SERIES
TIPS FOR RESEARCHING IN THE FIELD OF ALLERGY
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Efficient bibliographic searches on allergy using ISI databases

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ABSTRACT

The aim of this article is to provide an introduction to using databases from the Thomson ISI Web of Knowledge, with special reference to Citation Indexes as an analysis tool for publications, and also to explain the meaning of the well-known Impact Factor. We present the partially modified new Consultation Interface to enhance information search routines of these databases. It introduces distinctive methods in search bibliography, including the correct application of analysis tools, paying particular attention to Journal Citation Reports and Impact Factor. We finish this article with comment on the consequences of using the Impact Factor as a quality indicator for the assessment of journals and publications, and how to ensure measures for indexing in the Thomson ISI Databases.

Key words: Thomson ISI Databases, Web of Knowledge, Web of Science, Science Citation Index (SCI), Journal Citation Reports (JCR), Impact Factor.

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INTRODUCTION

Citation Indexes, A New Dimension in Documentation

The subject heading of this section refers to an article by Eugene Garfield[1] published in 1955 which is generally considered to be the starting point of a new concept to bibliographical databases and their use in the search for references. This led to the proposal and the creation of Citation Indexes. A citation index is a reference database (Medline is one example), yet more integrative multidisciplinary indexes of biblio-

graphic information (title, abstract, author) were needed, as well as cited references of articles of published research work for each of these registry systems. It pulls out references and automatically generates citation indexes. In addition, it provides the opportunity to obtain information to evaluate scholarly journals, research work, and information about other authors or institutions working on particular topics of interests. This information is unavailable with traditional reference databases. Moreover, bibliometric experts can use it as a means for evaluating departments; disciplines; research performance among investigation groups in academic settings; and possibly for clinical investigators.

In this article we review the *Web of Knowledge*, and we study the more important citation indexes included in the *ISI Web of Science*. We also explain the most important reference update, *Current Contents Connect,* and finally, we study the possibilities the Thomson *ISI* databases provide for analysis and evaluation of publications.

What are The Web of Knowledge and The Web of Science?

The ISI *(Institute for Scientific Information)* was originally founded by Garfield in 1958. Shortly afterwards, in 1961, the *US National Institute of Health* asked the ISI to create the first reference index; *Genetics Citation Index,* which successfully gave rise to the initiation of the well-known *Science Citation Index (SCI)* (1963). Other important ISI products are the *Social Sciences Citation Index (SSCI)* (1973), *Arts and Humanities Citation Index (AHCI)* (1978).

A turning point in the history of ISI and the access to scientific information occurred in 1992 with the takeover of ISI by the Department of *Thomson Business Information* of the Thomson Corporation which today is identified as the leading company in commercialization of information products. Thomson ISI formed, launched, and marketed the Web of Science in 1997 and the Web of Knowledge in 2001. The Web of Science (WoS) provides web access to the three ISI Citation Indexes mentioned (Science, Social Sciences, and Arts & Humanities). It provides information on papers published in specialized journals (but not all) in the various branches of the sciences, including social sciences, arts and humanities. We are especially interested in the Science Citation Index (SCI). It includes records relating to Medicine, Neuroscience, Oncology, Paediatrics, Pharmacology, Psychiatry, Surgery, etc. It is sometimes appropriate to use the Social Sciences Citation Index, which contains specialized information registries like Psychology, Psychiatry, or Public Health, among other social sciences which could be of interest for health professional practice. The volume of available information is enormous[2]: The Science Citation Index alone includes 6,126 journals that provide 22,200 new registries weekly, so it is an outstanding registry because it includes entries of cited references to an article in the journal, so it can extend the amount to an additional 420,600 references weekly.

The Web of Knowledge (WoK) overtakes the Web of Science, and it offers large new databases and analysis tools.

What elements constitute the Web of Knowledge?

The WoK is a platform that allows Internet access to high quality information sites which connect bibliographic databases and analysis tools. Although the WoK does not have its own resources specifically dedicated to medicine or related specialities (with the exception of *CC Clinical Medicine*, which will be briefly mentioned) it has resources whose contents are related to science in general (eg. the SCI), including health sciences. Moreover, among the external resources that can be accessed from this platform is MEDLINE, which is not studied in this paper and has already been the object of a monographic article[3].

Among the resources we would like to highlight the *Web of Science,* which includes a set of databases all of which have already been mentioned. Other resources offered by the WoK and which are not the focus of this paper include:

– *Current Chemical Reactions* (1986-present) and *Index Chemicus* (1993-present), devoted to chemistry.

– *Derwent Innovations Index* (1980-present) is a tool that provides information on patents issued by authorities all over the world.

– *ISI Proceedings* (1990-present) which collects bibliographic information from publications, symposia, conferences, seminars, workshops and conventions.

A further resource to mention is *Current Contents Connect* or *CC Connect* (1998-present). This is a resource which is regarded as a watchdog that has the possibility to view the table of contents of journals and books indexed; to evaluate web pages; to construct complex searches; and to receive weekly e-mail alerts. It includes nine collections, one of which is specifically devoted to Clinical Medicine. This is the only resource specialized in medicine that

in many occasions can relate to publications on biology, life science, chemistry, engineering etc. with a particular subject relevant to the doctor's interest. The edition of *CC Clinical Medicine*, informs on the contents of 1,227 journals and 524 books, and is updated daily.

Current Contents has three additional aspects that may be of interest. It includes prestigious renowned books, and allows you to view the table of contents of a book and its authors. Moreover, it allows browsing indexes of journals of interest to see the contents. Last but not least, the advantage of having the author's address (eg. postal address, e-mail) is that different authors may share the same last name and initials (Fig. 1). Thus, the view address information helps us to determine if all of the records found are from the author desired and it will also help us to request a reprint from the author if we do not have access to the full text.

How can the ISI Web of Knowledge be accessed?

Access to the *WoK* or any of its resources is only available by subscription. The Spanish government, like that of other countries, maintains a contract with Thomson Corporation, which makes it possible to access these resources on the Internet of public institutions dedicated to, or engaged in research.

This leads to the home page as shown in the sample in Figure 2. This page substitutes the *Cross Search* of the old interface and allows to search all resources simultaneously, as shown in the active tab in the image. The link "*Sign in*" at the top of the page allows the user to register, but it is not necessary for occasional searches. Nonetheless, for frequent users it has certain advantages such as the ability to save searches on the server, create customized lists of journals, and activate an alert service.

Search terms [4]

The WoK lacks a language control vocabulary similar to that of MeSH of the National Library of Medicine (NLM), (USA), therefore the user must pay special attention to the selection of the keywords used for the search. Sometimes, it can be useful to refer to the thesaurus in MeSH or DeCS, in order to seek out possible new terms to employ.

For example, if one is interested in obtaining publications on allergy that appeared a year before, it is reasonable to use the term "allergy" in the search. We can make use of our experience in the selection of material in appropriate, significant, identical terms, but we also can search MeSH (NLM) with the entry "allergy" and obtain a result of a list of terms that we can use, for example, Hypersensitivity, Hypersensitivities, Allergies, Allergic Reactions. MeSH is a hierarchical family tree of descriptors. However, one may suggest different alternative terms or use more precise terms (or if appropriate, more general terms) in this search. Moreover, in order to avoid variability of the terms, we can use the following truncation symbols:

"*" replaces any string of characters. Thus "Allerg*" gives a selection that includes all the terms with the root Allerg- (ie. allergy, allergies, allergology, allergic…)

"$" substitutes one or no character. Thus "Service$" selects registries that contain the terms *Service* or *Services*.

"?" Substitutes as many characters as symbols used (one symbol "?" = one character, "??" = two characters, etc).

The search terms, whether truncation symbols or not, can be bound together with an operator that permits the creation of a complex sentence. In addition to the usual operators AND, OR and NOT, whose effect on the query terms is identical to that produced when used to query PubMed®, the operator SAME, interposed between two terms, selects the registry that contain both terms, either in the same sentence, in the title, in the abstract or in the same keywords phrase.

It is necessary to emphasize that, unlike PubMed that keeps search instruction executing from left to right, in the WoK the order of execution of instruc-

Figure 1.—Current contents screen showing the address of the reprint author.

tions is independent of the position of the operator, which in turn depends on the operator itself, and always executes SAME first, then secondly NOT, followed by AND, and then finally OR. We can thus write a search: A OR B AND C SAME D NOT E (where A, B, C, D and E are each one term used to select the information).

The serial result would be:

1. It executes SAME. This selects the records which contain terms C and D in the same sentence.
2. It executes NOT on the previous selection, and so excludes records that contain term E.
3. It executes AND thus selecting from the results of the previous selection only those records that contain the term B.
4. It executes OR. This adds all the records that contain term A to the previous selection, whether or not they meet the requirements of the previous three steps listed above.

Effectively, the sentence previously written is exactly equivalent to "C SAME D NOT E AND B OR A" read from left to right. If we wish the sentence to be performed in the same order as it is written, then we must use parenthesis (we must also bear in mind that the operator SAME must always unite two search terms, without inserting the parenthesis between the operator). Thus, ((A OR B) AND (C SAME D)) NOT E, or in other words:

1 It executes OR, which selects all records that contain term A, term B, or both.
2 It executes SAME, which selects all records that contain simultaneously C and D in the same sentence.
3 It then runs AND, which selects the records that meet requirements 1 and 2, that is to say, all records that contain the terms A, B or both, and also contain terms C and D in the same sentence.
4 It runs NOT, which excludes all the registries of the previous group that contain the word E.

Finally, it should be noted that since there is neither a controlled vocabulary, nor a process similar to the Automatic Term Mapping of PubMed, when a compound is used in the query (like eg. Immediate Hypersensitivity) the program never translates it into the corresponding descriptor, but selects, if any, the records containing it in the order in which they have been entered.

For example, this query (Immediate hypersensitivity) provides records containing the compound typed exactly, as:

Title: **Immediate hypersensitivity** to corticosteroids: Finding an alternative

Author(s): Rodrigues-Alves, R; Spinola-Santos, A; Pedro, E, et al.

Source: JOURNAL OF INVESTIGATIONAL ALLERGOLOGY AND CLINICAL IMMUNOLOGY Volume: 17 Issue: 4 Pages: 284-285 Published: 2007

Times Cited: 0

But records are also provided that contain the two words separately, but in the same order:

Title: Allergic skin disease: investigation of both **immediate**- and delayed-type **hypersensitivity** is essential

Author(s): Usmani, N; Wilkinson, SM

Source: CLINICAL AND EXPERIMENTAL ALLERGY Volume: 37 Pages: 1541-1546 Published: 2007

Times Cited: 0

Bibliographic databases included in WoK are reference databases which only provide identification of the publications, but not the publication itself. On occasions, it is possible to follow a hyperlink to the full text of the selected document, but this possibility does not depend on the actual database but on the subscriptions maintained by the institution from which we are using the resource.

HOW TO MAKE A SEARCH

The rules previously specified are applicable to various distinctive ways of search that we need to specify:

All Databases (Fig. 2) replaces the former *Cross Search* and allows doing a search simultaneously to all the resources of the WoK, from the entry screen. The image is self-explanatory: We have three search lines (this number can be expanded through *add to another field*), where we can write our intended strategy following the instructions of the previous paragraph. These lines can be extended with our selected operators, which we choose in the corresponding pull-down menu that appears at the left on each search line.

The pull-down menu on the right of each line allows us to direct the search to different fields (title, author, name of publication and year of publication and selection of topic direct the search towards the fields of title, keywords and abstract). On this screen, another pull-down menu at the bottom allows us to limit the search registries published within a specified period of time. Once the search is launched, the results screen will provide us with the opportunity (in the column to the left of the screen) to refine the search based on different variables.

Since we are working with resources that work under the idea of citation indexes, the fundamental difference with other databases is to be able to link us to the reference of the quoted publications of interests (provided its reference is included in any of the citation indexes), through *times cited*. When a publication cites another, it should, in principle, have a fair amount of common ground, this is an opportunity to expand our selection towards new relevant registries.

Select a Database: we select this tab identified on the screen of *All Databases* (Fig. 2). This is not really a search but a new screen that allows us to choose which resources we wish to consult. e.g. *Web of Science*

Basic Search: When we choose a resource in *Select a Database*, it leads to a new screen with an identical search menu to that described in *All Databases* (Fig. 2). The only difference is that the search will apply only to the specified resource, which can be further narrowed through the link *Change Limits* that appears at the bottom of the screen. Thus, if we have selected *Web of Science* the search will be made by default in SCI, SSCI and AHCI, but in addition, in *Change Limits* we can not only specify the time range in which we are interested in making the selection, but also exclude any of the three *Citation Indexes* that are part of WoS. If our choice has been *Current Contents Connect*, we could for example exclude eight of its nine collections to direct the search exclusively to *CC Clinical Medicine*.

Advanced Search: Once a resource has been chosen in *Select a Database* we select *Advanced Search*, then a new search screen (Fig. 3) will be opened where we can apply the rules set out above. We can carry out complex searches combining key words and operators within the search box. This option has the advantage of being able to direct each one of the terms that we choose to a different field, within a broader range of options than are offered in the basic search. The outline of any query is:

FIELD TAG1 = KEYWORD1 OPERATOR1 FIELD TAG2 = KEYWORD2 OPERATOR2…

Thus, any keyword can be combined with the operators already presented (SAME, NOT, AND, OR) and direct the search to the fields which we can choose from those shown in the box located at the right of the search box. It is only necessary to comment on two of these fields: *Topic* (Identified with the tag TS) and *Address (*Identified with the tag AD).

As in the basic search, *Topic (TS)* directs the query to the fields of title, abstract and keywords. *Address (AD)* refers to the institutional address of the author,

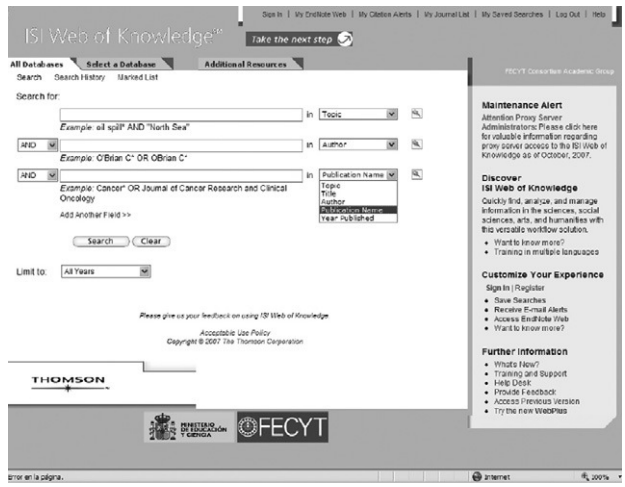

Figure 2.—The new interface of ISI Web of Knowledge.

Figure 3.—Advanced Search.

and it includes information on all the fields, in the box of this screen below AD, i.e. all fields that are identified with labels from OG to ZP.

The terms directed to the fields *Author (AU), Group Author (GP) and Publication Name (SO)* can be chosen from a closed list, which is accessible through the link to the right of the name in the field.

As in Basic Search, *Change Limits* allows choosing the time range which interests us for getting the information, as well as to exclude some of the resources to consult.

Each of the searches will be saved in Search History (at the bottom of this screen), which will allow us to combine different searches with the chosen operators.

Example: We could make a selection of the works on the generic topic of "allergy" that were published

in 2007 by authors whose institutional address is Murcia (Spain), among others with a query such as:

TS = (ALLERG* OR HYPERSENSITIVIT*) AND AD = MURCIA AND PY = 2007

When we run it, the query will move to *Search History*, and we will see the results by clicking on the figure that indicates the number of records obtained.

Cited Reference Search: This option is, logically, only available in the citation indexes, i.e. WoS allows locating papers that have cited authors or works that we specify on the consultation menu.

Tools for publications analysis in WoK

In addition to the tools already commented for searching publications, Web of Knowledge has a number of resources that analyse them. All these tools are a product of the original idea to record not only articles but also bibliographic references that are included in such items. This enables us to know which publications are cited by other publications and how often, and to draw conclusions about their use and relevance to the whole scientific community. We can access these tools, from the front page of WoK by selecting the tab *Additional Resources*.

To avoid errors in the interpretation of results derived from these resources, it is necessary to bear in mind that these data are not absolute or universal, but are collected only from publications in the *Citation Indexes (SCI, SSCI and AHCI).*

Essentially, there are two tools: *Essential Science Indicators (ESI)* and *Journal Citation Index (JCI).*

ESI is a utility that allows us know which countries, institutions, researchers, journals and articles are cited in 22 different disciplines, among them *Immunology*, and thus establish a rankings system. It is updated every two months and provides data for the past 10 years (the 11th year replaces the first of the series).

ESI offers four menus of information in the category of *Citation Rankings: scientists, Institutions, Countries / Territories and Journals*. These menus allow two types of searches: *field of research* that can be selected from the pull-down menu and *name* (scientific institution, country, or journal). Searching for the name of key interest in the corresponding line will lead to an answer on a new screen where we will find *Field* in the middle column. This indicates the list of disciplines in which the author, institution or country appears, and shows in columns at the right, the number of works *(papers);* the number of citations received *(Citations);* and the average number of citations by reference *(Citations Per Paper);* in each of the disciplines. To the left of the column *Field* three other columns tell us the order of the discipline in the ranking and provide us with links to the most relevant papers and a graphic representation of numerical results. This procedure allows us to identify and quantify the position of the discipline in the overall production of a scientist, a country, an institution, or a journal.

For example, supposing we want to know the relevance of the journal *Immunology* (the same would apply to a particular scientific institution or a country). From the main menu of ESI we select *Journals,* and on the second line of the emergent screen we write the name of the journal. The results will show that this journal is included in the *Field* IMMUNOLOGY, with 2203 papers that receive 28,084 quotations, an average of 12.75 quotations per paper. The top papers can be known by clicking on the corresponding *view* icon.

If we want to know the position of this journal (or, where applicable, an author, institution or country) in the ranking of the discipline, we just click on the screen described above, by the name of the discipline to obtain the list sorted by relevance of the journals in immunology. We verify in this way that by number of citations (this is the default information) *Immunology* occupies the 21st position in IMMUNOLOGY between *Allergy* and *J Immunol Method.* We can change the criterion of arrangement of the journals at the pull-down menu *Sorted by*. If we choose for example *Citations per Paper* we will verify that the first places in the ranking are occupied by three journals with very few articles in the area, but with a high repercussion measured by citations per article: *Annu Rev Immuno; Nature;* and *Science.* Our example, *Immunology*, ranks 26. The authors or the institutions can use these data to decide what journals to send their articles to or to plan their subscription policy. The same results described in this paragraph can be obtained if we start from the first line *(By Field)* of the Journals menu, unfolding it and selecting the discipline which we are interested in to obtain the information.

We need to re-emphasize that the procedure is identical for Scientists, Countries and Institutions; simply choose the corresponding menu.

From the main screen of ESI we can also obtain data of the more cited papers in the last ten years (*highly cited papers*) and in the last two years (*hot papers*). The menus for these options give us the opportunity to make consultations by discipline, names (of scientists, institutions, countries or journals) and even by the combined set of these four variables and words in the title of articles.

Journal Citation Report (JCR) is a well-known *ESI* like analysis tool, although it is often incorrectly used by the widespread confusion between the concepts of "use of a publication" and of "quality of". *JCR* presents statistical data on the position of a journal in the set of those of its speciality based on a count of the citations received. It indicates to us, therefore, how many citations (absolute and relative) a journal receives.

In order to understand the meaning of these statistical data correctly, it is necessary again to consider the limitations of the procedure, which does not detract from them. Firstly, we must understand that these figures are calculated based on a tally of citations received by the publications, and the motivation of an author to quote a work can be positive or negative, there is no procedure which allows a separation of each citation quotes from the others, both are accorded the same value. Secondly, all the publications of all the scientific disciplines are not analysed There is a selection that is based on, among other criteria, the opinion of experts, the standards of the journals and the analysis of the citations received by publications which are candidates to be included in the index, in spite of which there are evident biases, most notably in terms of language (mostly in English) and nationality, with the predominance of American and British journals. Thirdly, the data refers to the whole of the journal, rather than individual papers: a journal can receive a large number of citations to all its articles, but some of them may pass entirely unnoticed. Finally, this statistical data single process is sensitive to its own group of journals in which it is estimated, if a journal is not in the ranking, it does not necessarily mean anything about its repercussion or its quality: just that the data are not being calculated for it.

JCR is accessed from the home page of WoK, through the *Additional Resources* tab and then selecting *Journal Citation Reports*. The search menu (Fig. 4) is self-explanatory. You can choose between viewing data about the journals in a category; a publisher of a country; a specific journal; or all journals. If we want to know statistical data on IMMUNOLOGY, after selecting *Subject Category*, we will choose this field from the menu of the following screen. In order to know the aggregate data of all the journals in this category we will mark *View Category Data*. For the data of the different journals, we will mark *View Journal Data* and later we will choose a criterion of arrangement of the journals in the pull-down menu of this option.

The result will be the ranking of journals ordered according to the selected criterion and a series of statistical data referring to the year that we have indicated in the main page of JCR. The ISSN column indicates the identification of the journal by its *International Standard Series Number. Total Cites* and *Articles* indicate the number of citations received and articles published respectively. The rest of the statistical data require a more detailed reference.

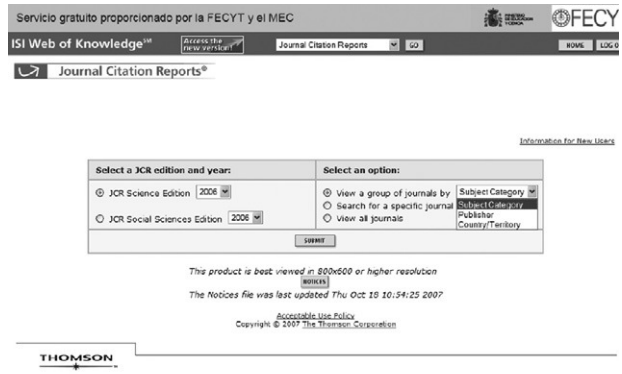

Figure 4.—Search Menu of Journal Citation Reports.

Impact Factor is a relative measurement of the use (not of the quality) of a journal in the set of the selected journals of the same thematic area. The *Impact Factor* of a journal in a certain year is calculated as the number of citations that articles published in the two previous years receive, divided by the number of articles published in those two years. For example, the Impact Factor in 2006 of the journal *Annu Rev Immunol* will be:

Cites in 2006 to articles published in
2005 = 1345
2004 = 1442
Sum: 2787
Number of articles published in
2005 = 29
2004 = 30
Sum: 59
Impact Factor = 2787 / 59 = 47.237

Immediacy Index is a measurement of the repercussion of the most recent papers and is calculated by dividing the number of citations received in a given year by articles published that year by the number of articles published in the year in question. In this same journal, its *Immediacy Index* for 2006 will be:

Cites in 2006 to articles published in 2006 = 228
Number of articles published in 2006 = 24
Immediacy Index = 228 / 24 = 9.500

Journal Cited Half-Life is the average age of articles mentioned in the current edition of JCR. Half of

the citations to a journal are of articles published in the mentioned average life. The concept of "half-life" is similar to that of half life of a radioactive element (the time require to reduce its activity by half) and is calculated as a median, i.e. the number of years elapsed between the current edition JCR and the year of publication of half of the references cited distributed in chronological order. In a way it is a measure of the survival of the publications of the journal or the set of journals in his field.

The information on each of the journals can also be enlarged by clicking on its name

Strategies to increase the publication's repercussion

The necessity of the authors to publish their work in the journals of greater repercussion, adheres in principle, to a logical desire that their investigation be known and recognized by the largest possible number of people interested in it. That would require the authors to select target journals for publication to obtain a greater repercussion among its speciality[5], and the journals themselves to develop strategies to increase this repercussion.

Journals must then, among other aspects; adapt their formats and contents to standards generally accepted by the scientific community and to increase the quality of their contents with the collaboration of a group of specialist referees who make a good selection of articles. In the actions necessary carried out to spread the publication between the suitable populations, without a doubt it would be more used, its repercussion would be increased and the journal would be chosen by the authors to publish in.

This seems to be a logical circuit, however, alien elements that distort the process have been introduced. The creation of *Citation Indexes* has made it possible to objectively measure the impact of journals through a calculation of the *Impact Factor* commented above. Nevertheless, it must be taken into account that *Impact Factor* measures the repercussion that a journal has on a closed set of other journals. It is not possible to know for certain what repercussion is attained by other different journals if a calculation focused on this objective is not made specifically. For example, since *Allergologia et Immunopathologia* is not included in the SCI, its *Impact Factor* is not computed. This journal does not have *Impact Factor*, which does not mean that it lacks impact among specialists.

A different question is that, in an inappropriate manner, the idea of quality has been associated with Impact Factor so that both users of scientific information as well as researchers have been inclined to use the "impacted journals" as a source of information and destination for their publications, thus marginalizing journals where in principle there is no reason to doubt their quality and interest.

This trend is further promoted but with this incorrect perception not only by users of the research, but also by the government that turns *Impact Factor* into the measurement of the quality to evaluate investigators. Thus, the Spanish National Commission for the Evaluation of Research Activity (CNEAI), a branch of the Ministry of Education and Science that evaluates researchers and university professors, in the evaluation criteria for the biomedical sciences, literally states;

" 3. Those contributions that are preferably journal articles of recognized value, such as those that occupy excellent positions in the listings by scientific fields in the "Subject Category Listing" of the "Journal Citation Reports of the Science Citation Index (Institute for Scientific Information, ISI–Philadelphia, PA, USA) will be valued. Electronic journals will be considered when they appear on the lists of ISI".[6]

Since the ISI listings feature mainly US or UK journals, measures of this type seriously harm the journals of other nationalities, whose criteria of selection of publications, probably best fit the needs of each of these countries. It puts a considerable pressure on the researchers, if they want to obtain a positive evaluation of their activity or to direct their publications to those journals included in ISI. The journals that are not included, if they want to survive, are also forced to seek their inclusion. This does not preclude that journals and researchers claim to the government the creation of measuring instruments adjusted to the satisfaction of particular needs of each country.

The inclusion of a journal in ISI, among other criteria, takes into account: a) the opinion of experts; b) standard of the journals; and c) analysis of citations. Experts are specialists in editorial development, research market and some of them are part of the Advisory Editorial Board of ISI, although the recommendations of subscribers are also considered; therefore it is a variable over which the journals have little influence, except for postulating themselves as candidates and convincing the editorial board of their own worth.

The standards by which the journal can influence are related to the journal contents in original investigation: its regularity and punctuality of the journal; its adjustment to publishing conventions such as for example the well-known "Vancouver Norms";[7] and international representation on the advisory boards and the journal editorial boards. In this respect, journals can establish selection criteria for articles so that those bearing original, methodologically correct, in-

vestigation, will fit their edition to the international agreements in this matter, maintain the quality in the publication and distribution of the journal, and provide itself with serious and professional advice. Finally, it seems that "non-English language" science is going backwards, if expressed frankly, and that journals would have to either make bilingual editions or publish totally in good English.

As far as the analysis of citations, addresses the frequency of data with which the journal is a basic measurement to increase the number of citations is to obtain that the authors cite the journal, both in their own publications in the journal (auto quotations) and in outside journals.

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4. Certain concepts like those of natural language, documentary language, descriptors, key words, registries, fields, operators, delimiters, truncation, etc. will not be developed here. If necessary the reader can find an sufficient explanation Sáez Gómez JM et al op cit in note 3.
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