The H-index and First-author H-index of Chinese Scholars in LIS

Chen Yuecong[1], Liu Zongqi[2]

[1,2]Library of North China Electric Power University, Beijing 102206

Email: cyc-79@163.com1, lzq@ncepu.edu.cn2

Abstract. Based on the journals of JCR Social Sciences Edition--INFORMATION SCIENCE & LIBRARY SCIENCE category from 2003 to 2014, the Chinese authors' 2793 articles in Library and Information Science (LIS) were collected and analyzed on Web of Science (WOS). First, it ranked the first Chinese authors, and selected 76 authors with more than 5 articles as sample authors. Then it collected the sample authors' articles on WOS, and the h-index and first author h-index were listed and analyzed.

Keywords: h-index, Library and Information Science (LIS), JCR

1. Introduction

The h-index is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The h-index of an individual author is defined as the maximum number of papers h by a scientist where each of those papers has received h or more citations. The index was suggested in 2005 by Jorge E. Hirsch, a physicist at UCSD, as a tool for determining theoretical physicists' relative quality and is sometimes called the Hirsch index or Hirsch number.

It is recognized that the total number of publications does not provide a measure of the quality of these publications, while the total number of citations may be biased by relatively few, very highly cited works. The h-index is intended to measure simultaneously the quality and quantity of scientific output. The advantages of the h-index include that it is mathematically simple, it may be applied to any level of aggregation, it is a robust indicator, and it improves the quality of published work. Some criticisms of the h-index have included that it is bounded by the total number of publications, it is limited by the completeness of the database used to count, and it does not take into account the number of coauthors of each paper. This paper analyzed the Chinese authors' h-index in LIS based on JCR journals from 2003 to 2014.

Web of Science (previously known as (ISI) Web of Knowledge, also as WOS) is an online subscription-based scientific citation indexing service maintained by Thomson Reuters that provides a comprehensive citation search. It consists of SCI, SSCI, A&HCI, CPCI-S, CPCI-SSH, and so on a series of Citation

Database. It includes more than 11000 kinds of the most influential and high quality journals in the world. Journal Citation Reports (JCR) is an annual publication by ISI in two editions. JCR Science Edition contains data about more than 8,000 journals in science and technology. JCR Social Sciences Edition contains data about more than 2,600 journals in the social sciences.

The articles used in this paper came from the JCR Social Sciences Edition (2003-2014), and it analyzed the high produced Chinese authors' h-index and the first-author h-index of theirs in Library and Information Science (LIS).

2. Collect the articles from JCR Social Sciences Edition (2003-2014)

The journals of the category of INFORMATION SCIENCE & LIBRARY SCIENCE in JCR Social Sciences Edition were collected annually from 2003 to 2014. All the articles in the above journals were searched in Web of Science, and the region was limited to PEOPLES R CHINA (China mainland, Hong Kong and TAIWAN).

Table. 1 The articles of Chinese authors from 2003 to 2014

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of LIS journals	55	54	55	53	56	61	66	77	83	85	84	85
The articles the whole world	10286	9866	9766	9534	9446	9255	8060	9205	9475	8808	9450	9670
Chinese articles	81	75	99	124	134	191	234	244	318	386	447	460

Form Table 1, there were 112821 articles all over the world, and the number of Chinese authors was no more than 100 in 2003, and increased to more than 400 in 2014. There were totally 2793 articles of Chinese authors in 12 years from 2003 to 2014, which were the sample articles of this paper.

3. Rank the high produced Chinese authors

The first Chinese authors were extracted from 2793 sample articles, 1718 different first Chinese authors were counted after merging and duplicate removal. There were 76 authors that with more than 5 articles, and the 76 authors were selected as sample authors of this paper.

Table. 2 The 76 sample authors

Ranking	Author	Articles	Ranking	Author	Articles	Ranking	Author	Articles
1	Huang, Mu-Hsuan	23	27	Chen, Kuan-nien	7	53	Zhao, Rongying	6
2	Tsay, Ming-yueh	17	28	Hung, Shin-Yuan	7	54	Cheung, Christy M. K.	5
3	Yu, Guang	15	29	Li, Jiang	7	55	Chuang, Kun-Yang	5
4	Guan, Jiancheng	14	30	Liu, Rey-Long	7	56	Fu, Hui-Zhen	5
5	Li, Xia	13	26	Wu, Ing-Long	7	57	He, Tianwei	5
6	Chu, Samuel Kai-Wah	12	26	Yu, Liangzhi	7	57	Jin, Yi	5
7	Rousseau, Ronald	11	26	Zha, Xianjin	7	57	Lai, Jung-Yu	5
7	Yang, Christopher C.	11	26	Zhang, Jin	7	57	Li, Aiguo	5
7	Ye, Fred Y.	11	35	Chau, Michael	6	57	Liao, Chechen	5
7	Zhou, Ping	11	35	Chen, Dar-zen	6	57	Lin, Tung-Ching	5
11	Davison, Robert M.	10	35	Chou, Shih-Wei	6	57	Liu, Duen-Ren	5

11	Hu, Xiaojun	10	35	Chou, Tzu-Chuan	6	57	Liu, Xuan Zhen	5
11	Liang, Liming	10	35	Gao, Xia	6	57	Ma, Feicheng	5
11	Lin, Hsiu-Fen	10	35	Ho, Yuh-Shan	6	57	Pei, Tao	5
11	Liu, Yuxian	10	35	Hong, Weiyin	6	57	Ting, I-Hsien	5
11	Wang, Xianwen	10	35	Kao, Chiang	6	57	Tseng, Yuen-Hsien	5
17	Chen, Yen-Liang	9	35	Leydesdorff, Loet	6	57	Wang, Weiquan	5
17	Chen, Yu-Shan	9	35	Liu, Xiaoping	6	57	Wang, Yuandi	5
17	Chiu, Chao-Min	9	35	Lowry, Paul Benjamin	6	57	Wei, Chih-Ping	5
17	Wang, Eric T. G.	9	35	Qiu, Junping	6	57	Wu, Dan	5
17	Wang, Yi-Shun	9	35	Tsai, Chih-Fong	6	57	Wu, I-Chin	5
17	Zhang, Lin	9	35	Vaughan, Liwen	6	57	Xu, Yan	5
23	Chen, Chuanfu	8	35	Wu, Jen-Her	6	57	Zhao, Star X.	5
23	Xia, Jun	8	35	Wu, Ming-der	6	57	Zhou, Tao	5
23	Yu, Shien-Chiang	8	35	Yan, Yalan	6			
26	Chang, Hsin Hsin	7	35	Yang, Chyan	6			

4. The analysis of sample authors' papers and h-index in WOS

The papers of 76 sample authors in WOS were collected and the h-index of each author was counted in WOS, too.

Table. 3 The articles and h-index of 76 sample authors

Author	h-index	Articles	Author	h-index	Articles	Author	h-index	Articles
Leydesdorff, Loet	32	197	Chen, Dar-zen	10	89	Xu, Yan	5	24
Ho, Yuh-Shan	30	106	Vaughan, Liwen	10	32	Xia, Jun	4	8
Guan, Jiancheng	18	76	Davison, Robert M.	9	33	Zhang, Jin	4	16
Li, Xia	16	72	Chau, Michael	9	40	Chou, Tzu-Chuan	4	21
Rousseau, Ronald	16	135	Chou, Shih-Wei	9	19	Yan, Yalan	4	20
Yang, Christopher C.	16	116	Hong, Weiyin	9	13	Wang, Yuandi	4	25
Lin, Hsiu-Fen	16	29	Liao, Chechen	9	27	Li, Jiang	3	14
Chen, Yen-Liang	16	76	Wei, Chih-Ping	9	43	Liu, Rey-Long	3	20
Cheung, Christy M. K.	16	55	Zhou, Ping	8	16	Yu, Liangzhi	3	9
Liu, Duen-Ren	16	81	Yu, Guang	7	31	Zha, Xianjin	3	29
Chiu, Chao-Min	15	26	Liang, Liming	7	22	Wu, Ming-der	3	7
Wang, Eric T. G.	14	35	Fu, Hui-Zhen	7	17	He, Tianwei	3	7
Wang, Yi-Shun	14	34	Lai, Jung-Yu	7	19	Li, Aiguo	3	5
Chang, Hsin Hsin	14	38	Lin, Tung-Ching	7	23	Ma, Feicheng	3	32
Kao, Chiang	14	49	Pei, Tao	7	38	Wu, Dan	3	22
Tsai, Chih-Fong	14	65	Ye, Fred Y.	6	38	Wu, I-Chin	3	12
Chen, Yu-Shan	13	51	Hu, Xiaojun	6	32	Zhao, Star X.	3	14
Liu, Xiaoping	13	52	Liu, Yuxian	6	18	Chen, Chuanfu	2	15
Wu, Jen-Her	13	31	Wang, Xianwen	6	21	Chen, Kuan-nien	2	10
Zhou, Tao	13	43	Gao, Xia	6	10	Jin, Yi	2	5
Hung, Shin-Yuan	12	37	Chuang, Kun-Yang	6	15	Liu, Xuan Zhen	2	6
Lowry, Paul Benjamin	12	44	Tseng, Yuen-Hsien	6	20	Yu, Shien-Chiang	1	5

Huang, Mu-Hsuan	11	75	Tsay, Ming-yueh	5	22	Zhao, Rongying	1	14
Yang, Chyan	11	60	Chu, Samuel Kai-Wah	5	20	Ting, I-Hsien	1	19
Zhang, Lin	10	47	Qiu, Junping	5	31			
Wu, Ing-Long	10	27	Wang, Weiquan	5	8			

Leydesdorff, Loet; Ho, Yuh-Shan and Guan, Jiancheng had the highest h-index 32, 30 and 18 respectively. We could conclude that the h-indexs of Chinese LIS authors were not very high, only 28 authors' h-index were more than 10.

5. The analysis of sample authors' first author h-index in WOS

The first authors' articles were collected among the above articles for each sample author. And the h-index was recounted according to the first authors'articles, which we called it first-author h-index or h'-index.

Table. 4 The h-index and h' -index of 76 sample authors

Author	h-index	h'-index	Author	h-index	h'-index	Author	h-index	h'-index
Leydesdorff, Loet	32	27	Chen, Dar-zen	10	4	Xu, Yan	5	5
Ho, Yuh-Shan	30	21	Vaughan, Liwen	10	8	Xia, Jun	4	4
Guan, Jiancheng	18	15	Davison, Robert M.	9	5	Zhang, Jin	4	4
Li, Xia	16	10	Chau, Michael	9	7	Chou, Tzu-Chuan	4	3
Rousseau, Ronald	16	7	Chou, Shih-Wei	9	9	Yan, Yalan	4	3
Yang, Christopher C.	16	11	Hong, Weiyin	9	7	Wang, Yuandi	4	3
Lin, Hsiu-Fen	16	16	Liao, Chechen	9	7	Li, Jiang	3	3
Chen, Yen-Liang	16	14	Wei, Chih-Ping	9	7	Liu, Rey-Long	3	3
Cheung, Christy M. K.	16	8	Zhou, Ping	8	6	Yu, Liangzhi	3	3
Liu, Duen-Ren	16	12	Yu, Guang	7	4	Zha, Xianjin	3	3
Chiu, Chao-Min	15	11	Liang, Liming	7	5	Wu, Ming-der	3	3
Wang, Eric T. G.	14	12	Fu, Hui-Zhen	7	5	He, Tianwei	3	2
Wang, Yi-Shun	14	10	Lai, Jung-Yu	7	7	Li, Aiguo	3	3
Chang, Hsin Hsin	14	14	Lin, Tung-Ching	7	6	Ma, Feicheng	3	2
Kao, Chiang	14	14	Pei, Tao	7	4	Wu, Dan	3	1
Tsai, Chih-Fong	14	13	Ye, Fred Y.	6	5	Wu, I-Chin	3	2
Chen, Yu-Shan	13	12	Hu, Xiaojun	6	5	Zhao, Star X.	3	3
Liu, Xiaoping	13	8	Liu, Yuxian	6	5	Chen, Chuanfu	2	2
Wu, Jen-Her	13	12	Wang, Xianwen	6	5	Chen, Kuan-nien	2	2
Zhou, Tao	13	12	Gao, Xia	6	4	Jin, Yi	2	2
Hung, Shin-Yuan	12	10	Chuang, Kun-Yang	6	4	Liu, Xuan Zhen	2	2
Lowry, Paul Benjamin	12	8	Tseng, Yuen-Hsien	6	6	Yu, Shien-Chiang	1	1
Huang, Mu-Hsuan	11	7	Tsay, Ming-yueh	5	5	Zhao, Rongying	1	1
Yang, Chyan	11	7	Chu, Samuel Kai-Wah	5	5	Ting, I-Hsien	1	0
Zhang, Lin	10	6	Qiu, Junping	5	2			
Wu, Ing-Long	10	10	Wang, Weiquan	5	3			

The first author h-index more than 10 was listed in Table 5 with 19 authors. The articles of Lin, Hsiu-Fen;

Chang, Hsin Hsin; Kao, Chiang and Wu, Ing-Long were all first author articles, so the h'-indexes were not decreased in these four authors. But the difference of articles and first author articles of Ho, Yuh-Shan; Yang, Christopher C and Li, Xia were more than the others, so the h'-indexes decreased significantly, about 30%. The h'-index of other 12 authors also decreased in varying degrees.

Table. 5 The comparison of first and not first author h-index

Author	Articles	Articles'	h-index	h'-index	h-index decrease in %
Leydesdorff, Loet	197	105	32	27	-15.63%
Ho, Yuh-Shan	106	64	30	21	-30.00%
Lin, Hsiu-Fen	29	28	16	16	0.00%
Guan, Jiancheng	76	40	18	15	-16.67%
Chen, Yen-Liang	76	47	16	14	-12.50%
Chang, Hsin Hsin	38	37	14	14	0.00%
Kao, Chiang	49	43	14	14	0.00%
Tsai, Chih-Fong	65	40	14	13	-7.14%
Chen, Yu-Shan	51	43	13	12	-7.69%
Wang, Eric T. G.	35	19	14	12	-14.29%
Wu, Jen-Her	31	21	13	12	-7.69%
Liu, Duen-Ren	81	41	16	12	-25.00%
Zhou, Tao	43	41	13	12	-7.69%
Yang, Christopher C.	116	53	16	11	-31.25%
Chiu, Chao-Min	26	18	15	11	-26.67%
Li, Xia	72	17	16	10	-37.50%
Wang, Yi-Shun	34	20	14	10	-28.57%
Hung, Shin-Yuan	37	27	12	10	-16.67%
Wu, Ing-Long	27	25	10	10	0.00%

6. Conclusion

The paper collected the Chinese authors' 2793 articles in JCR (2003-2014) of LIS, ranked the first authors of all the articles and selected 76 authors with more than 5 first author articles as sample authors. Then the h-index and h'-index were counted and analyzed on WOS. Most authors h'-index decreased with variety according to the first authors' articles of them.

References

[1] J. E. Hirsch. An index to quantify an individual's scientific research output that takes into account the effect of multiple coauthorship [J]. Scientometrics, 2010, 85:741 – 754.
[2] Kelly, C.D.; Jennions, M.D. The h-index and career assessment by numbers [J]. TRENDS in Ecology and Evolution, Vol. 21 No. 4:167-70.
[3] Mousa Yaminfirooz , Hemmat Gholinia. Multiple h-index: a new scientometric indicator[J]. The Electronic Library, 2015,V33, No3: 547 – 556.