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CONTENTS

EDITORIAL

FROM INVISIBLE COLLEGES TO REAL ONES

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One of these days we celebrate the 75th birthday of Professor Dr. sc. phil. Hildrun Kretschmer, a significant researcher personality, who stands, above all, for the quantitative research of scientific collaboration networks. One of her early and favourite research topics was the comparative study of the patterns of and stratification in co-authorship networks of invisible colleges and institutionalised communities, where she found significant and characteristic deviations. The field of scientometrics, which itself started up as an invisible college in about the sixties of the last century, driven and shaped by prominent personalities of science and

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soon evolved to a well-established scientific discipline with its own communication channels, and research and educational facilities, provides the appropriate framework for such studies, even on the large scale.

Hildrun Kretschmer, proved not only a theoretician in doing research in this subject but also a proven person of practical sense. Hence she succeeded in turning theory into practice: Proceeding from her "COLLNET" paradigm, i.e., the idea of an in a sense holistic approach to collaborative research of research collaboration, she established the COLLNET community, a "Global Interdisciplinary Research Network for the Study of all Aspects of Collaboration in Science and in Technology", and launched the necessary institutions and infrastructures, thus turning the former invisible college immediately in a real one. This took place in the very beginning of this century and comprised a series of conferences, followed by an own journal, the "COLLNET Journal of Scientometrics and Information Management" and finally her personal involvement and engagement in research and education as Honorary Director of WISELAB at Dalian University of Technology (China) and Honorary Professor at Henan Normal University, Xinxiang (China). She always attached great importance to involving emerging communities so that, from the beginning on, she focussed on intensive collaboration with colleagues from India, China, Turkey and Iran besides the more traditional collaboration with colleagues in Europe (most notably from France, UK, Russia and Germany) and North America. And, of course, she could only achieve all this thanks to the positive response by the community and the strong support by her colleagues worldwide and – last not least – her husband and collaborator Theo Kretschmer.

The COLLNET model thus proved a true success story and may certainly serve as model for other but similar global interdisciplinary endeavours as well. In order to celebrate Hildrun's 75th birthday and to honour the founder of the COLLNET network, which is successfully running for two-decades, a festschrift will be edited and published this year. The following two pieces of this Newsletter devoted to Hildrun Kretschmer's work and COLLNET are contributed by the editors of the festschrift.

Hildrun & Theo Kretschmer, Wolfgang Glänzel (from left to right)
Photo taken by Zsuzsanna Glänzel at the 2018 COLLNET Meeting in Macao

RESEARCH COLLABORATION – FROM THEORY TO PRACTICE

HILDRUN KRETSCHMER'S SOCIAL PSYCHOLOGICAL WAY TO SCIENTOMETRICS

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Hildrun Kretschmer will be celebrating her 75th birthday on August 7 this year. Hailed from a pedagogic family, her mother a teacher while father an economist (PhD) and a chemist. She received her primary education in Hohen Neuendorf, in East-Germany (the former GDR). Her interest in psychology brought her to Humboldt Universität zu Berlin to receive her diploma in this field in 1970 and later a doctorate in economics in 1975. During her studies she taught psychology, and later she worked as a researcher at the Institute of Theory, History and Organisation of Science of the Academy of Sciences of the GDR. Later, after German reunification, she received her *venia legend* from Freie Universität Berlin.

Then began Hildrun's research endeavour to translational elaboration and application of models and theories in social physiology into a scientometrics context. This was notably within the theoretical and quantitative studies of various aspects

of scientific collaboration. Starting from studying group behaviour and group dynamics, she continuously addressed broader research questions and hypotheses regarding the following two basic findings.

1. *Social stratification in research collaboration looking into co-authorship networks in invisible colleges and institutionalised communities*
   In invisible colleges the relative frequency of co-authorships is higher between scientists with the same number of publications than between authors of different ones. The opposite is valid in institutionalized communities.

2. *Building and applying new models of scientific collaboration*
   By using integrated analysis of social network analysis (SNA), co-occurrence analysis, cluster analysis and frequency analysis of words, she with her co-authors constructed and visualized the microstructure of the scientific collaboration network in scientometrics. Beyond that, Hildrun Kretschmer also studied further characteristics of co–authorship networks. Among others, these were related to geodesic distance in co-authorship networks, the role of visibility and prescription of collaboration within and outside scholarly communication academia, and the role of and its impact of gender in scientific productivity. In addition to descriptive social network analysis methods, she adopted parametric models from the literature, particularly, (1) Social Gestalt theory, a model based on bi-variate distributions of co-author pairs' frequencies, (2) Lotka's power law distribution on publication productivity of single authors, and (3) Power law models of co-author pairs' frequency distributions.

She published more than 120 research papers in national and international reputed journals, conference proceedings and books chapters. She then moved forward to promote and translate her theoretical knowledge and research practices towards collaboration in science and technology. This was by introducing the COLLNET paradigm (collaborative research on research collaboration) and institutionalising the COLLNET research network. The main focus of her activities during the past two decades was the foundation and consequent development and growth of the international interdisciplinary research project "COLLNET", which, in turn, proved a big endeavour to implement and turn her theoretical work into practice. In this context it is proposed to edit and bring out a festschrift honouring her extraordinary work on the occasion of her 75th birthday.

COLLNET – A SUCCESS STORY ABOUT WORLDWIDE COLLABORATION IN SCIENCE AND TECHNOLOGY

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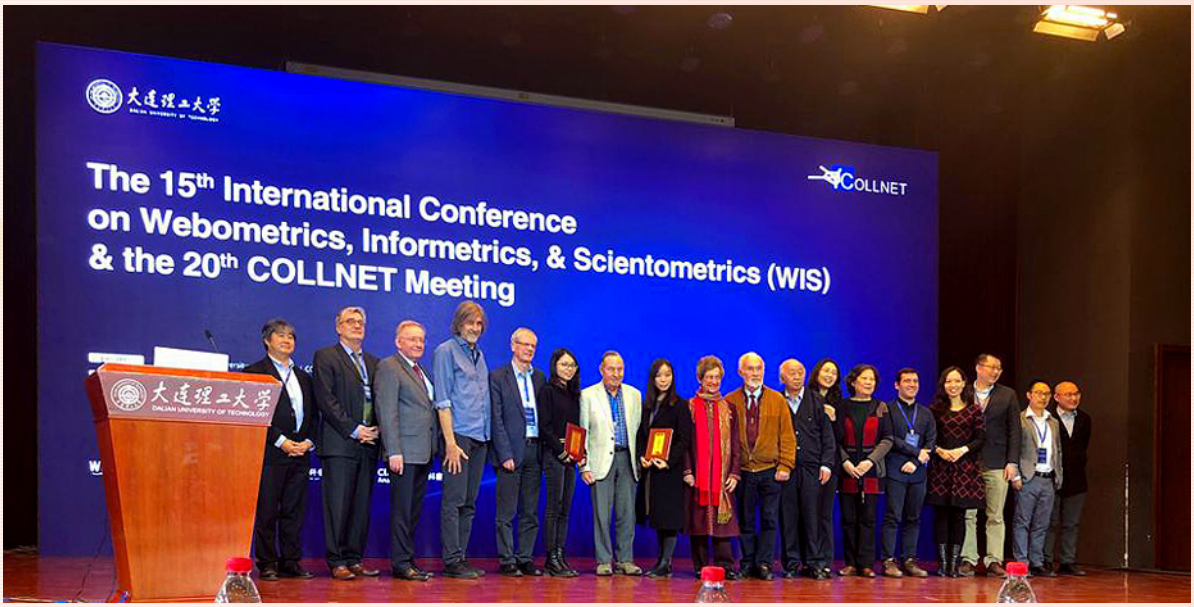
For meanwhile almost 22 years, the worldwide research network COLLNET has been a community of scientists and practitioners that has set itself the goal of gaining fundamental insights for the organization of research and discussing their application in science and technology policy against the background of an interdisciplinary approach and under intercultural aspects.

On January 1, 2000, under the leadership of Hildrun Kretschmer (DEU), together with Liming Liang (CHN) and Ramesh Kundra (IND), the global interdisciplinary research network COLLNET was formally founded and was intended to establish and expand the so far bilateral cooperative relations between Germany and India and Germany and China in an international context. The thesis paper on the foundation of the research network has lost none of its timeliness and topicality. It still reads like a collection of recent problems in the processes of international cooperation.[1]

In particular, the application of bibliometric and scientometric survey approaches in close conjunction with related



Closing ceremony at COLLNET 2019 Dalian. Photo © WISE Lab.

fields such as social psychology, sociology, history of science and other disciplines in order to analyze and develop integrative approaches for the various forms of international and thus often intercultural cooperation is of immense importance for the design of these very processes even today.

The COLLNET community has developed continuously over the last two decades, its reflection in the scientific communities has grown increasingly. This is mainly due to the Collnet members themselves, who initially could be seen as a "who's who" of top scientists in scientometrics, but currently also cover many related fields of expertise, thus spreading the intention of COLLNET to related scientific areas such as Computer Science, Knowledge Organization or Artificial Intelligence. On the other hand, it is the commitment of the community members, who since the 1st COLLNET conference in 2000 in Berlin have been working with great continuity on the enlargement and acceptance of the COLLNET network, among others through the annual conferences, where the 19th COLLNET conference will take place in November this year at Chulalongkorn University in Bangkok.

Besides the COLLNET nuclei in Hohen Neuendorf near Berlin, in New Delhi the NISTADS and meanwhile the WISE Lab in Dalian (CHN), especially the meetings in Nancy (FRA) organized by Prof. J.-C. Lamirel from the University Strassbourg and the meetings organized by WISE Lab of Dalian University of Technology (DUT) under the direction of Prof. Chen Yue are memorable. Unforgotten are the birthday celebration of Prof. Garfield in Dalian in 2009 where he was conferred "Honorary Professor" by DUT.

The COLLNET Journal on Scientometrics and Information Management (JSIM), established by Hildrun Kretschmer as Founding Editor, has made a not inconsiderable contribution to raising the public profile of the research achievements of the COLLNET community in its 16th year of publication.[2] The maiden issue of the journal was launched on the eve of the 8th COLLNET conference held in New Delhi during 6-9 March 2007. The journal has published a number of peer reviewed articles presented at COLLNET conferences held in different parts of the globe, besides publishing original articles submitted by scholars from various countries (India, Iran and China together contributed more than half, 57.3 %, of the total output)[3].

What we can observe today is that the future of science will be determined primarily by methods and tools that can effectively analyze the vast amounts of data

Hildrun Kretschmer (r) at the Best Paper Award ceremony at COLLNET 2019 Dalian. Photo © WISE Lab.

generated by the sharing of digital media in scientific communication, conversations, work processes, and social structures. These characteristics, subsumed under the term data-intensive science, change the nature of scientific work in the most sustainable way. And such an indication as the fact that scientific collaboration is increasingly embedded in a globally connected environment and the exponentially growth rate of scientific output is expressed above all by non-traditional, highly dynamic, interconnected assets such as data sets, software, ontologies, slides, videos, blog entries, are responsible for the manifold challenges for Scientometric research.[4] The COLLNET community has already met these challenges and provides with its conference series and the COLLNET journal an excellent opportunity to discuss the phenomena of collaboration in science, their impact on productivity, innovation, and benefits, and outcomes for individuals, institutions, and economies worldwide.

NOTES

1 Hildrun Kretschmer, Liming Liang, and Ramesh Kundra (2001). Foundation of a global interdisciplinary research network (COLLNET) with Berlin as the virtual center. *Scientometrics*, Vol. 52, No. 3 (2001) 531–537.

2 COLLNET Journal of Scientometrics and Information Management, Taylor & Francis, https://www.tandfonline.com/journals/tsim20

3 Detailed information about bibliometric aspects of the CSJIM can be found in: K. C. Garg & Bebi (2021) COLLNET Journal of Scientometrics and information Management: A bibliometric study, COLLNET Journal of Scientometrics and Information Management, 15:1, 47-61, DOI: 10.1080/09737766.2021.1920067

4 Bernd Markscheffel, Hildrun Kretschmer (2019) Collaboration – Impact on Productivity and Innovation. DOI: 10.22032/dbt.39296

CALL FOR PARTICIPATION

THE NORDIC WORKSHOP ON BIBLIOMETRICS AND RESEARCH POLICY 2022

Photo courtesy of © Balázs Schlemmer | schlemmerphoto.com

The Nordic Workshop on Bibliometrics and Research Policy 2022 (#nwb2022) will be held on September 21-23 in Turku, Finland.

The Nordic Workshop on Bibliometrics and Research Policy has been organized annually since its beginning in 1996. The event alternates between locations in Denmark, Finland, Iceland, Norway, and Sweden. The purpose of the workshop is to link bibliometric research with research policy, to present the newest bibliometric research in the Nordic countries and beyond, and to create better links between the bibliometric research groups and their PhD students, which is now, in the aftermath of the global pandemic, perhaps more important than ever before. The pandemic has made it impossible for PhD students to meet other researchers and create networks that are so important for their future careers. Therefore, this year's workshop will have a special focus on creating networking opportunities for PhD students.

The workshop is open to participants from any nation and will be held in English. Participation in the workshop is free of charge but travel and accommodation must be arranged and financed by the participants themselves.

Registration to the workshop is now open at: https://sites.utu.fi/nwb2022/.

The workshop is organized by Economic Sociology, University of Turku, and Information Studies, Åbo Akademi University.

ON THE DIFFERENCE BETWEEN AN (ALL=)- AND A (TS=)-QUERY IN THE WEB OF SCIENCE: THE CASE OF BIBLIOMETRICS VERSUS SCIENTOMETRICS

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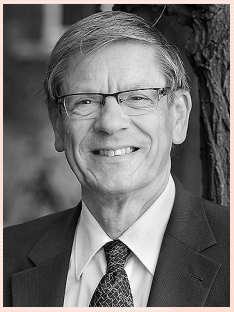

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ABSTRACT: In this note, we investigate the difference between an (ALL=)- and a (TS=)-query in the Web of Science, taking the case of bibliometrics versus scientometrics as an example. We find that if term usage by authors is the purpose of a study, then a (TS=)-query is recommended, but if general visibility is the purpose of a study, then an (ALL=)-query is the one that is needed.

INTRODUCTION

Recently we decided to investigate the use of metrics-terms, such as bibliometrics, scientometrics, informetrics, webmetrics, and altmetrics, over time and in different databases. We will report about this on another occasion, but when one of us (YF) began his searches and showed the results, it was the result for the query ALL=bibliometr* in the Web of Science (WoS). RR was surprised by this as he has always performed topic searches by using queries of the type TS=. This led us to the question: what is

the difference between these two types of queries? To which questions do they provide an answer?

BIBLIOMETRICS IN THE WOS

On March 3, 2022, we performed the queries ALL=bibliometr* and TS=bibliometr* in the WoS, Core Collection. Note that the Core Collection consists of the following eight databases: SCI-Expanded, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, and ESCI (Hu et al., 2020). Our institutes provide access to all of them, starting in 1955 (or the date they were launched). On the above-mentioned date the ALL=bibliometr* query returned 22,625 items, while the TS=bibliometr* returned 22,296. Logically, every item among the results of the (TS=)-query, also belongs to the results of the (ALL=)-query. The difference was only 329 items. Before discussing this difference, we recall that, although a (TS=)-query searches in title words, abstracts, and keywords (including keywords plus), abstracts and keywords were only added in the WoS from 1991 on, so that in reality, for items published before 1991 a (TS=)-query only searches among title words.

What is the reason for the inclusion of these 329 extra items? We found the following reasons (a few documents had more than one reason):

Part of the address: such as in Bibliometr. Res. Grp., Bibliometr. Res. Unit, Unidad Invest Bibliometria or Dept. Bibliometr & Public. Strategies; (119 records);

In the name of the Group Author, such as in Maghreb Grp Bibliometric Studies; (one record);

In the name of the funding agency, such as Elsevier Bibliometric Research Program (EBRP), (4 records);

In the name of the book from which the item is a chapter, such as *Beyond Bibliometrics: Harnessing Multidimensional Indicators of Scholarly Impact* (37 records);

In the funding text, especially when the authors thank for help related to bibliometric data, bibliometric reference values, or support in bibliometric analyses (67 records).

Then there are a few special cases, namely the Proceedings of the 4th ISSI conference were (partially) published in the journal Scientometrics, and recorded in the WoS by adding to the basic article record, the text:

> *Conference*
> *Meeting 4th International Conference on* ***Bibliometrics****, Informetrics and Scientometrics, in Memory of Derek John de Solla Price (1922-1983)*
> *Location: BERLIN, GERMANY*
> *Date: SEP 11-15, 1993*

In this way 18 records with the word bibliometrics are included; a similar event occurred in 2011, where the following text about sponsors was added in each record of the ISSI conference proceedings:

> *Conference*
> *Meeting 8th International Conference on Scientometrics and Informetrics*
> *Location SYDNEY, AUSTRALIA*
> *Date JUL 16-20, 2001*
> *Sponsors Int Soc Scientometr & Informetr; John Metcalfe Mem Fund; Eugene Garfield Fdn; ISI, Thomson Sci; ISI, Thomson Sci, Asia Pacific Reg; Inst Sci Informat; Univ New S Wales, Fac Commerce & Econ; Univ New S Wales,* ***Bibliometr*** *& Informetr Res Grp*

This led to another 89 records included in the (ALL=)-search and not in the (TS=)-search.

One can see that being included as a part of the authors' research unit or lab occurred the most among these 329 'extra' items, followed by being included in the funding text.

SCIENTOMETRICS IN THE WOS

On the same day, an ALL= scientometr* query returned 14,251 items, while the corresponding TS = scientometr* query re-

turned only 5,431 items, leading to a large difference of 8,820 items.

The main reason is obvious. The (ALL=)-query includes all items published in the journals *Scientometrics, Collnet Journal of Scientometrics and Information Management, Journal of Scientometric Research*, and all publications in different proceedings of the ISSI conferences (International Society for Scientometrics and Informetrics), under different titles.

Other reasons for including the term scientometrics were mostly because the term scientometrics occurred in the name of the research unit such as in Ctr Excellence Scientometr & Sci Technol (Stellenbosch) or Dept Sci Policy & Scientometr (Hungarian Academy).

We note that a similar difference occurs for the term informetr* (4,613 items versus 801 ones), because of the *Journal of Informetrics*, and again the publications of various proceedings of the ISSI conferences (International Society for Scientometrics and Informetrics).

THE DIFFERENCE BETWEEN THESE TWO QUERIES

The observations made in the previous sections lead to the question *Which type of search is best?* Or better: *What is the exact meaning of the results obtained by these two different queries?*

A (TS=)-query yields results for which the author(s) explicitly, in title, abstract, or keywords, indicate that they perform a bibliometric (scientometric) investigation. Colleagues whose main interest lies elsewhere will usually do this. Colleagues, however, who see themselves as bibliometricians (scientometricians, informetricians) will often not mention these words unless they perform a historic or comparative study (as we do here).

It is true though that any article published in any of the above-mentioned journals or conference proceedings deals, at least implicitly, with bibliometrics, scientometrics, informetrics, or other metrics. In that sense, the (ALL=)-query is the best. But, an (ALL=)-query cannot be used to study the difference in author use of these metric terms.

Another alternative is to limit the (ALL=)- or the (TS=)-search to some fields, such as Information Science, and Library Science (LIS). Some articles applying bibliometrics to other major fields such as medicine are published in field journals, here medical journals. Limiting searches to e.g., the LIS-subfield eliminates most of these applied articles (but certainly not all, as journals such as *Scientometrics* often publish case studies in other fields).

CONCLUSION

If term usage by authors is the purpose of a study, then a (TS=)-query is recommended. Note though, that results do not give information about the reason why authors use one of the metric terms explicitly.

If general visibility is the purpose of a study, then an (ALL=)-query is the one that is needed. In this case, it is, however, impossible to find the difference in the use of the different metric terms over time (as results are highly influenced by titles of journals or conferences).

Our investigation only dealt with the number of records on metric topics. If one is interested in indicators about these topics, such as the evolution of the h-index of "bibliometrics", based on citations of retrieved records, then, clearly the type of query may make a huge difference.

We are convinced that this conclusion holds also for other investigations, and in other fields. We have here investigations in mind which study disciplines, often emerging ones, that need keywords, including title words and words in abstracts, to delineate the field of investigation (Hu & Rousseau, 2015). If, however, there already exist journals or conferences explicitly aiming at this emerging field, then a (TS=)-query may miss

relevant items, while an (ALL=)-query may be too broad to delineate a field. In this context, we recall that already in 1989 Leydesdorff strongly favored title searches above including abstracts or keywords for the description of an intellectual organization (he obtained abstracts from Index Medicus and used index terms instead of keywords) as words from abstracts were less specific than title words and indexing brought related words together under one umbrella, leading to noise in the investigation (Leydesdorff, 1989).

Although the set of results of a (TS=)-query is always a subset of the results obtained by the corresponding (ALL=)-query, the difference in the number of retrieved records depends heavily on the particular query and may differ quite markedly, even for related topics as illustrated by the search terms "bibliometr*" and "scientometr*".

Finally, we note that we have performed these queries in the WoS but (ALL=)- and (TITLE-ABSTRACT-KEYWORD=)-searches can also be done in SCOPUS, leading to similar results and conclusions.

In conclusion, we like to mention that a simple investigation about the use of metrics terms, turned out to be quite illuminating.

ACKNOWLEDGMENT

The authors thank Loet Leydesdorff for useful conversations on this topic.

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