

# The Consistency of the Research Field Data A Case Study of Library and Information Science in Slovenia

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## ABSTRACT

SICRIS (Slovenian Current Research Information System) provides a service listing top Slovenian researchers in a particular research field. In Web of Science (WOS) each journal is assigned one or more categories (research fields). When comparing these data for the research field of library and information science (LIS), we found that several of the top authors in the field according to SICRIS rarely or never published in the journals deemed to belong to LIS in Web of Science. Several other authors, who were not assigned the research field of LIS in SICRIS, were among the most published Slovenian authors in LIS in Web of Science. This is an indication that results of any analysis of LIS in Slovenia will depend greatly on the criterion/criteria used.

## KEYWORDS

Bibliometric Analysis, Research Fields, Slovenia, Library and Information Science.

## 1 INTRODUCTION

As part of a project focusing on high-level bibliographic services, i.e. novel services based on existing bibliographic data, we intended to perform a domain analysis of library and information science (LIS) in Slovenia from a bibliometric perspective. This contribution describes the initial step that was simply intended to provide an overview of research and researchers but came up on several issues regarding assignment of research fields and yielded some interesting findings, particularly for establishing the scope of the research field in Slovenia and elsewhere, but also in view of providing better services to the users of academic bibliographic databases.

## 2 BACKGROUND

There is a lack of a bibliometric overview of information scientists and librarians in Slovenia and their works, collaborations etc. One of the reasons is the nature of the field(s) of library and information science, where sometimes it is difficult to draw the distinction where the boundaries of the field are. On the other hand, relatively high-quality information on Slovenian researchers is stored in SICRIS (<https://cris.cobiss.net/ecris/>), the Slovenian current research information system, which provides multiple tools for basic bibliometric analysis.

Other studies have focused on the research fields in Slovenia (e.g., [1], [6], [8]), however at a more general level, not specifically for LIS and without mention of the issues related to research fields discussed herein, whereas [2] discusses among other things the

mapping of WOS categories to the fields of science, used in SICRIS. Also see [2] for a brief history and overview of various mappings of fields of science/research fields.

While we were primarily interested in using bibliometric data for representation of a particular research field, this can then also be commonly used for evaluation of research. There are two main approaches: expert evaluation and bibliometric analysis. While expert evaluation is more traditional and qualitative, bibliometric analysis is quantitative in its nature. However, both of them have their downsides. For discussion on trustworthiness of experts, see e.g. [4]. Amongst others, Leiden Manifesto [5] points to dangers of using bibliometric data without closely examining the context. It suggests various indicators should be used when evaluating researchers and their work and that bibliographic analysis should support expert evaluation.

## 3 RESEARCH

While there are several different ways to approach the extent of publication on library and information science in Slovenia, we looked at the publications in Web of Science (WOS). This was done with intention to identify the most prominent works and authors, as journals indexed in WOS go through a rigorous process. However, this also means that we omitted from analysis all other publications, including papers published in Slovenian language journals.

Although it may not have the same coverage of social sciences, for this kind of insight WOS compares favourably to similar services, such as SCOPUS and Google Scholar, as it allows searching based on WOS Categories field which represents the subject categories/research fields of the journals [7]. It has to be noted that the WOS Categories field provides general information about the thematic nature of the journal rather than each particular paper. However, this is still the easiest way to get a quick overview of a research field, as all of the subject related data pertaining to individual papers in WOS describes the thematic nature of the papers in higher granularity. Each journal in WOS can be assigned one or more subject categories.

In April 2024, we performed a search in WOS Core Collection for publications where Address field included »Slovenia« and the value in the WOS Categories field was »Information Science & Library Science«. We did not limit the search to any particular time period, which means that the more experienced authors were more likely to be on the list. Also, we did not limit the results to particular types of publications (e.g. articles), since the "linked records" categorization in SICRIS, which we used in comparison, also does not limit this. However, even if we did, the situation regarding top authors would still be similar. Since Address was limited to Slovenia, the list excludes Slovenian authors who published research while working in other countries and may also be missing authors with otherwise faulty Address data.

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**Table 1: Top 10 Slovenian authors in SICRIS, their research fields, number of established links to WOS publications in SICRIS and number of publications with LIS as WOS Category**

Author	Research field 1	Research field 2	WOS	LIS	fraction
A	Information science and librarianship	Interdisciplinary research	89	0	0.0000
B	Administrative and organisational sciences	Information science and librarianship	55	2	0.0364
C	Information science and librarianship		55	47	0.8545
D	Economics	Information science and librarianship	53	14	0.2641
E	Computer science and informatics	Information science and librarianship	39	0	0.0000
F	Information science and librarianship	Plant production	33	17	0.5152
G	Information science and librarianship		31	29	0.9355
H	Information science and librarianship		24	2	0.0833
I	Information science and librarianship	Economics	24	3	0.1250
J	Information science and librarianship		21	18	0.8571

In SICRIS each researcher can be assigned up to two research fields, according to the ARIS (Slovenian Research and Innovation Agency) categorization, which is “roughly harmonized with the Field of Science and Technology Classification in the Frascati Manual (OECD)” [1]. There are different levels of categorization with the first level representing science, the second level representing field and the third level representing subfield. For instance, Information science and librarianship is deemed as a field belonging to social sciences with no further subfields. On the other hand, Economics also is a field of Social sciences, but it has subfields, such as Business sciences. Authors may be assigned a certain research field, even if it has subfields, or a certain subfield.

Among several features, SICRIS provides a higher-level service (<https://cris.cobiss.net/ecris/si/en/top/researcher>) where a user can look up most prominent Slovenian authors in a specific research field based on different indicators (e.g. number of linked records and citations in WOS and SCOPUS, h-index, other indicators linked to local evaluation practices). While this is not necessarily the only tool a user of SICRIS can use to get an overview of researchers in a research field, it is certainly the quickest and easiest to use.

Compared to some other research fields, where it is harder to find the equivalents in both of the databases, LIS has the advantage of being relatively straightforward. While the names used for the research field in the two systems slightly differ (»Information science and librarianship« in SICRIS; »information science and library science« in WOS), at least the core of the two subject categories should be the same.

While the actual ranking of LIS authors in SICRIS does vary slightly according to the indicator chosen (i. e. number of works in WOS and SCOPUS, number of citations, etc.) there is a core group of authors that occupies top places for several categories. Table 1 shows the top 10 authors based on the number of linked records in WOS according to SICRIS. In the table each author is represented with a letter of the alphabet for anonymity.

When comparing the data of LIS authors in WOS, whose address is in Slovenia (Table 2) and, the list of most prominent authors in LIS in Slovenia based on number of publications in WOS as provided by SICRIS (Table 1), we found a relatively large discrepancy. As seen in Table 1, half of the top 10 authors in LIS, as provided by SICRIS, had less than half of their works published in LIS journals, as indexed by WOS. In fact, for all five of these authors the proportion is less than one third.

There are several reasons for this phenomenon. In the SICRIS top 10 list, two prominent authors, marked in Table 1 as B and H, published a majority of their works in different fields, confusingly not explicitly named in SICRIS, before clearly switching their research interest to LIS. For some others their area of expertise is on the boundaries of LIS, although, what constitutes LIS can be debated. For example, two of the top 10 authors (A and E), including the top Slovenian author in LIS according to SICRIS, do not have a single work published in what WOS considers to be LIS journals. In the case of author A, their second research field, Interdisciplinary research, provides a better understanding on the nature of their publications.

According to the well-known Bradford’s law [3] there are going to be some works published in journals that may not appear to be particularly relevant to a particular topic or research field. For instance, [2] found such distribution for Slovenian agriculture research group publication. However, there is still the question of whether such a list of top authors represents the LIS research field well.

It has to be noted that the results were similar even if we used other criteria in SICRIS. For example, the top 10 authors by number of citations in WOS are the same, only the order changes slightly. Also, the list of the top 10 authors by number of connected records in SCOPUS has two authors that do not appear in Table 1, neither of whom again had more than 2 works published in LIS journals, according to WOS.

To further complicate the matters in terms of transparency of data, SICRIS user interface only lists the author’s first research field, in the top authors lists, which can be confusing to a novice user, as it may appear that some of the top authors do not belong to said field. In fact, many of the first year students of LIS at the University of Ljubljana skipped such authors, when asked to provide a list of top authors in the LIS field, based on SICRIS data/user interface.

Another issue that came up was that one of the top ten researchers is a foreign citizen with an ARIS researcher number having mostly worked outside of Slovenia. While this certainly reflects the international nature of science, it may not accurately reflect the state of LIS research in Slovenia. However, this issue is not particular to LIS.

On the other hand, there was also a notable group of authors that was not assigned to the research field of LIS in SICRIS, whose works appeared relatively frequently in LIS journals in WOS. Several new authors appeared in the top 10 list, if we only looked at the data on publications in WOS. Two of those, marked here

**Table 2: Top 10 Slovenian authors by the number of publications in the WOS Category Information Science & Library Science journals and their assigned research fields in SICRIS**

Author	LIS	Research field 1	Research field 2
C	47	Information science and librarianship	
G	29	Information science and librarianship	
J	18	Information science and librarianship	
F	17	Information science and librarianship	Plant production
K	16	Economics	Computer science and informatics
L	15	Mathematics	Computer intensive methods and applications
M	14	Information science and librarianship	
D	14	Economics	Information science and librarianship
N	13	Computer science and informatics	
O	13	Information science and librarianship	

as M and O, are authors whose field is declared in SICRIS to be LIS. But there are also three authors who do not have LIS named among their up to two research fields in SICRIS. Author here marked as K mainly worked in bibliometrics, which was also the LIS topic covered by author L, while author N mostly wrote on the topic of business intelligence. Such instances are not isolated, as several other authors who do not have LIS as a stated research field in SICRIS just missed the top 10 list.

#### 4 DISCUSSION

While this is a brief look into a relatively small slice of two databases, SICRIS would benefit from a recognition of the issue. The simplest solution would be to provide a clear explanation on the nature of the data provided, when viewing top author lists by research field. Alternatively, additional services could be provided, based on other subject related data, such as WOS Categories or even keywords [7]. Ideally, services based on Bradford distribution would be provided.

The appropriateness of both the scope and designation of SICRIS research fields of authors and the WOS Categories can be debated. Their assignment procedures would benefit from greater transparency.

There is the issue of assignment of up to two research fields per author in SICRIS, as this does not necessarily accurately represent the involvement of each individual researcher. In our relatively small case study of LIS we found several authors whose assigned research fields could be viewed as misrepresented.

While research today is generally multidisciplinary and some researchers can shift their area of interest in research from one research field to another during their career due to various reasons, this ought to be reflected in any lists of researchers from a particular research field.

Also, while well-established, WOS would benefit from a more transparent explanation of the nature of WOS Categories. Even then, there can at least be a discussion, whether some of the journals are assigned to the correct research fields.

Conversely, as there are authors that publish relatively frequently in LIS journals in WOS, but do not have the according research field associated with them in SICRIS, a list of such authors could help with a subject classification of authors that is more reflective of their production.

#### 5 CONCLUSION

Our research indicates that any bibliometric analysis of the research field of LIS in Slovenia is bound to be influenced by the

criterion/criteria chosen to represent the field, as even the very top authors by one criterion may not be considered to be working in the field by another.

Further research could establish whether the issues found in this pilot study exist in other research fields and for other data (e.g. different databases, different time periods). However, not all research fields in one database may have their exact equivalent in another database. Cognitive science, for example, is not considered to be its own research field neither in SICRIS nor in WOS.

Generally, we suggest providing a clear explanation of the topical nature of the work of each author, when providing list of top authors in a research field. Another possible solution is omission of authors, who have a relatively low percentage of works published in journals from a research field from lists of top authors in that field.

While bibliographic databases offering high-level services that bring to light otherwise “hidden” data are definitely welcome, users would benefit from indication of imprecise nature of data and/or additional services that would try to account for the imprecision.

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