

Electronic coding and filing system

An electronic coding and filing system for manuscripts received for comprehensive review and editing facilitates efficient handling of papers. This system can be developed into an online submission system linked to an editing management system. An example of an electronic coding and filing system is presented below.

Upon receipt of a new manuscript, a coordinator checks and saves the manuscript and all accompanying files in a folder and labels the folder with a code number. An acknowledgement of receipt and information on the delivery date are then sent to the author.

An example of a code number for a paper is **10-8-1-3**, which denotes the year (2010 = **10**), month (August = **8**), ordinal sequence number (first manuscript received that month = **1**) and academic editor number (eg 1, 2, 3, 4). Therefore, the first paper that is received for editorial review in August 2010, initially edited by academic editor 3 is given the code number **10-8-1-3**.

Following this, the author's surname is added after the code number (eg **10-8-1-3 Dr Honda**), and the folder is filed electronically on a network hard disk drive. The coordinator then sends an email to all academic editors informing them that the paper is ready for review and editing. An example of an electronic coding and filing system is presented in Fig. 3.

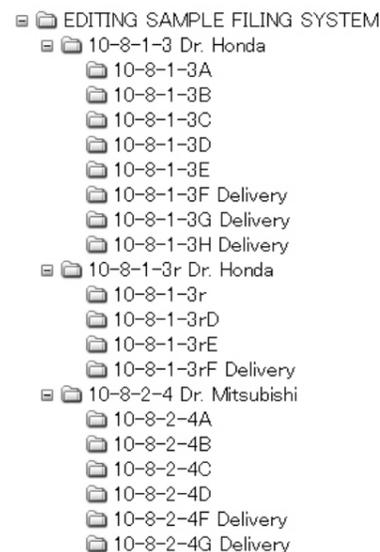


Fig. 3. Electronic coding and filing system model

Editing stages, re-editing and express requests

Ideally, the academic editorial team should be composed of tenured faculty members who are language and medical experts. An adaptable model of the editing, re-editing and express editing stages is presented below.

Editing stages

The comprehensive review and editing of an academic paper can be divided into multiple stages: each stage can include multiple reviews.

For example, for **Stage A**, inside the **10-8-1-3 Dr Honda** folder, the first academic editor makes a new folder and labels it **10-8-1-3A** for the first stage of editing. All files for editing are placed by the first academic editor in this **10-8-1-3A** folder and all files for reference only (eg editing request application form or illustrations for reference only) are left inside the main folder but outside the **10-8-1-3A** folder.

All documents to be edited in this **A** folder are assigned the same code number followed by 'A' and the type of file (ie **10-8-1-3A Text**). Other types of file name may include 'Figures', 'Slides', or 'Cover letter'. Comprehensive review and editing is then performed using the 'track changes' function of Microsoft Word (Microsoft, Seattle, WA, USA).

For **Stage B**, the entire **A** folder is copied and renamed as **10-8-1-3B**, and all edited files are reviewed and rechecked.

For **Stage C**, the **B** folder is copied and labelled as **10-8-1-3C** and another review of all the edited files is done.

Stages A-C are completed by the first academic editor (ie a language expert) who comprehensively edits mainly for *style and format, syntax and language*.

For **Stage D**, the **C** folder is copied and renamed as **10-8-1-3D**. At this stage, the paper goes to the second academic editor, who is a medical expert. This person is a tenured faculty member of the center who is either a medical doctor or an expert with advanced medical or biomedical degree and academic status. Medical experts act as pre-reviewers, performing a comprehensive review and quality check of a paper.

For **Stage E**, the **D** folder is copied and renamed as **10-8-1-3E**. This last stage is completed by a third academic editor, either a language or medical expert, who makes a final review and assessment of the overall impact of the paper.

Queries are resolved with the authors at a mutually agreed time. The consultation process allows the centre to cover all areas of expertise by enabling its editors to clarify any uncertainties. Once the queries are addressed, corrected portions are incorporated into the **Stage E** documents, which show all track changes up to that point.

Final files can be presented to the authors in PDF format with the track changes along with Word files with accepted changes. All PDF and "clean" Word files are then saved in an **F** folder for delivery to the authors. The final files are then sent to the authors who complete the online submission to a journal.

Re-editing and express requests

When the author requests re-editing after peer review, the same code number of the paper is used but an 'r' letter is added, denoting re-editing (eg **10-8-1-3r**). In the re-review and re-editing process, the same stage-based system as that for the first submission is used. If the paper is returned for further re-review and re-editing, another 'r' can be added (eg **10-8-1-3rr**). If an express service is requested, an 'e' letter is added to the code number (eg **10-8-1-3e**).

Advantages of the editorial services

Firstly, e-editorial services presented here enable *personalised consultation* throughout the writing. The process allows discussing uncertainties before contacting a journal. This mode of consultation is endorsed by Benfield and Feak.¹² It yields a high-quality revision.¹³ Secondly, authors receive comprehensive editorial support at all stages. Thirdly, authors can get assistance for online submissions and preparation of ready-to-deliver files. Fourthly, the editorial review, follow-up and support by editors generate data that can be used to further improve the authors' writing skills. Finally, each paper is comprehensively reviewed and edited by a team of linguists and medical experts.

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Competing interests

None declared

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Tracking historical papers and their citations

Werner Marx

Max Planck Institute for Solid State Research,
Heisenbergstraße 1, D-70569 Stuttgart, Germany
w.marx@fkf.mpg.de

Abstract The multidisciplinary Web of Science® (WoS), in particular the WoS Century of Science archive, and some other databases enable tracking historical papers published before 1960. With historical papers we enter an area of completely different publication and citation culture. There are a number of factors making the search for historical papers a daunting task: limited coverage of journals, limitations of specific subject fields, complex author names, complicated journal titles, database errors, etc. Applying bibliometrics to historical papers, ie counting citations as a measure of the impact, may require careful consideration of a large proportion of erroneous citations. It is also necessary to apply time adjustment of the citation counts.

Keywords Historical papers; citation analysis; literature search; errors; bibliometrics; physics.

Introduction

Century of Science back files launched by Thomson Reuters in 2005 expanded coverage of Web of Science® (WoS) back to 1900.¹ Some specialised literature databases such as Chemical Abstracts Service (CAS) database for chemistry and INSPEC database for physics, electronics and computing also switched to the coverage of sources dating back to 1900 and even earlier.²

The availability of bibliographic information of old journal items and their citations in WoS permits investigation of the differences in publication and citation cultures over time and to comprehensively evaluate the citation-based impact. The results of the investigation are important for researchers, particularly historians of science, frequently referring to and analysing historical papers.

There are some limitations of the search for these papers and counting their citations as a measure of the impact: incomplete coverage of relevant journals, patchy coverage of WoS-indexed journal items, limitations inherent to specific search fields, database errors, translation errors, misspelled references, variations of author names, complicated journal names, etc.^{3,4,5} There are also some phenomena limiting value of citation counts as a measure of the scientific impact. Long-ago publication cultures differ substantially from those in our time.

Publication of research papers in different time periods

Archives of available databases reveal differences in publication records over time. For example, sources in physics listed in INSPEC database slowly increased from 2,500 items in 1900 to 10,000 in 1950. Over the period between 1950 and 2010, however, the number of the items

multiplied and reached a level of 700,000 in 2010. The items published between 1900 and 1950 constitute just 2% of the total number of items indexed between 1900 and 2010. The year 1960 is particularly important for separating two time zones of research productivity and citation rates. This time point is also applicable to distinguishing citation counts of most highly-cited historical papers, for example the famous papers by Albert Einstein on the Special and the General Theory of Relativity.⁶ The change in citations is more pronounced in the cumulative plot. Similar time-dependent features of citations are evident in BIOSIS and CAS databases, though in the case of chemical literature the role of the year 1960 is not so prominent (Figure 1).

To a certain extent, the time zone before 1960 can be seen as the period of “little science” with “big science” after 1960.⁷ Interestingly, the shift from “little science” to “big science” coincides with the so-called Sputnik shock caused by launching the first satellite by USSR in 1957.⁸ In response to the shock, Western countries allocated a tremendous amount of funds to research, resulting in a substantial rise in publications in physics, space and military sciences.

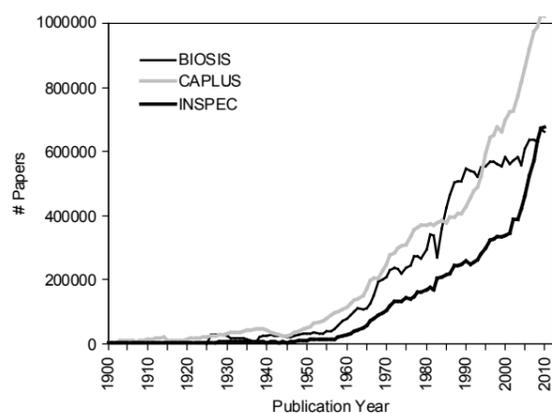


Figure 1. Time-dependent changes in publications covered by BIOSIS (papers in biology), CAPLUS (chemistry) and INSPEC (physics). Source - STN International²

Databases listing historical papers and tracking citations

Century of Science of WoS is the most comprehensive source for listing historical papers and tracking their citations. WoS offers general and cited reference search options. The general search retrieves all papers published since 1900 in more than 11,000 WoS-indexed journals. The cited reference search provides access to all source items cited in the WoS-indexed journals. These citations, however, may contain errors. The cited references are not limited to papers and include other published items such as books.

The SciVerse Scopus⁹ database is also increasingly covering old literature, but counts citations since 1996 only.⁹ Google Scholar⁹, CAS and INSPEC contain relevant papers, particularly those published since the end of the 19th century. Google Scholar covers citations before and after 1996 but without clear time specification. The other databases track citations from 1996 onwards.

Limitations and errors of listing and citing historical papers

There are some limitations and errors of listing and citing historical papers. It is primarily due to incomplete coverage of journal issues. As an example, not all old volumes of the prestigious journal *Philosophical Magazine* are listed in WoS.

The gaps in the literature coverage may have political reasons. For example, information on English editions for 1950 of *Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki* (*Journal of Experimental and Theoretical Physics*), published in the USSR and indexed by WoS, are missing. The year 1950 marks the beginning of the Cold War, when all Soviet publications were either formally or informally banned.¹⁰

Incorrect coverage of most Soviet and Russian journals is also due to the variations and misspelling of the authors' names and citing sources in non-Roman scripts. As a result, citation counts of Russian and English editions of the same sources differ, accounting for up to 30% difference.¹⁰

Author name variants are also a big issue for German historical papers, particularly when “vons” and “vans” appear as part of the names.

Another source of incorrect listing of historical papers is due to database errors and the reliance on scanned versions of old printed editions. Databases may incorrectly list the original language of the journals (eg *Angewandte Chemie*,¹¹ *Zeitschrift für Metallkunde*¹²). Information is missing due to errors in the links between cited references and the corresponding database records. In fact, many references to *Philosophical Magazine* do not include volumes or page numbers, and the references are not linked to the corresponding WoS source records (eg E. Rutherford, *Philosophical Magazine*, May 1911).

Translations may also add some errors and result in a loss of information. In the beginning of the 20th century, many leading scholarly journals were published in non-English languages (eg *Annalen der Physik*, *Physikalische Zeitschrift*, and *Zeitschrift für Physik*). For indexing purposes, titles of these publications are translated into English. However, the translation is usually not up to a high standard and is inconsistent.

Many old journals changed their titles, abbreviations of the titles, and split and merge different series or sections under the same main title. It can also be a source of errors.

Bibliometrics of historical papers

Sometimes it is necessary to trace works of Nobel laureates and other eminent scientists in online databases and to count citations of seminal works. The latter is of interest for illustrating basic laws of bibliometrics.

Research productivity and citation counts are sometimes used for comparisons between old and modern scientists based on the *h* index values. However, one should bear in mind the differences in the readership, publication and citation records in the periods of “little” and “big science”.⁶ The latter leads to the need for time adjustment of citation counts of historical papers.⁶

The analysis of citations of historical papers reveals the phenomenon of “sleeping beauties”¹³ – low citability in early years after publication and delayed growth of citations. The Mie paper is one such example¹⁴.

Implications of misspelled citations

“Reference mutations” are common with historical papers.¹⁵ The earlier publication year, the higher likelihood of these “mutations”. If a reference to a historical paper is misspelled by an eminent author or in a highly-cited paper, future errors may substantially increase.¹⁶ It is the case when the authors copy and cite references without accessing primary sources. Approximately 5-10% of all citations in the reference lists of WoS are erroneous because of incorrect publication year, volume and page numbers.¹⁷ Errors in author names account for an additional 7% of errors.¹⁸ Some historical papers are erroneously cited in up to 80% of cases.^{5,19}

Factors limiting the use of citations as a measure of impact

The following two crucial factors should be considered: 1) “informal” or “implicit citations”, mentioning an author's name or name-based items rather than full references, and 2) “obliteration by incorporation”.

Seminal papers are often cited by referring to the authors' names (“informal citations”) instead of citing full references, “formal or explicit citations”.²⁰ As a result, solely relying on formal citations may diminish the impact of a seminal paper.

Seminal works are often subject to “obliteration by incorporation” described by sociologist Robert K. Merton.^{21,22} The obliteration affects first of all groundbreaking papers rapidly being incorporated into the body of the literature such as textbooks, becoming increasingly popular in the scientific community, but, as a result of this canonisation, falling short of full citations in future papers.

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