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## **The Role of Knowledge Organization in Scientific Communication**

### **An Overview on JCR's Psychology Journals Guidelines about Title, Abstract and Keywords**

#### **Abstract:**

The aim of this exploratory study on writing the title, abstract and keywords of articles was to verify and analyze guidelines or strict rules for authors in scientific journals in the field of Psychology. A combination of quantitative and qualitative techniques has been used in a representative sample of journals in Psychology indexed in the Journal Citation Reports (JCR), considering the first eight titles of each of the four quartiles. The sample consisted of 32 journals out of 77 (41.5%). A previously adapted and tested spreadsheet has been used. The data collection and processing of 38 items were grouped into categories related to identification data, guidelines for the title, abstract and keywords of the scientific article. The results obtained reveal that the 32 journal titles belong to 11 different editors; all of them have some kind of style manual with orientations that vary between deep and more superficial; and most of them have guidelines for writing the title (75%, n. 24), abstract (96.8%, n. 31) and keywords (71.8% n. 23). The use of a graphic summary and a video summary stand out as new ways of disseminating the content of scientific articles. It is concluded that these aspects are aligned to a greater or lesser extent with the guidelines of the ISO Standard and the APA Manual. However, they are more related to the protocols of editorial management procedures for the dissemination of scientific work in a digital environment than to the intrinsic quality of documentary products associated with the organization and representation of science.

#### **1.0 The aim and scope of the study**

The broadest sense of knowledge organization (Hjørland 2008) is about how knowledge is organized socially. It includes the production and dissemination of knowledge as a social division of mental work. It means that scientific journals, in a broad sense, are the result of the social organization of knowledge production and dissemination. In a proposal for a model of scientific publications as a process of organizing knowledge in a broader sense, Nahotko (2014), presents the relationships between organization of data, information and knowledge in the research cycle that results in specific organizational structure to resources that facilitate the user access to knowledge. In this sense, in addition to the text that presents language and textual structure characteristic of a scientific article, separate entities, such as the title, abstract and keywords are representations of knowledge. Actually, in the formal writing of articles, the title, abstract and keywords have been essential elements of knowledge representation and organization providing intellectual access to catalogs, bibliographies, indexes and databases (Hjørland 2003). These elements are currently essential to promote access to publications, as they are the main points of access to documents. Indeed, it is on them that users focus their research to retrieve documents and it is also based on them that they decide whether to consult the full text (Sabadini, Sampaio, and Koller 2009).

The international standardization that mentions the elements “Title, Abstract and Keywords” in its guidelines is the Standard ISO 215: 1986, entitled “Documentation -

Presentation of contributions to periodicals and other serials", still in force and current according to information provided by ISO. According to Aparicio, Guillermo, and Liberatoro (2016), the Standard ISO 215: 1986 addresses the Title, Summary and Keywords for the presentation of scientific articles. It provides guidance so that the title is brief, concise and clear regarding the most relevant aspects of the work without including non-significant terms such as "research", "study" or "formulas", as well as abbreviations, acronyms or codes that are not in common use. As for the abstract, it determines that it should have between 150 and 200 words and that it should contain, in a single paragraph, the topic of the work, the methodology and conclusions without including interpretations or criticisms, bibliographic citations or referring to figures or images of the text. It also recommends the inclusion of about four to six keywords after the abstract. For the assignment of keywords, it indicates the use of thesaurus.

The Psychology field, however, has developed since 1929 a style and standardization manual (American Psychological Association 2010), The Publication Manual of the American Psychological Association, currently in the 7th edition (American Psychological Association 2019). Specialized in academic, print or electronic publications in the field of Psychology, it also offers style guidelines and standardization of article writing. With regard to the title, the APA Manual (American Psychological Association 2010) draws attention to its strategic function of serving the indexing and compilation in countless reference works including web browsers. The guidelines indicate that the title is self-explanatory and words with no purpose such as "method", "study", "research", "results" should not be used to avoid confusing the indexers. It also advises that the title does not exceed 12 words without the use of abbreviations and acronyms. For the abstract, the guidance on the representation function for indexing and retrieval in reference works is repeated, with four quality requirements, be precise, concise, coherent and legible and not be evaluative, in addition to writing guidelines for 5 different types of articles: empirical study, literature review or meta-analysis, theoretical article, methodological article and empirical study.

As for the number of words, the limits can generally vary between 150 to 250 words, however, the orientation is for the authors to respect the limits established by the journals. The keywords accompany the abstract and must serve to guarantee the location of the article by the user.

Fujita, Agustín-Lacruz and Terra (2018a; 2018b), carried out an exploratory study to observe and analyze the guidelines provided to authors on the writing of the title, summary and keywords of their articles in a representative sample of the Librarianship and Information Science (LIS) journals and Communication Science (CS) indexed in the Journal Citation Reports (JCR). The results revealed a tendency to standardize general indications and criteria and little instruction on titles, abstracts and keywords more related to editorial management than associated with the organization and representation of knowledge. In view of this background, it is pertinent to find out to what extent scientific journals in the field of Psychology define guidelines or strict rules for the authors to follow when submitting text proposals for publication.

## 2.0 The Method

In 2018, JCR included 77 journals from Psychology field. For data collection, a sample was created choosing the eight first journals of each one of the four quartiles. In that

respect, the sample consists of 32 journals, representing 41.5% of all the JCR 2018 Psychology titles. In order to organize data collection, an adapted spreadsheet previously tested and used (Fujita, Agustín-Lacruz, and Terra 2018a; 2018b), was applied. In December 2019 and January 2020, the web site of each selected journal was analyzed in order to collect data about the 38 fields of the spreadsheet. The data collected include: generic information about the journals (title, publisher, ISSN, position ranking, impact factor, web address), guidelines for providing article titles (writing, translation, number and types of words, type of information content, subtitle, use of abbreviations or symbols and style), guidelines for abstracts writing (translation, abstracts differentiation according to article category, number of words, structure, style, use of abbreviations or symbols and inclusion of bibliographical references) and guidelines to provide keywords (translation, number of keywords, separation punctuation, vocabulary control and type). Recommendations and rules for the authors who want to publish in scientific journals are now available on the websites of each journal. Thus, data collection on journals websites seems to be an adequate strategy to create a knowledge base on guidelines or rules about title, abstract and keywords that journal editors and publishers defined for each publication. Data were analyzed from a quantitative point of view and subsequently subjected to a more in-depth analysis, focusing on the analysis of the website content in relation to specific aspects of each criterion used.

### 3.0 The Results

The main results about collected data will be presented and analyzed next, considering quantitative and qualitative approaches.

The publisher with most titles in the sample is Taylor & Francis (11 titles, 34.3% of the sample). American Psychological Association and Wiley have both four titles (12.5% of the sample). Elsevier (three titles) and Sage (three titles) are also represented, as commercial publishers. Annual Reviews, a non-profit publisher, counts two titles. The sample includes five more publishers (commercial and non-profit) with one title journal each one.

All the journals present some kind of style manual, giving deep or more superficial guidelines for authors to write their articles.

**Titles** - Within these style manuals, a vast majority of them (75%, n. 24) presents guidelines for writing titles. The number of words for titles is defined for 31.1% (n.10) of the sample with recommendations like “no more than 12 words”, “title should be around 150 characters”, “short title of not more than 45 characters (including spaces)”, “25 words maximum” or “title of less than 40 characters”. There is also a journal with a more generic guideline as “do not use long article titles”. Only three journals (9.3%) include tips about the kind of words to be used in the title and they all refer to include a few keywords in the article. This recommendation is related to Search Engine Optimization (SEO), and some journals have another section related to this matter recommending authors to include a few keywords of an article in its title and to not use long article titles. With regard to the information content of the title, four journals (12.5%) give some kind of guideline, namely “there are three rules when it comes to deciding on your title: make it concise, accurate, and informative” or “the title should be concise, omitting terms that are implicit and, where possible, it should be a statement of the main result or conclusion presented in the manuscript”. Avoiding abbreviations and acronyms is

recommended by three journals (9.3%) and this could be also related to SEO optimization. Titles that are a mere question without an answer, unambitious titles (like the ones starting with "Towards", "A description of", "A characterization of", "Preliminary study on"), vague titles (as starting with "Role of...", "Link between...", "Effect of...") should also be avoided.

**Abstract** - Almost all journals (96.8%, n. 31) present guidelines for abstract writing. They are included in a specific topic of the style manual or, in one case, only available in the information system management of the journal for submitting articles. When included in the style manual, rules for abstract are included in topics with very different names such as "Article Components | Required elements", "Checklist for Manuscript Submission | Title Page and Abstract", "Checklist: What to Include". In two cases (6.2%), there is a specific topic entitled "Abstract". Merging guidelines about title and abstract in the same topic is common in the sample. With regards to the number of words in the abstract, 28 journals (87.5%) set some kind of rule. Abstracts can have between 100 and 300 words depending on the journal. The number of words can vary within a range (e.g. "the abstract must have between 150 and 250 words") or even have an exact number (e.g. "do not exceed 300 words") with no minimum number. Some journals define different rules for different kinds of articles, like "no longer than 250 words for regular articles, and no longer than 150 words for clinical notes". Nine journals (28.1%) do not include any reference to abstract structure. However, structured abstracts are used in 15 journals (46.8%). A structure including Background, Methods, Results and Conclusions is required in six (18.3%) journals, other journals require other kind of structure with little differences between them. It is also important to underline that five (15.5%) journals recommend graphical abstracts and two (6.2%) recommend video abstracts. This is a new approach to abstracts encouraging new ways to disseminate scientific work as one journal states that "the graphical abstract should summarize the contents of the article in a concise, pictorial way, designed to capture the attention of a large number of readers".

**Keywords** - A vast majority of the journal sample (n. 23, 71.8%) present guidelines about keywords. Usually, there is not a specific topic about keywords in the style manual or it is even necessary to register in the submission management system to know how many keywords to include. Some journals also accept short phrases and do not require keywords. The number of keywords can vary from one to 10 keywords depending on the journal. Only three (9.3%) journals ask for semicolons to separate keywords. Seven journals (21.8%) use some kind of controlled vocabulary. Two of them use the NIH MeSH terms, one uses Index Medicus and four provide their own list of keywords.

#### 4.0 Conclusions

We believe that the text includes a concise and systematic study based on observation, which has value in the current context; marked by the availability of a large amount of information which can be quickly accessed online, and is assisted by Search Engine Optimization (SEO) in discovery systems. It is concluded that these aspects are aligned to a greater or lesser degree with the guidelines of the ISO Standard and the APA Manual. However, they are more related to the protocols of editorial management procedures for the dissemination of scientific work in a digital environment than to the intrinsic quality of the documentary products, associated with the organization and representation

of science. Abstract and keywords are documentary products resulting from processes of organizing knowledge in a more specific sense, such as indexing and abstracts preparation. Both have advanced theoretical and methodological development in the field of knowledge organization whose foundations could, in fact, be applied to the improvement of scientific articles. It is observed, as an improvement factor, that some journals use some type of controlled vocabulary to define keywords.

On the other hand, in a broader sense, it is observed that the organization of knowledge is present in the guidelines and recommendations of style in the field of Psychology, strongly influenced by the APA Manual. They are essential to characterize the textual structure of scientific articles as a social organization of knowledge in Psychology. Expanding and deepening new applied research on the processes of organization and representation of knowledge in the editorial policies of journals can be an interesting approach to the field. Proposals for standardization and for the authors' guidance manuals for scientific articles are also relevant.

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