Impact of Subject Classification Differences on Academic Library Subject Evaluation Services: Postprint

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Abstract

[Purpose/Significance] To compare the disciplinary classification systems of commonly used databases in disciplinary evaluation, analyze through case studies the impact of classification differences on disciplinary evaluation services, and to highlight the importance for academic libraries to attend to these differences.

[Method/Process] This study systematically reviews the disciplinary classification systems of several commonly used databases in disciplinary evaluation, maps the disciplinary categories of 11,681 journals indexed in JCR across these databases, and elaborates in detail on the classification differences among databases. Integrating the content of library disciplinary evaluation, it takes the Chemistry discipline of Tianjin Normal University as a case study to analyze the impact of these classification differences on disciplinary evaluation.

[Results/Conclusion] The differences in database disciplinary classification systems exert certain influences on three aspects of library disciplinary evaluation: research output analysis, research impact assessment, and researcher evaluation. Several recommendations are proposed to mitigate these effects, providing references for library disciplinary evaluation services.

Full Text

Research on the Impact of Disciplinary Classification Differences on University Library Subject Evaluation Services

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Abstract: **[Purpose/Significance]** This paper compares the disciplinary classification systems of commonly used databases in subject evaluation, analyzes the impact of disciplinary classification differences on library subject evaluation services through case studies, and aims to draw attention to these differences

among university libraries. [**Method/Process**] The study systematically examines the disciplinary classification systems of several major databases used in subject evaluation, maps the disciplinary categories of 11,681 journals included in JCR across databases, and elaborates on the classification differences between databases. Combined with the content of library subject evaluation, the paper uses the chemistry discipline at Tianjin Normal University as an example to analyze how classification differences affect subject evaluation. [**Result/Conclusion**] Database disciplinary classification differences exert certain influences on three aspects of library subject evaluation: research output analysis, research impact evaluation, and researcher evaluation. The paper proposes several recommendations to mitigate these impacts, providing reference for library subject evaluation services.

Keywords: Web of Science; Scopus; ESI; JCR; disciplinary classification differences; subject evaluation

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The "Double First-Class" initiative has sparked a surge in disciplinary analysis and evaluation. Subject evaluation reports have become an integral component of university library subject services and serve as important references for educational authorities and universities to strengthen disciplinary construction and optimize disciplinary layout. Various information resources constitute a crucial part of library resources, with bibliometric analysis being the primary evaluation method. Selecting appropriate data sources is fundamental to obtaining accurate evaluation results. However, numerous information resources employ different disciplinary classification systems tailored to their respective user needs. Therefore, analyzing the differences between these classification systems is essential when selecting data sources, as it enables more rational use of these retrieval tools and yields more accurate and effective evaluation results.

Web of Science (hereinafter referred to as WoS), Scopus, ESI, and JCR are important data sources and evaluation tools for academic assessment. These platforms include five broad research domains: natural sciences, engineering technology, life sciences and biomedicine, social sciences, and arts and humanities. To distinguish disciplines, WoS Core Collection is divided into several independent databases including SCI, SSCI, and A&HCI, containing a total of 252 Web of Science Categories (WC) fields. Journals and books in the collection can be assigned to multiple WC fields. WoS's disciplinary classification system uses journals as classification objects, employing a combination of heuristic and manual methods. For newly included journals, the Hayne-Coulson classification algorithm is used, though this algorithm has not been made public. Journals that cannot be clearly categorized by algorithm, such as *Nature* and *Science*, are assigned to multidisciplinary categories.

Scopus, Elsevier's flagship product, is currently the world's largest abstract and citation database. Like WoS, it covers multiple disciplinary fields but with

broader coverage. Unlike WoS, Scopus does not have separate independent databases but integrates different disciplinary fields and document types into a single database. Scopus also uses journals as classification objects, forming a complete hierarchical disciplinary classification system. This system comprises three levels: the first level includes four broad disciplines (Life Sciences, Social Sciences, Physical Sciences, and Health Sciences); the second level includes 27 subject areas; and the third level includes 334 subject subcategories, each corresponding uniquely to one of the 27 second-level subject areas. Scopus's disciplinary classification is primarily manual. For newly included journals, the journal's responsible party selects the appropriate category from existing classifications, which is then reviewed by database professionals. It appears that no algorithm is used to construct the classification system [1].

ESI (Essential Science Indicators) is also a product of Clarivate Analytics. It measures research institutions' and researchers' scientific levels and academic impact from multiple perspectives by statistically analyzing paper data from the SCI and SSCI databases over the past 11 years. Data is updated every two months, making it an important tool for academic evaluation. ESI highly cited papers have also been incorporated into evaluation indicators in the Ministry of Education's disciplinary assessments. The ESI database is divided into 22 subject areas with relatively coarse granularity, with each journal assigned to only one discipline.

JCR (Journal Citation Reports) measures journal academic levels by statistically analyzing citation data of journals included in SCI and SSCI. Its disciplinary classification method is consistent with WoS Core Collection's WC fields. However, since the statistical data only includes journals from SCI and SSCI, excluding those from CPCI and A&HCI, the subject categories are fewer than in WoS Core Collection, totaling 227 categories, with each journal assigned to multiple WC fields.

The "Journal Ranking by Chinese Academy of Sciences" (hereinafter referred to as CAS JCR) is a research product of the Scientific Metrics Center of the Chinese Academy of Sciences Library. Since its release in 2004, it has generated considerable influence, and many universities now use the CAS JCR's broad category partitions as the standard for recognizing SCI research achievements. It differs significantly from JCR in journal disciplinary classification methods, including both broad and narrow disciplines. The broad disciplines include 13 fields: Environmental Science and Ecology, Agricultural and Forestry Sciences, Biology, Multidisciplinary, Geosciences, Geosciences and Astronomy, Engineering Technology, Management Science, Chemistry, Social Sciences, Mathematics, Physics, and Medicine. The narrow disciplines are the same as the SCI journal categories in JCR. Each journal corresponds to one broad discipline and multiple narrow disciplines.

The classification systems of the above commonly used databases are summarized in Table 1 .

1.2 Differences in Database Disciplinary Classifications

Comparing the disciplinary classification systems of the above databases (see Table 1) reveals that: in terms of classification objects, all databases are based on journal classification; in terms of hierarchical structure, WoS, ESI, JCR, and CAS JCR have no explicit hierarchical divisions, while Scopus has a clear hierarchical structure; in terms of classification granularity, WoS and Scopus have the finest granularity, while ESI and CAS JCR have coarser granularity; in terms of disciplinary coverage, WoS and Scopus have the most comprehensive coverage, followed by ESI and JCR (which exclude arts and humanities), while CAS JCR only includes SCI journals and thus has the smallest coverage.

To further understand classification differences across databases, the author mapped the disciplinary categories of 11,681 journals included in JCR to the classification systems of WoS, ESI, Scopus, and CAS JCR broad disciplines. In the following analysis, ESI subject areas, Scopus subject classifications, and CAS JCR broad disciplines are compared with WoS database classifications (WC fields) to analyze database classification differences from three perspectives: different classification systems from the same data source, different classifications for the same journal across databases, and different domestic and international disciplinary classification methods for journals. It should be noted that WoS database classifications in this study are based on JCR, totaling 227 categories, not the 252 categories in the WoS database. Due to different update cycles or coverage ranges among databases, complete mapping was not achieved for all 11,681 journals to ESI, Scopus, and CAS JCR broad categories. For example, when mapping JCR journals to ESI disciplines, 89 journals failed to map; when mapping JCR journals to Scopus disciplines, 175 JCR journals were not included in Scopus.

1.2.1 Multiple Classification Systems from the Same Data Source

ESI, JCR, and WoS databases are all products of the same company, with data sources from SCI and SSCI in WoS Core Collection, yet they employ two completely different classification systems: (1) Different classification methods: ESI uses a one-to-one approach where each journal corresponds to one disciplinary category, while JCR's classification is the same as WC fields in WoS Core Collection, using a one-to-many approach. (2) Different classification granularity: ESI is divided into 22 broad subject areas, while JCR has finer granularity with 227 categories. Table 2 statistics show the number of JCR journals corresponding to each of the 22 ESI subject areas, the number of mapped WC fields, and the maximum and average number of WC fields per journal in each subject area. The data shows that ESI's Social Sciences field corresponds to the most JCR journals (1,961) and maps to the most WC fields (109), followed by Clinical Medicine with 1,906 journals corresponding to 96 WC fields. This indicates uneven disciplinary distribution in ESI. The maximum number of WC fields per journal ranges from 4-5 for most disciplines, except Microbiology and Space Science which have a maximum of 3. The average number of WC fields per jour-

nal ranges between 1.3-2, indicating that most ESI journals correspond to one or two WoS disciplinary categories, though further analysis of the correlation between the two classification systems is needed.

1.2.2 Different Classifications for the Same Journal Across Databases Both WoS and Scopus classification systems are journal-based, but they have significant structural differences. WoS has no explicit hierarchical structure, while Scopus's system comprises three levels. In this study, WC fields of 11,506 journals co-covered by JCR and Scopus were compared with Scopus's third-level 334 subject subcategories. The author conducted two analyses: the distribution of journals across disciplines and the distribution of disciplines per journal, as shown in Table 3 . Results show that WoS's 227 disciplines correspond to Scopus's 327 disciplines. In WoS, a journal can be assigned to a maximum of 6 disciplinary categories, while in Scopus, a journal can be assigned to up to 11 categories. The average number of disciplinary categories per journal is 1.58 in WoS and 2.32 in Scopus, indicating that journals have more disciplinary categories in Scopus than in WoS. Figure 1 [FIGURE:1] further analyzes the distribution of journals by number of disciplinary categories in both databases. It shows that over 50% of journals in WoS belong to only one disciplinary category, while in Scopus this is less than 30%, meaning over 70% of journals in Scopus are assigned to two or more categories.

1.2.3 Different Domestic and International Disciplinary Classification Methods Many Chinese universities use the CAS JCR journal partition list to evaluate the quality of scholars' SCI papers. Different from Clarivate Analytics' JCR, the CAS journal partition table includes both broad and narrow partitions. The narrow partition divides journals into 177 fine-grained disciplinary categories provided by JCR, while the broad partition divides journals into 13 coarse-grained fields based on the narrow partition. The mapping between journals and the 13 broad disciplines is one-to-one without duplicate classification (except for 11 crystallography journals). The author also mapped 11,681 JCR journals to the broad categories in CAS JCR. Since CAS JCR does not include SSCI-indexed journals, only 8,992 journals were successfully mapped. Table 4 shows significant variation in the number of journals across the 13 disciplines, with Medicine containing the most journals (3,275, accounting for 36.42% of all journals) and involving the most WC fields, followed by Engineering Technology and Biology. This indicates that CAS JCR's broad disciplinary classification method is unbalanced. In Management Science and Social Sciences, the average number of WC fields per journal exceeds 2, suggesting that over half of the journals in these two disciplines are assigned to two or more disciplines in WoS.

2 Library Subject Evaluation Services

2.1 Content of Subject Evaluation

Subject evaluation reports are the most important component of library subject evaluation services, including disciplinary competitiveness analysis reports, disciplinary frontier reports, and ESI subject analysis reports. While there are currently no unified standards for report content and format, they can all be divided into three aspects: evaluation purpose, evaluation content, and evaluation results. Evaluation content includes selection of evaluation objects, setting of evaluation indicators, data acquisition and processing, and selection of analysis tools. Evaluation results present in-depth analysis of data based on evaluation indicators, supplemented by intuitive charts and graphs, with key conclusions possibly given at the beginning of the report.

Clarifying the evaluation purpose is the primary task in completing subject evaluation, which is closely related to the service target. Therefore, subject evaluation reports can be categorized into management decision-making type and scientific research type according to service targets. Based on evaluation scope, they can be divided into macro-level comparisons between different institutions and micro-level studies focusing on a specific discipline within the institution. Management decision-making reports, primarily for administrators, focus on comparing disciplinary development levels across institutions (macro-level). Scientific research reports, mainly for researchers, emphasize exploring disciplinary frontiers or research status of specific institutions (micro-level).

Analysis content can address several aspects: disciplinary research achievements, publications, and research teams. Specifically, this includes overall paper output analysis, overall research impact analysis, research collaboration analysis, scholar paper output analysis, and scholar paper impact analysis. When selecting benchmarking institutions, recent disciplinary or university rankings are typically used, such as disciplinary evaluation results published by the Ministry of Education, ESI subject rankings, and the world's four most influential rankings (ARWU, US News, QS, and THE).

2.2 Methods of Subject Evaluation

Subject evaluation methods mainly include qualitative and quantitative approaches. The four world-recognized disciplinary rankings all combine qualitative and quantitative methods. Considering data accessibility and timeliness of subject evaluation reports, libraries mostly adopt quantitative evaluation methods based on bibliometrics. Bibliometric-based subject evaluation takes a discipline's literature system as its research object, using mathematical and statistical methods to discover disciplinary characteristics and development patterns through literature system features [2]. Research shows that except for THE World University Rankings, literature metrics account for over 60% of the indicator systems in the other three major world disciplinary rankings [3], demonstrating that bibliometrics is an important method for subject evaluation.

Appropriate evaluation indicators and accurate data are key to bibliometric subject evaluation. Each ranking has its own indicator system and specific data sources. For example, ARWU data comes from WoS, with indicators including total papers, normalized paper impact, international collaboration ratio, top journal papers, and faculty awards. QS rankings use Scopus data, with indicators including academic reputation, employer evaluation, average citation rate, and H-index [4]. Authority and comprehensiveness of data are important considerations when selecting data sources for subject evaluation. Commonly used domestic sources include CSCD, CSSCI, and CNKI, while international sources include WoS, JCR, ESI, DII, Scopus, and EI. Libraries should set different weights for different disciplines based on actual disciplinary development conditions. For instance, humanities and social sciences disciplines emphasize SSCI or CSSCI paper quantity and impact, while natural sciences focus on SCI paper statistics. Common bibliometric indicators include paper output, citation impact, high-level papers, source journal quality, and international collaboration. Wu Aizhi and Xiao Long et al. [5] conducted disciplinary competitiveness evaluation research using Peking University as an example, forming a comprehensive indicator system that reveals both research performance and development trends, providing reference for domestic libraries' subject evaluation work.

3 Analysis of the Impact of Disciplinary Classification Differences on Library Subject Evaluation Services

3.1 Research Status

Subject evaluation is a broad concept, also referred to as disciplinary competitiveness evaluation, with many similarities to disciplinary assessment and ranking. Literature retrieval in CNKI shows an increasing annual trend, particularly with explosive growth after the 2015 "Double First-Class" construction announcement. Research directions mostly involve theoretical discussions of evaluation systems from educational or managerial perspectives, or using ESI, InCites and other tools to explore disciplinary development and practice subject evaluation in library and information science. Analysis of research content reveals many problems in subject evaluation, such as undifferentiated evaluation indicators and weights across disciplines and defects in using ESI for evaluation, all related to disciplinary classification systems. However, current domestic research on the impact of disciplinary classification differences on subject evaluation is limited. Some papers mention that disciplinary classification effects should be considered during evaluation but lack detailed elaboration [6] or empirical research [7]. Only Chen Yu from China Agricultural University [1] has made substantial efforts in this area, conducting detailed research on the disciplinary classification systems of WoS and Scopus and empirically analyzing the impact of classification differences on academic competitiveness evaluation from three dimensions: academic productivity, academic impact, and comprehensive academic competitiveness, providing reference for data source selection. International literature shows that WoS and Scopus are scholars' main research

objects. Although their evaluation results already have strong credibility, some scholars question the accuracy of their journal classifications [8-9], reminding us to view various third-party evaluation results dialectically.

Additionally, literature review reveals that while research on the impact of disciplinary classification on subject evaluation is scarce, numerous studies address its impact on journal evaluation. These can be divided into two aspects: first, empirical verification that journal classification 合理性 directly affects the scientific validity of journal evaluation results [10-11]; second, using clustering and other computational techniques to propose improvements to existing journal classification systems [12]. While seemingly unrelated to subject evaluation, these studies have far-reaching implications because analysis of source publications is an important component of subject evaluation. Some scholars [13] have proposed methods for classifying researchers' disciplines based on their research achievements, first establishing mapping between the Chinese Library Classification system and Ministry of Education first-level disciplines, then using paper classification numbers to map to first-level disciplines, and finally determining researchers' disciplinary affiliation through weighted statistics. This method provides ideas for improving the accuracy of researcher disciplinary classification and indirectly reflects that disciplinary classification affects subject evaluation.

In summary, current research lacks detailed analysis of disciplinary classification differences across several commonly used subject evaluation tools and empirical revelation of their impact on subject evaluation, indicating that disciplinary classification differences have not received sufficient attention. Therefore, this study not only provides reference for database selection in subject evaluation but also offers new perspectives on library subject services.

3.2 Empirical Study—Case of Tianjin Normal University

At Tianjin Normal University, chemistry is the only discipline ranked in the top 1% of ESI and, according to the university's 13th Five-Year Plan, is targeted for elevation to world-class status. Therefore, chemistry is a key discipline for library subject evaluation, and evaluation accuracy plays an important role in disciplinary development. Using database disciplinary categories as search conditions is a common literature retrieval method, particularly when comparing similar departments across universities where institutional nomenclature cannot be fully clarified. This paper uses Tianjin Normal University's chemistry discipline as an example, retrieving literature published between 2009-2019 from WoS, Scopus, and ESI databases and conducting statistical analysis according to subject evaluation indicators, as shown in Table 5 .

Table 5 Statistics of Tianjin Normal University Chemistry Discipline

Database	Papers (count)	Journals (count)	Total Citations	Citations per Paper	H-index
WoS	1,153	185	14,088	12.22	56

Database	Papers (count)	Journals (count)	Total Citations	Citations per Paper	H-index
Scopus	1,129	183	13,580	12.03	56
ESI	1,072	-	11,234	10.48	-

Search date: June 14, 2019

3.2.1 Impact on Research Output Analysis Evaluation indicators for research output analysis include total paper output and annual output. Table 5 shows that WoS retrieved the most papers, while ESI retrieved the fewest, though the difference between WoS and Scopus is not substantial. Figure 3

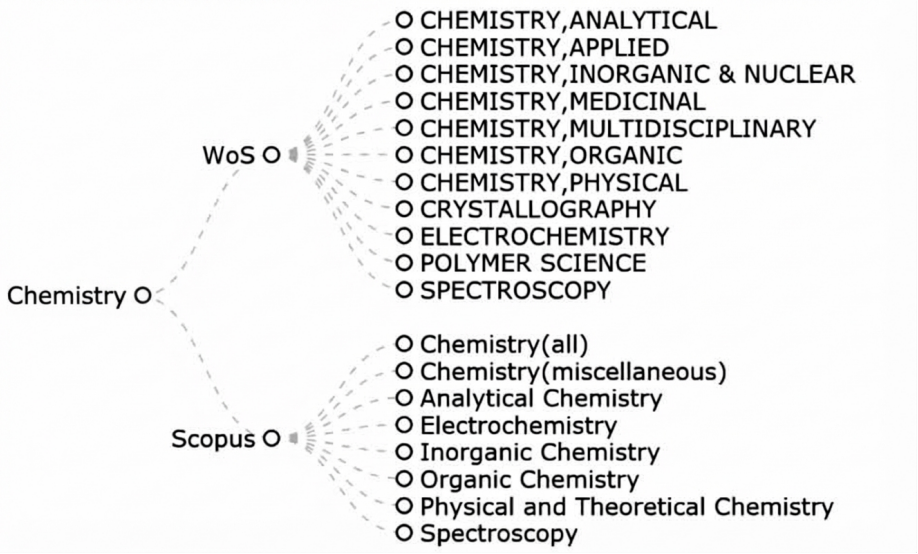

Figure 1: Figure 3

displays the temporal distribution of papers retrieved from WoS and Scopus over the past decade, reflecting the annual publication trend of Tianjin Normal University's chemistry discipline. The overall trends from both databases are similar, but closer examination reveals opposite trends in some years. For example, from 2011-2012, WoS showed a downward trend while Scopus showed an upward trend; from 2015-2017, WoS consistently declined while Scopus first declined then rose. These differences between data sources can lead to inaccurate research output statistics and consequently inaccurate subject analysis results. Moreover, when selecting benchmarking institutions, we often blindly follow ranking results without fully understanding each ranking's indicator system or analyzing differences between data sources, raising questions about the rationality of benchmarking selection.

In the ESI database, the chemistry discipline can be directly selected as the "CHEMISTRY" research field. However, WoS and Scopus have many more disciplinary categories that differ from China's Ministry of Education disciplinary classification. Coupled with librarians' incomplete understanding of the disciplines being analyzed, important categories may be overlooked when selecting disciplines. Particularly in WoS, where there is no hierarchical structure, selecting chemistry disciplines might only include the seven categories: CHEMISTRY, ANALYTICAL; CHEMISTRY, APPLIED; CHEMISTRY, INORGANIC & NUCLEAR; CHEMISTRY, MEDICINAL; CHEMISTRY, MULTIDISCIPLINARY; CHEMISTRY, ORGANIC; and CHEMISTRY, PHYSICAL, while neglecting four important chemistry sub-disciplines: CRYSTALLOGRAPHY, ELECTROCHEMISTRY, POLYMER SCIENCE, and SPECTROSCOPY, resulting in inaccurate research output data. Therefore, a relatively complete disciplinary mapping relationship should be established before subject analysis. This paper draws on the mapping relationship between Ministry of Education first-level disciplines and WoS disciplinary categories in the InCites database to establish mapping relationships between WoS and Scopus databases and the chemistry first-level discipline, as shown in Figure 2

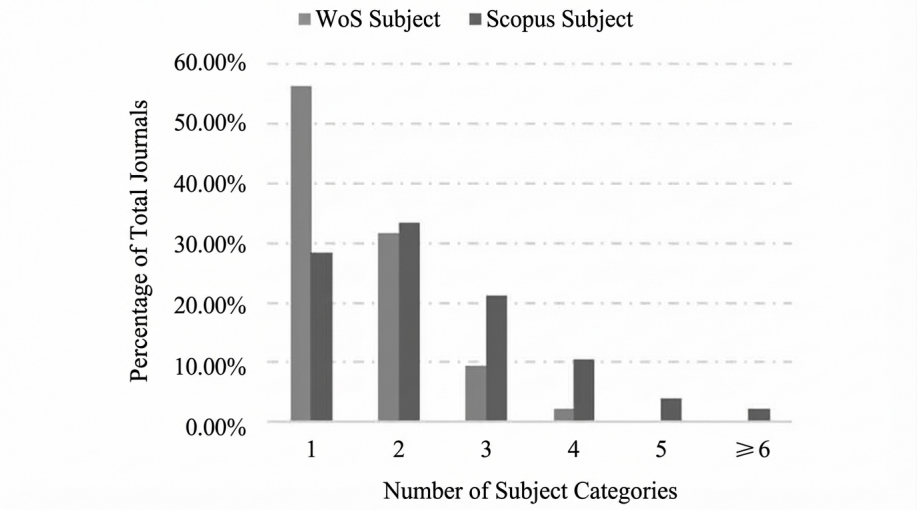

Figure 2: Figure 2

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3.2.2 Impact on Research Impact Evaluation Paper quality is an important aspect of measuring research impact, and citation analysis indicators can directly reflect paper quality, including total citations, citations per paper, and H-index. Table 5 shows that WoS and Scopus retrieved the same H-index of 56, indicating relatively few highly cited papers in the university's chemistry discipline. However, WoS shows higher total citations and citations per pa-

per than Scopus and ESI, particularly in total citations where the three differ significantly, which may lead to different disciplinary ranking results.

Journal impact is another important aspect of research impact evaluation. High-level journals not only have relatively higher paper quality but also reflect the latest research frontiers and development trends. The 1,153 papers retrieved from WoS were distributed across 185 journals, while the 1,129 papers from Scopus were distributed across 183 journals. To understand journal impact, the 2017 Journal Impact Factor (JIF) from JCR and CiteScore values from Scopus were used for further analysis. After removing journals without 2017 impact factors or CiteScore values, 172 and 168 journals were obtained respectively. Table 6 statistics show the number of journals and papers in each impact factor range, revealing that most journals where Tianjin Normal University's chemistry discipline publishes have JIF/CiteScore below 5, indicating room for improvement in overall publication quality. Papers published in high-impact journals and their authors particularly attract subject analysts' attention, but Table 6 shows significant differences between the two databases. For example, the highest-impact journal in WoS data is *ADVANCED MATERIALS* (JIF 21.95) with 5 papers from the chemistry discipline, but this journal does not appear in Scopus data.

These statistical differences relate not only to database disciplinary classification methods but also to journal coverage scope. Based on the above analysis, 124 journals common to both databases' chemistry classifications were identified. However, of the 168 journals in Scopus, 158 are included in WoS, meaning 34 of these 158 journals do not belong to WoS chemistry disciplines. Additionally, the same journal shows different paper counts between databases, with 16 of the 124 common journals exhibiting this problem. *APPLIED SURFACE SCIENCE* shows the most significant discrepancy, with 17 papers counted in WoS but only 2 in Scopus. These factors can lead libraries to draw different conclusions in disciplinary impact evaluation.

Table 6 Source Journal Statistics

JIF/CiteScore Range	WoS Journals	WoS Papers	Scopus Journals	Scopus Papers
15-19.99	1	5	0	0
10-14.99	3	10	2	6
5-9.99	17	89	14	76
4-4.99	11	61	9	48
3-3.99	22	125	21	120
2-2.99	35	210	34	201
1-1.99	83	453	88	478

3.2.3 Impact on Researcher Evaluation Subject evaluation inevitably includes analysis of researchers, particularly those with outstanding performance. Analysis typically focuses on their research output and impact, encountering the same issues discussed in sections 3.2.1 and 3.2.2. With the development of

interdisciplinary research, researchers' directions change. For example, papers by chemistry faculty at Tianjin Normal University in WoS are not limited to the previously retrieved disciplinary categories but also involve Materials Science, Multidisciplinary and Physics, Applied. Incomplete data retrieval prevents accurate assessment of researchers' positions within disciplines. Table 7 lists several chemistry faculty members' publication records from the 1,153 WoS retrieval records versus their actual SCI publication records.

Table 7 Comparison of Chemistry Discipline Publication Records vs. Actual Publication Records

Author	Chemistry Discipline Records	Actual Records
	Papers	Total Citations
ZHANG**	48	2,307
FENG*	23	402
XUE**	18	315

Search date: June 18, 2019

Analysis reveals that for researchers with high output in their primary discipline and low output outside it, discipline-based retrieval has minimal impact on evaluation (e.g., the first author in Table 7). However, when researchers' output in other disciplines constitutes a large proportion of their total output, there is significant impact on both productivity and impact evaluation (e.g., the last three authors in Table 7). In these cases, statistics based on chemistry discipline are substantially lower than actual data across all metrics: paper count, total citations, citations per paper, and H-index. Therefore, evaluating researchers based on WoS chemistry discipline statistics would yield unfair results.

Inaccurate evaluation results may lead to unfair treatment of researchers, particularly in matters involving 职称评定 (professional title evaluation) and performance rewards. In summary, inaccurate subject evaluation results not only fail to promote disciplinary development but also reduce user trust in libraries and hinder the continuation of library subject services.

4 Recommendations and Countermeasures

Since disciplinary classification differences cannot currently be avoided, we must find ways to minimize their impact on subject evaluation. The most direct solution would be adopting a unified classification system, as Australia has done by mandating the FOR classification system for all research evaluation. However, China has multiple disciplinary classification systems at the educational and research levels that differ completely from literature classification systems in databases, making unified adoption impractical. The author proposes the following recommendations from the library perspective.

4.1 Establish Mapping Relationships Between Databases and Ministry of Education First-Level Disciplines

To enhance interoperability between different classification systems, disciplinary mapping is essential. The *Catalog of Disciplines for Degree Authorization and Talent Training (2011)* first-level disciplines should be selected as mapping targets because this catalog serves as the national basis for degree authorization review, disciplinary management, and talent training, as well as the disciplinary classification framework for Ministry of Education evaluations. While mapping cannot eliminate the impact of database classification differences, it can improve recall and precision in research output statistics. Additionally, database disciplinary classifications typically represent the latest research directions, and mapping them to Ministry of Education first-level disciplines can help adjust disciplinary directions. The InCites database provides mapping between WoS categories and China's Ministry of Education first-level disciplines, though practice shows that adjustments based on the specific institution being analyzed are needed for more accurate results [14].

4.2 Understand Disciplinary Classification Differences and Rationally Select Data Sources

Each information resource has inherent characteristics, with different standards and limitations for literature inclusion. Understanding the features and disciplinary classification systems of commonly used information resources will help ensure data accuracy and enable rational interpretation of third-party rankings, ensuring reasonable benchmarking institution selection. Subject evaluation, journal evaluation, and researcher evaluation based on bibliometrics have different purposes but are all affected by disciplinary classification differences. The most appropriate classification method should be selected based on analysis purpose. For example, when using WoS database to compare researchers' research output, the WoS classification system rather than ESI should be used for more precise comparison of research impact.

4.3 Change Retrieval Strategies to Ensure Comprehensiveness and Accuracy

When analyzing institutional research performance, statistics are typically generated using institutional or school names as search terms. However, since university structures differ across institutions, completely clarifying address expression patterns of benchmarking institutions seems impossible. Therefore, "institution name + disciplinary category" is commonly used for comparative analysis of similar departments across universities. This approach can also be used for internal institutional analysis to help researchers identify potential collaborators, particularly in highly interdisciplinary fields where collaboration across different specialties within the same institution can lead to research breakthroughs. However, this method has drawbacks, such as reducing researchers' apparent output. Perhaps a combination of both approaches could achieve comprehen-

sive and accurate retrieval. Additionally, if researchers adopt standardized and uniform address expression patterns, it will help improve statistical accuracy.

Since data sources for subject evaluation are increasingly diversified, in addition to the information resources mentioned, numerous online resources exist such as CNKI, *Encyclopedia Britannica Online* (EB), Wikipedia, and Baidu Baike. However, these resources lack widely recognized disciplinary classification standards, creating challenges for their rational use in generating accurate subject evaluation reports. This paper elaborates on disciplinary classification differences among commonly used databases from the perspective of journal mapping and empirically analyzes their impact on library subject evaluation, providing reference for future library subject services. However, this study has limitations: first, the small sample size in the case analysis may yield partial results; second, although CAS JCR classification was mentioned, its impact on subject evaluation has not been thoroughly investigated.

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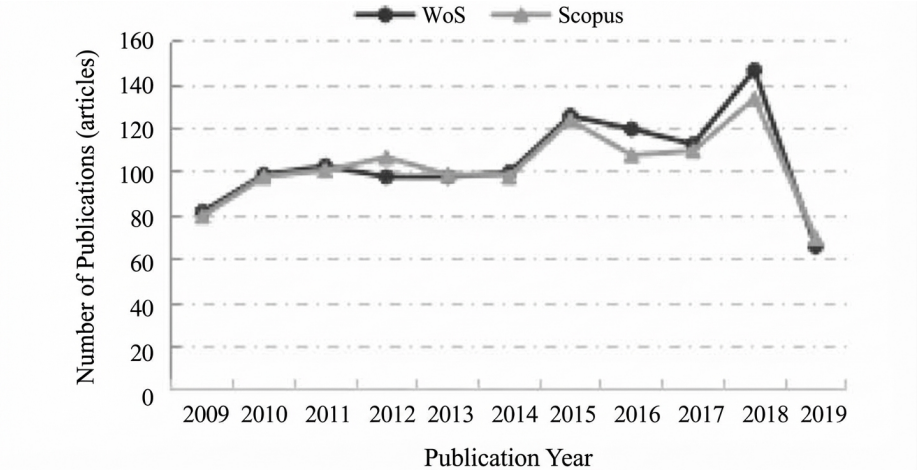

Figure 3: Figure 4