

GLOBAL AND NATIONAL VISIBILITY OF MANAGEMENT RESEARCH METHODOLOGY SCHOLARS – THE CASE OF POLAND

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Abstract. Developing research methodology contributes to better management research outputs, links better management theory to business practice, as well as enriches the academic training received by the students at universities. Researchers might be tempted to provide generalizations on management research methodology based on global bibliographic databases, such as Scopus and Web of Science, and draw conclusions on the possible educational outline. However, since students are educated mainly in national languages, the literature in these languages might gain priority over more internationally recognized publications available only in English. Then, the question arises if scholars who might be recognized globally due to their presence in large, international bibliographic databases retain their visibility and influence at the national level. We conduct a comparative bibliometric study using Scopus, Web of Science, and BazEkon to answer this question. Our research reveals that for the case of Poland, information and social networks of management methodology scholars do not support the assumption of direct visibility of such global scholars at the national level, thus putting into question the reliability of global bibliographic databases to study management at the national level.

Keywords: management research methodology, bibliometric review, custom bibliographic databases, country level bibliometrics, management education.

JEL Classification: D83, D85, L10, M10, M19.

Introduction

Management research is perceived as “search for causal mechanisms that can be investigated through empirical studies and that facilitate control of complex processes” (Duncan, 1993, p. 255). One of the recent issues of contemporary organization management-related issues is strengthening inputs from academic research into business practice. It is essential in the face of growing macroenvironmental challenges to businesses resulting in the increased interest in management practice and research industry–university collaborations (Bracio & Szarucki, 2019; Rybnicek & Königsgruber, 2019; Samulevičius, 2012). This trend is intensified by the need for innovation in the current business environment and the determination of policymakers to commercialize academic knowledge. Elaborating on and enhancing methodology significantly contributes to management research improvements and links it better to management practice. According to Arbnor and Bjerke (2008, p. 17), methodology is “the

understanding of how methods are constructed”. Every prolific management researcher has to devote a substantial amount of time to grasp complex methodological issues of conducting research in management sciences. There are different ways of mastering management research methodology skills that lead to more significant scientific publications’ output, among which we would like to concentrate on international academics’ mobility and scientific collaboration. International mobility provides additional benefits to academics in several aspects: expanding their research networks and participating in collaborative research, increasing the potential of publishing in international journals, disseminating the obtained research results and gained experience at home universities, which also brings additional benefits to students participating in the lectures of those academics.

There are different types of academics’ mobility, ranging from short (e.g., one-week teaching visits) to a more extended period (e.g., half-year and longer visits) at foreign universities. Haupt (2022) has recently concluded that

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“short-term international mobility provides academics with opportunities to engage in transnational collaboration networks through which they can develop and maintain ties with colleagues abroad”. Such a position is related to the assumption that mobility, which exposes scientists to different cultures, may direct academics to adopt a different way of teaching and conducting research. Through this, international mobility could affect the future shape of education, both in local and international scope. A similar approach is seen in the research by Pineda et al. (2020), who, through bibliometric analysis, argue that collaboration and dominance shall not be explained by simple dichotomy relation of North–South and point to the possible public and higher education policy on cooperation, thus again joining the scientific collaboration with education.

Similarly, emphasis is placed on studying the so-called most productive academics. At the same time, it is noted that they are a group with similar characteristics and an international research perspective, differing substantially intra-nationally from their lower-performing colleagues with a less extensive publication profile revealed with bibliometric studies on a self-reported number of publications acquired through surveys (Kwiek, 2016). International research perspective is undoubtedly vital to fostering scientific development, and cooperation might take various forms in management sciences, e.g., European scientific collaboration (Kosch & Szarucki, 2021b) or transatlantic scientific collaboration (Kosch & Szarucki, 2020). However, the transmission of such perspective from research to teaching at higher education institutions is less obvious. Specifically, the position of these internationally-oriented scholars is obtained through the study of large bibliographic databases (e.g., Hernández-Torrano et al., 2021).

Such research is often conducted under the risky assumption that those large databases – usually Web of Science and Scopus – reflect the state of the science. While this is possible to some extent, it is not valid in all disciplines and countries. However, such an assumption transforms research proudly called bibliometrics or scientometrics into one that shall be named *Scopusometrics* or *WoSometrics*. Web of Science was discussed to be more inclined toward English-language journals (Archambault et al., 2006). In 2005, De Moya-Anegón et al. (2007) observed that 15% of journals published in Scopus were in a language other than English, compared to 26% in Ulrich’s Core collection. Such a disproportion was also confirmed by the study of Cowhitt and Cutts (2020), who surveyed journal lists in thirteen different databases and found that their areas of overlap “overwhelmingly” included American and British publications. The perceived imbalance has led to such proposals as indicators of the linguistic diversity of cited items as a tool for heterogeneizing research (Linkov et al., 2021).

Even if one deliberately omits the inclusion of documents other than those present in large bibliographic databases, intending to obtain only context-free science (e.g., global, international), it may result in a biased sample. Moed et al. (2020), in their work on the

internationalization of journals, found that in the social sciences and humanities, nationally oriented journals account for a significant portion in both the US and non-English-speaking countries. Moreover, English-language journals are not necessarily characterized by internationality in terms of affiliations or citations. Kowal et al. (2022) indicate that biases can be observed in the evaluation of research projects depending on the country of origin and the evaluation group. Even the omission of publications of other types than articles might be considered a biased decision, as Engels et al. (2018) show that nothing heralds a decline in the number of published monographs in the social sciences; this leads to the conclusion that such channel of communication remains important and often should be included in the reviews and bibliometrics.

For the reasons outlined above, there are examples of using a custom database for *context-embedded* research: Tunger and Eulerich (2018) used the “Jourqual” ranking as the basis for journal selection, from which articles on corporate governance in German-speaking countries were retrieved. Providing a procedure for creating their own bibliographic databases at the national level is a response to the call for methodological guidance on systematic literature review (SLR) and bibliometrics in governance (Breslin & Bailey, 2020). Addressing this call, Kosch and Szarucki (2021a) introduced a model for creating a custom bibliographic database. Adams et al. (2017, p. 448) argue that expanding literature reviews to intentionally include publications from a variety of sources, while challenging, is becoming increasingly essential to enrich knowledge with context relevant to management research; so it is with education. Recently, Rousseau and Rousseau (2021) studied bibliometric techniques and their use in business and economics research. They pointed out that sometimes a suitable database to study selected phenomena does not yet exist.

Not relying on national-level databases could be particularly devastating for research on the management sciences’ methodology scholars in Poland due to two reasons: 1) management research depends on the local context, 2) scientific monographs are relatively popular in Poland. Even Google Scholar (leaving the question of the adequacy of this database for bibliometric research) may not be able to gather all relevant research, especially if it only exists in physical print. This needs to deal with analog sources brings the discussion back to the very origins of bibliometrics – because bibliometric techniques, although they gained popularity with the development of databases, originated much earlier.

Therefore, the main research question of this paper is: Do globally visible researchers retain their visibility at the national level? This research question is further specified to include the perspective of Polish management methodology scholars. The research question is related to the exploration of social and information networks (Newman, 2003) of Polish management methodology scholars, and plotting the shape of the community. The answer to this research question is provided through a comparative

analysis of the positions occupied in networks by scholars visible in global bibliographic databases and national bibliographic database. The secondary research questions are as follows:

1. What are the groups of management methodologists in Poland?
2. What are the threads of discussion common to these groups, and distinguishing them from other groups?
3. Is the discussion within each of the identified groups of methodologists homogenous?
4. Which scholars provide a comprehensive research stream?

Answering questions posed this way is the goal of this bibliometric literature review.

1. Data and methods

The paper's objective includes determining the shape of the community of methodologists. That, in turn, allows for research that considers the methodological diversity of the management field. Secondary research questions relate to a specific research situation and were reformulated to fit the proposition of Zupic and Čater (2015) regarding bibliometric studies in management. Therefore, bibliometric review is adopted in this research as a suitable method to address the outlined research questions.

A preliminary assessment was made of the number of publications in two proposed international databases, Web of Science and Scopus. Web of Science (WoS) is considered the most widely used and authoritative database of scientific publications and their citations (Birkle et al., 2020), and Scopus is among the most extensive global citation databases, with a broad coverage of regional scientific journals (Baas et al., 2020). As many publications are indexed in a single database, combining results from different sources is often necessary (Bramer et al., 2017). It was decided to contrast this with BazEkon (Bazekon, n.d.)¹, a database co-created by the Cracow University of Economics. Queries to the databases were created by the authors and comprised keywords related to the papers on management research methodology:

1. Web of Science: ((ak=("research method*" or methodology) or ti=("research method*" or methodology)) and su=(business & economics) and cu=(poland)) and document types: (article)
2. Scopus: authkey("research method*" or methodology) or title("research method*" or methodology) and subjarea(busi) and affilcountry(poland) and doctype(ar)
3. BazEkon²: sl_kl = metodologia badań or sl_kl = metody badawcze or sl_kl = methodology of science or sl_kl = research methodology or sl_kl = research methods

BazEkon focuses on scientific fields corresponding

to Scopus "BUSI" and WoS "Business & Economics" keywords; hence the above filters were applied. Further evaluation was conducted as part of the inclusion strategy, which involved first reviewing titles and abstracts. Papers were rejected if: 1) they were not related to management, 2) they were not related to methodology at all, 3) the type of publication was incorrect (e.g., a letter to the editor), 4) they were only related to a subfield of management, or located higher up, at the level of science in general.

After the initial inclusion in the study, basic descriptive statistics of the queried databases were calculated (see Table 1). Web of Science proved better for the discovery of Polish methodology articles – it provided a higher proportion of Polish-affiliated documents to European-affiliated ones than Scopus. After deduplication, it turned out that all articles found in the Scopus database were also found in the Web of Science. Therefore, further research was carried out based on the Web of Science as it provides more unified bibliographic fields. The recall (fraction of relevant publications retrieved to all relevant publications) was the same, as both databases yielded four publications. However, the precision (the fraction of relevant publications to all retrieved) was higher for Scopus.

Table 1. Evaluation of Web of Science, Scopus, and BazEkon databases due to the purpose of the study (source: own research)

Variable	Scopus	WoS	BazEkon
Total articles (W)	8017	6755	–
Articles with European affiliation (E)	3694	2432	–
Articles by Polish researchers (P)	68	112	905
E/W	46.08%	36.00%	–
P/W	0.85%	1.66%	–
P/E	1.84%	4.61%	–
articles that meet the inclusion criteria	4	4	81
articles since 2010	–	4	64

Next, a literature search was extended based on a hybrid strategy with maximization of the F1 score (harmonic mean of the precision and recall of obtained publications). It is based on searching for source publications that, when included, provide items potentially worthy of further inclusion. Automation was used for this purpose, which consisted of selecting papers with a degree of centrality higher than one and those that contain the fragment "methods" in their title – as such an approach allowed for query propagation to non-seed publications. This procedure revealed 55 works that were not among the source items. Then an evaluation was carried out identical to the selection of source works; in this way, 17 works were selected and included in the database being created. At this stage, the database numbered 81 works. Next, a search was carried out utilizing the forward snowball technique; using Google Scholar, the total number of citations of the

¹ <https://bazekon.uek.krakow.pl> (last accessed 01.01.2023).

² This query contains translated terms equivalent to those submitted to Web of Science in Scopus.

so far included papers was noted, and all potential papers that would be suitable for inclusion were saved to a special list. The total number of citations at this stage was 1005, which was the number of papers to be initially evaluated. From this list, a roster of 46 works not yet included was created. Based on the same inclusion criteria as before, it was decided to include 26 of them, thus obtaining a database of 107 publications as a basis for further analysis.

It should be noted that the hybrid search can be performed together with the literature selection or separately. In the case of performing the search and evaluation disconnectedly, a database of all new texts encountered is systematically created during successive iterations without evaluating their relevance to the literature review being performed. This is a time-consuming solution, but it allows (if necessary) modification of the inclusion criteria after the literature search stage. If the literature search is performed in successive iterations together with the selection, it significantly reduces the effort required for successive searches using the snowball technique; for example, 64 source publications referred to 1271 unique papers, and all of them would have to be checked (together with the source positions) for forward citations. If one takes the average for the actually included publications (about 12.5 per publication), these citations would be almost sixteen thousand. Together with nearly a thousand results from BazEkon and more than a thousand items they cite, this would give about eighteen thousand publications to be evaluated in the review only for a single iteration of a backward-forward search. Unfortunately, the reduction in time consumption resulting from combining the search stages with the selection stage comes with one limitation – the selection criteria are embedded into the search iterations, and it is impossible to change them later without substantial additional effort. In this paper, the criteria adopted are clear and straightforward to apply. Moreover, time and resources did not allow to undertake the search and evaluation separately, so it was decided to

combine these stages – this reduced the number of works reviewed from BazEkon altogether with those determined with the snowball technique to 1965. Queries were performed several times, the last on December 10, 2020, and the subsequent citation search continued until April 2022 because many publications discovered through snowballing were available only as physical copies, which had to be retrieved and digitized, and their citations segmented into bibliographic fields; this proved to be time-consuming compared to the bibliometrics applied to the Web of Science or Scopus. Only documents published in 2010 or after were included in the research to obtain a consistent time sample relevant to the contemporary shape of the field under study.

The PRISMA protocol (Page et al., 2021) summarizing the entire literature search and selection process presents the decisions made in the following steps during the implementation of these two stages (see Figure 1). The database of 107 publications was then used for further analysis as a set of bibliometric techniques was applied to obtain the answer for each of the secondary questions (see Table 2). Multiple science maps were created; if the number of network vertices was too significant for interpretation, flooding (i.e., filtering out vertices based on their degree or strength) was performed to obtain a readable subgraph.

These techniques correspond with the network types appropriate for each question (see: Zupic & Čater, 2015, p. 439), and the bibliometric analysis toolbox proposed by Donthu et al. (2021). Together they form a firm methodological basis for this research. To obtain results, the Bibliometrix (biblioshiny) R package was utilized to perform the analysis itself (Aria & Cuccurullo, 2017).

2. Results and discussion

Results and their discussion is further divided by the secondary research questions raised in this paper. There are,

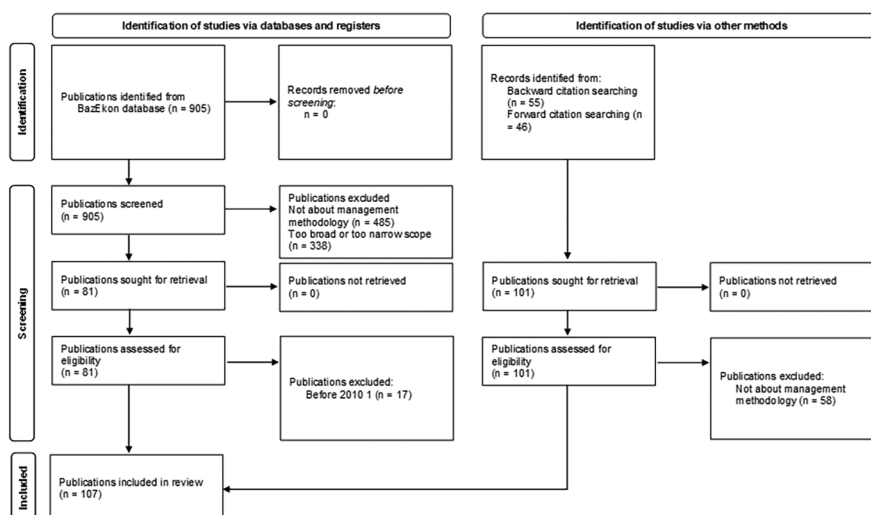


Figure 1. PRISMA protocols from a systematic search of management methodology literature by Polish scholars after 2010 (source: own research)

Table 2. Secondary research questions and analysis methods (source: own research)

Research question	Metadata field for performance analysis	Performance analysis indicator	Metadata field for science mapping	Network type	Network analysis metrics
What are the groups of management methodologists in Poland?	none	none	authors	co-citation network (CCN)	PageRank
What are the threads of discussion common to these groups, and distinguishing them from other groups?	keywords	total count	authors	bibliographic coupling network (BCN)	none
Is the discussion within each of the identified groups of methodologists homogenous?	authors	collaboration index	authors	co-occurrence network (CON)	centrality degree
Which scholars provide a comprehensive research stream?	authors	h-index	documents	direct citation network (DCN)	centrality degree

however, so few authors visible in international databases that further analysis of their relations and network structure is not appropriate. Those internationally recognized scholars visible in Web of Science or Scopus databases are: Czakon, W., Prawelska-Skrzypek, G., Dzwigoł, H., Dzwigoł-Barosz, M., Lenartowicz M. In each section alongside a discussion on the obtained science map, these names will be highlighted and their visibility at the national level assessed.

A co-citation network analysis was used to answer the first secondary question – what are the groups of management methodologists in Poland? The creation of such a network is based on data contained in bibliographies. The vertices in such a network are the documents or authors cited in the works included in the bibliometric literature review. Thus, it is possible to create a network that includes authors or documents that, for various reasons, were not included in the collection of primary documents. In this review, 2151 different papers are cited. In the network that includes the largest component of all these names cited first among the authors of the publications, it is difficult to distinguish between the individual vertices. It is necessary to apply the so-called flooding – elimination of vertices that have a strength weaker than predetermined.

After flooding the vertices that have a strength below five (see Figure 2), the co-citation map becomes clear. At the same time, this leaves three groups of authors seen in the documents included in the review as occurring in a similar context.

In the first group, the strongest connected vertex is Ł. Sułkowski, who at the same time is often the only bonding element of other authors, such as M. Matejun and P. Płoszajski, reveals a strong star graph pattern with the function of Sułkowski as a central vertex. The second group is distinguished by a higher density of connections, which makes it more challenging to choose the strongest vertex; however, calculations show that it is M. Lisiński. In the third group, if only the authors included in the review are considered, the most central vertex is M. Ciesielski; otherwise, it is J. Apanowicz. The only scholar whose methodological papers are visible both in global databases

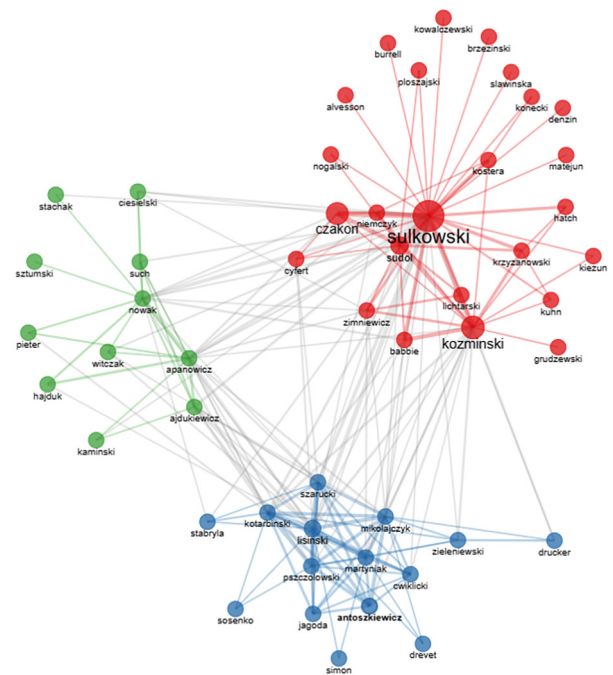


Figure 2. The co-citation network of authors, limited to those with vertex strength of at least five (source: own research)

and flooded co-citation network is W. Czakon.

The scientific objective is related to identifying contemporary active methodologists, so only authors of works published in 2010 and later are considered. If one compares the list resulting from the co-citation map, it is possible to identify 14 authors with strong information ties in the academic community (see Table 3). The PageRank index, in this case, represents the strength of authors taking into account the “environment” in which they are co-cited, which should indirectly reflect the strength of the entire group to which the author belongs.

PageRank further displays the researchers’ importance and prominence within isolated groups of methodologists. While W. Czakon is visible, he is not cited frequently enough with other methodologists to gain a firm position. However, he does benefit from relations with strong vertices, like Ł. Sułkowski or S. Sudoł. It shall be noted

Table 3. PageRank of the co-citation network for authors who authored the documents included in the review (source: own research)

Author	Group	PageRank
Sułkowski Ł.	1	0.121157
Sudoł S.	1	0.053317
Lisiński M.	2	0.04797
Mikołajczyk Z.	2	0.038527
Szarucki M.	2	0.033292
Czakon W.	1	0.027035
Niemczyk J.	1	0.023336
Ćwiklicki M.	2	0.021024
Zimmiewicz K.	1	0.019153
Ciesielski M.	3	0.009764
Witczak H.	3	0.00931
Nogalski B.	1	0.007523
Brzeziński J.	1	0.005356
Matejun M.	1	0.005356

that Ł. Sułkowski, as the center of the star typology graph, receives more attention than W. Czakon.

To answer the second additional question – what are the threads of discussion common to these groups and distinguishing them from other groups? – it is crucial to establish thematic diversity at the level of the entire sample of publications. It should be noted that there is quite a lot of thematic diversity among the various works. Among these topics appear: 1) paradigms, 2) case study as a method, 3) organization and management theory, 4) social sciences, 5) historical perspective, 6) habilitation dissertations³, 7) epistemology, 8) method selection and problem-solving, 9) ontology, 10) triangulation.

Key phrases represent some of the thematic diversity found in the literature sample. This diversity is also dictated by the publications on which the authors rely. A measure of the similarity of the referenced publications between papers in the sample is the number of bibliographic items they share. Thus, a map of science produced based on the bibliographic coupling of authors indicates the similarities between researchers in terms of the papers they cite (see Figure 3).

All Polish authors in the literature sample are 71, but three are not connected to any other work (E. Bojar due to the lack of a bibliography, and J. Rokita and J. Strużyna, who cite entirely different works from the rest). In addition, I. Staniec has only one connection, which makes drawing the graph difficult; these authors were omitted when creating the map.

The authors' bibliographic coupling network produces a high-density map consisting of many elements. Four clusters of authors emerge in it. However, it should be

borne in mind that some of these authors have only one publication in the sample, making it difficult to determine whether the literature they indicate reliably reflects their preferences. If this is the case, it is worth filtering the network based on the number of publications, as this leaves a less random collection for analysis. Hence the authors of a single paper were removed, and a network of 19 authors was obtained (see Figure 4).

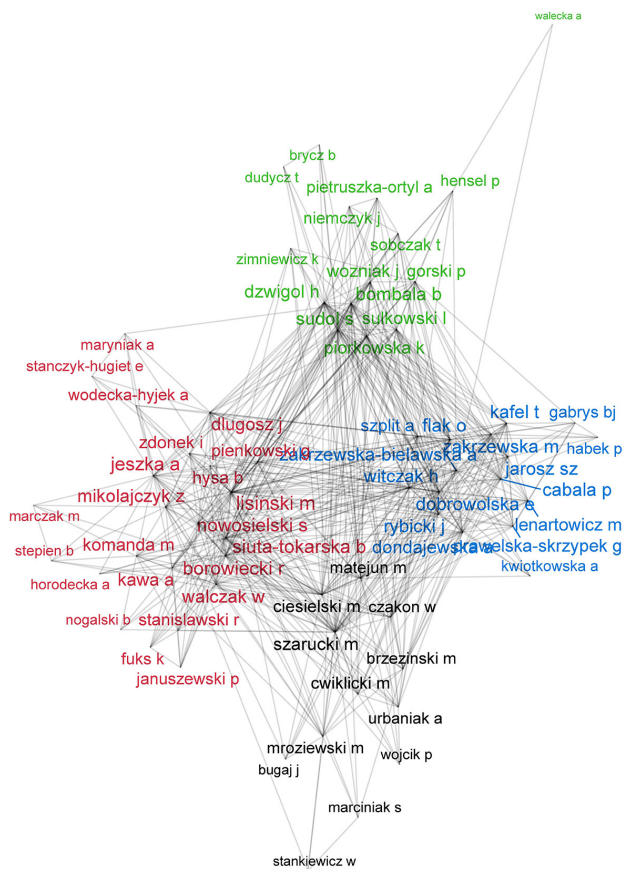


Figure 3. Bibliographic coupling network of authors (based on citations, so-called bibliographic pairing) (source: own research)

This further yields a network of four groups, but their composition changes slightly. The cluster consisting of S. Marciniak, M. Ćwiklicki and M. Szarucki emerges due to the coverage of the bibliography to the extent dictated by the choice of methods. The works of these authors are essential in terms of further resolution of practical methods. The group consisting of M. Ciesielski, S. Nowosielski, M. Lisiński, A. Jeszka, and A. Kawa is concerned with the formulation of research problems, from them hypotheses – and ways to test them.

The cluster composed of W. Czakon, A. Zakrzewska-Bielawska, O. Flak, and H. Witczak addresses topics that can most generally be described as considerations of conceptual integrity and research in management and quality sciences. The last group, formed by K. Zimmiewicz,

³ This is a part of tenure track in Poland, being a basis to receive associate professor position.

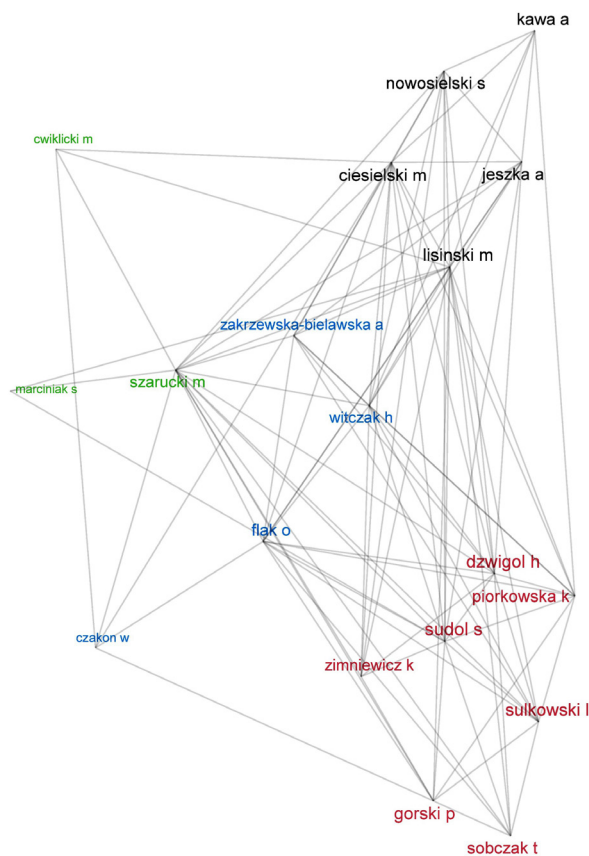


Figure 4. Bibliographic coupling network of authors, for researchers with more than one publication in the literature sample (source: own research)

P. Górski, S. Sudoł, H. Dźwigoł, T. Sobczak, K. Piórkowska, and Ł. Sulkowski is characterized by some connection of considerations with the field of humanities; e.g., historical perspective, affinity with humanistic disciplines, anthropology, and behavioral categories. A particular exception is H. Dźwigoł, who seems to have created his thread using similar sources to the rest of the researchers.

Of course, it should be borne in mind that the description presented is a synthesis based on the works of each group – this is no longer an element of analysis and, as such, is a creative element of the authors of the bibliometric review. Also, this interpretation only applies to the common area of these researchers – however, each presented scholar also studies other aspects of the management methodology.

As analysis reveals, the thread involving H. Dźwigoł boosts his visibility. If students are to be taught the issues related to the management methodology rooted in humanities, there are chances that this author will be recognized. The other globally visible scholar in the reduced bibliographic coupling network is W. Czakon. In the unfiltered network, also visible are M. Lenartowicz and G. Prawelska-Skrzypek, but the low number of publications in the discussed field limits their national visibility.

Above are the threads resulting from the information network. However, researchers are cited together for

various reasons, such as disagreeing with each other or noticing something the other has overlooked. Furthermore, the fact that they use similar literature indicates a similar problem space but cannot reflect what solutions the individual researchers propose; if the pieces of a theory are treated like blocks, each researcher will put together a slightly different (and sometimes very different) construction. Therefore, the indicated information networks should be read in terms of possible contexts in which informed discussion can be expected and visibility gained, but they cannot indicate the degree of consensus among authors. On the other hand, a good indicator of such unanimity is the existence of multi-author publications; since several researchers have produced a paper together, it can be assumed that they have convergent views on the content of that work. High saturation of multi-author publications would mean that some consensus could be expected within the clusters that emerge from the network of co-authors. Subsequently, if globally visible researchers are engaged in such networks, this could indicate their visibility at the national level. In order to determine whether such a situation exists in the case of the management methodology and to answer the third additional question – is the discussion within each of the identified groups of methodologists homogenous? – a co-authorship network was constructed (see Figure 5). The size of the vertices was imposed by the software used and is related to the total number of publications – care should be taken not to suggest the size of the point in this case since it is not related to the co-authorship network.

The co-authorship network does not allow for much-extended commentary; the observed connections are singular and rare, lacking any broader collaboration in this area of research. The collaboration index (CI) is 2.25, but the percentage of single-author articles is 88.89%, which should be considered an unusually high value (the value in the data set provided from Biblioshiny is 13.47%; precisely the opposite). In this situation, it does not seem reasonable to mention the centrality of individual vertices. Edges are so few in the entire set, and cooperation so rare that the analysis can only indicate the lack of basis for the conclusion that anyone agrees with anyone in any broader sense. It can only be summarized by the distribution of the degree of centrality (see Table 4).

More importantly, only M. Lenartowicz and G. Prawelska-Skrzypek formed a collaboration – but being only between them, its potential to increase national visibility is scarce since it does not involve more local scholars.

The analysis and synthesis of the information networks allowed the identification of potential discussion threads, while the study of the social network concluded that the opinions of researchers are probably divided due to low collaboration. However, it is worth designating authors who have the most significant influence on the management methodology in Poland by answering another question: which scholars provide a comprehensive research stream? Determining such authors is solved with the help

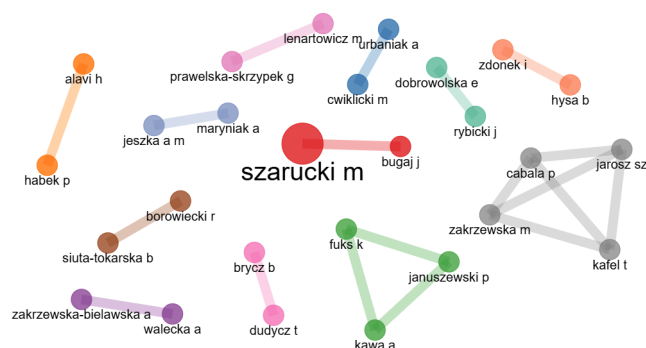


Figure 5. Co-occurrence network of authors (co-authorship network) (source: own research)

Table 4. Distribution of the degree of centrality of co-authorship networks (source: own research)

Degree	Number of authors
3	4
2	3
1	20

of the Hirsch index. Particularly influential researchers include: 1) M. Lisiński (6), 2) M. Ciesielski (5), 3) W. Czakon (4), 4) H. Dzwigoł (4), and 5) M. Szarucki (4), who all achieved an h-index of four or higher. Two of these researchers are globally visible – W. Czakon and H. Dzwigoł.

It should be noted that some of the names appearing in the co-citation network are missing from this compilation. This is because the co-citation network also includes works not included in this study due to type, year of publication, or other considerations.

The historiographic map is the last technique used in this sample review (see Figure 6). It allows the researcher to understand which authors should have the most up-to-date knowledge of the literature under review and which publications they draw from when creating their papers. The different colors denote clusters in the network. There are five particularly interesting areas of the chart. Noteworthy is the separate cluster of H. Dzwigoł's most recent publications; they do not build on the rest of the surveyed collection but instead create their own stream. Although H. Dzwigoł cites 13 of his papers in one of them, he does not refer to his own 2015 publication, which is related to the paper's topic more than many of those cited (see Dzwigoł, 2021). At the same time, it is a highly cited cluster, with more than 200 citations of those works combined; many, if not most, of these citations are from publications written in Cyrillic.

There are two other isolated streams: the publications of A. Kawa on simulation and network methods (as a niche topic, they do not refer to other publications from the collection, although they share some bibliographic positions with him), and the works of A. Horodecka and P. Górski relate to images of humans and the human side of management. Later works by P. Górski changed the positioning. They are concerned with the methodology of

management from a historical perspective and are also already based on other works. In a way, this is an example of a change of research within the same area.

Two areas remain quite densely connected; one is filled by the publications of M. Ciesielski, the other by M. Lisiński. Both authors can be expected to have a deep knowledge of the works they have referred to or those that refer to them. In the context of the essential researchers and streams already mentioned, it is with these two methodologists in particular that it is worth starting to sort out the necessary steps involved in further developing the proposed methodological paper, as their visibility is outstanding.

W. Czakon is visible, with his publications falling into diverse research streams. With H. Dzwigoł, they are the only globally recognized researchers that achieved visibility in this map, though other authors also occurred in the figure.

The analysis forms the basis for discussion on methodological plurality in management. Crucial to understanding the diversity emerging in the management methodology is the discussion that emerged in the early 1960s about the scientific basis of management, in which a critical moment may be identified by Koontz (1961) six different management schools. In later years, H. Koontz re-examined management theory and divided it into eleven approaches. The lack of consistency and the multiplicity of schools was explained by the migration of scientists from other disciplines to management (Koontz, 1980, p. 176). H. Koontz did not live another 19 years to revisit the "jungle," and unfortunately, he did not mention any role played by the methods used or the multiplicity of epistemological approaches. The diversity is apparent – one of the newer management approaches, *Evidence-Based Management* (EBM), entirely deliberately defines its epistemological approach (D. M. Rousseau et al., 2008, p. 486), as it were, in counterpoint to other approaches in management. As a proposed solution for navigating the jungle of management theory (at least when teaching students), a paradigm-based approach has been proposed (Lemak, 2004, pp. 1311–1312). Paradigms are a vital element to be evaluated in a review of the literature in a given field (Breslin & Gatrell, 2020, p. 4). Moreover, they are often the subject of bibliometric analysis or literature reviews, so they will be briefly described below as an essential element of the work carried out.

Historical Direct Citation Network

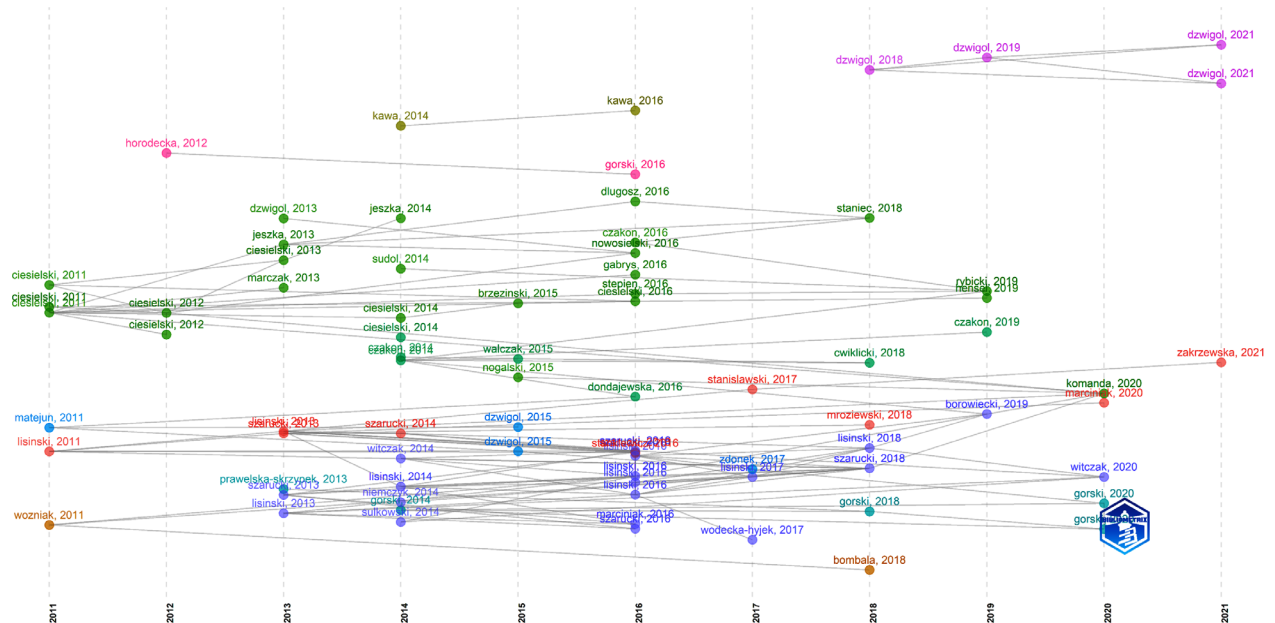


Figure 6. Historiographic map of publication citations in the literature sample (source: own research)

The threads mentioned above have brought reflection in the Polish community on the research methods used in the management discipline, a reflection looking for in them a potential source of friction between the various paradigms (e.g., Krupa, 2006; Sułkowski, 2016). Thus, there was a renewed focus on the problems identified in recognizing the jungle of management theory: the possible problem of the simultaneous existence of multiple paradigms in the management sciences but of a methodological nature (Lisiński, 2016). “Tribal wars” between such paradigms can harm the rigor of research and its relevance to management practitioners (Gulati, 2007). The high diversity of the discussion on the national level is not reflected in adequate heterogeneous evidence in global bibliographic databases. This paper is in line with the discussion outlined above – the analysis on the national level provides evidence that knowledge of methodology of management research in Poland is fragmented. Globally visible scholars form only a fraction of the knowledge in this field, and as such, their publications should not be considered as proxy for the knowledge presented at country-level management education.

Conclusions

The main research question raised in this paper was: Do globally visible researchers retain their visibility at the national level? This was further investigated with a comparative analysis of a group of management methodology scholars in Poland and its subgroup of these researchers, visible in global bibliographic databases. This primary research question was operationalized to analyze four secondary questions.

The first of these questions, answered through co-citation analysis, revealed three main groups of management methodology scholars whose publications are often cited jointly. The only globally visible scholar, who retained visibility in this type of network, was W. Czakon, but the centrality measures were not in favor of his recognition. It might be concluded that national co-citation networks do not support the assumption of global databases being representative of country-level science maps.

The second auxiliary question under investigation was addressed with bibliographic coupling analysis. In an unrestricted network, four threads of discussion were revealed; globally visible scholars are located within three of them, which would lead to the conclusion of the relatively good potential of these scholars to shape the discussion on the national level. However, the network filtered to the researchers frequently publishing in the field of management methodology leaves only two authors that influence the discussion: W. Czakon and H. Dzwigoł. Since they are two out of nineteen researchers presented in the historiographic map, and they do not occupy particularly strong positions, their national visibility does not indicate their global position.

The third additional research question was resolved with the co-authorship network, degree distribution, and collaboration index. Collaboration in Poland’s management methodology field is exceptionally scarce, indicating a possible low level of agreement. There are visible collaborations between globally visible scholars (M. Lenartowicz and G. Praweńska-Skrzypek); however, the overall disconnected structure of authorship does not support the assumption of added visibility of those scholars; neither it allows to provide a statement on recognition of any of the researchers.

The fourth – and last – additional research question concerned research streams, as depicted by the continuation of research through time. With a persistent presence throughout the years, some scholars might claim higher overall visibility. Indeed, there is evidence of rich continued research by various scholars. All globally visible scholars provided documents that contribute to at least one research stream; however, only H. Dźwigoł and W. Czakon contributed to the creation of longer paths of their research, thus gaining visibility through the continuation of research. H. Dźwigoł started to contribute only to his research stream, possibly lowering his visibility; at the same time, W. Czakon contributed to more diversified streams, gaining visibility. It might be stated that through sustained publishing activity, the visibility of global scholars might be retained. However, their presence in global bibliographic databases has not contributed to a higher development of the research streams coming from their publications than from publications of nation-level authors.

The main research question shall be answered negatively through a detailed study of these additional questions. Only two of the authors retained their visibility (W. Czakon and H. Dźwigoł); however, they do not seem to benefit at the national level from their international recognition. Hence, we conclude that global bibliographic databases, like Web of Science or Scopus, do not provide representative results at the national level – at least in the case under investigation, that is, management methodology scholars in Poland. Therefore, the effects of international scientific collaboration and mobility discussed in the introduction seem to have limited scope. Additional conclusion regarding global research is not to rely on global databases when researching management education at the national level. This also constitutes our recommendation for the management research practice. The final conclusion is related to the practical application of this research results. An incentive system for globally visible authors should be created to support their publications in the national language. This could increase the quality of works available in the teaching process and should have a positive impact on the international orientation of management teaching at the national level.

Limitations and future research recommendations

This research is one of the very few studies that apply bibliometric techniques to data other than the one embedded in Web of Science or Scopus. In effect, it was more time-consuming when compared to equivalent typical bibliometric reviews. For such a reason a limited number of iterations was performed when completing a literature search; additionally, the research was limited to short papers and excluded monographs. Also, the limitation of space required this paper to streamline attention to the visibility of researchers; from that comes a recommendation for future research.

We recognize the opportunity to study further the extent to which the content of global bibliographic databases reflects accurately on the education and knowledge passed to management students at a national level. Further development of this research could focus on the triangulation of data or the use of several methods, thereby deepening insights and improving the validity of the study. A broader scope of the research would also allow drawing conclusions on the situation in other countries and provide a reinforced theoretical contribution in the field of management research methodology and education.

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Declarations of conflict of interests

The authors declare no competing interests.

Authors' contribution

O. Kosch: Conceptualization, Funding acquisition, Methodology, Software, Validation, Visualization, Writing – Original Draft, Writing – Review & Editing; M. Szarucki: Funding acquisition, Methodology, Project administration, Supervision, Writing – Original Draft, Writing – Review & Editing; I. Skackauskiene: Funding acquisition, Supervision, Writing – Original Draft, Writing – Review & Editing.

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