的角色。在中國圖書館學會，美國國際電訊研究院主辦，知識管理：方法與系統研討會，台北市。


7. 研究報告或技術報告（Technical Reports）

(1) 國科會等研究計畫報告
李德竹主持（1998）。我國大學圖書館館員學習利用網際網路態度之研究（國科會專題研究計畫成果報告，NSC 87-2413-H-002-029）。台北市：台灣大學圖書資訊學系暨研究所。

(2) 可由NTIS或ERIC等單位取得之報告


(3) 大學或政府機構之研究報告或技術報告

8. 博碩士論文（Thesis or Dissertation）

(1) 未正式出版之博碩士論文
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C. 美國以外國家（註明國別）

D. 國內之博碩士論文
盧昆宏 (1994)。製程能力指標推論最小值及製程能力判定程序之研究。未出版之博士論文，國立交通大學管理科學研究所，台北市。
翁慧娟 (1999)。我國大學圖書館網站品質評估之研究。未出版之碩士論文，國立台灣大學圖書資訊學研究所，台北市。

(2) 引用資料庫之博碩士論文摘要或預覽全文

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　e.g. 中國科學引文資料庫 Zhongguo Kexue Yinwen Ziliaoku
　e.g. 玉山國家公園解說志工工作滿足之研究 Yushan guojia gongyuan jieshuo zhigong gongzuomanzu zhi yanjiu
　e.g. 教育資料與圖書館學 Journal of Educational Media and Library Sciences

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　範例 1

　範例 2
　邱均平[Jun-Ping, Qiu]，「網路信息計量學導論」[Wanglu Hsinhsi Chilinghsueh Taolun]，國立成功大學圖書館館刊 16 期（2007 年 6 月）[National Cheng Kung University Library Journal 16 (June 2007)]：19。

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