ABSTRACT
This paper is an exploration of mapping journals in library and information science (LIS) through interlocking editorship information. Forty-eight LIS journals are clustered into four clusters. Possible reasons for some boundary-spanning journals and ten journals uninvolved in interlocking editorship are given. Results suggest that interlocking editorship information is useful for clustering journals in LIS, and additional suggestions regarding LIS journal re-categorization are proposed.

INTRODUCTION
For decades, much attention has been paid to various aspects of scientific journals. One important issue is journal clustering and categorization, since its outcome can have considerable applications on the practical side. Journal clustering results can “reveal the pattern, the mosaic of scholarly activity”, and is useful for “analyzing and validating thesauri, classification schemes, and indexing schemes” (Small & Koenig, 1977).

Editorial board members serve as gatekeeper of a particular discipline, since their main job is to determine which articles are qualified for publication (Budd, 2000). Editors are distinguished scholars in a discipline. Nearly every publisher, whose aim is to maximize the reputation and quality of the journal it publishes, tends to invite scholars with high reputations in the same area as the journal’s subject to serve on its editorial board, which results in the phenomenon that one particular scholar might serve on more than one editorial boards, referred as interlocking editorship (Baccini & Barabesi, 2010) in this paper. Two Journals are interlocked via editorial board members they share, and the shared editorial board members are called co-editors of these two journals in this paper.

On the basis of the above understanding, editorial board member information, in fact, provides us another clue of journal clustering, based on the assumption that journals tend to have scholars those research foci are similar to their journal subject as their editorial board members. Thus, it can be expected that if two journals have a same scholar serve on their editorial boards, these two journals would share some similarity in their focusing fields or subjects. Most studies on journal clustering use journal citation information, while some use reader survey, author survey, consensus of expert researchers, etc. But little journal clustering research has been done through editorship information.

METHODOLOGY
This research clusters journals included in LIS category in 2008 JCR, innovatively using interlocking editorship information. In 2008 JCR Social Science Edition, 61 journals are included in LIS category. Fifty-eight journals and their current editorial board members are analyzed in this paper. Three journals in language other than English are excluded for the convenience of data collecting and analysis. The editorial board member information used in this paper was either directly collected from the website, or, for some cases when the website was inaccessible, from the hard copy of the journal.

Information of 1,561 editorial board members from 58 journals is gathered, and a matrix containing interlocking editorship information is obtained. To cluster journals, the similarity of journal pair is the basic concern of this paper. At the first stage of this study, simple overlapping of editorial board members (i.e. co-editor number) is used as an indicator of preliminary similarity between journal pairs. Then Jaccard’s similarity coefficient is adopted to provide a different view of similarity. Finally, factor analysis, hierarchical clustering, and multidimensional scaling (MDS) are used to explore the similarity pattern of these journals.

CONCLUSION AND DISCUSSION
This research is conducted on the assumption that journals tend to invite scholars whose research areas are similar to their focusing fields. The result shows that interlocking editorship is proper to map journals in LIS.

On average, the LIS journal has more editorial board members than economic journal, revealed by a comparison of editorial board member information of LIS journals with that of economic journals. But each editorial board member of LIS journals occupy a smaller number of editorial seats than that of economic journals. About 90% of LIS editorial board members serve only on one editorial board simultaneously.

A closer look at the editorial board information validates the existence of interlocking editorship. The density of interlocking editorship network of LIS journals is less dispersed than that of Economic journals and Statistics journals. Of all the 58 journals discussed in this research, 48 journals are interlocked via editorial board members, resulting in 141 interlocking journal pairs.

The similarity of LIS journals is explored gradually through co-editorship information. At first, the simple
overlap of editorial board members is discussed, showing that *Journal of Informetrics* and *Scientometrics* journal pair shares the largest number of editorial board member and journals related MIS research tend to share more editorial board members than others.

Jaccard’s similarity coefficient is then computed. The rank shows *Journal of Informetrics* and *Scientometrics* are the most similar journals. *Annual Review of Information Science and Technology* shares editorial board members with most journals, which might be explained by its feature as a field-wide review journal in LIS.

In order to have a comprehensive view of journal proximity in LIS, MDS is used to plot the proximity map of 48 journals. The diagonal value of co-editor matrix is assigned with the maximum number of editorial board member each journal shares with other journals plus one. Squared Euclidean Distance is chosen as the distance measure to plot the proximity map. Forty-eight journals are grouped into four clusters, i.e. MIS journal cluster, communication journal cluster, research-oriented LIS journal cluster, and practice-oriented LIS journal cluster. Specific analysis on each cluster reveals that (1) most journals are grouped into the proper clusters with interlocking editorship information. Journal names and foci are used to validate the result; (2) *The Information Society* (between MIS journals and communication journals) and *Library & Information Science Research* (between research-oriented journals and practice-oriented journals) are boundary-spanning journals; (3) the dissimilarity between MIS journals and other journals in our database is distinguishable, since both MDS plot and Pajek visualization shows that the MIS journals are far away from the other three clusters; (4) communication related journals are closer to MIS journals than to other LIS journals; (5) the average impact factors of journals in four clusters are in descending order, from cluster 1 to cluster 4. This is a compressed version of a paper accepted by ASIS&T 2010 conference.

Ten LIS journals are not involved in interlocking editorship for several reasons, including the limited number of editorial board member, the specialty issue, the holding of editorial board members from non-research oriented affiliation, etc.

This research is valuable in using interlocking editorship information to explore the proximity pattern of LIS journals, validating that interlocking editorship information is useful to cluster journals in LIS.

In addition, this gradually furthered analysis also obtains several insights. First, journals in MIS cluster have greater Impact Factor values than the other three clusters, and research-oriented LIS journals achieves a higher average Impact Factor than practice-oriented LIS journals. Second, the 58 journals categorized in JCR in LIS subject might need re-categorization. It would be more reasonable that eight journals in MIS cluster will be categorized into another subject other than LIS, since both the simple similarity measure and MDS result show that those MIS journals are not similar in subjects with other journals in that category. Moreover, *The Scientist* might also be considered to be added into another category other than LIS in JCR, since it mainly publishes articles on issues of life science.

In conclusion, this research offers another way of journal clustering in a particular field by using interlocking editorship information, other than widely used journal citation information. Furthermore, according to the result, journals in LIS subject category in JCR are not firmly connected with LIS research, and proper re-categorization of LIS journals in JCR is suggested.

REFERENCES


Figure 1. Proximity map of LIS journals