教育資料與圖書館學 英摘版

JOURNAL OF EDUCATIONAL MEDIA & LIBRARY SCIENCES

教育資料與圖書館學
JOURNAL OF EDUCATIONAL MEDIA & LIBRARY SCIENCES

JoEMLS 編輯政策

本刊係採開放存取（Open Access）與商業資料庫付費途徑，雙軌發行之國際學術期刊，兼具電子版與紙本之平行出版模式。本刊除秉持學術規範與同儕評閱精神外，亦積極邁向InfoLibrary寓意之學域整合與資訊數位化理念，以反映當代圖書資訊學研究趨勢、圖書館典藏內容與應用服務為本；且以探討國內外相關學術領域之理論與實務發展，包括圖書館學、資訊科學與科技、書業與出版研究等，並旁及符合圖書資訊應用發展之教學科技與資訊傳播論述。

Open Access 典藏政策

*JoEMLS*向來以「綠色期刊出版者」（Green Publisher / Journal）自居，同意且鼓勵作者將自己投稿至*JoEMLS*之稿件，不論同儕評閱修訂稿與否，都能自行善加利用處理，但希望有若干限制：
⑴勿將已刊登之修訂稿（post-print）再自行轉為營利目的之使用；
⑵典藏版以期刊排印之PDF檔為首選；
⑶任何稿件之典藏版本皆須註明其與*JoEMLS*之關係或出版後之卷期出處。

JoEMLS Editorial Policy

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

The *JoEMLS*, as a role of "OA green publisher/journal", provides free access onlined to all articles and utilizes a form of licensing, similar to Creative Commons Attribution license, that puts minimal restrictions on the use of *JoEMLS*'s articles. The minimal restrictions here in the *JoEMLS* are:
(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.

Contents

EDITORIAL

In and Beyond This Issue

JoEMLS has been having strict regulations on referencing styles of academic papers, especially the Romanization of referencing required by Scopus and Web of Science (WoS), and has been implemented and proofread cautiously for guaranteeing the quality of papers for authors and readers. For the Romanization of referencing, we took the lead to set standards and regulations, published relevant professional books, and actively conducted investigations and reviews of relevant applications in journals. We indeed have been taking proud in the achievements mentioned above.

However, since the spectrum of the Library and Information Science (LIS) is so broad, covering from the traditional bibliography to contemporary hot research topics, such as big data and artificial intelligence; between these two, there have also been application issues in Social science, Educational technologies and Communication science. Therefore, the regulations and selections for referencing styles of papers should be appropriate for the needs of scholars in various fields. The APA and Chicago (Turabian) styles have been adopted in our journal as the referencing standards, for respecting the literature differences of various subjects, and for providing authors the freedom to choose, but only to choose from these two styles. Several years ago, this requirement of choosing from the two styles had been misunderstood and challenged by committee members of TSSCI; thank to our striving for keeping this appropriate policy, the crisis had been solved. Several years later, we now once again have to face similar challenges. Although we have already adopted dual referencing standards of different features, we who have regarded us as the best professional team in referencing styles of academic papers in Taiwan, still have to succumb to the practical situations of interdisciplinary integration happening in the LIS field. We have been having serious considerations in adopting the third referencing style.

This third referencing style to be adopted by *JoEMLS* should meet the needs of scholars in certain subject fields and with special writing habits, for accommodating the complete sub-fields in the LIS. With our strict requirements for regulations, this third referencing style should also be appropriately connected with the current two existing and mature referencing styles. This third referencing style should be a set of special regulations that apply to the writing of those subject fields that can't fit in APA and Chicago (Turabian) styles, such as academic papers in fields of Chinese philology, or bibliography and emendation studies, since in these papers the quoted ancient and historical materials might

have notations not following contemporary publication formats. The third new regulations of referencing style are expected to be announced in our next volume of 2019 (Volume 56).

We also received requests for changing authorship. It is worth reminding that if there are needs for adding or subtracting authors or changing the order of co-authors, it should be notified and verified at the first revision of manuscripts. If there are several co-authors, the first author will be regarded as the principal author. However, the author team should name one person as the corresponding author for communicating about manuscripts and academic communication. After the revised files have been uploaded, any requests for changes of author identities will not be acceptable, for following the standards of academic ethics. In addition, if manuscripts are adapted from degree papers or conference papers, it should be noted on the first page of papers when being published in our journal. We thank for your cooperation and support.

In this issue (Volume 55, Issue 3), 11 manuscripts have been reviewed and four been accepted, with a rejection rate of 63.6%. The papers published in this issue include: "Who Was the Key Figure? A Social Network Analysis of Suzhou Book Collector Groups in Ming Dynasty through a Digital Humanities Approach" by Kuan-chih Chen, Bo-Yi Chen and Ching-Cheng Huang, "A Content Analysis and Comparison of Typhoon News in Early and Recent Periods Based on the Text-Mining Approach" by Ji-Lung Hsieh and Bi-Chun Yang, "Exploring the Effect of Film Forms on Learning for MOOC Learners" by Pei-Yu Wang, and "Challenges Facing the DOAJ (Directory of Open Access Journals) as a Reliable Source of Open Access Publishing Venues" by Jaime A. Teixeira da Silva, Judit Dobránszki, Aceil Al-Khatib, and Peter Tsigaris.

<div align="right">

Jeong-Yeou Chiu
JoEMLS Chief Editor

</div>

Who Was the Key Figure? A Social Network Analysis of Suzhou Book Collector Groups in Ming Dynasty through a Digital Humanities Approach[ψ]

Kuan-chih Chen[a*] Bo-Yi Chen[b] Ching-Cheng Huang[c]

Abstract

In Ming Dynasty, the characteristic of social congregation among the Suzhou (蘇州) book collectors were extremely prevalent. The characteristic echoed with Ming Dynasty's "Wuzhong Wenyuan" (吳中文苑). The Suzhou book collectors had significant influence on the regional collection culture at Suzhou during the Ming Dynasty, and even on the collection culture all over the country. Generally speaking, the social linkages between ancient book collectors can be categorized into four categories, namely through linkages via consanguinity (relationship by blood), affinity (relationship by marriage), same school of thoughts, or friendship. However, historical records on these four linkages are enormous and fragmented. Processing and analyzing such records is difficult. Therefore, this study attempts to utilize digital humanity technology by selecting the social community analysis software to conduct in-depth analysis on Suzhou book collectors in Ming Dynasty, aims to depict the four major social network models of the Suzhou book collectors, and to identify the heritage or connection through the difference periods. The study also aims to identify the core social groups among the Suzhou book collector communities in Ming Dynasty during different periods, and to provide answers questions such as the identity of core members in the social communities. The result may be different from the academic community previous perception, and can serve as a good clarification, and another good reference to the public.

Keywords: *Ming Dynasty, Suzhou, Book collector communities, Digital humanities*

SUMMARY

The group personality of literates in Ming Dynasty was obvious due to a trend of literates valuing a personality of being socially active. The literates of

[ψ] Please visit our official website of *JoEMLS* for the electronic file of Appendix 1. Social Network Relationships of Suzhou Book Collectors in Ming Dynasty.

[a] Associate Professor, School of Continuing Education, Department of Library and Information Science, Fu Jen Catholic University

[b] MA Student, Department of Library and Information Science, Fu Jen Catholic University

[c] Librarian, Library of Hsin Sheng College of Medical Care and Management

[*] To whom all correspondence should be addressed. E-mail: 080677@mail.fju.edu.tw

Ming Dynasty tended to gather for honoring certain topics; they even gathered and formed social groups of two to thousands of members for certain common hobbies or specific goals, including societies of poetry, literature and composition, wine tasting, book transcribing, etc. They had regular or irregular meet-ups, forming a special trend among literates of that era.

After the Song Dynasty, with the prevalence of woodblock printing technology, there had been a trend of book collecting by private sectors happening in Jiang Nan, the south part of China. Suzhou had been a place with gathering of literary talents who had hobbies of collecting books, thus developing its own unique style and culture of collections of ancient Chinese literature. Especially in Ming Dynasty, distinguished from other literary groups in Jiang Nan, the literates in Suzhou developed a unique literary tradition and cultural style incorporating local features and era characteristics of both the north and south China, thus had been termed by contemporary scholars as Suzhou Wenyuan or Wuzong Wenyuan, suggesting its importance as a literary center. Book collecting had been the major activity of Suzhou literates, thus an investigation of the roles of book collectors in literate groups is of its importance.

In this article, the researcher tried to use a social group analysis software, University of California at Irvine Network, to analyze and investigate the group characteristics of Suzhou book collectors in Ming Dynasty, and identified the four social relationships including blood relatives, relatives-in-law, masters-apprentices, and friends. It should be pointed out that when using UCINET to study the social relationships in ancient cultures, it is not as easy as using it to study the relationships of nodes in contemporary social groups, and tends to be limited by the over-direct and simplified descriptions on inter-personal relationships in historical materials, thus the full use of some functions designed by UCINET cannot be made. Therefore in this study, five indicators including network density, degree centrality, betweenness centrality, closeness centrality and cliques were adopted to longitudinally investigate the social network developments of Suzhou book collectors during the whole Ming Dynasty, and the Ming Dynasty was further categorized into four periods, including Hongwu-Tianshun (1368-1464), Chenghua-Zhengde (1465-1521), Jiajing-Wanli (1522-1620), and Tianqi-early Qing Dynasty (1621-1662). Through the study of core figures of different periods generated and retrieved from the software, the network relationships and legacy developments of Suzhou book collector groups of each period in Ming Dynasty were identified.

In terms of network density, among the four periods in Ming Dynasty of Suzhou book collector groups, the Hongwu-Tianshun period was of the lowest number of book collector groups, and the lowest possibility of collaborating with each other

among the groups, thus there had been not many large-scale local groups of book collectors during that period. In the contrary, the Chenghua-Zhengde period was of the highest number of Suzhou book collector groups, and the highest possibility of collaborating with each other and forming larger-scale book collector groups, thus there had been more large-scale book collector groups during this period.

Through the analysis of degree centrality, we can see that Wen Zhengming, a Suzhou-born book collector active in the Suzhou Wenyuan during the middle Ming Dynasty, had the highest degree centrality, and was the core figure of Suzhou book collector groups during the whole Ming Dynasty. The core figures of book collector groups of each period were Quenshan-born Shen Yu (Hongwu-Tianshun period), Changzhou-born Wen Zhengming (Chenghua-Zhengde period), Taichang-born Wang Shizhen (Jiajing-Wanli period) and Changshou-born Qian Qianyi (Tianqi-early Qing Dynasty). Among the four periods, the book collector groups during the Chenghua-Zhengde period were the most active, followed by the book collector groups of the Tianqi-early Qing Dynasty period. The book collector groups of the Jiajing-Wanli period was of the lowest development.

Through the analysis of betweenness centrality, the betweenness of each member of Suzhou book collector groups in Ming Dynasty can be quantified, for comparison of the importance in terms of betweenness among social networks. In terms of the Suzhou book collector groups in the whole Ming Dynasty, Qian Qianyi, a Changshou-born book collector active during the Tianqi-early Ming Dynasty period, was of the highest in betweenness centrality, and was the figure with the most betweenness in the development of Suzhou book collector groups in Ming Dynasty.

Through the analysis of closeness centrality, we can see who the Suzhou book collector that could connect with other nodes without being through others was, that is, who the most socially active book collector was. The results showed that Huang Jishui, a Wu-born book collector active during the Jiajing-Wanli period, was the most socially active as an independent book collector.

The analysis of cliques can reveal the number of book collector groups. During the whole Ming Dynasty, there were 79 Suzhou book collector groups, among which the largest group was of 18 members and with Wen Zhengming as the leading figure.

From the data automatically calculated through the built-in partial indicators of UCINET, the information regarding key figures and core groups of Suzhou book collector groups during different periods in Ming Dynasty has been revealed. Furthermore, in this study, the complicated contents of historical materials had been presented in a quantified, pictorized and visualized fashion, for revealing various scientific models of Suzhou book collector groups of different periods in Ming Dynasty. It is expected to deepen scholars' understanding of cultural history of Ming Dynasty, and to present a study with results different from previous studies.

ROMANIZED & TRANSLATED REFERENCE FOR ORIGINAL TEXT

Hanneman, R. A., & Riddle, M.（2013）。社會網絡分析方法：*UCINET* 的應用（陳世榮譯）。高雄市：巨流。（原著出版於1998年）【Hanneman, R. A., & Riddle, M. (2013). *Introduction to social network method* (Roger S. Chen, Trans.). Kaohsiung: Chuliu. (Original work published 1998) (in Chinese)】

The President and Fellows of Harvard College（2018）。中國歷代人物傳記資料庫。檢索自 https://projects.iq.harvard.edu/chinesecbdb。【The President and Fellows of Harvard College. (2018). China biographical database project (CBDB). Retrieved from https://projects.iq.harvard.edu/chinesecbdb (in Chinese)】

尹守衡（明）（1991a）。王世貞。在周駿富（編），明代傳記叢刊。明史竊列傳（第96卷，頁394-399）。台北市：明文書局。【Yin, Shou Heng (Ming). (1991a). Wang Shi Zhen. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Mingshi qie liezhuan* (Vol. 96, pp. 394-399). Taipei: Mingwen Shuju. (in Chinese)】

尹守衡（明）（1991b）。康楊桑顧朱劉文唐祝列傳第七十三。在周駿富（編），明代傳記叢刊。明史竊列傳（第95卷，頁345-388）。台北市：明文書局。【Yin, Shou Heng (Ming). (1991b). Kang Yang Sang Gu Zhu Liu Wen Tang Zhu liezhuan di qishisan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Mingshi qie liezhuan* (Vol. 95, pp. 345-388). Taipei: Mingwen Shuju. (in Chinese)】

文林（明）（1997a）。明故中順大夫浙江溫州府知府文君墓碑銘。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。文溫州集（第12卷，頁4上-8下）。台南市：莊嚴文化。據北京圖書館藏明刻本影印。【Wen, Lin (Ming). (1997a). Ming gu zhong shundaifu Zhejiang Wenzhoufu zhifu wenjun mubeiming. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wen Wenzhou ji* (Vol. 12, pp. Top of 4-Bottom of 8). Tainan: Solemn Culture Business Co., Ltd. Ju Beijing tushuguan cang Mingkeben yingyin. (in Chinese)】

文林（明）（1997b）。故浙江布政使司右參政陸公墓誌銘。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。文溫州集（第9卷，頁9上-11下）。台南市：莊嚴文化。據北京圖書館藏明刻本影印。【Wen, Lin (Ming). (1997a). Gu Zhejiang buzheng shisi youcanzheng Lugong muzhiming. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wen Wenzhou ji* (Vol. 9, pp. Top of 9-Bottom of 11). Tainan: Solemn Culture Business Co., Ltd. Ju Beijing tushuguan cang Mingkeben yingyin. (in Chinese)】

文徵明（明）（1986a）。亡友閻起山墓誌銘。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第29卷，頁3上-5上）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986a). Wangyou Yan qishan muzhiming. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu. Futian ji* (Vol. 29, pp. Top of 3-Top of 5). Taipei: The Commercial Press, Ltd. (in Chinese)】

文徵明（明）（1986b）。太傅王文恪公傳。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第28卷，頁1上-18下）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986b). Taifu Wang WenKe gong zhuan. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu. Futian ji* (Vol. 28, pp. Top of 1-Bottom of 18). Taipei: The Commercial Press, Ltd. (in Chinese)】

文徵明（明）（1986c）。先君行略。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第36卷，頁1上-8上）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986c). Xianjun xinglue. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Futian ji* (Vol. 36, pp. Top of 1-Top of 8). Taipei: The Commercial Press, Ltd. (in Chinese)】

文徵明（明）（1986d）。沈維時墓誌銘。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第29卷，頁1上-3上）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986d). Shen Weishi muzhiming. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Futian ji* (Vol. 29, pp. Top of 1-Top of 3). Taipei: The Commercial Press, Ltd. (in Chinese)】

文徵明（明）（1986e）。廣西提學僉事袁君墓誌銘。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第33卷，頁8上-12上）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986e). Guangxi tixue qianshi Yuanjun muzhiming. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Futian ji* (Vol. 33, pp. Top of 8-Top of 12). Taipei: The Commercial Press, Ltd. (in Chinese)】

文徵明（明）（1986f）。錢孔周墓誌銘。在紀昀等（清）（總纂），景印文淵閣四庫全書。甫田集（第33卷，頁5上-8上）。台北市：臺灣商務印書館。【Wen, Zheng Ming (Ming). (1986f). Qian Kongzhou muzhiming. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Futian ji* (Vol. 33, pp. Top of 5-Top of 8). Taipei: The Commercial Press, Ltd. (in Chinese)】

文震孟（明）（1925）。姑蘇名賢小記（上、下卷）。台北市：中央研究院藏光緒八年長洲蔣氏心矩齋校刊本。【Wen, Zhen Meng (Ming). (1925). *Gusu mingxian xiaoji* (Vols. I-II). Taipei: Academia Sinica cang Guangxu 8nian Zhangzhou Jiangshi xinjuzhai jiaokanben. (in Chinese)】

牛若麟等（明）（1990）。崇禎·吳縣志（第47-49、52卷）。上海：上海書店。據明崇禎刻本影印。【Niu, Ruo Lin (Ming). (1990). *Chongzhen: Wuxian zhi* (Vols. 47-49, 52). Shanghai, China: Shanghai shudian. Ju Ming Chongzhen keben yingyin. (in Chinese)】

王士禎（清）（1997）。史辰伯。在新文豐（編），叢書集成三編。池北偶談（第11卷，頁8上）。台北市：成文出版社。據清代筆記叢刊本影印。【Wang, Shi Zhen (Qing). (1997). Shi Chen Bo. In Xin Wen Feng (Ed.), *Congshu Jicheng San Bian*. *Chi bei outan* (Vol. 11, p. Top of 8). Taipei: Cheng Wen Publishing Co., Ltd. Ju Qing dai biji congkanben yingyin. (in Chinese)】

王世貞（明）（1577）。弇州山人四部稿（第84卷）。台北市：國家圖書館藏明萬曆5年王氏世經堂刊本。【Wang, Shi Zhen (Ming). (1577). *Yanzhou shanren sibugao* (Vol. 84). Taipei: National Central Library cang Ming Wanli 5nian Wangshi shijingtang kanben. (in Chinese)】

王世貞（明）（1970）。周公瑕先生七十壽序。在沈雲龍（編），明人文集叢刊。弇州山人續稿（第39卷，頁2128-2134）。台北市：文海出版社【Wang, Shi Zhen (Ming). (1970). Zhougong xia xiansheng qishi shouxu. In Yun Long Shen (Ed.), *Ming Ren Wenji Congkan*. *Yanzhou shanren xugao* (Vol. 39, pp. 2128-2134). Taipei: Wen Hai Press Company. (in Chinese)】

王世貞（明）（1991a）。亡弟中順大夫太常寺少卿敬美行狀。在周駿富（編），明代傳記叢刊。弇州山人續稿碑傳（第140卷，頁495-536）。台北市：明文書局。【Wang, Shi Zhen (Ming). (1991a). Wangdi zhongshun dafu Taichangsi shaoqing jingmei xingzhuang. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Yanzhou shanren xugao beizhuan* (Vol.

140, pp. 495-536). Taipei: Mingwen Shuju. (in Chinese)】

王世貞（明）（1991b）。邢州守天方張先生安府。在周駿富（編），明代傳記叢刊。弇州山人續稿碑傳（第148卷，頁683-688）。台北市：明文書局。【Wang, Shi Zhen (Ming). (1991b). Xingzhoushou tianfang Zhang xiansheng anfu. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Yanzhou shanren xugao beizhuan* (Vol. 148, pp. 683-688). Taipei: Mingwen Shuju. (in Chinese)】

王世貞（明）（1991c）。陸五湖先生師道。在周駿富（編），明代傳記叢刊。弇州山人續稿碑傳（第150卷，頁762-764）。台北市：明文書局。【Wang, Shi Zhen (Ming). (1991c). Lu Wu Hu xiansheng shidao. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Yanzhou shanren xugao beizhuan* (Vol. 150, pp. 755-790). Taipei: Mingwen Shuju. (in Chinese)】

王兆雲（明）（1991a）。文徵仲。在周駿富（編），明代傳記叢刊。皇明詞林人物考（第7卷，頁157-166）。台北市：明文書局。【Wang, Zhao Yun (Ming). (1991a). Wen zhen zhong. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming cilin renwukao* (Vol. 7, pp. 157-166). Taipei: Mingwen Shuju. (in Chinese)】

王兆雲（明）（1991b）。王叔承。在周駿富（編），明代傳記叢刊。皇明詞林人物考（第12卷，頁711-718）。台北市：明文書局。【Wang, Zhao Yun (Ming). (1991b). Wang Shu Cheng. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming cilin renwukao* (Vol. 12, pp. 711-718). Taipei: Mingwen Shuju. (in Chinese)】

王兆雲（明）（1991c）。陸子傳。在周駿富（編），明代傳記叢刊。皇明詞林人物考（第8卷，頁341-346）。台北市：明文書局。【Wang, Zhao Yun (Ming). (1991c). Lu Zi zhuan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming cilin renwukao* (Vol. 8, pp. 341-346). Taipei: Mingwen Shuju. (in Chinese)】

王錫爵（明）（1997）。光祿大夫少保兼太子太保吏部尚書建極殿大學士贈太保諡文肅荊石王先生行狀。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。王文肅公全集（第55卷，頁49上-67下）。台南市：莊嚴文化。據首都圖書館藏明萬曆王時敏刻本影印。【Wang, Xi Jue (Ming). (1997). Guanglu daifu shaobao jian taizi taibao libu shangshu jianjidian daxueshi zeng taibao shi Wensu Jingshi Wang xiansheng xingzhuang. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wang Wensugong quanji* (Vol. 55, pp. Top of 49-Bottom of 67). Tainan: Solemn Culture Business Co., Ltd. Ju Beijing tushuguan cang Mingkeben yingyin. (in Chinese)】

王穉登（明）（1619）。王百穀集二十一種（下卷）。台北市：國家圖書館藏明萬曆47年金陵葉氏刊本。【Wang, Zhi Deng (Ming). (1619). *Wang baigu ji ershiyizhong* (Vol. II). Taipei: National Central Library cang Ming Wanli 47nian jinling yeshi kanben. (in Chinese)】

王鴻緒（清）（1991a）。文苑三・文徵明。在周駿富（編），明代傳記叢刊。明史稿・列傳（第163卷，頁433-442）。台北市：明文書局。【Wang, Hong Xu (Ming). (1991a). Wen yuan san: Wen Zheng Ming. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Mingshigao: Liezhuan* (Vol. 163, pp. 433-442). Taipei: Mingwen Shuju. (in Chinese)】

王鴻緒（清）（1991b）。隱逸・沈周。在周駿富（編），明代傳記叢刊。明史稿・列傳（第174卷，頁534-537）。台北市：明文書局。【Wang, Hong Xu (Ming). (1991b). Yinyi: Shen Zhou. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Mingshigao: Liezhuan* (Vol. 174, pp. 534-537). Taipei: Mingwen Shuju. (in Chinese)】

王鏊（明）（1990）。正德・姑蘇志（第25、54-55卷）。上海：上海書店。據明崇禎刻本影印。【Wang, Ao (Ming). (1990). *Zhengde: Gusuzhi* (Vols. 25, 54-55) Shanghai, China:

Shanghai shudian. Ju Ming Chongzhen keben yingyin. (in Chinese)】

王鏊（明）（無日期）。王文恪公集（第13卷）。台北市：中央研究院藏明萬曆間震澤王氏三槐堂刊本。【Wang, Ao (Ming). (n.d.). *Wang Wenkegong ji* (Vol. 13). Taipei: Academia Sinica cang Ming Wanli jian zhenze Wangshi sanhuaitang kanben. (in Chinese)】

史美強、王光旭（2008）。台灣府際財政治理的競合關係：一個網絡分析的實證研究。公共行政學報，28，39-83。【Shih, Mei-Chiang, & Wang, Guang-Xu (2008). The competitive and cooperative relationships of intergovernmental fiscal governance in Taiwan: A network analysis. *Journal of Public Administration*, 28, 39-83. (in Chinese)】

申時行（明）（1997）。贈光祿大夫太子太保禮部尚書兼武英殿大學士王公神道碑銘。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。賜閒堂集（第20卷，頁9下-15下）。台南市：莊嚴文化。據北京大學圖書館藏明萬曆刻本影印。【Shen, Shi Xing (Ming). (1997). Zeng guanglu daifu taizi taibao libu shangshu jian wuyingdian daxueshi Wanggong shendaobeiming. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu*. *Cixiantangji* (Vol. 20, pp. Bottom of 9-Bottom of 15). Tainan: Solemn Culture Business Co., Ltd. Ju Peking University tushuguancang Ming Wanli keben yingyin. (in Chinese)】

朱存理（明）（1986）。跋劉太中遺翰。在紀昀等（清）（總纂），景印文淵閣四庫全書。樓居雜著（頁14上-下）。台北市：臺灣商務印書館。【Zhu, Cun Li (Ming). (1986). Ba Liu taizhong yihan. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Louju zazhu* (p. 14). Taipei: The Commercial Press, Ltd. (in Chinese)】

朱竹垞（清）（1991a）。吳寬。在周駿富（編），明代傳記叢刊。靜志居詩話（第8卷，頁702-703）。台北市：明文書局。【Zhu, Zhu Cha (Qing). (1991a). Wu Kuan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Jingzhiju shihua* (Vol. 8, pp. 702-703). Taipei: Mingwen Shuju. (in Chinese)】

朱竹垞（清）（1991b）。邢參。在周駿富（編），明代傳記叢刊。靜志居詩話（第11卷，頁115-116）。台北市：明文書局。【Zhu, Zhu Cha (Qing). (1991b). Xing Can. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Jingzhiju shihua* (Vol. 11, pp. 115-116). Taipei: Mingwen Shuju. (in Chinese)】

朱竹垞（清）（1991c）。錢允治。在周駿富（編），明代傳記叢刊。靜志居詩話（第18卷，頁664-665）。台北市：明文書局。【Zhu, Zhu Cha (Qing). (1991c). Qian Yun Zhi. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Jingzhiju shihua* (Vol. 18, pp. 664-665). Taipei: Mingwen Shuju. (in Chinese)】

朱竹垞（清）（1991d）。錢穀。在周駿富（編），明代傳記叢刊。靜志居詩話（第14卷，頁384-385）。台北市：明文書局。【Zhu, Zhu Cha (Qing). (1991d). Qian Gu. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Jingzhiju shihua* (Vol. 14, pp. 384-385). Taipei: Mingwen Shuju. (in Chinese)】

朱義祿（1995）。逝去的啟蒙—明清之際啟蒙學者的文化心態。鄭州：河南人民出版社。【Zhu, Yilu (1995). *Shiqu de qimeng: Ming Qing zhi ji qimeng xuezhe de wenhua xintai*. Zhengzhou, China: Henan People's Publishing House. (in Chinese)】

朱謀垔（明）（1991）。袁長史福徵。在周駿富（編），明代傳記叢刊。續書史會要（頁443-444）。台北市：明文書局。【Zhu, Mou Yin (Ming). (1991). Yuan zhangshi fu zheng. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Xu shushi huiyao* (pp. 443-444). Taipei: Mingwen Shuju. (in Chinese)】

何良俊（明）（1997）。詩三。在李清（編），元明史料筆記叢刊。四友齋叢說（第26卷，頁1上-17下）。北京：中華書局。【He, Liang Jun (Ming). (1997). Shi san. In Qing Li (Ed.), *Yuan Ming Shiliao Biji Congkan*. *Siyouzhai congshuo* (Vol. 26, pp. Top of 1-Bottom of 17). Beijing, China: Chung Hwa Book Co. (in Chinese)】

何喬遠（明）（1993）。名山藏，文苑記。揚州：江蘇廣陵古籍刻印社。【He, Qiao Yuan (Ming). (1993). *Mingshanzang, wenyuanji*. Yangzhou, China: Jiangsu Guangling Guji Keyinshe. (in Chinese)】

吳來奇（2011）。以五大人格特質與社會網路分析探討大學製作專題組成的影響成因—以北部某大學專題學生為例（未出版之碩士論文）。中華大學資訊管理學系碩士班，新竹市。【Wu, Lai-Chi (2011). *Team composition of project curriculum based on big-five model and social network analysis for college students* (Unpublished master's thesis). Department of Information Management, Chung Hua University, Hsinchu. (in Chinese)】

吳寬（明）（1986）。伊氏重修族譜序。在紀昀等（清）（總纂），景印文淵閣四庫全書。家藏集（第42卷，頁4下-6上）。台北市：臺灣商務印書館。【Wu Kuan (Ming). (1986). Yishi Chongxiu zupu xu. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Jiacang ji* (Vol. 42, pp. Bottom of 4-Top of 6). Taipei: The Commercial Press, Ltd. (in Chinese)】

吳德旋（清）（1985）。陸敕先。在周駿富（編），清代傳記叢刊。初月樓聞見錄（第10卷，頁156）。台北市：明文書局。【Wu, De Xuan (Qing). (1985). Lu Chi Xian. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Chuyuelou wenjian lu* (Vol. 10, pp. 156). Taipei: Mingwen Shuju. (in Chinese)】

李元度（清）（1985）。名臣。在周駿富（編），清代傳記叢刊。清朝先正事略（第6卷，頁217-248）。台北市：明文書局。【Li, Yuan Du (Qing). (1985). Ming chen. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Qingchao xianzheng shilue* (Vol. 6, pp. 217-248). Taipei: Mingwen Shuju. (in Chinese)】

李放（清）（1985）。馮武。在周駿富（編），清代傳記叢刊。皇清書史（第1卷，頁46）。台北市：明文書局。【Li, Fang (Qing). (1985). Feng Wu. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Huangqing shushi* (Vol. 1, p. 46). Taipei: Mingwen Shuju. (in Chinese)】

李東陽（明）（1986）。贈文林郎廣西道監察御史陸君墓表。在紀昀等（清）（總纂），景印文淵閣四庫全書。懷麓堂集（第77卷，頁17下-19下）。台北市：臺灣商務印書館。【Li, Dong Yang (Ming). (1986). Zeng Wenlinlang Guangxidao jianchayushi Lu jun mu biao. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Huailutang ji* (Vol. 77, pp. Bottom of 17-Bottom of 19). Taipei: The Commercial Press, Ltd. (in Chinese)】

李流芳（明）（1972）。四庫全書珍本。檀園集（第9卷）。台北市：臺灣商務印書館。【Li, Liu Fang (Ming). (1972). *Siku quanshu zhenben*. *Tanyuan ji* (Vol. 9). Taipei: The Commercial Press, Ltd. (in Chinese)】

李桓（清）（1985a）。文藝七。在周駿富（編），清代傳記叢刊。國朝耆獻類徵初編（第429卷，頁197-288）。台北市：明文書局。【Li, Huan (Qing). (1985a). Wenyi qi. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Guochao qixian leizheng chubian* (Vol. 429, pp. 197-288). Taipei: Mingwen Shuju. (in Chinese)】

李桓（清）（1985b）。儒行六。在周駿富（編），清代傳記叢刊。國朝耆獻類徵初編（第400卷，頁85-178）。台北市：明文書局。【Li, Huan (Qing). (1985b). Ruxing liu. In

Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Guochao qixian leizheng chubian* (Vol. 400, pp. 85-178). Taipei: Mingwen Shuju. (in Chinese)】

李桓（清）（1985c）。隱逸十六。在周駿富（編），清代傳記叢刊。國朝耆獻類徵初編（第476卷，頁595-689）。台北市：明文書局。【Li, Huan (Qing). (1985c). Yinyi shiliu. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Guochao qixian leizheng chubian* (Vol. 476 pp. 595-689). Taipei: Mingwen Shuju. (in Chinese)】

汪琬（清）（1967）。史兆斗傳。在商務印書館（編），四部叢刊初編。堯峰文鈔（第34卷，頁14上-15下）。上海：商務印書館。據上海商務印書館縮印林佶寫刊本影印。【Wang, Wan (Qing). (1967). Shi Zhao Dou zhuan. In The Commercial Press (Ed.), *Sibu Congkan Chubian*. *Yaofeng wenchao* (Vol. 34, pp. Top of 14-Bottom of 15). Shanghai, China: The Commercial Press. Ju Shanghai the Commercial Press suoyin lin ji xiekanben yingyin. (in Chinese)】

汪道昆（明）（1951）。太函集（第67卷）。台北市：中央研究院藏明萬曆19年金陵刊本。【Wang, Dao Kun (Ming). (1951). *Taihan ji* (Vol. 67). Taipei: Academia Sinica cang Wanli 19nian jinling kanben. (in Chinese)】

沈周（明）（1994）。明清史料彙編。杜東原先生年譜。上海：上海書店。據雪堂叢刻影印。【Shen, Zhou (Ming). (1994). *Ming Qing shiliao huibian*. *Du Dong Yuan xiansheng nianpu*. Shanghai, China: Shanghai shudian. Ju Xuetang congke yingyin. (in Chinese)】

周士佐（明）（1990）。人物・陸伸。在上海書局（編），天一閣藏明代方志選刊續編。太倉州志（第7卷，頁38下-39下）。上海：上海書店。據明崇禎2年重刻本影印。【Zhou, Shi Zuo (Ming). (1990). Renwu: Lu Shen. In Shanghai shudian (Ed.), *Tianyige Cang Ming Dai Fangzhi Xuankan Xubian*. *Taicang zhouzhi* (Vol. 7, pp. Bottom of 38-Bottom of 9). Shanghai, China: Shanghai shudian. Ju Ming Chongzhen 2nian chongkeben yingyin. (in Chinese)】

周世昌（明）（1983）。重修昆山縣志（第7卷）。台北市：成文出版社。據明萬曆4年刊本影印。【Zhou, Shi Chang (Ming). (1983). *Chongxiu Kunshan xianzhi* (Vol. 7). Taipei: Cheng Wen Publishing Co., Ltd. Ju Ming Wanli 4nian kanben yingyin. (in Chinese)】

林俊（明）（1986）。明琴川處士陳清隱公墓表。在紀昀等（清）（總纂），景印文淵閣四庫全書。見素續集（第10卷，頁14上-15下）。台北市：臺灣商務印書館。【Lin, Jun (Ming). (1986). Ming Qinchuan chushi Chen Qing Yingong mubiao. In Yun Ji et al. (Qing) (Zongzuan), *Jingyin Wenyuange Siku Quanshu*. *Jiansu xuji* (Vol. 10, pp. Top of 14-Bottom of 15). Taipei: The Commercial Press, Ltd. (in Chinese)】

林琨華（2007）。社會網路於合作學習上的應用（未出版之碩士論文）。銘傳大學資訊工程學系碩士班，台北市。【Lin, Kun-Hua (2007). *A study on application of social network to computer supported collaborative learning* (Unpublished master's thesis). Department of Computer Science and Information Engineering, Ming Chuan University, Taipei. (in Chinese)】

姚希孟（明）（1628）。棘門集（第5卷）。台北市：國家圖書館藏明崇禎間蘇州張叔籟刊本。【Yao, Xi Meng (Ming). (1628). *Jimenji* (Vol. 5). Taipei: National Central Library cang Ming Chongzhen jian Suzhou Zhang Shu Lai kanben. (in Chinese)】

姚宗儀（明）（1989）。常熟縣志（第11、15卷）。台北市：中央研究院藏明萬曆間刊本。【Yao, Zong Yi (Ming). (1989). *Changshou xianzhi* (Vols. 11, 15). Taipei: Academia Sinica cang Wanli jian kanben. (in Chinese)】

查繼佐（清）（1991）。王錫爵。在周駿富（編），明代傳記叢刊。罪惟錄・列傳（第11卷，

頁633-636）。台北市：明文書局。【Zha, Ji Zuo (Qing). (1991). Wang Xi Jue. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Zui wei lu: Liezhuan* (Vol. 11, pp. 633-636). Taipei: Mingwen Shuju. (in Chinese)】

皇甫汸（明）（1972）。四庫全書珍本。皇甫司勳集（第54卷）。台北市：臺灣商務印書館。【Huangfu, Fang (Ming). (1972). *Siku quanshu zhenben. Huangfu sixun ji* (Vol. 54). Taipei: The Commercial Press, Ltd. (in Chinese)】

徐禎卿（明）（1936）。新倩籍序。在中華書局（編），叢書集成初編。新倩籍（頁1上-5下）。上海：商務印書館。【Xu, Zhen Qing (Ming). (1936). Xin qian ji xu. Chung Hwa Book Co. (Ed.), *Congshu Jicheng Chubian. Xin qian ji* (pp. Top of 1-Bottom of 5) Shanghai, China: The Commercial Press. (in Chinese)】

祝允明（明）（1971a）。刻沉石田詩序。在國立中央圖書館（編），明代藝術家集彙刊續集。祝氏詩文集（第24卷，頁1552-1555）。台北市：明文書局。【Zhu, Yun Ming (Ming). (1971a). Ke chenshi tianshi xu. In National Central Library (Ed.), *Ming Dai Yishujiaji huikan Xuji. Zhushi shiwenji* (Vol. 24, pp. 1552-1555). Taipei: Mingwen Shuju. (in Chinese)】

祝允明（明）（1971b）。唐子畏墓誌并銘。在國立中央圖書館（編），明代藝術家集彙刊續集。祝氏詩文集（第17卷，頁1222-1227）。台北市：明文書局。【Zhu, Yun Ming (Ming). (1971b). Tang Zi Wei muzhi bing ming. In National Central Library (Ed.), *Ming Dai Yishujiaji huikan Xuji. Zhushi shiwenji* (Vol. 17, pp. 1222-1227). Taipei: Mingwen Shuju. (in Chinese)】

祝允明（明）（1971c）。祭王文恪公文。在國立中央圖書館（編），明代藝術家集彙刊續集。祝氏詩文集（第20卷，頁1365-1367）。台北市：國立中央圖書館。【Zhu, Yun Ming (Ming). (1971c). Ji Wang Wen Ke gong wen. In National Central Library (Ed.), *Ming Dai Yishujiaji huikan Xuji. Zhushi shiwenji* (Vol. 20, pp. 1365-1367). (in Chinese)】

秦瀛（清）（1985）。傳畧。在周駿富（編），清代傳記叢刊。己未詞科錄（第7卷，頁405-460）。台北市：明文書局。【Qin, Ying (Qing). (1985). Zhuanlue. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Jiwei cikelu* (Vol. 7, pp. 405-460). Taipei: Mingwen Shuju. (in Chinese)】

袁褧（明）（1547）。袁永之集（第1、17卷）。台北市：國家圖書館藏明嘉靖二十六年姑蘇袁氏家刊本。【Yuan, Zhi (Ming). (1547). *Yuan Yong zhi ji* (Vols. 1, 17). Taipei: National Central Library cang Ming Jiajing 26nian gusu Yuanshi jiakanben. (in Chinese)】

高小康（1992）。精神分裂的時代─明代文人社會形象分析。天津社會科學，*3*，59-64。【Gao, Xiaokang (1992). Jingshen fenlie de shidai: Mingdai wenren shehui xingxiang fenxi. *Tianjin Social Sciences*, *3*, 59-64. (in Chinese)】

張大復（明）（1987a）。吳郡張大復先生明人列傳稿。台北市：臺灣學生書局。據國家圖書館藏方氏清稿本清康熙間編者手稿本影印。【Zhang, Da Fu (Ming). (1997a). *Wujun Zhang Da Fu xiansheng Mingren Liezhuangao*. Taipei: Student Book Co., Ltd. Ju National Central Library cang Fangshi Qing gaoben Qing Kangxijian bianzhe shougaoben yingyin. (in Chinese)】

張大復（明）（1997b）。皇明崑山人物傳。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。梅花草堂集（第4卷，頁1上-14下）。台南市：莊嚴文化。據明刻本影印。【Zhang, Da Fu (Ming). (1997b). Huang Ming Kunshan renwuzhuan. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu.*

Meihua caotang ji (Vol. 4, pp. Top of 1-Bottom of 14). Tainan: Solemn Culture Business Co., Ltd. Ju Ming keben yingyin. (in Chinese)】

張弘道（明）（1991a）。探花顧天埈。在周駿富（編），明代傳記叢刊。皇明三元考（第13卷，頁589-590）。台北市：明文書局。【Zhang, Hong Dao (Ming). (1991a). Tanhua Gu Tian Jun. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming sanyuankao* (Vol. 13, pp. 589-590). Taipei: Mingwen Shuju. (in Chinese)】

張弘道（明）（1991b）。會元王錫爵。在周駿富（編），明代傳記叢刊。皇明三元考（第11卷，頁507）。台北市：明文書局。【Zhang, Hong Dao (Ming). (1991b). Huiyuan Wang Xi Jue. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming sanyuankao* (Vol. 11, p. 507). Taipei: Mingwen Shuju. (in Chinese)】

張其淦（近人）（1985）。馮儼公、許孟宏。在周駿富（編），清代傳記叢刊。明代千遺民詩詠（第7卷，頁321-322）。台北市：明文書局。【Zhang, Qi Gan (Jin Ren). (1985). Feng Yan Gong, Xu Meng Hong. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Mingdai qianyimin shiyong* (Vol. 7, pp. 321-322). Taipei: Mingwen Shuju. (in Chinese)】

張昶（明）（1997a）。方外。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。吳中人物志（第13卷，頁1上-30上）。台南市：莊嚴文化。據浙江圖書館藏明隆慶四年張鳳翼等刻本影印。【Zhang, Chang (Ming). (1997a). Fangwai. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wuzhong renwuzhi* (Vol. 13, pp. Top of 1-Top of 30). Tainan: Solemn Culture Business Co., Ltd. Ju Zhejiang tushuguan cang Ming Longqing 4nian Zhang Feng Yi deng keben yingyin. (in Chinese)】

張昶（明）（1997b）。逸民。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。吳中人物志（第9卷，頁1上-27下）。台南市：莊嚴文化。據浙江圖書館藏明隆慶四年張鳳翼等刻本影印。【Zhang, Chang (Ming). (1997b). Yimin. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wuzhong renwuzhi* (Vol. 9, pp. Top of 1-Bottom of 27). Tainan: Solemn Culture Business Co., Ltd. Ju Zhejiang tushuguan cang Ming Longqing 4nian Zhang Feng Yi deng keben yingyin. (in Chinese)】

張萱（明）（1991a）。好學。在周駿富（編），明代傳記叢刊。西園聞見錄（第8卷，頁665-815）。台北市：明文書局。【Zhang, Xuan (Ming). (1991a). Haoxue. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Xiyuan wenjianlu* (Vol. 8, pp. 665-815). Taipei: Mingwen Shuju. (in Chinese)】

張萱（明）（1991b）。建言中。在周駿富（編），明代傳記叢刊。西園聞見錄（第94卷，頁755-832）。台北市：明文書局。【Zhang, Xuan (Ming). (1991b). Jianyan zhong. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Xiyuan wenjianlu* (Vol. 94, pp. 755-832). Taipei: Mingwen Shuju. (in Chinese)】

張萱（明）（1991c）。臨財。在周駿富（編），明代傳記叢刊。西園聞見錄（第17卷，頁104-127）。台北市：明文書局。【Zhang, Xuan (Ming). (1991c). Lincai. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Xiyuan wenjianlu* (Vol. 17, pp. 104-127). Taipei: Mingwen Shuju. (in Chinese)】

清國史館（1985a）。文苑傳一。在周駿富（編），清代傳記叢刊。清史・列傳（第70卷，頁661-783）。台北市：明文書局。【Qing Guoshiguan. (1985a). Wenyuan zhuan yi. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Qingshi: Liezhuan* (Vol. 70, pp. 661-783). Taipei: Mingwen Shuju. (in Chinese)】

清國史館（1985b）。文苑傳二。在周駿富（編），清代傳記叢刊。清史・列傳（第71卷，頁785-914）。台北市：明文書局。【Qing Guoshiguan. (1985b). Wenyuan zhuan er. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Qingshi: Liezhuan* (Vol. 71, pp. 785-914). Taipei: Mingwen Shuju. (in Chinese)】

清國史館（1985c）。藝術三。在周駿富（編），清代傳記叢刊。清史稿・列傳（第291卷，頁451-469）。台北市：明文書局。【Qing Guoshiguan. (1985c). Yishu san. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Qingshigao: Liezhuan* (Vol. 291, pp. 451-469). Taipei: Mingwen Shuju. (in Chinese)】

郭英德（1996）。中國古代文人集團論綱。中國文化研究，*12*，9-15。【Guo, Ying-De (1996). China gudai wenren jituan lungang. *Chinese Culture Research*, *12*, 9-15. (in Chinese)】

郭紹虞（1983）。照隅室古典文學論集（上編）。上海：上海古籍出版社。【Kuo, Shaoyu (1983). *Zhaoyushi gudian wenxue lunji* (Vol. I). Shanghai, China: Shanghai Ancient Works Publishing House. (in Chinese)】

陳冠至（2002）。明代的蘇州藏書—藏書家的藏書活動與藏書生活。宜蘭市：明史研究小組。【Chen, Kuan-chih (2002). *Mingdai de Suzhou cangshu: Cangshujia de cangshu huodong yu cangshu shenghuo*. Yilan: Groups of Ming Studies. (in Chinese)】

陳榮德（2004）。組織內部社會網絡的形成與影響：社會資本觀點（未出版之博士論文）。國立中山大學人力資源管理研究所，高雄市。【Chen, Jung-te (2004). *The emergences and consequences of intra-organizational social networks—Social capital perspective* (Unpublished doctoral dissertation). Institute of Human Resource Management, National Sun Yat-sen University, Kaohsiung. (in Chinese)】

陸師道（明）（1584）。袁永之集序。在袁袤（著），衡藩重刻胥台先生集（頁1上–下）。台北市：國家圖書館藏明萬曆12年衡藩重刊本。【Lu, Shi Dao (Ming). (1584). Yuan yong zhi ji xu. In Zhi Yuan, *Hengfan chongke Xu Tai xiansheng ji* (p. 1). Taipei: National Central Library cang Ming Wanli 12nian hengfan chongkanben. (in Chinese)】

湯日昭、王光蘊等（明）（1997）。治行志。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。萬曆・溫州府志（第9卷，頁1上–45下）。台南市：莊嚴文化。據溫州市圖書館藏明萬曆刻本影印。【Tang, Ri Zhao, & Wang, Guang Yun et al. (Ming). (1997). Zhixing zhi. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu. Wanli • Wenzhoufuzhi* (Vol. 9, pp. Top of 1-Bottom of 45). Tainan: Solemn Culture Business Co., Ltd. Ju Wenzhoushi tushuguan cang Ming Wanli keben yingyin. (in Chinese)】

焦竑（明）（1965a）。天池山人陸采墓誌銘。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第115卷，頁94-95）。台北市：明文書局。【Jiao, Hong (Ming). (1965a). Tianchi shanren Lu Cai muzhiming. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Guochao xianzhenglu* (Vol. 115, pp. 94-95). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965b）。朱性甫先生存理墓誌銘。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第115卷，頁38-39）。台北市：明文書局。【Jiao, Hong (Ming). (1965b). Zhu Xing Fu xiansheng Cun Li muzhiming. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Guochao xianzhenglu* (Vol. 115, pp. 38-39). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965c）。典司理百川孫公樓墓誌銘。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第85卷，頁59-61）。台北市：明文書局。【Jiao, Hong (Ming). (1965c). Diansi

li baichuan Sun gong Lou muzhiming. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzhenglu* (Vol. 85, pp. 59-61). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965d）。南京翰林院孔目蔡先生羽墓誌。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第23卷，頁26上-27下）。台北市：明文書局。【Jiao, Hong (Ming). (1965d). Nanjing hanlinyuan kongmu Cai xiansheng Yu muzhi. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzhenglu* (Vol. 23, pp. Top of 26-Bottom of 27). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965e）。按察副使張君和傳。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第84卷，頁59-64）。台北市：明文書局。【Jiao, Hong (Ming). (1965e). Ancha fushi Zhang Jun He zhuan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzhenglu* (Vol. 84, pp. 59-64). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965f）。浙江布政使司右參政陸公榮墓碑。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第84卷，頁32-34）。台北市：明文書局。【Jiao, Hong (Ming). (1965f). Zhejiang buzhengshisi youcanzheng Lugong Rong mubei. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzhenglu* (Vol. 84, pp. 32-34). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965g）。廣東布政使司左參政劉公昌墓誌銘。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第99卷，頁28-29）。台北市：明文書局。【Jiao, Hong (Ming). (1965g). Guangdong buzhengshisi zuocanzheng Liugong Chang muzhiming. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzhenglu* (Vol. 99, pp. 28-29). Taipei: Mingwen Shuju. (in Chinese)】

焦竑（明）（1965h）。顧仲英瑛傳。在周駿富（編），明代傳記叢刊。國朝獻徵錄（第115卷，頁13）。台北市：明文書局。【Jiao, Hong (Ming). (1965h). Gu Zhong Ying Ying zhuan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Guochao xianzheng lu* (Vol. 115, p. 13). Taipei: Mingwen Shuju. (in Chinese)】

馮復京（明）（1991a）。文苑。在周駿富（編），明代傳記叢刊。明常熟先賢事略（第13卷，頁141-166）。台北市：明文書局。【Feng, Fu Jing (Ming). (1991a). Wenyuan. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Ming changshou xianxian shilue* (Vol. 13, pp. 141-166). Taipei: Mingwen Shuju. (in Chinese)】

馮復京（明）（1991b）。自敘。在周駿富（編），明代傳記叢刊。明常熟先賢事略（第16卷，頁177-186）。台北市：明文書局。【Feng, Fu Jing (Ming). (1991b). Zixu. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan*. *Ming changshou xianxian shilue* (Vol. 16, pp. 177-186). Taipei: Mingwen Shuju. (in Chinese)】

馮舒（清）（1985a）。何大成。在周駿富（編），清代傳記叢刊。懷舊集（下卷，頁318）。台北市：明文書局。【Feng, Shu (Qing). (1985a). He Da Cheng. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Huaijiuji* (Vol. II, p. 318). Taipei: Mingwen Shuju. (in Chinese)】

馮舒（清）（1985b）。何述皋。在周駿富（編），清代傳記叢刊。懷舊集（下卷，頁359）。台北市：明文書局。【Feng, Shu (Qing). (1985b). He Shu Gao. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Huaijiuji* (Vol. II, p. 359). Taipei: Mingwen Shuju. (in Chinese)】

馮舒（清）（1985c）。孫林。在周駿富（編），清代傳記叢刊。懷舊集（上卷，頁335）。台北市：明文書局。【Feng, Shu (Qing). (1985c). Sun Lin. In Jun Fu Zhou (Ed.), *Qingdai*

Zhuanji Congkan. *Huaijiuji* (Vol. I, p. 335). Taipei: Mingwen Shuju. (in Chinese)】

馮舒（清）（1985d）。孫胤伽。在周駿富（編），清代傳記叢刊。懷舊集（下卷，頁353）。台北市：明文書局。【Feng, Shu (Qing). (1985d). Sun Yin Ga. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Huaijiuji* (Vol. II, p. 353). Taipei: Mingwen Shuju. (in Chinese)】

馮舒（清）（1985e）。顧雲鴻。在周駿富（編），清代傳記叢刊。懷舊集（上卷，頁315）。台北市：明文書局。【Feng, Shu (Qing). (1985e). Gu Yun Hong. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Huaijiuji* (Vol. I, p. 315). Taipei: Mingwen Shuju. (in Chinese)】

黃之雋等（清）（1967）。人物志。在華文書局（編），中國省志彙編。江南通志（第165卷，頁1上-81下）。台北市：華文書局。據清乾隆2年重修本影印。【Huang, Zhi Jun et al. (Qing). (1967). Renwuzhi. In Hua Wen Shuju (Ed.), *Zhongguo Sheng Zhi Huibian*. *Jiangnan tongzhi* (Vol. 165, pp. Top of 1-Bottom of 81). Taipei: Hua Wen Shuju. Ju Qing Qianlong 2nian chongxiuben yingyin. (in Chinese)】

黃宗羲（清）（1969a）。許元溥。在隆言出版社（編），梨洲遺著彙刊。思舊錄（頁38下）。台中市：隆言出版社。【Huang, Zong Xi (Qing). (1969a). Xu Yuan Pu. In Long Yan Chubanshe (Ed.), *Lizhou Yizhu Huikan*. *Sijiulu* (p. Bottom of 38). Taichung: Long Yan Chubanshe. (in Chinese)】

黃宗羲（清）（1969b）。劉城。在隆言出版社（編），梨洲遺著彙刊。思舊錄（頁17上-下）。台中市：隆言出版社。【Huang, Zong Xi (Qing). (1969b). Liu Cheng. In Long Yan Chubanshe (Ed.), *Lizhou Yizhu Huikan*. *Sijiulu* (p. 17). Taichung: Long Yan Chubanshe. (in Chinese)】

黃宗羲（清）（1985）。先正。在周駿富（編），清代傳記叢刊。南雷學案（第4卷，頁287-400）。台北市：明文書局。【Huang, Zong Xi (Qing). (1985). Xianzheng In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Nanlei xuean* (Vol. 4, pp. 287-400). Taipei: Mingwen Shuju. (in Chinese)】

葉昌熾（清）（1980a）。小兒逃塾含飴樂巧婦深閨得寶歌去恐不來來欲色愛結癖比如何。在楊家駱（編），中國目錄學名著。藏書紀事詩等五種（第3卷，頁144-145）。台北市：世界書局。【Ye, Chang Chi (Qing). (1980a). Xiaoer taoshu hanyile qiaofu shen gui debaoge qukongbulai lai yu se aijie pibi ruhe. In Jia Luo Yang (Ed.), *Zhongguo Muluxue Mingzhu*. *Cangshu jishishi deng wuzhong* (Vol. 3, pp. 144-145). Taipei: The World Book Co., Ltd. (in Chinese)】

葉昌熾（清）（1980b）。石川張氏崇古樓潁川陳氏至樂樓藏書充棟與汗牛足敵懷煙顧孝柔。在楊家駱（編），中國目錄學名著。藏書紀事詩等五種（第2卷，頁95-96）。台北市：世界書局。【Ye, Chang Chi (Qing). (1980b). Shichuan zhangshi chonggulou yingchuan chenshi zhilelou cangshu chongdong yu hanniu zudi huaiyan guxiaorou. In Jia Luo Yang (Ed.), *Zhongguo Muluxue Mingzhu*. *Cangshu jishishi deng wuzhong* (Vol. 2, pp. 95-96). Taipei: The World Book Co., Ltd. (in Chinese)】

葉昌熾（清）（1980c）。杉青牐畔表孤忠父子南湖世矼工八十櫝書前進士西臺淚灑杜鵑紅。在楊家駱（編），中國目錄學名著。藏書紀事詩等五種（第3卷，頁175-176）。台北市：世界書局。【Ye, Chang Chi (Qing). (1980c). Shanqing zhapan biaoguzhong fuzi nanhu shikaogong bashi dushu qianjinshi xitai leisa dujuanhong. In Jia Luo Yang (Ed.), *Zhongguo Muluxue Mingzhu*. *Cangshu jishishi deng wuzhong* (Vol. 3, pp. 175-176). Taipei: The World Book Co., Ltd. (in Chinese)】

葉昌熾（清）（1980d）。東潤方羊如海若述古猶能得什三羣從翩翩雖嗜古執圭僅許視諸

男。在楊家駱（編），中國目錄學名著。藏書紀事詩等五種（第4卷，頁195-196）。台北市：世界書局。【Ye, Chang Chi (Qing). (1980d). Dongjian fangyang ruhairuo shugu youneng deshisan quncong pianpian suishigu zhigui jinxu shizhunan. In Jia Luo Yang (Ed.), *Zhongguo Muluxue Mingzhu. Cangshu jishishi deng wuzhong* (Vol. 4, pp. 195-196). Taipei: The World Book Co., Ltd. (in Chinese)】

葉昌熾（清）（1980e）。草堂寂寞面湖開林界山窩老此才俯仰古今同一慨鄭俞姓字亦蒿萊。在楊家駱（編），中國目錄學名著。藏書紀事詩等五種（第2卷，頁102）。台北市：世界書局。【Ye, Chang Chi (Qing). (1980e). Caotang jimo mianhukai linjie shanwo laocicai fuyang gujin tongyikai zheng yu xingzi yihaolai. In Jia Luo Yang (Ed.), *Zhongguo Muluxue Mingzhu. Cangshu jishishi deng wuzhong* (Vol. 2, p. 102). Taipei: The World Book Co., Ltd. (in Chinese)】

葉恭煥（明）（1969）。吳下冢墓遺文續編。台北市：臺灣學生書局。【Ye, Gong Huan (Ming). (1969). *Wuxia zhongmu yiwen xubian*. Taipei: Student Book Co., Ltd. (in Chinese)】

過庭訓（明）（1991a）。南直隸蘇州府五。在周駿富（編），明代傳記叢刊。明分省人物考（第22卷，頁3-92）。台北市：明文書局。【Guo, Ting Xun (Ming). (1991a). Nanzhi li suzhoufuwu. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Ming fensheng renwu kao* (Vol. 22, pp. 3-92). Taipei: Mingwen Shuju. (in Chinese)】

過庭訓（明）（1991b）。南直隸蘇州府六。在周駿富（編），明代傳記叢刊。明分省人物考（第32卷，頁3-46）。台北市：明文書局。【Guo, Ting Xun (Ming). (1991b). Nanzhi li suzhoufuliu. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Ming fensheng renwu kao* (Vol. 32, pp. 3-46). Taipei: Mingwen Shuju. (in Chinese)】

鄒漪（清）（1994）。明清史料彙編・啟禎野乘（第1、14卷）。台北市：文海出版社。【Zou, Yi (Qing). (1994). *Ming Qing Shiliao Huibian. Qi zhen yesheng* (Vols. 1, 14). Taipei: Wen Hai Press Company. (in Chinese)】

榮泰生（2013）。*UCINET*在社會網絡分析（*SNA*）之應用。台北市：五南。【Jung, Tyson (2013). *UCINET zai shehui wangluo fenxi (SNA) zhi yingyong*. Taipei: Wunan. (in Chinese)】

聞人詮（明）（修）、陳沂（明）（纂）（1988）。北京圖書館古籍珍本叢刊。嘉靖・南畿志（第14卷）。北京：書目文獻出版社。據明嘉靖刻本影印。【Wen, Ren Quan (Ming). (Xiu)., & Chen, Yi (Ming). (Zuan). (1988). *Beijing Tushuguan Guji Zhenben Congkan. Jiajing: Nanjizhi* (Vol. 14). Beijing, China: Shumu Wenxian Chubanshe. Ju Ming Jiajing keben yingyin. (in Chinese)】

趙用賢（明）（1902）。松石齋文集（第17卷）。台北市：中央研究院藏光緒28年趙氏承啟堂重刊本。【Zhao, Yong Xian (Ming). (1902). *Songshizhai wenji* (Vol. 17). Taipei: Academia Sinica cang Guangxu 28nian zhaoshi chengqitang chongkanben. (in Chinese)】

趙經達（清）（1994）。明清史料彙編。歸玄恭先生年譜。上海：上海書店。據又滿樓叢書排印。【Zhao, Jing Da (Qing). (1994). *Ming Qing Shiliao Huibian. Gui Xuan Gong xiansheng nianpu*. Shanghai, China: Shanghai shudian. Ju Youmanlou congshu paiyin. (in Chinese)】

劉軍（2009）。整體網分析講義：*UCINET*軟件實用指南。上海：格致出版社。【Liu, Jun (2009). *Lectures on whole network approach: A practical guide to UCINET*. Shanghai, China: Truth & Wisdom Press. (in Chinese)】

劉寧慧（2012）。現階段（2012）海峽兩岸主要文史學術工具資料庫的建置與使用效益。書目季刊，46(1)，79-108。doi:10.6203/BQ.2012.6.46.1.05【Liu, Ning-Hui (2012). Xianjieduan (2012) haixia liangan zhuyao wenshi xueshu gongju ziliaoku de jianzhi yu shiyong xiaoyi. *Bibliography Quarterly*, *46*(1), 79-108. doi:10.6203/BQ.2012.6.46.1.05 (in Chinese)】

劉鳳（明）（1997a）。立春日集周公瑕止園序。在新文豐（編），叢書集成三編。劉侍御集（第12卷，頁20下-23上）。台北市：成文出版社。據國立中央圖書館藏劉侍御全集本影印。【Liu, Feng (Ming). (1997a). Lichunri ji Zhougong Xia zhiyuanxu. In Xin Wen Feng (Ed.), *Congshu Jicheng Sanbian*. *Liu shiyu ji* (Vol. 12, pp. Bottom of 20-Top of 23). Taipei: Cheng Wen Publishing Co., Ltd. Ju National Central Library cang *Liu Shi Yu Quan Ji* ben yingyin. (in Chinese)】

劉鳳（明）（1997b）。都穆。在四庫全書存目叢書編纂委員會（編），四庫全書存目叢書。續吳先賢讚（第4卷，頁24下-25下）。台南市：莊嚴文化。據浙江圖書館藏明隆慶四年張鳳翼等刻本影印。【Liu, Feng (Ming). (1997b). Dou mu. In Siku Quanshu Cunmu Congshu Bianzuan Weiyuanhui (Ed.), *Siku Quanshu Cunmu Congshu*. *Xu Wuxianxian zan* (Vol. 4, pp. Bottom of 24-Bottom of 25). Tainan: Solemn Culture Business Co., Ltd. Ju Zhejiang tushuguan cang Ming Longqing 4nian Zhang Feng Yi deng keben yingyin. (in Chinese)】

潘介祉（清）（1986）。明詩人小傳稿（第1、3、7、13卷）。台北市：國家圖書館。【Pan, Jie Zhi (Qing). (1986). *Ming shiren xiaozhuangao* (Vols. 1, 3, 7, 13). Taipei: National Central Library. (in Chinese)】

蔡冠洛（1985）。藝術‧文學。在周駿富（編），清代傳記叢刊。清代七百名人傳（第五編，頁319-442）。台北市：明文書局。【Cai, Guan Luo (1985). Yishu: Wenxue. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Qingdai qibai mingrenzhuan* (Vol. 5, pp. 319-442). Taipei: Mingwen Shuju. (in Chinese)】

鄧之誠（清）（1985）。先正。在周駿富（編），清代傳記叢刊。清詩紀事初編（第1卷，頁23-160）。台北市：明文書局。【Deng, Zhi Cheng (Qing). (1985). Xianzheng. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Qing shi jishi chubian* (Vol. 1, pp. 23-160). Taipei: Mingwen Shuju. (in Chinese)】

鄭宇君（2014）。向運算轉：新媒體研究與資訊結合的契機與挑戰。傳播研究與實踐，4(1)，67-83。doi:10.6123/JCRP.2014.004【Cheng, Yu-Chung (2014). The computational turn for new media studies: Opportunities and challenges. *Journal of Communication Research and Practice*, *4*(1), 67-83. doi:10.6123/JCRP.2014.004 (in Chinese)】

鄭鐘祥（清）（1904）。常昭合志稿（第32卷）。台北市：中央研究院藏清光緒甲辰30活字本。【Zheng, Zhong Xiang (Qing). (1904). *Changzhao hezhigao* (Vol. 32). Taipei: Academia Sinica cang Qing Guangxu Jiachen 30 huoziben. (in Chinese)】

錢曾（清）（1937）。陸德明經典釋文三十卷。在商務印書館（編），叢書集成初編。讀書敏求記（頁14-15）。上海：商務印書館。【Qian, Ceng (Qing). (1937). Lu De Ming jingdian shiwen sanshijuan. In The Commercial Press (Ed.), *Congshu Jicheng Chubian*. *Dushu minqiuji* (pp. 14-15). Shanghai, China: The Commercial Press. (in Chinese)】

錢儀吉（清）（1985）。康熙朝宰輔中。在周駿富（編），清代傳記叢刊。碑傳集（第20卷，頁411-474）。台北市：明文書局。【Qian, Yi Ji (Qing). (1985). Kangxichao zai fu zhong. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan*. *Beizhuanji* (Vol. 20, pp. 411-474). Taipei: Mingwen Shuju. (in Chinese)】

錢謙益（清）（1929a）。何仲容墓誌銘。在商務印書館（編），四部叢刊初編。牧齋初學
集（第55卷，頁23上-24上）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian,
Qian Yi (Qing). (1929a). He Zhong Rong muzhiming. In The Commercial Press (Ed.),
Sibu Congkan Chubian. *Muzhai chuxueji* (Vol. 55, pp. Top of 23-Top of 24). Shanghai,
China: The Commercial Press. Ju Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1929b）。故淮府左長史何公墓誌銘。在商務印書館（編），四部叢刊初編。
牧齋初學集（第56卷，頁7下-19上）。上海：商務印書館。據康熙甲辰初刻本縮
印。【Qian, Qian Yi (Qing). (1929b). Gu huaifu zuozhangshi Hegong muzhiming. In The
Commercial Press (Ed.), *Sibu Congkan Chubian*. *Muzhai chuxueji* (Vol. 56, pp. Bottom
of 7-Top of 19). Shanghai, China: The Commercial Press. Ju Kangxi jiachen chukeben
suoyin. (in Chinese)】

錢謙益（清）（1929c）。族孫嗣美合葬墓誌銘。在商務印書館（編），四部叢刊初編。牧齋
有學集（第31卷，頁22-24）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian,
Qian Yi (Qing). (1929c). Zusun si mei hezang muzhiming. In The Commercial Press (Ed.),
Sibu Congkan Chubian. *Muzhai youxueji* (Vol. 31, pp. 22-24). Shanghai, China: The
Commercial Press. Ju Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1929d）。跋真誥。在商務印書館（編），四部叢刊初編。牧齋有學集（第46
卷，頁10-11）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian, Qian Yi (Qing).
(1929d). Ba zhengao. In The Commercial Press (Ed.), *Sibu Congkan Chubian*. *Muzhai
youxueji* (Vol. 46, pp. 10-11). Shanghai, China: The Commercial Press. Ju Kangxi jiachen
chukeben suoyin. (in Chinese)】

錢謙益（清）（1929e）。馮嗣宗墓誌銘。在商務印書館（編），四部叢刊初編。牧齋初學
集（第55卷，頁13上-14上）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian,
Qian Yi (Qing). (1929e). Feng Si Zong muzhiming. In The Commercial Press (Ed.), *Sibu
Congkan Chubian*. *Muzhai chuxueji* (Vol. 55, pp. Top of 13-Top of 14). Shanghai, China:
The Commercial Press. Ju Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1929f）。黃子羽六十壽序。在商務印書館（編），四部叢刊初編。牧齋有學
集（第23卷，頁7-9）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian, Qian
Yi (Qing). (1929f). Huang Zi Yu liushi shouxu. In The Commercial Press (Ed.), *Sibu
Congkan Chubian*. *Muzhai youxueji* (Vol. 23, pp. 7-9). Shanghai, China: The Commercial
Press. Ju Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1929g）。蓮蕊居士傳。在商務印書館（編），四部叢刊初編。牧齋有學
集（第37卷，頁4-8）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian, Qian
Yi (Qing). (1929g). Lian rui jushi chuan. In The Commercial Press (Ed.), *Sibu Congkan
Chubian*. *Muzhai youxueji* (Vol. 37, pp. 4-8). Shanghai, China: The Commercial Press. Ju
Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1929h）。顧君升墓誌銘。在商務印書館（編），四部叢刊初編。牧齋有學
集（第32卷，頁17上-19上）。上海：商務印書館。據康熙甲辰初刻本縮印。【Qian,
Qian Yi (Qing). (1929h). Gu Jun Sheng muzhiming. In The Commercial Press (Ed.), *Sibu
Congkan Chubian*. *Muzhai youxueji* (Vol. 32, pp. Top of 13-Top of 19). Shanghai, China:
The Commercial Press. Ju Kangxi jiachen chukeben suoyin. (in Chinese)】

錢謙益（清）（1985）。列朝詩集小傳。台北市：世界書局。【Qian, Qian-Yi (Qing). (1985).
Liechao shiji xiaozhuan. Taipei: The World Book Co., Ltd. (in Chinese)】

閻湘蕙等（清）（1991a）。王鏊。在周駿富（編），明代傳記叢刊。明鼎甲徵信錄（第2卷，頁571-628）。台北市：明文書局。【Yan, Xiang Hui et al. (Qing). (1991a). Wang Ao. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Ming dingjia zhengxinlu* (Vol. 2, pp. 571-628). Taipei: Mingwen Shuju. (in Chinese)】

閻湘蕙等（清）（1991b）。明清史料彙編：明鼎甲徵信錄。上海：上海書店。據雪堂叢刻影印。【Yan, Xiang Hui et al. (Qing). (1991b). *Ming Qing shiliao huibian: Ming dingjia zhengxinlu*. Shanghai, China: Shanghai shudian. Ju Xuetang congke yingyin. (in Chinese)】

歸有光（明）（1983）。震川先生集（第5、19、23卷）。台北市：源流出版社。【Gui, You Guang (Ming). (1983). *Zhenchuan xianshengji* (Vols. 5, 19, 23). Taipei: Yuan Liu Chubanshe. (in Chinese)】

羅炳綿（1978）。清初錢毛諸藏書家與學風考。在陶希聖（編），清代學術論集（頁251-335）。台北市：食貨出版社。【Luo, Bing Mian (1978). Qingchu Qian Mao zhu cangshujia yu xuefengkao. In Xi Sheng Tao (Ed.). *Qingdai xueshu lunji* (pp. 251-335). Taipei: Shi Huo Chubanshe. (in Chinese)】

嚴迪昌（1991）。「市隱」心態與吳中明清文化世族。蘇州大學學報‧哲學社會科學版，1，80-89。【Yan, Dichang (1991). "Shiyin" xintai yu Wuzhong Ming Qing wenhua shizu. *Journal of Soochow University (Philosophy & Social Science Edition)*, *1*, 80-89. (in Chinese)】

竇鎮（清）（1985）。順治朝。在周駿富（編），清代傳記叢刊。國朝書畫家筆錄（第1卷，頁9-158）。台北市：明文書局。【Dou, Zhen (Qing). (1985). Shunzhichao. In Jun Fu Zhou (Ed.), *Qingdai Zhuanji Congkan. Quochao shuhujia bilu* (Vol. 1, pp. 9-158). Taipei: Mingwen Shuju. (in Chinese)】

蘇茂相（明）（1991）。編中名公姓氏。在周駿富（編），明代傳記叢刊。皇明寶善類編（頁553-596）。台北市：明文書局。【Su, Mao Xiang (Ming). (1991). Bianzhong minggong xingshi. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Huangming baoshan leibian* (pp. 553-596). Taipei: Mingwen Shuju. (in Chinese)】

龔立本（清）（1991）。趙祖美。在周駿富（編），明代傳記叢刊。煙艇永懷（第3卷，頁101-102）。台北市：明文書局。【Gong, Li Ben (Qing). (1991). Zhao, Zumei. In Jun Fu Zhou (Ed.), *Mingdai Zhuanji Congkan. Yanting yonghuai* (Vol. 3, pp. 101-102). Taipei: Mingwen Shuju. (in Chinese)】

Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.

Freeman, L. C. (1978-1979). Centrality in social networks: Conceptual clarification. *Social Networks*, *1*(3), 215-239. doi:10.1016/0378-8733(78)90021-7

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360-1380. doi:10.1086/225469

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. New York, NY: Cambridge University Press.

Kuan-chih Chen ORCiD 0000-0001-6563-8871
Bo-Yi Chen ORCiD 0000-0002-8214-8097
Ching-Cheng Huang ORCiD 0000-0002-6876-7166

A Content Analysis and Comparison of Typhoon News in Early and Recent Periods Based on the Text-Mining Approach[ψ]

Ji-Lung Hsieh[a*]   **Bi-Chun Yang[b]**

Abstract

This study investigated early and recent news reports on typhoons and typhoon-related disasters released by United Daily News from the perspectives of language construction, core meanings, and reporting trends. This study collected news reports from January 1, 1986 to December 31, 1996, and from January 1, 2006 to December 31, 2016, representing early and recent news respectively. The study employed text mining and frame analysis methods and studied the "frame" difference of news media over the past three decades. An analysis of the language construction of the news reports revealed that, concerning the subject of social communication, recent typhoon reports often utilized opinions from different social "actors" to increase the conflicts and violations of norms and human rights. From early to recent period, it is found that news frame are transiting from the early "response to nature" to the recent "response to society". The former focuses on the information transmission of natural disasters, while the latter expends the focus of attention to the whole society, including the role of experts, social systems, and the actions of individual or collective actors. We believed that the study provides verifiable empirical data, uses text mining methods to assist in detecting or searching target texts, automates the detection of topics, and finds out important keyword pairs, and hopes to serve as a reference for future applied data science methods in qualitative hybrid research.

Keywords: Text mining, Topic modeling, Word embedding, Frame analysis, Disaster news researches

SUMMARY

Introduction

Most of disaster news studies adopted the conventional content analysis method. However, this approach is time-consuming regarding data collecting, filtering and encoding manually, and with difficulty interpreting a large amount of

---

[a] Associate Professor, Graduate Institute of Journalism, National Taiwan University
[b] Graduate Student, Graduate Institute of Library and Information Studies, National Taiwan Normal University
[*] To whom all correspondence should be addressed. E-mail: jirlong@gmail.com

text. Therefore, the study used text mining methods to extract key terms, topics (using topic modeling method) and wording features from a large amount of news text and to reveal language patterns repeatedly used or appeared, aiming at identifying language features and underlying subject meanings. These automatic text mining methods are expected to help researchers discover important clues or overall meanings.

News on typhoon disasters reported on *United Daily News (UDN)* during two periods, 1) from January 1, 1986 to December 31, and 2) from January 1, 2006 to December 31, 2016, was collected, with a total of 810 reports on pre-disaster news as the studied materials, which were categorized into 119 Early news and 691 Recent news. The six data fields included webpage linking, news title, publication date, reporters and locations, news layout, and news content. The analysis approaches of text mining, such as keyword extraction, term-document matrix space model, word embedding, topic modeling and collocation, were adopted for effectively identifying core keywords, keyword coupling and subjects. The keywords were used for searching with a visualized browsing tool and relevant texts were retrieved.

Focusing on disaster news communication, the researcher of this study tried to ask research questions as below. During each of the Early and Recent periods, what are the language features of typhoon news? What are the differences? What are the changes and trends in recent years? What are the frameworks underlying the language features of the typhoon news? What social meanings are manifested in the news?

Results and Conclusion

Through the figure depicting the appearance percentages of each observed keyword during the Early and Recent periods, as shown in Figure 1, we could see that in the pre-disaster news during the Early period, more metrological terms, institutes and areas appeared as the keywords, such as weather forecasts, Central Weather Bureau, and Taiwan. In the pre-disaster news during the Recent period, keywords emphasizing disaster prevention measures appeared more, such as typhoon day-offs, flood prevention, disaster prevention drills, preparation, and stand-by, suggesting the concept of "being careful of threats to life and property" implicit in news of the Recent period. Keywords associated with "potential victims" also frequently appeared, such as labors and farmers. Through a further analysis of news with the word "labor" in text, it was found that news associated with labors focused on discussions of labor rights, including relevant keywords as typhoon day-offs, and calling off school and work.

Keywords were extracted for a subsequent quality analysis on three aspects of differences, including "weather forecasts" representing information
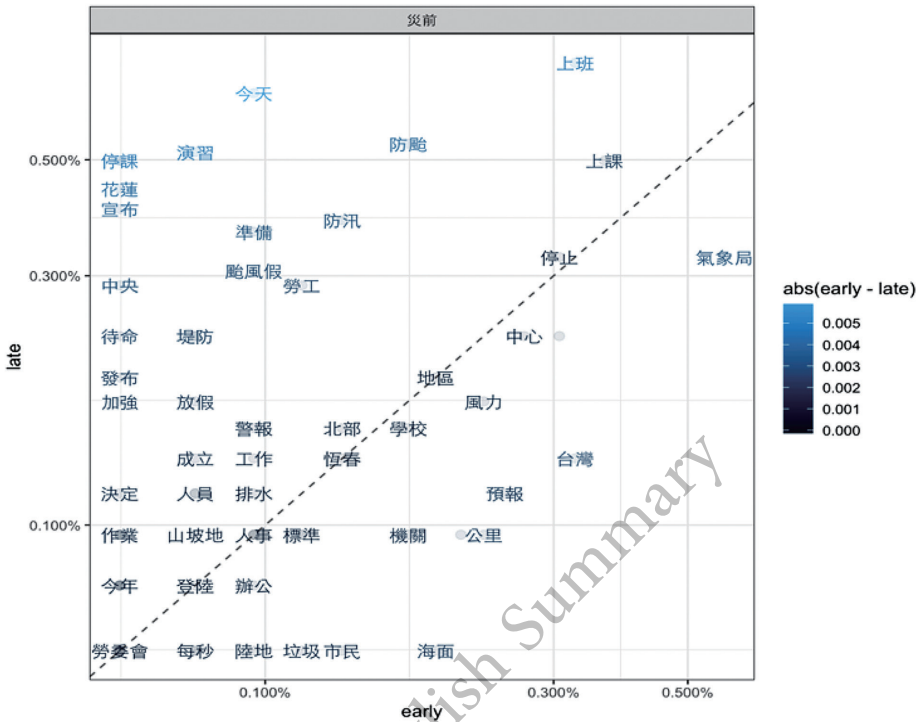
Figure 1 Analysis Results of Keyword Frequency Differences in Typhoon News during Early and Recent Periods

communication, "typhoon day-offs" in disaster prevention measures, and "labors" in potential victims. The collocation network shown in Figure 2 was used to verify that these three keywords were representative of each keyword
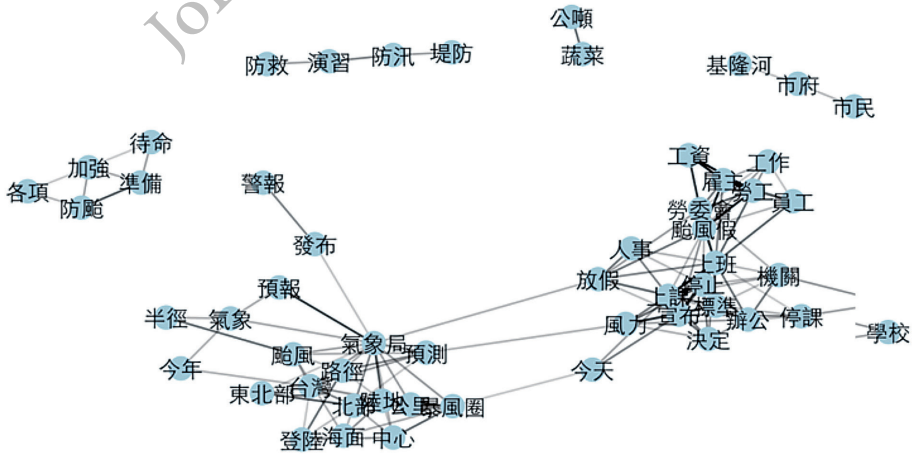
Figure 2 Co-Occurrence Relationships of Keywords in Typhoon News Reports (ϕ>.2)
A Stronger Relationship Means a Higher Co-Occurrence of Keyword Coupling

group. Through a topic modeling analysis, all news reports were categorized into 15 topics, and further categorized by researchers into three large subjects, as shown in Figure 3, including disaster prevention information communication, disaster prevention measures, and description of disaster victims, with the top 15 phrases of beta value as the representative phrases for the three subjects. The percentages of reports on each subject in every three-year term were calculated and standardized, for observing the changes of reports on each subject, as shown in Figure 4. The results suggested that the reports in recent media emphasized "disaster prevention measures, reactions, and implementations"

1) Disaster Prevention Information Communication: announcing scale, path, and landing of typhoons, typhoon day-offs, and rainfall forecast.
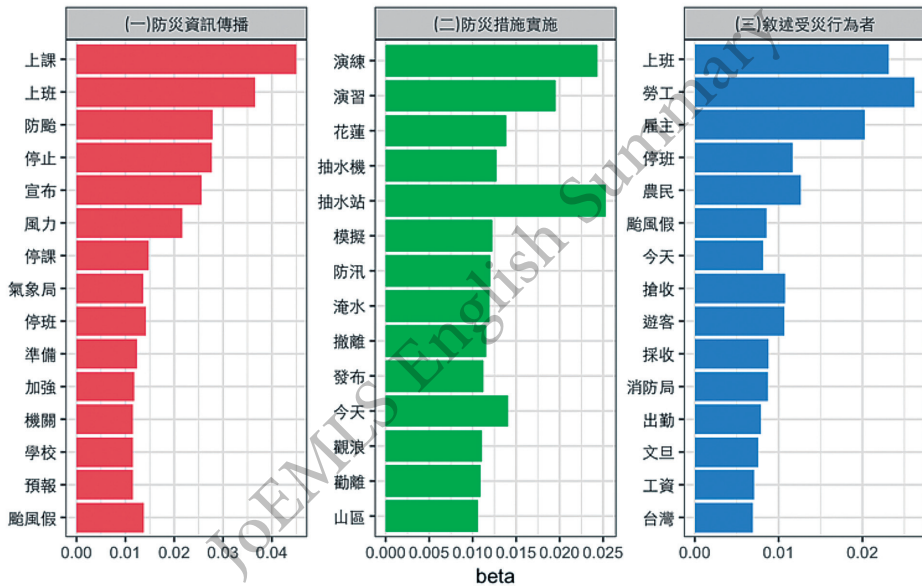
Figure 3　Categorization Results of Subject Analysis of Pre-Disaster News Reports
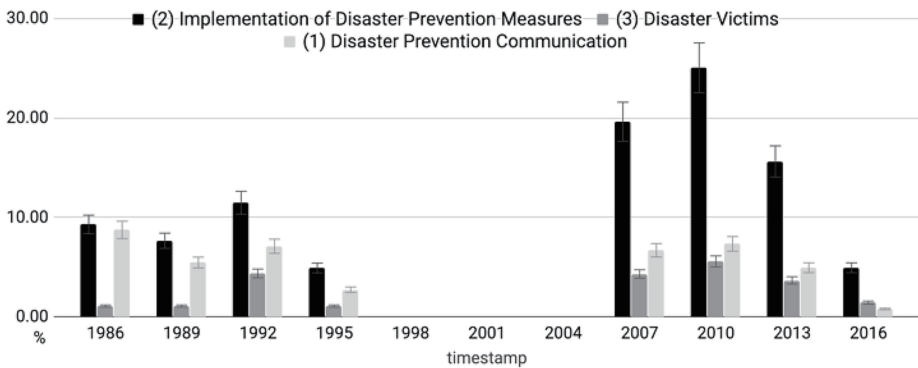
Figure 4　Percentages of Reports on Each Subject in Pre-Disaster News

2) Implementation of Disaster Prevention Measures: including flood control measures such as pumping stations and reservoirs, even preventive actions such as evacuation and asylum.

3) Disaster Victims: Describing potential victims e.g., farmers, labors, or delivery drivers, and discussing their right and risk during typhoon.

At the next stage of this study, a qualitative approach with text observation and content analysis was conducted on the collected text through a keyword-searching system. From the content analysis, we can see several discussion topics and meaning differences.

1. Since audiences can obtain typhoon forecast from weather bureau of other countries (e.g., Japan, Hong-Kong, US), the precision of weather forecasts has been frequently discussed and argued in news of recent years.

2. The issue of typhoon day-offs has evoked discussions on rights of different professions in recent years, and often caused debate between the laborer and the employer.

3. There have been phrase differences in labor-related news on disputes regarding rights and obligations between the Early and Recent periods.

Based on the analysis mentioned above, we can see the framework differences in news between the Early and Recent periods. The framework of pre-disaster news in the Early period focused on "reactions to the nature", with an awe for nature, emphasizing the precision of weather forecasts, addressing information communication, with more descriptions on natural disasters themselves, not on subjective feelings of disaster victims. The framework of the pre-disaster news in the Recent period had shifted to social reactions, that is, although typhoons had still been regarded as an awe-inspiring force of nature, the focus of representation had been expanded to the whole society in a network fashion, including the roles of weather scientists (being responsible for the precision of weather forecasts), social systems (such as revealing the relationships among typhoon day-offs, labor costs, and labor rights), and individuals (such as describing subjective feelings of disaster victims) / collective actions (such as focusing on roles of management groups and local governments in decision making related to typhoon day-offs).

ROMANIZED & TRANSLATED REFERENCE FOR ORIGINAL TEXT

吳佩玲（2009年8月31日）。末稍神經不能失調。聯合報，B1版。【Wu, Pei-Ling (2009, August 31). Moshao shenjing buneng shidiao. *United Daily News*, p. B1. (in Chinese)】

吳媛華（1991年5月7日）。颱風假標準降低。聯合報，1版。【Wu, Yuan-Hua (1991, May 7). Taifengjia biaozhun jiangdi. *United Daily News*, p. 1. (in Chinese)】

李承宇（2009年9月14日）。暴烈颱風劇增　降雨預報準度　20年只增5%。聯合報，

AA3版。【Li, Cheng-Yu (2009, September 14). Baolie taifeng juzeng jiangyu yubao zhundu 20 nian zhi zeng 5%. *United Daily News*, p. AA3. (in Chinese)】

林中瑛（2012）。從中共輿論導向析論新華社災難新聞報導框架—以2008年川震為例。復興崗學報，*102*，91-116。doi:10.29857/FHKAJ.201212.0005【Lin, Chung-Yin (2012). News reports from the Chinese communist orientation of public opinion analysis on the Xinhua News agency disaster framework 2008 Sichuan earthquake as an example. *Fu Hsing Kang Academic Journal*, *102*, 91-116. doi:10.29857/FHKAJ.201212.0005 (in Chinese)】

林東泰（2002）。大眾傳播理論（增訂二版）。台北市：師大書苑。【Lin, Tung-Tai (2002). *Dazhong chuanbo lilun* (Rev. 2th ed.). Taipei: Shtabook. (in Chinese)】

林照真（2013）。台灣電視新聞之災難報導：以「莫拉克」風災為例。新聞學研究，*115*，141-185。【Lin, Chao-chen (2013). Exploring TV news coverage of disaster: A case study of typhoon Morakot. *Mass Communication Research*, *115*, 141-185. (in Chinese)】

林鐘雄（2014年8月26日）。論災難政治學—我對高雄731災難的政治觀察。民報。檢索自 https://tw.news.yahoo.com/731-114759983.html【Lin, Zhong-Xiong (2014, August 26). Lun *Zainan zhengzhixue*: Wo dui Kaohsiung 731 zainan de zhengzhi guancha. *Taiwan People News*. Retrieved from https://tw.news.yahoo.com/731-114759983.html (in Chinese)】

邱瓊玉（2013年8月29日）。颱風出外勤 雇主須填單 勞工簽名。聯合報，B1版。【Chiu, Chiung-Yu (2013, August 29). Taifeng chuwaiqin guzhu xu tian dan laogong qianming. *United Daily News*, p. B1. (in Chinese)】

施祖琪、臧國仁（2003）。再論風格與新聞風格—以綜合月刊為例。新聞學研究，*77*，143-185。【Shih, Tina, & Tsang, Kuo-Jen (2003). Reexamining the concepts of style and news style—Analysis of the *Scooper Monthly* (1968-1982). *Mass Communication Research*, *77*, 143-185. (in Chinese)】

柯惠新、劉來、朱川燕、陳洲、南雋（2005）。兩岸三地報紙災難事件報導研究，新聞學研究，*85*，71-109。【Ke, Huixin, Liu, Lai, Zhu, Chuanyan, Chen, Zhou, & Nan, Jun (2005). A study on the disaster reports of Mainland China, Hong Kong, and Taiwan—Taking news reports on Taiwan's 921 Earthquake for example. *Mass Communication Research*, *85*, 71-109. (in Chinese)】

修瑞瑩（2014年7月24日）。颱風天硬要上班 網友：市府管一管。聯合報，B2版。【Hsiu, Jui-Ying (2014, July 24). Taifengtian yingyao shangban wangyou: Shifu guanyiguan. *United Daily News*, p. B2. (in Chinese)】

徐國淦（1994年10月9日）。勞工沒有颱風假。聯合報，5版。【Hsu, Kuo-Kan (1994, October 9). Laogong meiyou taifengjia. *United Daily News*, p. 5. (in Chinese)】

徐履冰（1989年9月14日）。勞委會 昨表示 颱風天上班 宜加發一日薪。聯合報，1版。【Hsu, Lu-Ping (1989, September 14). Council of Labor Affairs zuo biaoshi taifengtian shangban yi jiafa yiri xin. *United Daily News*, p. 1. (in Chinese)】

張春炎（2014）。電視新聞如何建構天災：以*TVBS*新聞對莫拉克風災的報導與產製為例。2014中華傳播學會年會—跨媒介、文化創意與反思發表之論文，台北市。【Chang, Chun-Yen (2014). *How news media construct natural disaster: Exploring TVBS disaster news reporting of typhoon Morakot*. Paper presented at the CCS 2014 Conference

Transmedia, Cultural Creativity & Reflection, Taipei. (in Chinese)】

張春炎，楊樺，葉欣誠（2015）。自然災難與媒體建構：以TVBS新聞為例，重探八八風災新聞論述。環境教育研究，*11*(1)，1-30。doi:10.6555/JEER.11.1.001【Chang, Chun-Yen, Yang, Hua, & Yeh, Shin-Cheng (2015). Natural disaster and media construction: Re-exploring TVBS disaster news discourses of typhoon Morakot. *Journal of Environmental Education Research*, *11*(1), 1-30. doi:10.6555/JEER.11.1.001 (in Chinese)】

張錦華（1994）。傳播批判理論。台北市：黎明文化。【Chang, Chin-Hwa (1994). *Chuanbo pipan lilun*. Taipei: Li Ming Cultural Enterprise Co., Ltd. (in Chinese)】

許俊偉（2013年7月13日）。員工放颱風假　不得要求補班。聯合報，A5版。【Hsu, Chun-Wei (2013, July 13). Yuangong fang taifengjia bude yaoqiu buban. *United Daily News*, p. A5. (in Chinese)】

郭文平（2015）。字彙實踐及媒介再現：語料庫分析方法在總體經濟新聞文本分析運用研究。新聞學研究，*125*，95-142。【Kuo, Win-Ping (2015). Vocabulary practice and media representation: A corpus-assisted study of macroeconomic news. *Mass Communication Research*, *125*, 95-142. (in Chinese)】

郭文平（2017）。緩慢開展的危害再現：媒介報導中的旱災，風險及氣候變遷論述之語料分析。傳播研究與實踐，*7*(1)，37-70。doi:10.6123/JCRP.2017.003【Kuo, Win-Ping (2017). Representing slow-onset hazard: A corpus analysis of discourse on drought, risk, and climate change in news media. Journal of Communication Research and Practice, *7*(1), 37-70. doi:10.6123/JCRP.2017.003 (in Chinese)】

郭禹彤、林鴻洲（2018）。臺灣報紙對空難新聞報導之研究—以復興臺北空難與華航澎湖空難為例。人文社會科學研究，*12*(1)，1-25。doi:10.6284/NPUSTHSSR.2018.12(1)1【Kuo, Yu-Tung, & Lin, Hung-Chou (2018). A research on air crash news of Taiwan newspapers. *NPUST Humanities and Social Science Research*, *12*(1), 1-25. doi:10.6284/NPUSTHSSR.2018.12(1)1 (in Chinese)】

陳世榮（2015）。社會科學研究中的文字探勘應用：以文意為基礎的文件分類及其問題。人文及社會科學集刊，*27*(4)，683-718。【Chen, R. S. (2015). Text mining for social studies: Meaning-based document classification and its problems. *Journal of Social Sciences and Philosophy*, *27*(4), 683-718. (in Chinese)】

陳百齡、鄭宇君（2014）。從流通到聚合：重大災難期間浮現的資訊頻道。新聞學研究，*121*，89-125。【Chen, Pai-Lin, & Cheng, Yu-Chung (2014). From information to social convergence: Discovering emerging channels in major disasters. *Mass Communication Research*, *121*, 89-125. (in Chinese)】

陳宏睿（2013年9月22日）。颱風假無風雨　百貨排長龍。聯合報，B1版。【Chen, Hung-Jui (2013, September 22). Taifengjia wu fengyu baihuo pai zhanglong. *United Daily News*, p. B1. (in Chinese)】

彭曉薇（2012）。臺灣四大報對災難新聞報導之研究—以日本*311*地震為例（未出版之碩士論文）。國立臺北教育大學社會與區域發展學系碩士班，台北市。【Peng, Hsiao-Wei (2012). *A Disaster News Research of Four Major Taiwan Newspapers — Case Study of the Japan 311 Earthquake Issues* (Unpublished master's thesis). Department of Social and Regional Development, National Taipei University of Education, Taipei. (in Chinese)】

湯京平、蔡允棟、黃紀（2002）。災難與政治：九二一地震中的集體行為與災變情境的

治理。政治科學論叢，*16*，139-162。【Tang, Ching-ping, Tsai, Yun-tung, & Huang, Chi (2002). Disasters and politics: The collective behaviors and emergency governance in the Chi-Chi (Taiwan) earthquake. *Taiwanese Journal of Political Science*, *16*, 139-162. (in Chinese)】

黃宏璣、紀文禮、簡慧珍（2013年9月21日）。天兔搗亂　玉山封園　清境退房6成。聯合報，B1版。【Huang, Hung-Chi, Chi, Wen-Li, & Chien, Hui-Chen (2013, September 21). Typhoon Usagi daoluan Jade Mountain fengyuan Cingjing tuifang 6 cheng. *United Daily News*, p. B1. (in Chinese)】

黃俊儒（2014）。科學傳播中「確定」與「不確定」的敘事：以莫拉克風災之系列報導為例。科技醫療與社會，*19*，73-116。【Huang, Chun-ju (2014). The narratives of certainty and uncertainty in science communication: Morakot typhoon report series as an example. *Taiwanese Journal for Studies of Science, Technology and Medicine*, *19*, 73-116. (in Chinese)】

黃貴華（1994年8月8日）。颱風動向　道格眼角一瞥　教人消受不起。聯合報，3版。【Huang, Kui-Hua (1994, August 8). Taifeng Dongxiang Typhoon Doug yanjiao yipie jiaoren xiaoshoubuqi. *United Daily News*, p. 3. (in Chinese)】

楊樺、葉欣誠（2012）。新聞媒體在天然災難事件中的角色和影響力。危機管理學刊，*9*(2)，63-70。【Yang, A. H., & Yeh, S. C. (2012). News media's role and influence in natural disaster. *Journal of Crisis Management, 9*(2), 63-70. doi:10.6459/JCM.201209_9(2).0007. (in Chinese)】

臧國仁（1998）。新聞報導與真實建構：新聞框架理論的觀點。傳播研究集刊，*3*，1-102。doi:10.6334/CRM.1998.3【Tsang, Kuo-Jen (1998). News reporting & news construction: A news framing perspective. *Communication Research Monographs, 3*, 1-102. doi:10.6334/CRM.1998.3 (in Chinese)】

臧國仁（1999）。新聞媒體與消息來源：媒介框架與真實建構之論述。台北市：三民。【Tsang, Kuo-Jen (1999). *Xinwen meiti yu xiaoxi laiyuan: Meijie kuangjia yu zhenshi jiangou zhi lunshu*. Taipei: San Min Book Co., Ltd. (in Chinese)】

臧國仁、施祖琪（1999）。新聞編採手冊與媒介組織特色：風格與新聞風格。新聞學研究，*60*，1-38。【Tsang, Kuo-Jen, & Shih, Tina (1999). Style and news style: An exploration of news stylebooks. *Mass Communication Research*, *60*, 1-38. (in Chinese)】

臧國仁、鍾蔚文（2000）。災難事件與媒體報導：相關研究簡述。新聞學研究，*62*，143-151。【Tsang, Kuo-Jen, & Shih, Tina (2000). Style and news style: An exploration of news stylebooks. *Mass Communication Research*, *62*, 143-151. (in Chinese)】

劉廣英（2016年9月29日）。颱風假是科學　不是權力。聯合報，A15版。【Liu, Kuang-Ying (2016, September 29). Taifengjia shi kexue bushi quanli. *United Daily News*, p. A15. (in Chinese)】

蕭衡倩（1999年10月13日）。誇中央　李登輝：難為劉兆玄。聯合晚報，3版。【Hsiao, Heng-Chien (1999, October 13). Kua chungyang: Teng-hui Lee: Nanwei Chao-shiuan Liu. *United Evening News*, p. 3. (in Chinese)】

聯合報地方新聞中心記者（1995年6月9日）。澎湖、台中「撿」到一天假。聯合報，5版。【United Daily News. (1995, June 9). Penghu, Taichung "jian" dao yitian jia. *United Daily News*, p. 5. (in Chinese)】

羅智強（2016年7月11日）。朱立倫不是神　別指望神的待遇。聯合報，A13版。【Lo, Chih-Chiang (2016, July 11). Eric Li-Luan Chu bushi shen bie zhiwang shen de daiyu. *United Daily News*, p. A13. (in Chinese)】

蘇蘅（2000）。集集大地震中媒體危機處理的總體檢。新聞學研究，*62*，153-163。【Su, Herng (2000). Jiji dadizhen zhong meiti weiji chuli de zong tijian. *Mass Communication Research*, *62*, 153-163. (in Chinese)】

Bartlett, F. C. (2003). *Remembering: A study in experimental and social psychology*. Cambridge, UK: Cambridge University Press.

Bateson, G. (1955). A theory of play and fantasy. *Psychiatric Research Reports*, *2*, 39-51.

Bateson, G. (1972). *Steps to an ecology of mind*. New York, NY: Ballantine Books.

Bell, A. (1994). Media (mis) communication on the science of climate change. *Public Understanding of Science*, *3*(3), 259-275. doi:10.1088/0963-6625/3/3/002

Bruner, E. M. (1986). Ethnography as narrative. In V. Turner & E. M. Bruner (Eds.), *The anthropology of experience* (pp. 139-155). Urbana, IL: University of Illinois Press.

Burkhart, F. N. (1991). *Media, emergency warnings, and citizen response*. Boulder, CO: Westview Press.

Carragee, K. M., & Roefs, W. (2004). The neglect of power in recent framing research. *Journal of Communication*, *54*(2), 214-233. doi:10.1111/j.1460-2466.2004.tb02625.x

Coppola, D. P. (2007). *Introduction to international disaster management*. Boston, MA: Butterworth Heinemann.

Friedland, L. A., & Zhong, M. (1996). International television coverage of Beijing spring 1989: A comparative approach. *Journalism & Mass Communication Monographs*, *156*, 1-60.

Gamson, W. A. (1989). News as framing. *American Behavioral Scientist*, *33*(2), 157-161. doi:10.1177/0002764289033002006

Gitlin, T. (2003). *The whole world is watching: Mass media in the making and unmaking of the new left*. Berkley, CA: University of California Press.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. New York, NY: Harper & Row.

Hunston, S. (2002). *Corpora in applied linguistics*. Cambridge, UK: Cambridge University Press.

Jacobi, C., van Atteveldt, W., & Welbers, K. (2016). Quantitative analysis of large amounts of journalistic texts using topic modelling. *Digital Journalism*, *4*(1), 89-106. doi:10.1080/21670811.2015.1093271

Jefferson, J. (1999). The local news. In S. Harrison (Ed.), *Disasters and the media: Managing crisis communications* (pp. 55-69). London, UK: MacMillan Press.

Krippendorff, K. (2013). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.

Lang, G. E., & Lang, K. (1991). Watergate: An exploration of the agenda-building process. In D. Protess & M. E. McCombs (Eds.), *Readings on media, public opinion and policymaking* (pp. 277-289). Hillsdale, MI: Lawrence Erlbaum.

Larson, J. F. (1980). A review of state of the art in mass media disaster reporting. In Committee on Disasters and the Mass Media & E. M. Rogers (Eds.), *Disasters and mass media* (pp.

75-126). Washington, DC: National Academy of Sciences.

Manning, C. D., & Schütze, H. (1999). *Foundations of statistical natural language processing*. Cambridge, MA: MIT press.

Mathes, R., & Pfetsch, B. (1991). The role of the alternative press in the agenda-building process: Spill-over effects and media opinion leadership. *European Journal of Communication*, *6*(1), 33-62. doi:10.1177/0267323191006001003

McComas, K. A., Shanahan, J., & Butler, J. S. (2001). Environmental content in prime-time network TV's non-news entertainment and fictional programs. *Society & Natural Resources*, *14*(6), 533-542. doi:10.1080/08941920119172

McManus, J. (1995). A market-based model of news production. *Communication Theory*, *5*(4), 301-338. doi:10.1111/j.1468-2885.1995.tb00113.x

McManus, J. H. (2000). *Market-driven journalism: Let the citizen beware?* Thousand Oaks, CA: Sage.

Pan, Z., & Kosicki, G. M. (1993). Framing analysis: An approach to news discourse. *Political Communication*, *10*(1), 55-75. doi:10.1080/10584609.1993.9962963

Perez-Lugo, M. (2004). The mass media and disaster awareness in Puerto Rico: A case study of the floods in floods in Barrio Tortugo. *Organization & Environment*, *14*(1), 55-73.

Tankard, J., Hendrickson, L., Silberman, J., Bliss, K., & Ghanem, S. (1991). *Media frames: Approaches to conceptualization and measurement*. Paper presented at the Association for Education in Journalism and Mass Communication. Communication Theory and Methodology Division, Boston, MA.

Tuchman, G. (1978). *Making news: A study in the construction of reality*. New York, NY: Free Press.

Van Gorp, B. (2010). Strategies to take subjectivity out of framing analysis. In P. D'Angelo & J. A. Kuypers (Eds.), *Doing news framing analysis: Empirical and theoretical perspectives* (pp. 84-109). New York, NY: Routledge.

Wakefield, S. E. L., & Elliott, S. J. (2003). Constructing the news: The role of local newspapers in environmental risk communication. *The Professional Geographer*, *55*(2), 216-226. doi:10.1111/0033-0124.5502009

Weingart, P., Engels, A., & Pansegrau, P. (2000). Risks of communication: Discourses on climate change in science, politics, and the mass media. *Public Understanding of Science*, *9*(3), 261-283. doi:10.1088/0963-6625/9/3/304

Wilson, E. O. (1999). *The diversity of life*. New York, NY: WW Norton.

Williams, R. (1983). *Keywords: A vocabulary of culture and society*. London, UK: Fontana.

Ji-Lung Hsieh ORCID 0000-0002-2868-1296
Bi-Chun Yan ORCID 0000-0003-1924-4286

Exploring the Effect of Film Forms on Learning for MOOC Learners

Pei-Yu Wang

Abstract

The purpose of this study was to explore the impact of film forms for MOOC learners on learning recall, flow experience, attention and relaxation. The experimental videos were adapted from a TaiwanLIFE MOOC Digital Content Production, and all videos were redesigned according to the research needs. Seventy-one university students in southern Taiwan were voluntarily recruited as participants, and they were randomly assigned into one of the two groups with different film design (the descriptive-style film or the narrative-style film). Participants were asked to watch the film and complete the survey. The findings showed that significant differences existed between two groups: 1) the video recorded with the narrative approach benefited recall and flow experience, and 2) learners who watched the video designed with the descriptive strategy got significantly higher level of relaxation. The study found that the narrative-style film afforded to create situational learning contexts, which made learning practical and kept learners focused and enjoyed. These results would serve as a reference for future work on MOOC video or online instructional video design.

Keywords: *MOOCs, Instructional video design, Descriptive strategy, Narrative strategy, Flow experience*

SUMMARY

Introduction

A massive open online course (MOOC) is a web-based course that has open access and interactive participation by means of the online videos. Many courses have been increasingly built as MOOCs on platforms such as Khan Academy, edX, Coursera and Udacity. Millions of learners watch videos from these different platforms on diverse devices, and the videos are growing in importance in higher education. Despite the advantages of and the great enthusiasm for online video-based courses, this type of courses has been greatly criticized for its low learner engagement, resulting in marked low course and video completion rates. To enhance instructional efficiency, researchers suggested that the video quality should be improved and different forms other than the descriptive approach should be considered and implemented for MOOC learners.

Associate Professor, Department of E-learning Design and Management, National Chiayi University, Chiayi, Taiwan
E-mail: sweetpeiyu@gmail.com

To better understand the effect of film forms on learning for MOOC learners, the following questions guided this study: 1) Is there any difference on learner recall between groups with different film forms? 2) Is there any difference on flow experience between groups with different film forms? 3) Is there any difference on concentration and relaxation between groups with different film forms?

Literature Review

The film forms or the so-called film styles are a critical issue for video-based learning. The film researchers divided the form of videos for two different approaches: the descriptive approach and the narrative approach. The descriptive approach is a traditional way for instructors to deliver knowledge, all facts, rules and principles are given to learners by one-way lecturing with limited elaboration. The narrative approach is a new strategy to improve student comprehension and motivation by telling stories. A narrative is the representation of an event or a series of events. The power of narratives for teaching stems from the fact that narratives help the brain perceive both the detail and the big picture at the same time, unconsciously. A narrative activates an affective motivation important to learning. Using stories, one may layer and activate patterns and set up an affectively charged structure to which students will instinctively respond and interact with.

Flow experience is one key variable to measure in this study to understand learner engagement. The term 'flow' or 'flow experience' first appeared in 1975 and was used to describe the most positive and enjoyable feelings in human lives (Csikszentmihalyi 1975, 1996; Chen, 2006). When in the flow state, people become absorbed in their activities while irrelevant thoughts and perceptions are screened out. Creating a learning environment with an atmosphere that allows for flow and growth, Csikszentmihályi argues, can increase the happiness and achievement of learners. Chen (2006) defined the symptoms and phenomena of flow state as having nine dimensions: 1) immediate feedback, 2) clear goals, 3) merger of action and awareness, 4) concentration, 5) sense of potential control, 6) loss of self-consciousness, 7) time distortion, 8) telepresence, and 9) positive feelings. These nine flow dimensions are used to describe a person's flow experience. Chen (2006) developed a survey to measure flow experience based on these nine dimensions, and this survey was used in this study as the main instrument.

Method

The experimental videos were adapted from a Taiwan MOOC **Digital Content Production** (course delivered fall 2016 by the researcher). The original course was a 14-week online course that aimed to improve learners' knowledge

and skills for mobile photography, digital imaging and video editing. There were seventy-nine videos in the course and all videos were lectures by the researcher. One video clip in Unit Two (Photography Composition) was selected as the content material for the experiment, and this video was reproduced and revised based on research needs.

The data collection was conducted during the 2017 fall semester. Seventy-one participants were voluntarily recruited from two colleges in southern Taiwan for the study and randomly put into two treatment groups.

The treatment in this study was the film forms of the MOOC video. The video was re-created in two versions with the same content, but with two different film forms.

Group 1: MOOC video designed by the descriptive strategy

The Group-1-video was recorded using the descriptive strategy. The instructor gave a formal talk on the topic of photography. The instructor described and elaborated concepts with the use of PowerPoint.

Group 2: MOOC video designed by the narrative strategy

The Group-2-video was recorded using the narrative strategy. The instructor delivered the knowledge of photography by telling a story. All concepts were introduced by using a photographer's life story and photos.

All students had a pre-test composed of 4 questions on photography composition. Then, the students were assigned to different treatment groups to watch different video clips, which took about 3 minutes. After the students finished watching, they were asked to do a post-test (a similar test to the pre-test). In addition, students' flow experience was collected by the survey developed by Chen (2006) for flow measurement; the survey's reliability and validity were both verified. Finally, informal interviews were conducted with participants to clarify their thoughts about the videos.

Results

This study explores the impact of film forms for MOOC videos on student recall, flow experience, concentration and relaxation. The results showed that there was a significant difference on students' learning recall (post-test) between groups $(t=-2.00, p<0.05)$. Students who watched the narrative design video performed significantly better. In addition, learners' flow experience was examined in nine dimensions. The results showed that there a was significant difference between the groups on learner concentration $(t=-2.10, p<0.05)$, loss of self-consciousness $(t=-2.47, p<0.05)$, telepresence $(t=-2.21, p<0.05)$, and positive feelings $(t=-2.20, p<0.05)$. Students watching the narrative design video performed significantly better. Finally, the results showed that there was a significant difference between the groups on learner relaxation $(t=-2.10,$

p<0.05). Students watching the descriptive video got significantly higher scores on relaxation (t=–2.58, *p*<0.05).

These findings showed learners' attitudinal preference for videos between groups. In the follow-up interview, participants mentioned that the narrative approach provided them with a more situational and authentic context to learn, and they found it more relaxing and enjoyable. Also, they said that stories offered insights into diverse life experiences and cultivated their positive attitude to this particular field of knowledge.

Conclusion

This paper examines the effect of film forms for MOOC learners on learning recall, flow experience, concentration and relaxation. Findings in the study are: 1) the video recorded with the narrative approach benefited recall and flow experience, and 2) learners who watched the video designed with the descriptive strategy got significantly higher level of relaxation. We will keep improving our video design and explore its effects on learning. Further studies with diverse treatment groups will be conducted soon to verify the findings.

ROMANIZED & TRANSLATED REFERENCE FOR ORIGINAL TEXT

王佩瑜（2017）。磨課師教學影片之鏡頭角度與背景設計對學習記憶與心流經驗之影響。教育資料與圖書館學，*54*(3)，237-268。doi:10.6120/JoEMLS.2017.543/0038.RS.CM【Wang, Pei-Yu (2017). The impact of camera shot and background design for MOOC videos on student recall and flow experience. *Journal of Educational Media & Library Sciences*, *54*(3), 237-268. doi:10.6120/JoEMLS.2017.543/0038.RS.CM (in Chinese)】

王麗雲（1999）。個案教學法之理論與實施。課程與教學季刊，*2*(3)，117-134。doi:10.6384/CIQ.199907.0117【Wang, Li-Yun (1999). Theory and practice of case-based instruction. *Curriculum & Instruction Quarterly*, *2*(3), 117-134, 150. doi:10.6384/CIQ.199907.0117 (in Chinese)】

何浚瑋、王佩瑜（2016年10月）。磨課師影片之鏡頭與背景設計對學習成效與腦波反應之影響。2016智慧校園‧教育創新國際研討會發表之論文，台北市。【Ho, Chun-Wei, & Wang, Pei-Yu (2016, October). The impact of camera shot and background design in online videos on student learning achievement, and brainwave response. Paper presented at the 2016 International Conference on iCampus & Education Innovation, Taipei. (in Chinese)】

吳智鴻、劉長儒、曾奕霖、徐日薇（2012）。結合眼動與腦波之注意力指標建構iPad電子書最佳色彩配置。聯大學報，*9*(1)，199-215。【Wu, Chih-Hung, Liu, Chang-Ju, Tzeng, Yi-Lin, & Hsu, Jih-Wei (2012). Combined attention features of eye tracking and brain wave to construct the optimal color allocation for iPad electronic book. *Journal of National United University*, *9*(1), 199-215. (in Chinese)】

吳寶珍（2015）。靜坐在教學上的運用。師友月刊，*582*，42-46。doi:10.6437/EM.201512_(582).0011【Wu, Bao-Jhen (2015). Jingzuo zai jiaoxue shang de yunyong. *The Educator*

Monthly, *582*, 42-46. doi:10.6437/EM.201512_(582).0011 (in Chinese)】

李安悌（2009）。動機導向、學習壓力、學習策略及學習焦慮之相關研究：以技職院校管理學院學生為例。人力資源管理學報，*9*(1)，45-67。doi:10.6147/JHRM.2009.0901.03【Lee, An-Ti (2009). The empirical study of motivational orientation, learning stress, learning strategy, and learning anxiety on management college students of technical university. *Journal of Human Resource Management*, *9*(1), 45-67. doi:10.6147/JHRM.2009.0901.03 (in Chinese)】

林曜聖（2010）。學校實施「故事領導」的應用架構之分析。教育研究與發展期刊，*6*(4)，241-268。【Lin, Yao-Sheng (2010). An analysis of the application framework of "story leadership" in school. *Journal of Educational Research and Development*, *6*(4), 241-268. (in Chinese)】

神念科技（2018）。演算法。檢索自 http://www.neurosky.com.tw/products-markets/eeg-biosensors/algorithms/【NeuroSky. (2018). Yansuan fa. Retrieved from http://www.neurosky.com.tw/products-markets/eeg-biosensors/algorithms/ (in Chinese)】

張基成、林冠佑（2016）。從傳統數位學習到遊戲式數位學習—學習成效、心流體驗與認知負荷。科學教育學刊，*24*(3)，221-248。doi:10.6173/CJSE.2016.2403.01【Chang, Chi-Cheng, & Lin, Kun-You (2016). From traditional e-learning to digital game-based learning: Learning performance, flow experience and cognitive load. *Chinese Journal of Science Education*, *24*(3), 221-248. doi:10.6173/CJSE.2016.2403.01 (in Chinese)】

陳宇宸、王佩瑜（2017年6月）。影片言說方法對學習者之學習感受與心流之影響：以磨課師線上課程為例。2017數位生活科技研討會國際研討會發表之論文，嘉義市。【Chen, Yu-Chen, & Wang, Pei-Yu (2017, June). *Yingpian yanshuo fangfa dui xuexizhe zhi xuexi ganshou yu xinliu zhi yingxiang: Yi mokeshi xianshang kecheng wei li*. Paper presented at the Symposium on Digital Life Technologies 2017, Chiayi (in Chinese)】

陳哲民（2017）。預習之真實情境與學習活動對英語學習成效、專注度與放鬆度之影響（未出版之碩士論文）。國立中央大學網路學習科技研究所，桃園市。【Chen, Che-Min (2017). *Yuxi zhi zhenshi qingjing yu xuexi huodong dui yingyu xuexi chengxiao, zhuanzhudu yu fangsongdu zhi yingxiang* (Unpublished master's thesis). Graduate Institute of Network Learning Technology, National Central University, Taoyuan. (in Chinese)】

曾建華（2017）。漫畫密碼：編劇密碼（公式篇）。新北市：亞力漫設計工作室。【Zeng, Jianhua (2017). *Comic code*. New Taipei City: Acomiccode. (in Chinese)】

曾肇文（2008）。一種敘事課程的建構與實施—以「生活領域」為例。新竹教育大學學報，*25*(1)，21-52。doi:10.7044/NHCUEA.200806.0021【Tseng, Chao-Wen (2008). Constructing and implementing a narrative curriculum — A case of life curriculum. *National HsinChu University of Education*, *25*(1), 21-52. doi:10.7044/NHCUEA.200806.0021 (in Chinese)】

楊昌珣、楊漢琛、許富淑（2003）。資訊科技融入體育教學之探討—以台北市立仁愛國中為例。在*2003*年台灣運動教育學會學術研討會論文集（頁93-102）。桃園市：臺灣運動教育學會。【Yang, Chang-Hsun, Yang, Han-Shen, & Hsu, Fu-Shu (2003). A feasibility study of infusing information technology into physical education — Using Taipei Municipal. In *2003 nian Taiwan Society for Sport Pedagogy xueshu yantaohui lunwenji* (pp. 93-102). Taoyuan: Taiwan Society for Sport Pedagogy (in Chinese)】

臧國仁、蔡琰（2013）。大眾傳播研究之敘事取向—另一後設理論思路之提議。中華傳播
　　學刊，*23*，159-193。doi:10.6195/cjcr.2013.23.05【Tsang, Kuo-Jen, & Tsai, Yean (2013).
　　The narrative approach to mass communication research: Alternative metatheoretical
　　suggestions. *Chinese Journal of Communication Research*, *23*, 159-193. doi:10.6195/
　　cjcr.2013.23.05 (in Chinese)】

劉唯玉（2015）。融入教育實踐智慧的師資培育方法—案例撰寫。*T&D飛訊*，*208*，1-19。
　　【Liu, Wei-Yu (2015). Case method: A way to integrate education practical wisdom with
　　teacher education. *Training & Development Fashion*, *208*, 1-19. (in Chinese)】

劉渼（2008）。創意說故事後敘事模式的教學應用研究。臺北大學中文學報，*4*，1-34。
　　doi:10.29766/JCLLNTU.200803.0002【Liu, May (2008). Application of integrating
　　narration into creative storytelling teaching model. *Journal of Chinese Language and
　　Literature of National Taipei University*, *4*, 1-34. doi:10.29766/JCLLNTU.200803.0002 (in
　　Chinese)】

蔡素薰（2014）。英語電子繪本的製作與教學應用：師資教育中對多媒體輔助教學的建
　　議。中等教育，*66*(2)，182-198。doi:10.6249/SE.2015.66.2.11【Tsai, Su-Hsun (2014).
　　Making an e-storybook to enhance English language learning: A project conducted for
　　pre-service teacher training in Taiwan. *Zhongdeng Jiaoyu*, *66*(2), 182-198. doi:10.6249/
　　SE.2015.66.2.11 (in Chinese)】

鄭淑真、陳毅霖（2017年5月）。以腦波儀器量測學習不同科目時之專注力並探討其
　　與認知負荷之關聯。在張基成、黃天麒（主編），*2017第六屆工程與科技教育學
　　術研討會論文集*（頁177-186）。台南市：台灣工程教育與管理學會。doi:10.6571/
　　CETE.2017.05.15【Cheng, Shu-Chen, & Chen, Yi-Lin (2017, May). Using brainwave
　　signals to measure the attention when learning different subjects and discuss the cognitive
　　load. In Chi-Cheng Chang & Tien-Chi Huang (Eds.), *The 6th Conference on Engineering
　　and Technology Education* (pp. 177-186). Tainan: Association of Taiwan Engineering
　　Education and Management. doi:10.6571/CETE.2017.05.15 (in Chinese)】

蕭靖慧、徐秀菊（2010）。運用敘事課程之繪本創作教學研究。視覺藝術論壇，*5*，
　　142-162。doi:10.29523/VAF.201007.0008【Hsiao, Ching-Hui, & Hsu, Hisu-Chu
　　(2010). Narrative curriculum in picture books creation. *Visual Arts Forum*, *5*, 142-162.
　　doi:10.29523/VAF.201007.0008 (in Chinese)】

羅凡晸（2013）。教育雲端九年一貫國語文創意教學研究—以古典詩歌為例。中等教
　　育，*64*(3)，67-85。doi:10.6249/SE.2013.64.3.5【Lo, Fan-Chen (2013). The research
　　of Grade 1-9 Chinese language creative teaching on cloud platform. *Zhongdeng Jiaoyu*,
　　64(3), 67-85. doi:10.6249/SE.2013.64.3.5 (in Chinese)】

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and
　　assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY:
　　Longman.

Belanger, Y., & Thornton, J. (2013). Bioelectricity: A quantitative approach–Duke university's
　　first MOOC. Retrieved from http://hdl.handle.net/10161/6216

Bordwell, D., & Thompson, K. (2013). *Film art: An introduction* (10th ed., International ed.).
　　New York, NY: McGraw-Hill Education.

Brewer, W. F. (1980). Literary theory, rhetoric, and stylistics: Implications for psychology. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), *Theoretical issues in reading comprehension: Perspectives from cognitive psychology, linguistics, artificial intelligence, and education* (pp. 221-239). Hillsadle, NJ: Erlbaum.

Chen, H. (2006). Flow on the net–Detecting Web users' positive affects and their flow states. *Computers in Human Behavior*, *22*(2), 221-233. doi:10.1016/j.chb.2004.07.001

Cross, S. (2013). *Evaluation of the OLDS MOOC curriculum design course: Participant perspectives, expectations and experiences*. Milton Keynes, UK: Open University. Retrieved from http://oro.open.ac.uk/37836/

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*, *15*(3), 41-63. doi:10.1177/002216787501500306

De Vries, P. (2013). *Online learning and higher engineering education: The MOOC phenomenon*. Paper presented at SEFI 2013. Leuven, Belgium. doi:10.13140/RG.2.1.2018.4165

Edwards, S. L. (2014). Using personal narrative to deepen emotional awareness of practice. *Nursing Standard*, *28*(50), 46-51. doi:10.7748/ns.28.50.46.e8561

Gilbert, G. N., & Mulkay, M. (1984). *Opening Pandora's box: A sociological analysis of scientists' discourse*. Cambridge, UK: Cambridge University Press.

Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. In *Proceedings from the first ACM conference on Learning @ scale conference* (pp. 41-50). New York, NY: ACM. doi:10.1145/2556325.2566239

Hansch, A., Hillers, L., McConachie, K., Newman, C., Schildhauer, T., & Schmidt, P. (2015). Video and online learning: Critical reflections and findings from the field. *HIIG Discussion Paper Series*, *2015*(2), 1-34. doi:10.1145/2556325.2566239

Hinton, P. R. (1995). *Statistics explained*. London, UK: Routledge.

Kieler, L. (2010). A reflection: Trials in using digital storytelling effectively with the gifted. *Gifted Child Today*, *33*(3), 48-52. doi:10.1177/107621751003300311

Lackner, E., Kopp, M., & Ebner, M. (2014). How to MOOC? — A pedagogical guideline for practitioners. In I. Roceanu (Ed.), *Proceedings of the 10th International Scientific Conference "eLearning and Software for Education"* (pp. 215-222). Bucharest, Romania: Editura Universitatii Nationale de Aparare "Carol I".

Lauritzen, C., & Jaeger, M. (1997). *Integrating learning through story: The narrative curriculum*. New York, NY: Delmar.

Lyons, N., & LaBoskey, V. K. (Eds.). (2002). *Narrative inquiry in practice: Advancing the knowledge of teaching*. New York, NY: Teachers College Press.

Margaryan, A., Bianco, M., & Littlejohn, A. (2015). Instructional quality of Massive Open Online Courses (MOOCs). *Computers & Education*, *80*, 77-83. doi:10.1016/j.compedu.2014.08.005

Massimini, F., & Carli, M. (1988). The systematic assessment of flow in daily experience. In M. Csikszentmihalyi & I. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 266-287). New York, NY: Cambridge University

Press. doi:10.1017/CBO9780511621956.016

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). New York, NY: Cambridge University Press.

Onah, D. F. O., Sinclair, J. E., Boyatt, R., & Foss, J. (2014). Massive open online courses: Learners participation. In G. Chova, A. L. Martínez, & I. C. Torres (Eds.), *ICERI 2014 Proceedings International Conference of Education, Research and Innovation 2014* (pp. 2348-2356). Seville, Spain: IATED.

Poltavski, D. V. (2015). The use of single-electrode wireless EEG in biobehavioral investigations. *Methods in Molecular Biology*, *1256*, 375-390. doi:10.1007/978-1-4939-2172-0_25

Schellings, G., Aarnoutse, C., & van Leeuwe, J. (2006). Third-grader's think-aloud protocols: Types of reading activities in reading an expository text. *Learning and Instruction*, *16*(6), 549-568. doi:10.1016/j.learninstruc.2006.10.004

Silberman, M., & Auerbach, C. A. (2006). *Active training: A handbook of techniques, designs case examples, and tips* (3rd ed.). San Francisco, CA: Jossey-Bass/Pfeiffer.

South, J. B., Gabbitas, B., & Merrill, P. F. (2008). Designing video narratives to contextualize content for ESL learners: A design process case study. *Interactive Learning Environments*, *16*(3), 231-243. doi:10.1080/10494820802114044

Verleur, R., Heuvelman, A., & Verhagen, P. W. (2011). Trigger videos on the web: Impact of audiovisual design. *British Journal of Educational Technology*, *42*(4), 573-582. doi:10.1111/j.1467-8535.2010.01065.x

Vogler, C. (1998). *The writer's journey: Mythic structure for writers* (2nd ed.). Studio City, CA: M. Wiese Productions.

Wilson, S. (2012). Show and tell: The power of organisational storytelling. *British Journal of Healthcare Management*, *18*(11), 591-592. doi:10.12968/bjhc.2012.18.11.591

Pei-Yu Wang ORCiD 0000-0001-8017-9511

Challenges Facing the DOAJ (Directory of Open Access Journals) as a Reliable Source of Open Access Publishing Venues

Jaime A. Teixeira da Silva[a]* **Judit Dobránszki**[b]
Aceil Al-Khatib[c] **Panagiotis Tsigaris**[d]

Abstract

Academics in the post-Jeffrey Beall era are seeking to find suitable solutions to differentiating reliable from unreliable open access (OA) journals and publishers. After the controversial, vague and unreliable Beall lists of "predatory" OA journals became defunct on 15 January 2017, two main contenders stepped forward to fill that gap: Cabell's International blacklist and a newly revised Directory of Open Access Journals (DOAJ) whitelist. Although the DOAJ has in fact existed since 2003, it is only in recent years that it has reached prominence, garnering attention after the infamous 2013 Bohannon sting in Science revealed multiple, approximately one in five, Beall-listed "predatory" OA journals and publishers on the DOAJ lists. The DOAJ conducted a massive clean-up of its lists and continues to undergo constant reevaluation of its members and journals it lists. This paper highlights some of the changes that occurred in the DOAJ, as well as several challenges that remain, highlighting why this whitelist of OA journals and publishers is still far from perfection. Academics are cautioned against relying on any one list such as that held by the DOAJ to avoid repeating the serious errors and misguided approaches that took place when global academia placed blind trust in Beall's lists.

Keywords: Blacklists versus whitelists, Open access, Predatory behavior, Unscholarly publishing

Jeffrey Beall Blacklists and the DOAJ Whitelist Are Intricately Linked via the Bohannon Sting

The open access (OA) movement is in turmoil, and while there is much to celebrate, there is also much to criticize and be concerned about. Jeffrey Beall understood that elements of the public or academia were abusing the opportunities afforded by the OA movement such as the wider expansion of information freely

---
[a] Independent Researcher, Japan, jaimetex@yahoo.com
[b] Scientific Advisor, Research Institute of Nyíregyháza, IAREF, University of Debrecen, Nyíregyháza, Hungary, dobranszki@freemail.hu
[c] Associate Professor, Faculty of Dentistry, Jordan University of Science and Technology, Irbid, Jordan, aceil@hotmail.com
[d] Professor, Department of Economics, Thompson Rivers University, British Columbia, Canada, ptsigaris@tru.ca
* All authors are corresponding authors.

to the public, seeking instead to exploit the intellect of academics to advance their personal or financial agendas. In response to this, and to document his impressions, Beall initiated a blog to raise awareness of potentially unscholarly players. For a while, the Beall blog was useful, because it allowed academics to reflect on the fact that the OA movement was not only a positive opportunity, but that risks also lurked. The turning point was when Beall's hobby transformed into an attempt to instate his lists as policy, calling for example, for such players to be banned or struck entirely from the scholarly record (Beall, 2016), thereby potentially causing harm to innocent scientists. Even though some were able to understand and appreciate the danger of the Beall blacklists and their inaccuracies (Beaubien & Eckard, 2014; Bloudoff-Indelicato, 2015; Teixeira da Silva, 2017a, 2017b, 2018), how many entities may have taken advantage of this rise in anger against a fleet of unknown or unclearly specified OA enemies to exercise their frustrations and annoyance, or as a political or marketing strategy to solidify their own publishing market?

One of the most high profile cases that employed the Beall criteria and lists to establish if OA journals in a range of publishers were "predatory" or not, was a sting by John Bohannon, published in *Science* (Bohannon, 2013)[1]. When Bohannon launched his sting in 2012, the DOAJ contained 8,463 journals, and 9,804 in 2013 when his paper was published (Marchitelli, Galimberti, Bollini, & Mitchell, 2017). Filtering the 304 journals that Bohannon submitted to and using Beall's lists[2], some incredulous conclusions were made about a whole series of OA publishers and journals, including 167 journals listed by the DOAJ (Directory of Open Access Journals)[3], and 16 journals listed by both Beall and the DOAJ, i.e., these journals were both whitelisted and blacklisted[4]. The main conclusion that was made was that 73 of these 167 OA journals (Van Noorden, 2014), or approximately 45% of journals listed by the DOAJ that apparently[5]

---

[1] Bohannon (2013) cites zero references, not even Beall's. Was this paper peer reviewed?

[2] The Bohannon sting was launched in October of 2012, but the accuracy of Beall's lists in 2012 had not yet been assessed.

[3] https://doaj.org/

[4] We caution readers about the following erroneous association: 1) just because a journal does not appear on a whitelist does not necessarily imply that it should appear on a blacklist, and vice versa; 2) the issue of journal quality is not a black versus white issue, there are various shades of gray in between (see, for example, Walt Crawford's 2017 Gray OA listing: https://walt.lishost.org/2017/10/cites-insights-october-2017-available-gray-oa-2014-2017/).

[5] Bohannon has supplemented the files of all 304 submitted fake papers, as well as the emails sent to the journals, but there does not appear to be any public record of the "peer reviews" that he describes. It is unclear if any of the "peer reviewers" who "peer reviewed" any of Bohannon's fake 304 sting papers have taken credit for such on Publons (https://publons.com/home/), a peer reviewer recognition website.

completed the review process, fell for a sting operation in which fake papers with fake authors and fake affiliations were simultaneously submitted to 304 OA journals, to assess whether they would accept the paper automatically without conducting peer review. Hence, a high percentage of DOAJ journals fell for the fake papers, accepting them (Wicherts, 2016) after "discernible peer review", as Bohannon (2013) put it. However, the Bohannon sting was unsound at three levels: 1) it used a highly unethical methodology to trick journals (Teixeira da Silva & Al-Khatib, 2016); 2) it relied in part on Beall's flawed blacklists; 3) it had no control(s) (i.e., OA journal or publisher against which clearly defined scholarly quality was proven and guaranteed by independent experts)[6] (Wicherts, 2016). Despite this, many publishers who were negatively profiled by Bohannon's sting jumped immediately, and began taking reformative action. However, there are dangers in establishing academic reform based on stings, hoaxes and other fake operations, simply because conclusions derived from erroneous methodologies may themselves be wrong (Al-Khatib & Teixeira da Silva, 2016).

One of the groups to induce a full-scale reformation based on the conclusions of the Bohannon sting was the DOAJ, which asked all of its listed journals to reapply, implementing new questions and evaluation criteria that focused better on the transparency and quality of the editorial process (Bi, 2017; Gurov, Goncharova, & Bubyakin, 2016). However, although the DOAJ asked all journals that had been accepted into the DOAJ before March 2014 to reapply before an extended deadline which closed on 31 March 2016[7], it is unclear precisely when and how verification took place, or who was responsible for reevaluating each entry, i.e., there is no transparency by the DOAJ regarding these issues, and only simple reasons for delisting are indicated, without verifiable and tangible proof, i.e., a case of blind "trust me", not unlike the problems that took place with the Beall lists, where precise criteria were not listed for each journal or publisher, and no supporting proof (Crawford, 2016), causing the public to distrust Beall's blacklists. Nonetheless, the DOAJ guaranteed that quality had been verified and that all OA journals and publishers it whitelisted had been suitably checked for, either in the form of a green tick or seal[8], thereby ensuring that all DOAJ-listed OA journals and publishers were scholarly (Olijhoek, Mitchell, & Bjørnshauge,

---

[6] Alternatively, a totally independent control may be used in addition, i.e. non-OA journals/publishers whose quality is proven and guaranteed since academic quality is independent of whether a journal is OA or not.

[7] https://blog.doaj.org/2016/03/30/final-call-journal-reapplications-to-doaj-close-31-march/

[8] https://doaj.org/publishers#thetick; https://doaj.org/faq#seal; 88.97% of journals (10,395/11,683) have no seal while 67 have no tick (based on 20 June 2018 data from: https://doaj.org/faq#alldata; https://doaj.org/faq#metadata). The DOAJ updates data every 30 minutes.

2015), in contrast to Beall-listed unscholarly OA journals and publishers. In addition, given that the deadline for reapplication to the DOAJ closed on 31 March 2016, it can be argued that from that date onwards, academics trusted the DOAJ and its whitelist as a reliable source of scholarly venues to publish their work. One example is the *Journal of Educational Media & Library Sciences*[9].

The DOAJ Rebrands the "Predatory" OA Publishing Movement

The DOAJ surely observed the negative consequences of creating blacklists, like Beall's, and the devastating results that can result from relying on such lists. Marchitelli et al. (2017) noted that 367 journals were Beall-listed from the entire DOAJ list of 12,595 OA journals, i.e., a small fraction of about 3%, while 158 journals that were listed as "predatory" by Beall from a total of 3,776 journals (i.e., 4%) were delisted by the DOAJ. These numbers support Bohannon's observation that "predatory" publishers managed to exist on the DOAJ list, suggesting that both Beall's blacklists and DOAJ's whitelist were or are unreliable. Potentially an entire generation of academics may have been aided, or harmed, by Beall's lists, and their use of those lists. However, since the DOAJ reformation was based in part on the flawed Beall's blacklists, it is unclear if academics might have also been victimized by the DOAJ, i.e., relying on its whitelist as being accurate and reliable, only to learn that it was/is not. This issue still needs to be assessed.

Part of the reputational damage is related to the use of the term "predatory", which carries a highly negative connotation. For example, an academic accused of publishing in a "predatory" journal, OA or not, or whether this be a Beall-listed journal, or a Cabell's blacklisted journal, carries a heavy weight of potential professional damage, even if unsubstantiated, simply by a negative association with these blacklists. As one example, a prominent and vocal science watchdog, Leonid Schneider (Teixeira da Silva, 2016), has frequently referred to *Science and Engineering Ethics*, published by Springer Nature, as "predatory" in public, on Twitter, without providing proof for those claims[10]. Springer Nature is a DOAJ silver sponsor[11]. Most likely recognizing these risks, the DOAJ sought between 2014 and 2018 to rebrand the image of "predatory" and of blacklists, through four main actions on its whitelist: 1) purging journals including those that were stung by the Bohannon sting and conducting annual purges and constant reevaluations, creating an Excel list of journals that were delisted, including the date and very

---

[9] https://doaj.org/toc/1013-090X; http://joemls.dils.tku.edu.tw/index.php?lang=en

[10] https://twitter.com/schneiderleonid/status/874972147759943680 ("A predatory journal '*Science & Eng Ethics*' @SpringerLink publishes an article about saving research from predators")

[11] https://doaj.org/sponsors

brief reason[12]; 2) establishing a set of principles and quality guidelines (the Principles of Transparency and Best Practice in Scholarly Publishing)[13], in close collaboration with the Committee on Publication Ethics, the Open Access Scholarly Publishers Association (OASPA) and the World Association of Medical Editors, that its listed members have to respect and abide by[14]; 3) the employment of regional ambassadors[15] to market the DOAJ locally and regionally, and to promote the lists as a reliable list of OA publishing venues, i.e., rebranding[16]; 4) the adoption of sponsors, many of which are large for-profit commercial publishers[17].

Contradictions, Problems and Challenges: The Road Ahead for the DOAJ

Any academic who would have selected and published in a DOAJ-listed OA journals prior to 19 March 2014, only to find that their selected OA journal or publisher had been delisted (i.e., delegitimized as a valid scholarly venue) would surely have felt anger and betrayal, not only at the journal or publisher, but also at the DOAJ for misleading them, even more so for removals after the reapplication date (31 March 2016). Similarly, there is increasing two-fold frustration by academics regarding OA journals and / or publishers that were branded as scholarly and legitimate by the DOAJ, i.e., using their supposed quality control and strict selection criteria: the first frustration is at the DOAJ for clearly failed selection criteria, leading to delisting at a later stage; the second frustration is at the OA journals or publishers that failed to reapply. Any OA journal or publisher that was branded as a legitimate publishing source but that was delisted by the DOAJ, for whatever reason, insinuates that any academic who may have published in such a venue may have selected an illegitimate scholarly venue for publication. The removal of approximately 68 OA journals between 1 March 2018 and 28 June 2018, even as 875 OA journals were added, fortifies our argument that the DOAJ whitelist is in flux and thus has a certain level of unreliability. This also suggests that the DOAJ lists have not yet stabilized, even as stricter measures of quality control are implemented, and continue, at least until June 2018, to be an unreliable source of target OA journals for academics to publish their work,

---

[12] https://docs.google.com/spreadsheets/d/183mRBRqs2jOyP0qZWXN8dUd02D4vL0Mov_kgYF8HORM/edit#gid=0

[13] https://doaj.org/bestpractice

[14] https://doaj.org/publishers

[15] https://blog.doaj.org/category/doaj-ambassadors/

[16] http://www.allea.org/wp-content/uploads/2018/02/LBjoersnahuge_Questionable-and-Unethical-Publishers-How-To-Sport-Them-and-Enable-Researchers-To-Avoid-Being-Trapped.pdf

[17] https://doaj.org/sponsors

primarily because of this flux and uncertainty. The DOAJ has yet to address this issue, which can damage its reputation as a reliable "whitelist", even though it does not wish its list to be branded as such[18], if it does not offer transparent responses to valid academic concerns in the public domain. On the same page, the DOAJ prefers to use the term "questionable" rather than "predatory", possibly to distance itself from any association with Beall, claiming that "questionable publishing practices" are not limited to OA. Given this ebb and flow of listed then delisted OA journals, the DOAJ in fact has an OA Excel file which lists the date of listing and delisting and a reason for the latter, but the reason is often opaque and cannot be independently verified, suffering from the same weakness that Beall's lists suffered from, i.e., the lack of public evidence to support several of the claims, such as "Suspected editorial misconduct by publisher", or "Journal not adhering to Best practice".

The second problem relates to sponsorship. The FAQ page[19] indicates that the DOAJ considers itself an independent whitelist of OA journals. The DOAJ is partly transparent by declaring that it gets sponsorship, either as gold[20], silver or bronze sponsors, including big for-profit publishers such as Springer Nature, Wiley-Blackwell, Taylor & Francis Group, Sage, and others[21]. The DOAJ 2013-2017 financial statement also reveals that 38% of estimated funding comes from its sponsors publishers and aggregators while the remaining funding comes from libraries, research funders and small publishers[22]. Within a three-month period, the profile of sponsor has changed considerably, including the inclusion of a gold sponsor (Table 1). The DOAJ claims that all funding is used for operations and

---

[18] https://doaj.org/faq#predatory ("DOAJ prefers to use the term 'questionable' instead of predatory. We do not believe in black lists and we do not discuss details of individual publishers or journals, with the public, whether they are in DOAJ or not. We will provide advice, when asked, on improvements a journal can make to meet our own high standards.")

[19] https://doaj.org/faq#owns "Who owns DOAJ? DOAJ is entirely independent and is managed, not owned, by Infrastructure Services for Open Access. DOAJ is not connected to, owned by, or influenced by any other organisation or business. DOAJ does receive sponsorship monies from its sponsor, many of whom are large publishers, but 100% of those monies goes towards the running and technical development of DOAJ."

[20] A new sponsorship model was introduced by the DOAJ in January, 2018 which included a new gold category for sponsors: https://blog.doaj.org/2018/02/02/new-sponsorship-model-from-2018/

[21] From the big 5 oligopolistic publishers, Elsevier had 346 OA journals listed and Wolters Kluwer including Wolters Kluwer Medknow Publishing has 168 OA journals listed (see footnote 24 for time of data access). These two commercial publishers are not DOAJ sponsors.

[22] Expected expenditures for 2017 was estimated at $346,500. For details see: https://is4oa.files.wordpress.com/2017/12/doaj-financials-2013-2014-2015-2016-and-2017-expected2.pdf; Oddly the DOAJ top-page indicates 40% at the end of June 2018 comes from sponsors and 60% from members and publisher members. See https://doaj.org/ "All funding is via donations, 40% of which comes from sponsors and 60% from members and publisher members."

the development of the DOAJ. What is missing is clear evidence that the DOAJ is not influenced by organizations and business, including these big publishers, especially their OA fleets. One way to examine a necessary, but not sufficient, condition for independence is to see if the DOAJ whitelists include journals of

Table 1   Shift in DOAJ Sponsor Profiles (March versus June 2018)*

Sponsors in June 2018	Website	Sponsors in March 2018
GOLD		
EBSCO	https://www.ebsco.com/	None
SILVER		
Federation of Finnish Learned Societies	https://tsv.fi/en/frontpage	
Frontiers Media S.A.	https://www.frontiersin.org/	Yes
Hindawi	https://www.hindawi.com/	Yes
National Library of Sweden	http://www.kb.se/english/	Yes
MDPI	http://www.mdpi.com/	Yes
Norwegian Centre for Research Data	http://www.nsd.uib.no/nsd/english/index.html	
OCLC	https://www.oclc.org/en/home.html	
PLOS	https://www.plos.org/	Yes
Springer Nature	https://www.springernature.com/gp/	Yes
Vetenskapradet - The Swedish Research Council	https://www.vr.se/english.html	
Ministry of Higher Education and Science - Danish Agency for Science and Higher Education	https://ufm.dk/en/the-ministry/organisation/the-ministry	
BRONZE		
1science: Advanced Research Information Systems	https://1science.com/	
American Physical Society	https://www.aps.org/	Yes
Brill	https://brill.com/	
Chaoxing.com	https://www.chaoxing.com/	
Copernicus Publications	https://publications.copernicus.org/	Yes
Cottage Labs	https://cottagelabs.com/	
Emerald Publishing	http://www.emeraldgrouppublishing.com/	
International Standard Serial Number	http://www.issn.org/	
Lund University	https://www.lunduniversity.lu.se/	
Sage Publishing	https://us.sagepub.com/en-us/nam/home	Yes
Scielo	http://www.scielo.org/php/index.php?lang=en	Yes
Taylor & Francis Group	https://taylorandfrancis.com/	Yes
Tecnologico de Monterrey	https://tec.mx/es	
Thieme Open Access	http://open.thieme.com/	
Wiley	https://www.wiley.com/en-us	Yes

Source: DOAJ (2018).
*The values that are paid in order to become a gold, silver or bronze sponsor are unclear. The value to become a member is clear (https://doaj.org/membership), but not a sponsor. The difference in this three-month period could be due to DOAJ's delay in changing information on their website.

the publishers and are DOAJ sponsors. Using DOAJ's spreadsheet[23], we found 128 journals listed for EBSCO, the gold sponsor. All the silver and bronze publishing sponsors had many of their OA journals listed in the DOAJ. We conducted a small analysis of the number of journals based on sponsors listed in the spreadsheet, which included the gold sponsor, EBSCO, while the silver and bronze sponsors have changed considerably: 7 PLOS, 273 Hindawi, 175 MDPI AG, 55 Frontiers Media SA and 206 Springer Nature OA journals, all of which are silver sponsors; 300 SciELO, 80 Wiley, 126 Sage, 128 Taylor & Francis Group, 36 Copernicus Publications, and 5 American Physical Review journals, all of which are bronze sponsors. However, even as recently as March 2018, there was no gold sponsor listed on DOAJ's website, and the silver and bronze sponsors have changed considerably from being mostly commercial publishers earlier to now also including libraries and research funders as sponsors (see Table 1 for details). This change in sponsorship is a move in the right direction but the listing of major publishers as sponsors still suggests that the DOAJ may not be as independent as it claims, i.e., a direct financial conflict of interest exists, or can be perceived in the future, because it suggests that paying (i.e., sponsoring) publishers may be given preferential treatment and/or automatic indexing and listing in the DOAJ as well as difficulty of delisting journals if they do not adhere to best practices. In order to show clear evidence of independence, we recommend that the DOAJ primarily seeks sponsorship from the public sector and not from for-profit organizations. The financial sustainability funding plan seems to be a very promising path for DOAJ to take in the near future[24].

Conclusions

A post-publication peer review of the Beall literature and of the literature that was impregnated by Beall's influence, especially the use of his blacklists to draw some rather unpalatable conclusions, is underway because those lists have had a tremendous impact on ethics, academic conduct, and scholarly choice in OA (Teixeira da Silva, 2017c). Part of that analysis involves examining the organizations that are proposing an alternative solution to Beall's "predatory" OA lists. Even though the DOAJ is trying desperately to disassociate itself from Beall and from his lists, and from the term "predatory", or blacklists and whitelists, it

---

[23] https://doaj.org/faq#alldata; https://doaj.org/faq#metadata (11,701 OA journals listed on 29 June 2018). The last time the data were accessed was on 28 June 2018 at approximately 2:45 p.m. Pacific time. The exact timing is important because this metadata file is updated every 30 minutes by the DOAJ. Updating the metadata file as often as every 30 minutes supports our view of the DOAJ being in a constant state of flux and uncertainty reducing its reliability as a whitelist for scholars to find quality OA research outlets.

[24] https://doaj.org/scoss

is a **de facto** whitelist (Berger & Cirasella, 2015) and it will never be able to fully disassociate itself from all of these facts, despite a massive rebranding campaign. This is because, very simply, reform at the DOAJ was definitely historically based on Beall's blacklists and on the Bohannon sting (as one example, MDPI[25]). The DOAJ has established a set of 16 criteria[26] to determine whether a journal should be included or excluded, but we are concerned that: 1) the criteria are insufficient and can lead to false positives or false negatives; 2) the process of selection or inclusion/exclusion is opaque, and cannot be independently verified. These two weaknesses are problematic and may diminish trust in the DOAJ whitelist.

This brief communication provides evidence that the DOAJ, while having taken large strides to clean up its list of acceptable OA publishing venues (journals and publishers), still has several flaws and weaknesses: 1) lost trust that must be regained; 2) an academic base that considers the DOAJ lists to be unreliable because the listing is in a constant state of flux, suggesting poor and/or lax quality selection criteria and/or constantly changing quality-related parameters; 3) the infusion of corporate interests via financial sponsorship and potential financial and/or academic bias. Global academia, the public and DOAJ members[27] and member publishers[28] need to be aware that there is debate at the grass-roots level about the reliability of the DOAJ as a guiding source of choice of OA publishing venue. The DOAJ would do academics a service if it provided an accurate list of journals that were considered by the DOAJ to be "valid" scholarly venues for publication for any year or month within any year, prior to being reevaluated and delisted. By doing so, academics who published in a DOAJ-listed OA journal or publisher in the past can argue, for whatever reason, that their choice of publishing venue was valid, based on the fact that it was whitelisted by the DOAJ.

References

Al-Khatib, A., & Teixeira da Silva, J. A. (2016). Stings, hoaxes and irony breach the trust inherent in scientific publishing. *Publishing Research Quarterly*, *32*(3), 208-219. doi:10.1007/s12109-016-9473-4

Beall, J. (2016). Predatory journals: Ban predators from the scientific record. *Nature*, *534*, 326. doi:10.1038/534326a

Beaubien, S., & Eckard, M. (2014). Addressing faculty publishing concerns with open access journal quality indicators. *Journal of Librarianship and Scholarly Communication*, *2*(2), eP1133. doi:10.7710/2162-3309.1133

---

[25] https://www.universityaffairs.ca/letter-let-us-set-record-straight/

[26] https://doaj.org/bestpractice

[27] https://doaj.org/members

[28] https://doaj.org/publishermembers

Berger, M., & Cirasella, J. (2015). Beyond Beall's list: Better understanding predatory publishers. *College & Research Libraries News*, *76*(3), 132-135. doi:10.5860/crln.76.3.9277

Bi, X. (2017). Quality open access publishing and registration to Directory of Open Access Journals. *Science Editing*, *4*(1), 3-11. doi:10.6087/kcse.82

Bloudoff-Indelicato, M. (2015). Backlash after Frontiers journals added to list of questionable publishers. *Nature*, *526*(7575), 613. doi:10.1038/526613f

Bohannon, J. (2013). Who's afraid of peer review? *Science*, *342*(6154), 60-65. doi:10.1126/science.342.6154.60

Crawford, W. (2016). 'Trust me': The other problem with 87% of Beall's lists. Retrieved from http://walt.lishost.org/2016/01/trust-me-the-other-problem-with-87-of-bealls-lists/

DOAJ. (2018, June). Retrieved from https://doaj.org/sponsors

Gurov, A. N., Goncharova, Y. G., & Bubyakin, G. B. (2016). Open access to scientific knowledge: Its state, problems, and prospects of development. *Scientific and Technical Information Processing*, *43*(2), 88-94. doi:10.3103/S0147688216020040

Marchitelli, A., Galimberti, P., Bollini, A., & Mitchell, D. (2017). Improvement of editorial quality of journals indexed in DOAJ: A data analysis. *JLIS.it*, *8*(1), 1-21. doi:10.4403/jlis.it-12052

Olijhoek, T., Mitchell, D., & Bjørnshauge, L. (2015). Criteria for open access and publishing. *ScienceOpen Research*. doi:10.14293/S2199-1006.1.SOR-EDU.AMHUHV.v1

Teixeira da Silva, J. A. (2016). Science watchdogs. *Academic Journal of Interdisciplinary Studies*, *5*(3), 13-15. doi:10.5901/ajis.2016.v5n3p13

Teixeira da Silva, J. A. (2017a). Caution with the continued use of Jeffrey Beall's "predatory" open access publishing lists. *AME Medical Journal*, *2*(7), 97. doi:10.21037/amj.2017.06.14

Teixeira da Silva, J. A. (2017b). Jeffrey Beall's "predatory" lists must not be used: they are biased, flawed, opaque and inaccurate. *Bibliothecae.it*, *6*(1), 425-436. doi:10.6092/issn.2283-9364/7044

Teixeira da Silva, J. A. (2017c). The ethical and academic implications of the Jeffrey Beall (www.scholarlyoa.com) blog shutdown. *Science and Engineering Ethics*. doi:10.1007/s11948-017-9905-3

Teixeira da Silva, J. A. (2018). The illicit and illegitimate continued use of Jeffrey Beall's "predatory" open access black lists. *Journal of Radical Librarianship*, *4*, 1-5.

Teixeira da Silva, J. A., & Al-Khatib, A. (2016). Questioning the ethics of John Bohannon's hoaxes and stings in the context of science publishing. *KOME*, *4*(1), 84-88. doi:10.17646/KOME.2016.16

Van Noorden, R. (2014). Open-access website gets tough. *Nature*, *512*(7512), 17. doi:10.1038/512017a

Wicherts, J. M. (2016). Peer review quality and transparency of the peer-review process in open access and subscription journals. *PLoS ONE*, *11*(1), e0147913. doi:10.1371/journal.pone.0147913

誌　謝：*JoEMLS* 55卷 評閱者名單

Acknowledgement: *JoEMLS* Reviewers for Volume 55

JoEMLS 註釋（Notes）暨參考文獻（References）
羅馬化英譯說明

2015年1月31日修訂

1. 本刊針對部分國外西文專業資料庫之引文索引建檔與中文辨讀之需求，凡屬中文稿件之英文摘錄末，特別增列中文羅馬化拼音之「註釋」（或「參考文獻」）一式。
2. 作者（含團體作者）、機構名稱（出版者）、地名（出版地）：依事實與習慣為英譯，如無法查證時，中國大陸地區作者以漢語拼音處理，台灣以威妥瑪拼音（Wade-Giles system）處理。
3. 出版品、篇名：採用（登載於原刊名、篇名等之正式英譯）照錄原則；若原刊文無英譯，則由本刊依漢語拼音音譯著錄之。
   e.g. 南京大學學報 *Journal of Nanjing University*
   e.g. 中國科學引文數據庫 *Chinese Science Citation Database*
   e.g. 玉山國家公園解說志工工作滿足之研究 *Yushan National Park jieshuo zhigong gongzuo manzu zhi yanjiu*
   e.g. 教育資料與圖書館學 *Journal of Educational Media and Library Sciences*
4. 混用狀況：地名、機構、人名與其他事實描述，交錯共同構成篇名之一部分時，為避免冗長拼音難以辨讀，可將該名詞中之「地名、機構、人名」依事實與習慣英譯，其餘字詞則由本刊補以漢語拼音處理。
   e.g. 「中國科學院與湯姆森科技資訊集團聯手推出中國科學引文索引」
   "Chinese Academy of Sciences yu Thomson Scientific Lianshou Tuichu *Chinese Science Citation Database*"
5. 本刊文章註釋（Notes）或參考文獻（References）羅馬化英譯規則，仍遵循Chicago（Turabian）或APA之精神及原則，進行必要且相對應之編排處理。**此羅馬化作業屬權宜措施，不可取代原有正式之引文規範。**
6. 羅馬化範例：
   範例1－註釋（Notes）
   　　林信成、陳瑩潔、游忠諺，「Wiki協作系統應用於數位典藏之內容加值與知識匯集」，教育資料與圖書館學 43卷，3期（2006）：285-307。【Sinn-Cheng Lin, Ying-Chieh Chen, and Chung-Yen Yu, "Application of Wiki Collaboration System for Value Adding and Knowledge Aggregation in a Digital Archive Project," *Journal of Educational Media & Library Sciences 43*, no. 3 (2006): 285-307. (in Chinese)】
   範例2－參考文獻（References）
   　　林雯瑤、邱炯友（2012）。教育資料與圖書館學四十年之書目計量分析。教育資料與圖書館學，49（3），297-314。【Lin, Wen-Yau Cathy, & Chiu, Jeong-Yeou (2012) A bibliometric study of the *Journal of Educational Media & Library Sciences*, 1970-2010. *Journal of Educational Media & Library Sciences*, *49*(3), 297-314. (in Chinese)】

About Romanized & Translated Notes/References for Original Text

　　The main purpose of Romanized and Translated Notes (or References) at the end of English Summary is to assist Western database indexers in identifying and indexing Chinese citations. This Romanization system for transliterating Chinese cannot be a substitute for those original notes or references listed with the Chinese manuscript. The effect of Chinese Romanization for citation remains to be seen.

Notes for Contributors

1. The *JoEMLS* is a fully peer-reviewed and Open Access quarterly sponsored and published by the Tamkang University Press, Taipei, Taiwan.
2. It is a condition of publication that all or part of manuscript submitted to the *JoEMLS* has not been published and will not be simultaneously submitted or published elsewhere.
3. The Editors welcome submissions of manuscripts mainly on topics related to library science, information science and technology, the book trade and publishing. The other library related fields such as instructional technology and information communication are also accepted.
4. Contributions are accepted on the strict understanding that the author is responsible for the accuracy of all contents of the published materials. Publication does not necessarily imply that these are the opinions of the Editorial Board or Editors, nor does the Board or Editors accept any liability for the accuracy of such comment, report and other technical and factual information.
5. The authors of any submissions to this *JoEMLS* hereby agree that if any submission being accepted by the Journal, then the *JoEMLS*, Tamkang University Library, and Department of Information & Library Science (DILS) shall be authorized to duplicate, publicly transmit by the Internet, and publish by any other means for the purpose of non-profit use such as study and education etc.
6. The authors of any submissions to the *JoEMLS* hereby agree that if any submission being accepted by the Journal, then the *JoEMLS* shall be authorized to grant a non-exclusive license to National Central Library for collecting such a submission into the Remote Electronic Access/Delivery System (READncl System), or grant other database providers sublicense to collect such a submission into their databases, and to duplicate, publicly transmit by the Internet, downloaded, and printed by authorized users of those providers. In addition, the format of submissions may be changed in order to meet the requirements of each database.
7. Manuscript requirements:
   (1) Submissions should go through the online system, however articles submitted as email attachments in one of the following preferred formats, Word or Rich Text Format, are acceptable.
   (2) Three types of contributions are considered for publication: full & regular research article in IMRAD format should be between 6,000 and 12,000 words in length, brief communication of approximately 3,000 words, and observation report which tends to be a review article of more than 5,000 words.
   (3) Letters to the Editor should not exceed 1,500 words in length and may be: comments or criticisms of articles recently published in the *JoEMLS*; and preliminary announcements of original work of importance warranting immediate publications.
   (4) Both Chinese (if available) and English titles should be provided.
   (5) All manuscripts should be accompanied by an abstract of 300 words approximately. Chinese abstract can be optional. Up to six keywords should be provided, and should not exceed 12 tables and figures.
   (6) A brief autobiographical note should be supplied including full name, post & title, affiliation, e-mail address, and full international contact details.
   (7) Referencing style (notes or references): Authors should follow one of the forms, the Chicago style (Turabian Manual) or the APA format.
8. For Book Review column, the *JoEMLS* is looking for book recommendations as well as individuals willing to review them, you may contact the editor.
9. It is the author's responsibility to obtain written permission to quote or reproduce material that has appeared in another publication. This includes both copyright and ownership rights, e.g. photographs, illustrations, and data.
10. First Author should be the equivalent of the Principal Author. The Principal Author must clearly specify who are the Corresponding Author and co-authors in proper sequence. Submission of manuscripts previously published in conference proceedings or revision based on thesis should be clearly indicated in the front page of manuscripts.
11. Revision should be returned to the editor within 4 months for further peer review process. Revision behind the period could be rejected or treated as a new manuscript by the Journal.
12. Each author will receive 1 free copy of the *JoEMLS*. Fifteen offprints given from *JoEMLS* are to be arranged by corresponding author. Additional offprints can be purchased from the Department of Information and Library Science, Tamkang University, Taipei, Taiwan. However, authors can find online full-text of PDF format via Open Access mechanism on the websites of *JoEMLS* and *DOAJ*.
13. Submissions of manuscripts in either Chinese or English and editorial correspondence please use the Online Submission & Peer Review Service (ScholarOne- JoEMLS) at http://joemls.dils.tku.edu.tw/, https://mc.manuscriptcentral.com/joemls, or mail to the editor:
    Professor Jeong-Yeou Chiu, Department of Information and Library Science, Tamkang University, Taipei, Taiwan. Email: joyo@mail.tku.edu.tw

About English Summary

A brief English Summary is a supplement to Chinese article. Authors who contribute to the *JoEMLS* in Chinese language would need to supply English Summaries themselves. Such English Summary will carry a disclaimer: "This English Summary is provided by the author(s) or translated by the *JoEMLS* editors, and the author(s) have certified or verified that the translation faithfully represents the Chinese version of their own in the journal. It is for convenience of the English users and can be used for reference and citation."

JoEMLS English Summary

Tamkang University Press
Taiwan