Uncited Chinese Research Papers I: A Study on the Impact of External Characteristics—A Case Study of Library and Information Science (Post-print)

Authors: Han Yi, Wu Yu, Shen Dongyang, Kuang Shumei, Yuan Qing

Date: 2023-08-26T00:00:00+00:00

Abstract

[Purpose/Significance] Exploring the phenomenon of uncited papers is an indispensable component of citation distribution research. It not only enriches and expands the research scope of informetrics, but also facilitates the identification of mechanisms underlying literature uncitedness and maximizes the avoidance of waste in scientific research resources while enhancing the efficiency of scientific communication. [Method/Process] Using CSSCI as the source database, this study takes library, information, and documentation science as the sample discipline, randomly selects 200 scholars as the sample, and obtains these scholars' first-author papers and related citation data. With a 6-year measurement window, it calculates the uncited rates for different groups based on eight extracted external characteristic factors and employs non-parametric methods to test for significant differences among these factors. [Results/Conclusions] All eight external characteristic factors exert significant influence on paper uncitedness. Among them, the effect of author' s affiliation is relatively minor, while the effects of author' s age at publication and paper length are relatively substantial. The influences of author' s professional title at publication, number of authors, number of references, number of keywords, and funding category are roughly comparable. The uncited rates of each factor change more dramatically during the first three years and more gradually during the latter three years. The time-series variation trends of uncited rates differ across factors, and their impact stability also varies accordingly.

Full Text

Abstract

[**Purpose/Significance**] Exploring the phenomenon of uncited papers is an indispensable part of citation distribution research. It not only enriches and expands the scope of informetrics but also helps identify the mechanisms underlying uncitedness and maximally avoids waste of research resources while enhancing the efficiency of scientific communication. [**Method/Process**] Using CSSCI as the source database and library and information science as the sample discipline, we randomly selected 200 scholars as samples, retrieved their first-author papers and related citation data, and employed a 6-year citation window. Based on eight extracted external feature factors, we calculated the uncited rates for different groups and used non-parametric methods to test whether significant differences existed among these factors. [**Result/Conclusion**] All eight external feature factors significantly influenced paper uncitedness. Among them, author affiliation had a relatively small impact, while author age at publication and paper length had relatively large impacts. The influence of author title at publication, number of authors, number of references, number of keywords, and funding category were roughly comparable. Changes in uncited rates were more dramatic in the first three years and more gradual in the latter three years. The time-series trends of uncited rates varied across factors, as did the stability of their influence.

Classification Number: G250.252 G301
Keywords: uncited papers; zero-cited papers; library and information science; external features of literature; author-related factors; paper-related factors; funding

DOI: 10.13266/j.issn.0252-3116.2018.04.001

Since E. Garfield pioneered citation analysis methodology in the 1950s, citation distribution analysis has been widely applied to position, compare, and evaluate research performance, journal impact, and individual influence, becoming a core research theme in informetrics [**?**]. Current research primarily focuses on the "head" of the citation distribution curve representing "highly cited and attention-grabbing" works, while rarely attending to the "tail" representing "lowly cited and temporarily overlooked" works. However, research on the "tail" is indispensable to citation distribution studies. Focusing solely on the "head" while ignoring the "tail" cannot reflect the full picture of scientific communication, and uncitedness research holds significant importance for information science. On the one hand, only through thorough investigation of the patterns of uncited literature in the general sense can we achieve complete understanding of the citation distribution spectrum. Therefore, studying uncited phenomena helps enrich and expand the scope of informetrics. On the other hand, examining the factors influencing uncitedness to explore researchers' citation selection patterns is crucial for identifying the mechanisms that generate uncited literature and for maximizing the avoidance of research resource waste while improving scientific

communication efficiency. The long-tail theory suggests that the tail representing 80% of the total volume may generate benefits comparable to the 20% head. Therefore, in today' s digital and networked research environment, low-cited or uncited literature in the long tail may contribute equally to research as highly cited literature at the head, or at least play an important role in advancing scientific research. Moreover, literature that remains uncited within a certain time window is not necessarily of low quality or lacking academic value; some may be potential "gems," such as "delayed recognition" and "sleeping beauty" papers [**?**]. Hence, studying uncited phenomena in papers is essential.

2 Related Research

Scholars have long recognized that reasons for papers remaining uncited are multifaceted, extending beyond quality issues to include many factors that prevent papers from receiving attention and citations [**?**]. Large-scale research on uncitedness emerged in the 1990s. E. Garfield noted that many factors influence paper uncitedness, including papers being too ordinary or low in quality, having obscure topics, or not yet being integrated into current knowledge paradigms, having overly novel and advanced content, or experiencing delayed recognition [**?**].

Most existing research on uncitedness focuses on paper-intrinsic factors to explore uncitation patterns. R. E. Stern compared cited and uncited literature across characteristics such as number of authors, keywords, title words, references, and journal age and price, finding that reference count had the greatest impact on whether a paper was cited, while other features had smaller effects [**?**]. R. Rousseau observed that many documents in scientific communication systems are relevant to a researcher' s work, yet only a tiny fraction are listed as references in their publications. Through a Bayesian probability model, he calculated that single-author papers had only an 8% probability of being cited, whereas multi-author collaborative papers had a 33% citation probability [**?**]. Hu Zewen et al., examining publications from six high-impact journals between 1992-1999, found that short papers had very high uncited rates, with 1-4 page articles accounting for a large proportion of uncited works, while longer papers were more likely to receive citations [**?**]. Shi Lei introduced survival analysis theory to discuss how funding, author team size, paper length, and reference count affect the survival status of uncited papers, finding that funding status and paper length significantly impacted uncited paper survival [**?**]. Wen Fangfang found through comparison of uncited and highly cited papers that author influence was negatively correlated with uncitedness, and that core research topics differed substantially between the two groups based on keyword co-occurrence networks [**?**].

Research on uncitedness with journals as the carrier has also attracted scholarly attention. Empirical studies found that journal impact factor serves as an important influence on uncitedness, exhibiting an S-curve relationship where the inflection point represents the average impact factor and average uncitedness

factor [?]. Liu Na, analyzing military medical journals in detail, found that journal sponsor, journal influence, and impact factor significantly affected journal paper uncitedness [?].

Exploring disciplinary and national differences in uncited paper distribution represents a higher-level concern. Research on Chinese S&T core journals found that social sciences had substantially higher uncited paper proportions than natural sciences, university-affiliated institutions had lower uncited rates than the average, and research institute publications had the lowest uncited rates among all institution types [?]. Comparative analysis of Chinese and Indian international collaboration papers and non-collaborative papers revealed that international collaboration network structure was an important factor affecting uncited rates, with more collaborating countries associated with lower uncited rates [?]. For Indian papers, average citations per paper was the main factor affecting uncited rates, while for Chinese papers, uncited rates were more strongly influenced by average references per paper, followed by average authors per paper, with average citation frequency impact varying by discipline [?].

Based on existing research, we can summarize the influencing factors for paper uncitedness (see Table 1). The table shows that existing research on uncitedness comprehensively reflects basic characteristics, but individual studies have only examined a limited number of potential influencing factors without systematic investigation of all possible factors, and research conclusions remain inconsistent. Methodologically, previous studies primarily used fixed time windows with mathematical statistics, correlation calculations, and scatter plot fitting to analyze uncitedness features, without exploring potential evolutionary trends from a temporal dimension. All uncitedness influencing factors have focused mainly on literature external features, with less analysis of content features.

This paper examines Chinese research papers, synthesizing existing research to extract external features of uncitedness, revealing influence trends of various factors through time series analysis, identifying main influencing factors for Chinese research paper uncitedness, and laying a foundation for exploring the mechanisms underlying uncited phenomena.

3 Data and Methods

3.1 Data Acquisition

Informetrics research results strongly depend on data acquisition. To ensure comparable conclusions, we selected an authoritative, comprehensive data source recognized by the academic community, choosing CSSCI as our source database. To facilitate interpretation of results, we selected library and information science as our sample discipline.

Based on these selections, we excluded "country" and "discipline" influencing factors from Table 1. Additionally, since CSSCI only includes important core journals across disciplines, it was not convenient to classify journal categories,

so we excluded the "journal category" factor. Based on CSSCI data and specific paper characteristics, we determined through empirical judgment that two author-related factors—title at publication and age at publication—might influence paper uncitedness, so we added these to our factor set. Based on small-scale data exploration, we finalized the external feature factor set for Chinese uncited papers and corresponding indicator values (see Table 2).

Data were collected in November 2016. We intended to use complete annual data for analysis. Since CSSCI citation data for 2016 were incomplete, we used only journal papers published between 1998-2015 as sample data for analyzing external feature influences on uncitedness.

The specific data collection strategy was as follows: 1. Based on h-index characteristics of library and information science scholars [**?**], we randomly selected 200 scholars as sample objects. 2. From CSSCI, we retrieved detailed information on journal papers where sample scholars were first authors during 1998-2015, storing downloaded CSSCI data items as txt files. 3. Since some external feature data, such as author title and age at publication, could not be directly obtained from the database, we acquired sample scholars' birth dates and promotion times through public channels. 4. We developed programs to extract field data from txt files, as well as author title and age at publication data, storing them as excel files. Simultaneously, we obtained a txt file including all sample paper titles and another with all sample author names, with titles and authors corresponding sequentially. These two txt files were imported into a custom crawler program to retrieve citation data for each paper based on title and first author, with data stored as excel files.

3.2 Research Methods

To identify the influence effects of external features in Table 2, this paper compared whether significant differences existed in uncited rates across different categories of each factor.

The **Rate of Uncited Articles (RUCA)** refers to the proportion of papers in a sample set that have never been cited within a specific time window after publication. Considering that the citation half-life in library and information science is approximately 4 years [**?**], we selected a 6-year citation window to sufficiently eliminate citation delay effects and observe uncited rate trends. The time unit is calendar year, with the publication year designated as citation year 1.

The RUCA calculation formula is:

$$RUCA = (1 - C_{nj}/N_i) \times 100\%$$

Where $i = 1998, 1999, \ldots, 2010$, $j = 1, 2, \ldots, 6$, N_i is the total number of articles published in year i, and C_{nj} is the number of articles cited by year j after publication.

Due to small sample sizes that did not meet requirements for t-tests or ANOVA, we used paired-sample non-parametric tests to examine whether significant differences existed among different categories.

4 Research Results

4.1 Influence of Author Factors on Paper Uncitedness

4.1.1 Influence of Author Title on Paper Uncitedness During data analysis, we found that publications by authors with intermediate titles, junior titles, and student status were relatively few, and small-sample analysis revealed no significant differences in uncited rates among these groups. Therefore, we combined intermediate titles, junior titles, and students into one category. Senior titles include professors and equivalent positions, while associate senior titles include associate professors and equivalent positions. Sample data were divided into three title groups to calculate uncited rates for years 1-6 after publication, with evolution graphs plotted and SPSS used for paired-sample non-parametric tests.

Figure 1 [Figure 1: see original paper] reveals: Differences in uncitedness between senior and associate senior title publications are slight, while differences between senior titles and other categories are more pronounced, showing an overall pattern where higher titles correlate with lower uncited rates. In year 1 after publication, uncited rates across different title groups are similar. From year 2 onward, higher titles show lower uncited rates, with senior title uncited rates slightly lower than associate senior titles. From year 4, the evolution trends of associate senior and senior title uncited rates converge. Analysis of sample researchers shows most are promoted from associate senior to senior title approximately 5 years after obtaining associate senior status, suggesting that title changes 5 years after publication may cause convergence in uncited rate trends between senior and associate senior title publications.

Table 3 shows: The chi-square statistic is 12.000, W coefficient is 1.000, and asymptotic significance is 0.002, less than the 0.05 significance level, indicating significant differences among the three groups. Thus, author title significantly influences paper uncitedness.

4.1.2 Influence of Author Age on Paper Uncitedness Using the same method, we obtained results for author age influence on uncitedness. Figure 2 [Figure 2: see original paper] shows: Uncited rates across age groups show a gradual declining trend during the 1-6 year window. Publications by authors aged 36 and under, 37-42, and 67 and above maintain relatively high uncited rates across all citation time windows compared to other age groups, especially the 67+ age group which consistently shows the highest uncited rate. The 43-66 age groups show lower uncited rates, particularly prominent in years 2 and 3. More detailed analysis reveals: In the publication year, uncited rate differences across age groups are not obvious. In years 2 and 3, the 43-48 and

55-60 age groups show uncited rate troughs, indicating better overall citation performance for these age groups. From year 4 onward, differences between the 43-48 age group and both the 36-42 and 67+ age groups become insignificant, while uncited rates for the 55-60 and 61-66 age groups are significantly lower than other groups, with the 61-66 age group showing a notable decline compared to the first three years, forming a new uncited rate trough.

Table 3 non-parametric paired test results show: Chi-square statistic is 27.357, W coefficient is 0.760, and significance is 0.000, less than 0.05, indicating significant differences in uncited rates across age groups. Thus, author age at publication significantly influences paper uncitedness.

4.1.3 Influence of Author Affiliation on Paper Uncitedness Author affiliation types were divided into four categories: research institutes (including various information and intelligence research institutes), university teaching units (university departments), university other units (including university libraries, archives, research centers), and other units (including magazines, editorial departments, companies). Using the same method, we obtained results for affiliation influence on uncitedness.

Figure 3 [Figure 3: see original paper] shows: The four institution types exhibit substantial differences in uncited rates. From year 2 after publication, research institute publications consistently show the lowest uncited rates among the four types, with rapid decline in the first three years. University teaching units and university other units show differences in the first two years, converging from year 3. The "other units" category consistently shows the highest uncited rates, with large differences from other institution types, and minimal decline even during the citation peak period of years 2-3.

Table 3 shows: Chi-square statistic is 8.600, W coefficient is 0.478, and significance is 0.035, less than 0.05, indicating significant differences in uncited rates across institutions. Thus, author affiliation significantly influences citation status.

4.1.4 Influence of Author Count on Paper Uncitedness Research shows that scientific collaboration significantly increases citation rates [**?**], as collaboration enables division of labor among researchers to improve efficiency and facilitates knowledge exchange to enhance paper quality. However, whether collaborative and single-author papers show substantial citation differences, and whether larger author teams always yield better citation performance, requires further data verification. Using the same method, we obtained results for author count influence on uncitedness.

Figure 4 [Figure 4: see original paper] reveals: Overall, uncited rates for papers with different author counts decline annually, but differences are not obvious in the first two years after publication. From year 3, more authors correlate with lower uncited rates. Single-author papers maintain relatively high uncited rates

throughout years 1-6, with differences from other categories gradually increasing after year 2. Two-author and three-author papers show minimal differences in uncited rates during years 1-4. Four-or-more-author papers differ from 1-3 author papers during years 1-4, but differences gradually decrease after year 4.

Table 3 data show: Chi-square statistic is 13.800, W coefficient is 0.767, and significance is 0.003, less than 0.05, indicating significant differences in uncited rates across author count groups. Thus, author number significantly influences paper uncitedness.

4.2 Influence of Paper Factors on Uncitedness

4.2.1 Influence of Keyword Count on Paper Uncitedness Keywords represent authors' high-level summarization of research content, directly affecting retrieval probability in search systems. We categorized papers by keyword count: 1-3 keywords, 4 keywords, 5 keywords, and 6+ keywords. Using the same method, we obtained results for keyword count influence.

Figure 5 [Figure 5: see original paper] shows: Generally, more keywords correlate with lower uncited rates, but differences are not pronounced. Only the 1-3 keyword category shows some difference from the 6+ keyword category, though from year 3 onward, no significant differences exist across keyword count categories, indicating keyword count only matters significantly before the citation peak year.

Table 4 test data show: Chi-square statistic is 15.000, W coefficient is 0.833, and significance is 0.002, less than 0.05, indicating significant differences in uncited rates across keyword counts. Thus, citation status is significantly affected by keyword quantity.

4.2.2 Influence of Reference Count on Paper Uncitedness References reflect the connectivity, inheritance, and relevance of research work, as well as authors' cognitive positioning of current research within existing knowledge systems, partially reflecting paper quality and information volume. We categorized papers into four groups: 1-5 references, 6-10 references, 11-15 references, and 16+ references. Using the same method, we obtained results for reference count influence.

Figure 6 [Figure 6: see original paper] shows: Differences in uncited rates across reference count groups are relatively obvious with consistent trends—more references correlate with lower uncited rates. In year 1, differences are pronounced; from year 1 to 2, papers with more references show greater changes in uncited rates.

Table 4 non-parametric test results show: Chi-square statistic is 17.333, W coefficient is 0.722, and significance is 0.002, less than 0.05, indicating significant differences in uncited rates across reference count groups. Thus, citation status is significantly influenced by reference quantity.

4.2.3 Influence of Paper Length on Uncitedness Since word counts are difficult to obtain directly and papers often contain charts, we used page count as a length metric. Based on multiple exploratory experiments, we categorized paper length into four groups: 1-3 pages, 4-5 pages, 6-7 pages, and 8+ pages. Using the same method, we obtained results for paper length influence.

Figure 7 [Figure 7: see original paper] shows: Overall, longer papers have lower uncited rates across all citation time windows. As length increases, uncited rates gradually decrease, with longer papers showing faster declines in years 2-3. The 1-3 page group consistently maintains high uncited rates, clearly differing from other groups. The 4-5 page group shows medium uncited rates. Differences between 6-7 page and 8+ page groups are not pronounced, but both differ substantially from other categories. Temporally, differences emerge in year 1, with longer papers showing lower uncited rates. In year 2, longer papers show greater uncited rate declines, with diminishing declines over time.

Table 4 non-parametric test results show: Chi-square statistic is 18.000, W coefficient is 1.000, and significance is 0.000, less than 0.05, indicating significant differences in uncited rates across length groups. Thus, paper length significantly influences citation status.

4.3 Influence of Funding Category on Paper Uncitedness

We categorized funding into four types: Type 1 includes major/key projects of National Social Science Fund, National Soft Science Research Program, and National Natural Science Foundation; Type 2 includes regular projects of these three national funds; Type 3 includes ministry-level and provincial (autonomous region, municipality) funds; Type 4 includes other various funds. Papers were correspondingly divided into five categories, with the fifth being non-funded papers. Using the same method, we obtained results for funding category influence.

Figure 8 [Figure 8: see original paper] shows: Different funding categories show declining uncited rates across years 1-6, but higher funding categories do not always show lower uncited rates. Type 1 funded papers show the lowest uncited rates in the first three years, while Type 3 funded papers show the lowest rates in years 5-6. Type 1 and Type 2 funded papers gradually converge in years 4-5. Type 4 funded and non-funded papers consistently maintain relatively high uncited rates.

Table 4 paired-sample non-parametric test results show: Chi-square statistic is 19.467, significance is 0.001, less than 0.05, indicating significant differences in uncited rates across funding categories. Thus, funding status and category significantly influence citation status.

5 Conclusion and Discussion

5.1 Main Conclusions

Analysis results show that all eight indicators across the three major factor categories significantly influence Chinese paper uncitedness. From test significance values, author affiliation has relatively small influence, while author age at publication and paper length have relatively large influence. The other five factors—author title, author count, reference count, keyword count, and funding category—have roughly comparable influence levels.

Overall, uncited rates across all factor categories change more dramatically in the first three years and more gradually in the latter three years, indicating that citation peaks for library and information science papers typically occur around three years after publication, with slight variations across factors.

From time-series perspectives, some factors show decreasing differences over time, some show increasing differences, but most exhibit relatively stable differential characteristics. Moreover, differences in uncited rates across factors at the same time point vary considerably, with some differences remaining stable and others highly unstable, while most show partial stability. Specific results are shown in Table 5 .

Table 5 Differential Impact of Paper External Feature Factors on Uncitedness

Factor	Significance (p-value)	Time-series Trend	Influence Stability
Author title at publication	Significant (0.002)	Decreasing difference	Partially stable
Author age at publication	Significant (0.000)	Stable difference	Partially stable
Author affiliation	Significant (0.035)	Increasing difference	Unstable
Author count	Significant (0.003)	Increasing difference	Partially stable
Keyword count	Significant (0.002)	Stable difference	Stable
Reference count	Significant (0.002)	Stable difference	Stable
Paper length	Significant (0.000)	Stable difference	Partially stable

Factor	Significance (p-value)	Time-series Trend	Influence Stability
Funding category	Significant (0.001)	Stable difference	Partially stable

5.2 Discussion

Based on CSSCI data, this paper explored the influence of three factor categories with eight indicators on paper uncited rates, finding all eight factors significantly influential. The impacts of author affiliation [**?**], author count [**?**], keyword count [**?**], reference count [**?**], paper length [**?**], and funding category [**?**] are confirmed again. Author age and title at publication, extracted in this study, also significantly influence uncitedness, which aligns with related research on author influence [**?**]. These significant influencing factors provide guidance for journal manuscript selection, author ordering, keyword assignment, and reference selection for all stakeholders.

Compared with existing research, this paper's main contribution is revealing the temporal dimension characteristics of how different factor components influence uncitedness. Previous research mostly identified significant influences at time points; this paper demonstrates temporal evolution characteristics of factor components across a 6-year window. These features show that as time progresses, absolute values and differences in uncited rates across factor components vary at different time points, and these differences evolve over time. Factors showing increasing differences include author affiliation and author count; the factor showing decreasing difference is author title; other factors maintain relatively stable differences. These differential features provide visual results for identifying optimal components with significant influence, partially addressing the limitation of non-parametric tests that provide only test results without detailed information display.

Many factors influence paper uncitedness. Due to data source limitations and a single sample object, this paper' s conclusions only identify influencing factors for Chinese research paper uncitedness, and their generalizability requires further verification. Due to limited time-series data, this paper only used non-parametric paired tests to compare differences across components, without comprehensive analysis considering interactions among different influencing factors. Future research should select more sample disciplines, languages, countries, and journals with larger datasets to explore a more complete set of uncitedness influencing factors, applying panel data analysis methods to determine the importance and significance levels of each factor.

References

[1] STRINGER M J, PARDO M S, AMARAL L A N. Statistical validation of a global model for the distribution of the ultimate number of citations accrued

by papers published in a scientific journal[J]. Journal of the American Society for Information Science, 2010, 61(7): 1377-1385.

[2] BURRELL Q L. Will this paper ever be cited?[J]. Journal of the American Society for Information Science and Technology, 2002, 53(3): 232-235.

[3] Li Jiang. Review of "sleeping beauties" and "flash in the pan" phenomena in science[J]. Journal of Academic Libraries, 2016, 34(3): 38-43.

[4] GHOSH J S. Uncitedness of articles in nature, a multidisciplinary scientific journal[J]. Information processing & management, 1975, 11(5): 165-169.

[5] GARFIELD E. To be an uncited scientist is no cause for shame[J]. The scientist, 1991, 5(6): 12.

[6] STERN R E. Uncitedness in the biomedical literature[J]. Journal of the American Society for Information Science, 1990, 41(3): 193-196.

[7] ROUSSEAU R. Why am I not cited, or why are multi-authored papers more cited than others?[J]. Journal of documentation, 1992, 48(1): 79-80.

[8] HU Z, WU Y. Regularity in the time-dependent distribution of the percentage of never-cited papers: an empirical pilot study based on six journals[J]. Journal of informetrics, 2014, 8(1): 136-146.

[9] Shi Lei. Empirical study on zero-citation phenomenon of journal papers[D]. Bengbu: Anhui University of Finance and Economics, 2016.

[10] Wen Fangfang. Analysis of causes and influencing factors of zero-citation papers in Chinese information science journals[J]. Information Studies: Theory & Application, 2016, 39(4): 27-31, 26.

[11] EGGHE L. The distribution of the uncitedness factor and its functional relation with the impact factor[J]. Scientometrics, 2010, 83(3): 689-695.

[12] Liu Na. Research on zero-citation status and influencing factors of military medical journals[D]. Beijing: Institute of Scientific and Technical Information of China, 2015.

[13] Zhu Mengjiao. Analysis and empirical study on zero-citation phenomenon of scientific papers[D]. Beijing: Institute of Scientific and Technical Information of China, 2013.

[14] Guo Yongzheng. China-India comparison of zero-citation rates of international collaborative papers[J]. Journal of Intelligence, 2014, 33(12): 89-93.

[15] Guo Yongzheng. China-India comparison of zero-citation rates of non-international collaborative papers[J]. Library and Information, 2015, 34(4): 90-95.

[16] Han Yi, Xia Hui. Research on Pt-index for researcher evaluation from the perspective of time factors[J]. Journal of Library Science in China, 2015, 41(6): 73-85.

[17] Figg W D, Dunn L, Liewehr D J, et al. Scientific collaboration results in higher citation rates of published articles[J]. Pharmacotherapy, 2006, 26(6): 759-767.

Author Contributions

Han Yi: Overall research design and planning, paper revision and improvement;
Wu Yu: Data collection, processing and analysis, drafting the initial manuscript;
Shen Dongyang: Program development, data collection;
Kuang Shumei: Participated in data collection, processing and analysis;
Yuan Qing: Participated in data collection, processing and analysis.

Note: Figure translations are in progress. See original paper for figures.