Jurnal Literasi Perpustakaan dan Informasi UHO, Volume 4, No. 2, May 2024
hlm 110-122
ISSN 2775-876 (Online)

DOI: http://dx.doi.org/10.52423/jlpi.v4i2.49057

ACADEMIC ROOTS: THE MOST PROLIFIC AUTHORS OF BIBLIOMETRICS

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ABSTRACT

The purpose of this study is to discover the academic roots of the world's most prolific authors of bibliometrics research. José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo are bibliometric research professionals in Europe and Asia. The research method employs a bibliometric methodology using reference publication year spectroscopy (RPYS). This study has three stages: data collecting, data processing, and outcome analysis. Data is gathered from the Scopus database by entering the topic "bibliometrics" on Researcher discovery and counting the number of matching documents from 2017 to the present. There are 247 data documents in all. CRExplorer software is also employed in this data processing. To import 247 research documents into the software, the CRExplorer software was utilised, and all import strategies were used. The scholarly roots' discovery results the most prolific authors of bibliometrics research in the world, José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo, demonstrated that they used both the straight count and complete count approaches. The most prolific bibliometrics authors cited their own works or self-citation. The four bibliometric research experts ensure that no one is utilised as a role model or ideal in performing bibliometric research.

Key Words: *Bibliometrics, Reference Publication Year Spectroscopy, Academic roots*

1. INTRODUCTION

The importance of references in a study as previous research (Anaswah, 2022). Researchers use references as a roadmap while conducting additional study. Previous research is typically found in the research proposals section, where further research is still necessary in order to complete the study. Both direct and indirect quotations and references go hand in hand. A direct quote from the primary source, without needing to read other articles or cite them in quotation marks, is a good citation. (Ahlgren et al., 2020; Boyack & Klavans, 2020; Huang et al., 2021; Kozakiewicz & Lis, 2021; Shahid et al., 2021). Researchers can use a bibliometric technique to determine a person's level of skill in a given field by looking at the cumulative number of citations or direct citations. In order for researchers to be aware of the references that these knowledgeable researchers frequently use as their primary source.

The bibliometric approach can be used to determine which references are frequently used as the primary source by experts or certain disciplines. So that researchers are aware of the epicentres of research in specific areas. Reference publication year spectroscopy (RPYS) is a bibliometric approach that can be employed. RPYS was first introduced by Marx, Bormannn, Barth, and Leydesdorff in 2014. (Thor et al., 2016). Some previous studies have used the RPYS method to analyse the reference frequencies that are often used (Bornmann et al., 2018). (Bornmann et al., 2018, 2023; Fiala & Bornmann, 2020; Haunschild, 2019; Haunschild, Bauer, et al., 2019; Haunschild et al., 2020, 2020; Haunschild & Marx, 2019; Khasseh & Mokhtarpour, 2016; Li et al., 2020; Malik et al., 2021; Marx et al., 2017; Soheili & Khasseh, 2015; Šuran et al., 2022). RPYS approaches can be used to investigate academic roots or influencers in disciplinary disciplines (Aichouchi & Gorry, 2019; Elango et al., 2016; Fiala & Bornmann, 2020; Gruber et al., 2023; Haunschild, Barth, et al., 2019; Mostafa, 2022). The RPYS approach can see the academic origins of the author as well as the academic roots of the discipline field. Several earlier studies on an author that used the RPYS approach (Bornmann et al., 2018). However, this research is still rarely conducted.

This study will address the subject of bibliometrics. According to Scopus data, research on bibliometric themes from 1970 to 2023 totaled 23,638 documents. This demonstrates how popular bibliometric issues are. This research, however, is devoted to the subject of scholars who frequently do research in the field of bibliometrics around the world. The scholars who are experts in the

subject of bibliometrics are the focus of this study, based on the number of papers most frequently written on Scopus with bibliometric issues. José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo are the research subjects. These scholars are from the European and Asian continents, with the most bibliometrics-related documents authored in Scopus by José Mara Merigó (76 documents), Lutz Bormann (74 documents), Yuhshan Ho (58 documents), and Giovanni Abramo (39 documents). Based on these issues, the researcher wishes to investigate the academic backgrounds of bibliometrics professionals José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo.

2. RESEARCH METHODS

This study employs a quantitative technique, namely a bibliometric methodology. RPYS is the bibliometric approach employed (Biranvand et al., 2017; Eftekhar, 2020; Millán et al., 2020, 2022; Zhao et al., 2020). This study is divided into three stages: data collecting, data processing, and result analysis.

Data collection

Based on the number of matched papers from 2017 to the present, this data was obtained from the Scopus database by entering the topic "bibliometrics" in Researcher discovery. According to the results of data collection conducted by researchers, there are ten bibliometric expert authors based on the maximum number of documents, especially Merigó José Mara from Australia with 76 documents and an H-index of 60. Bormannn, Lutz from Germany comes in second with 74 papers and an H-index of 60. Ho, Yuhshan is the author who originates from Taiwan and has 58 documents with an H-index of 81. Sweileh, Waleed M from Palestine comes in second with 52 papers and an H-index of 37. Kumar, Satish is the author who hails from India and has 49 documents with an H-index of 37. The sixth position is held by Yeung, Andy Wai Kan, who has 43 papers with an H-index of 28 and is from Hong Kong. Chien, Tsairwei is the seventh order. This author is from Taiwan and has a total of 41 documents with an H-index of 19. The seventh order is Abramo, Giovanni with 39 documents and an H-index of 38. The following order is D'Angelo, Ciriaco Andrea Andrea from Italy, who has 39 papers and an H-index of 36. The tenth order is Haunschild, Robin from Germany, who possesses 36 documents with an H-index of 21.

José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo are the research subjects. This is due to the fact that José Mara Merigó, Lutz Bormann, and Yuhshan Ho are at the top of the top ten. While Giovanni Abramo was chosen to represent the European continent. This is due to the researcher's desire to visit the mecca of bibliometric writers from the Asian and European continents.

Data processing

This data processing use CRExplorer software to process data in CSV format derived from the Scopus database. (Barth & Marx, 2017; Haunschild, 2019; Haunschild et al., 2018, 2020; Haunschild & Bornmann, 2022; Hou, 2017; Malik & Ahmadi, 2020; Scheidsteger & Haunschild, 2019; Thor et al., 2021, 2016, 2018). The import all technique was used (no sampling). When using Excel and Rbiblioshiny to calculate the author who is most referenced by the author, both the straight count and the complete count techniques are used.

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Table 1
Number of references used

Name	Year of publication	Total Document	Number of cited references	Range of cited references	Number of cited references without publication year
José María Merigó	2017-2023	76	2930	1912-2021	12
Lutz bormann	2017-2023	74	2926	1735-2022	35
Yuhshan Ho	2017-2023	58	2444	1866-2023	70
Giovanni Abramo	2017-2023	39	1359	1921-2023	2
Total			9659		119

Source: Author's processed data, 2023

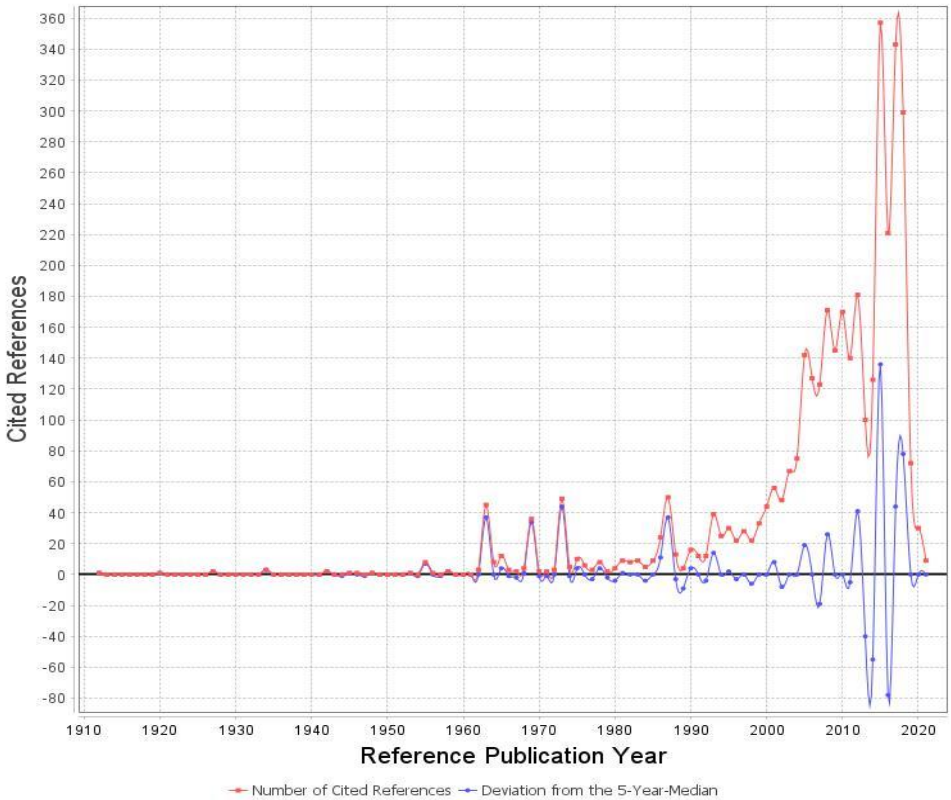
According to Table 1, the references cited by bibliometric researchers range from 1735 to 2023. The total number of references mentioned is 9659. The average bibliometric researcher has been writing in the subject of bibliometrics since 2017 and may continue into the next year. There are 119 sources cited that do not include a year.

Analysis of results

The data will then be analysed to determine the most frequently referenced references by José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo. The individual who is most frequently quoted and utilised as a reference for both the straight count and the complete count techniques. In addition to tracing the persons who are frequently mentioned in any field and from any country.

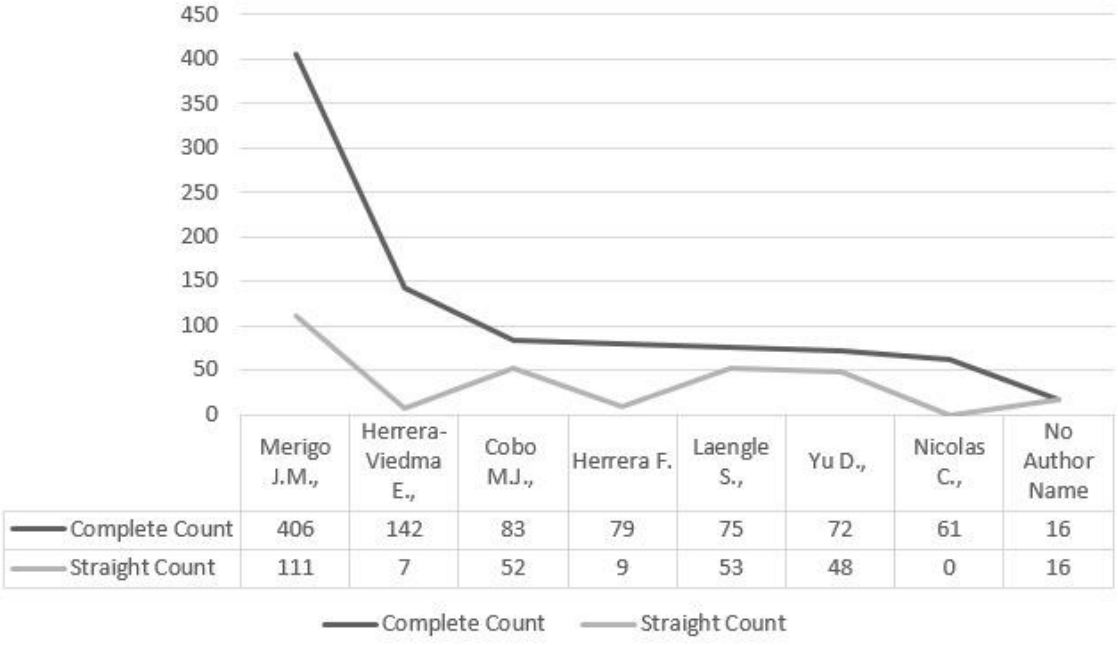
3. RESULTS AND DISCUSSION

José María Merigó



The references utilised by José Mara Merigó in bibliometric study, extending from 1912 to 2021, based on the publication years of spectogram references. The most frequently used references are from 2015 to 2018. The reference was the most commonly used reference in 2015, with 357 references. In 2016, there were 221 references, in 2017, there were 343 references, and in 2018, there were 229 references.

José Mara Merigó's most often cited source is an essay titled "An overview of fuzzy research with bibliometric indicators, Applied Soft Computing," which has 34 citations. José Mara Merigó et al. created the title. With 34 citations, the work of Nees Jan van Eck and Ludo Waltman titled "Software survey: VOSviewer, a computer programme for bibliometric mapping" is the most commonly used reference. The third is an intriguing reference by Kessler M.M from 1963 with the title "Bibliographic coupling between scientific papers, American Documentation" with 17 citations. The fourth reference is "A bibliometric overview of the Journal of Business Research between 1973 and 2014" by José Mara Merigó et al, which is 13 citations published in the Journal of Business Research in 2015. The following reference is a 13-citation article titled "Statistical bibliography or bibliometrics." This title is Alan Pritchard's work, published in 1963, which is pretty intriguing because the author of the title of this article is the work of the term's creator. So it's not unexpected that this article's publication year has been lengthy. The reference with the title "a definition of Bibliometrics" comes next, with 12 citations. Robert N. Broadus created this term in 1987 and published it in the journal scientometrics. Claudio A. Bornilla, José M. Merigó, and Carolina Torres-Abad's "Economics in Latin America: a bibliometric analysis," with 11 citations, was published in the journal Scientometrics in 2015. "A scientometrics review on aggregation operator research" is the ninth most cited reference, with 11 citations. Dejian Yu's study was published in the journal Scientometrics in 2015. While the ninth reference is to a book. The paper "Measurng Scholary Impact" by Ying Ding, Ronald Rousseau, and Dietmar Wolfram has 11 citations and was published on Springer Link in 2014. The tenth reference, with ten citations, is "Scholarly influence in the field of management: A bibliometric analysis of the determinants of university and author impact in the management literature over the last quarter century." Philip M. Podsakoff, Scott B. Mackenzie, Nathan P. Podsakoff, and Daniel G. Bachrach created the title. In 2008, this reference was published in the Journal of Management.



	Merigo J.M.,	Herrera-Viedma E.,	Cobo M.J.,	Herrera F.	Laengle S.,	Yu D.,	Nicolas C.,	No Author Name
Complete Count	406	142	83	79	75	72	61	16
Straight Count	111	7	52	9	53	48	0	16

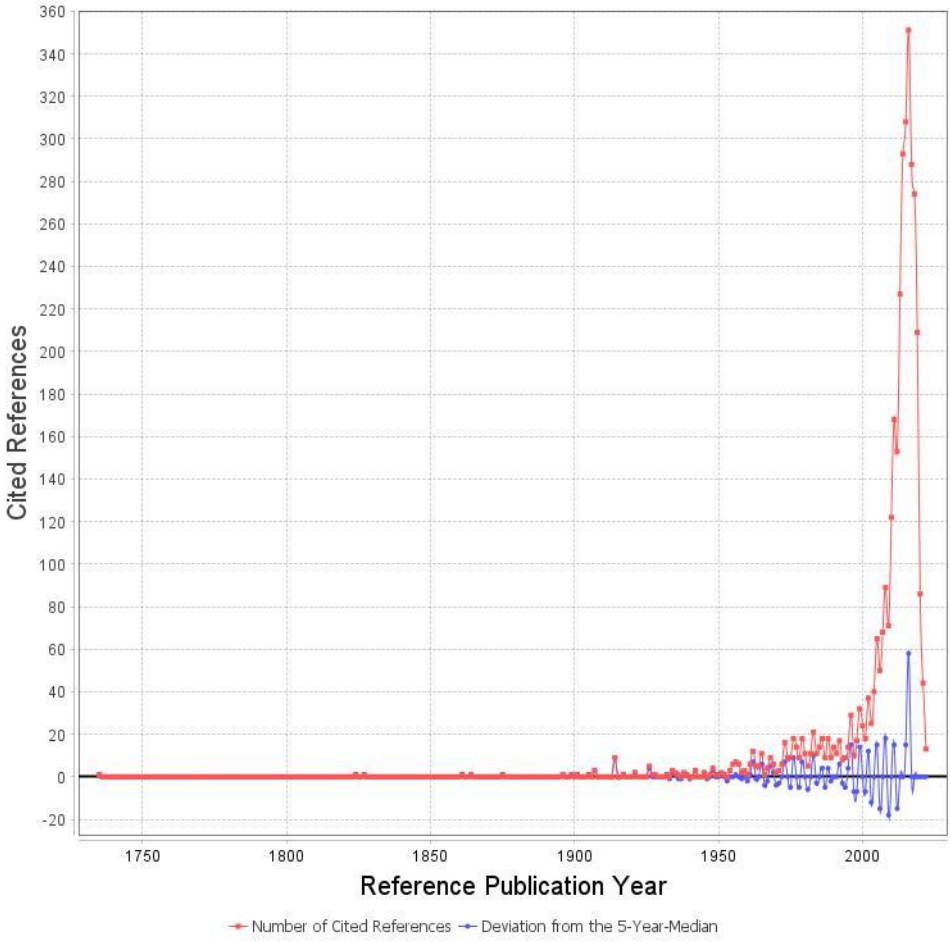
Figure 1. The most cited authors by José María Merigó using complete count and straight count techniques
Source: Author's processed data, 2023

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The most frequently cited references are those by José Mara Merigó, according to figure 1's distribution of references depending on year of reference or when utilising the RPYS method. In order to determine who was most frequently quoted, the researcher also used straight count and complete count approaches to analyse the data. José Mara Merigó is the most referenced individual in bibliometric research, both using the complete count technique (406) and straight count (111). While there is a substantial difference in Herrera-Viedma E, complete count (142) outnumbers straight count (7). This demonstrates that Herrera-Viedma E rarely writes as the primary author, preferring to collaborate with Herrera F and Nicolas C. Other than as co-authors, Cobo MJ and Laengle S are more active in writing as first authors than Herrera-Viedma E, Herrera F, and Nicolas C

Lutz bormann



The references used by Lutz Bormann in bibliometric research range from 1735–2022, based on the results of spectogram references and publication years. The most used references are those from 2014–2018. The most used reference is the 2016 reference of 351 references. The 2014 references were 293 references, the 2015 references were 308 references, the 2017 references were 288 references, and the 2018 references were 274 references.

The most common reference used by Lutz Bormann is an article entitled "A review of the literature on citation impact indicators", which has 18 citations. The title is the work of Ludo Waltman. While the second most used reference is Lutz Bormann's own work with the title "What do citation counts measure? A review of studies on citing behaviour", namely 12 citations. While the third is Lutz Bormann's work with the title "Scientific Peer Review, Annual Review of Information Science and Technology" with 11 citations. The fourth reference is the work of Diana Hicks, Paul Wouters, Ludo Waltman, Sarah de Rijcke, and Ismael Rafols entitled "Bibliometrics: The

Leiden Manisfesto for Research Metrics" with 10 citations. This reference was published in the journal Nature in 2015. While the fifth reference is entitled "The use of percentiles and percentile rank classes in the analysis of bibliometric data: Opportunities and Limits" with 10 citations. The title is Lutz Bornmann's own work. This article was published in the journal Informetrics in 2013. While the sixth reference is entitled "Methods for the generation of normalised citation impact scores in bibliometrics: Which method best reflects the judgements of experts?" as many as nine citations. Lutz Bornmaan also created the title. In 2015, this reference was published in the journal Informetrics. Following that comes "A review of theory and practise in scientometrics," which has 9 citations. The title was created in 2015 by John Mingers and Loet Leydesdorff. This citation appeared in the European Journal of Operational Research. The eighth reference is Jian Wang's paper from 2013, published in the Scientometrics journal, titled "Citation time window choice for research impact evaluation," which has as many as 8 citations. While the ninth reference, "Factors influencing the number of citations: A comprehensive review of the literature," contains up to 8 citations. Iman Tahamtan, Askar Safipour Afshar, and Khadijeh Ahamdzadeh created the title. This reference was published in the journal scientometrics in 2016. "Storage to be Provided in Impounding Municipal Water Supply" is the tenth reference, having eight citations. Allen Hazen's work, published in the Transactions of the American Society of Civil Engineers in 1914, inspired the title.

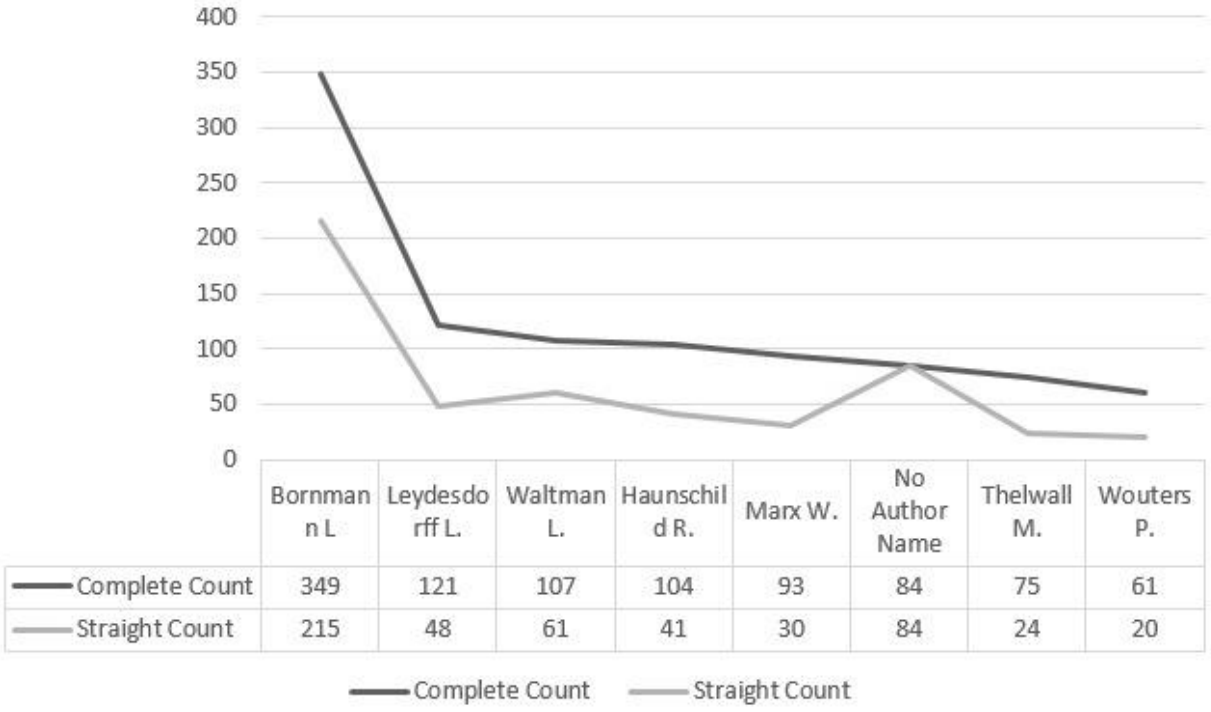


Figure 2. The most cited authors by Lutz bormann using complete count and straight count techniques
Source: Author's processed data, 2023

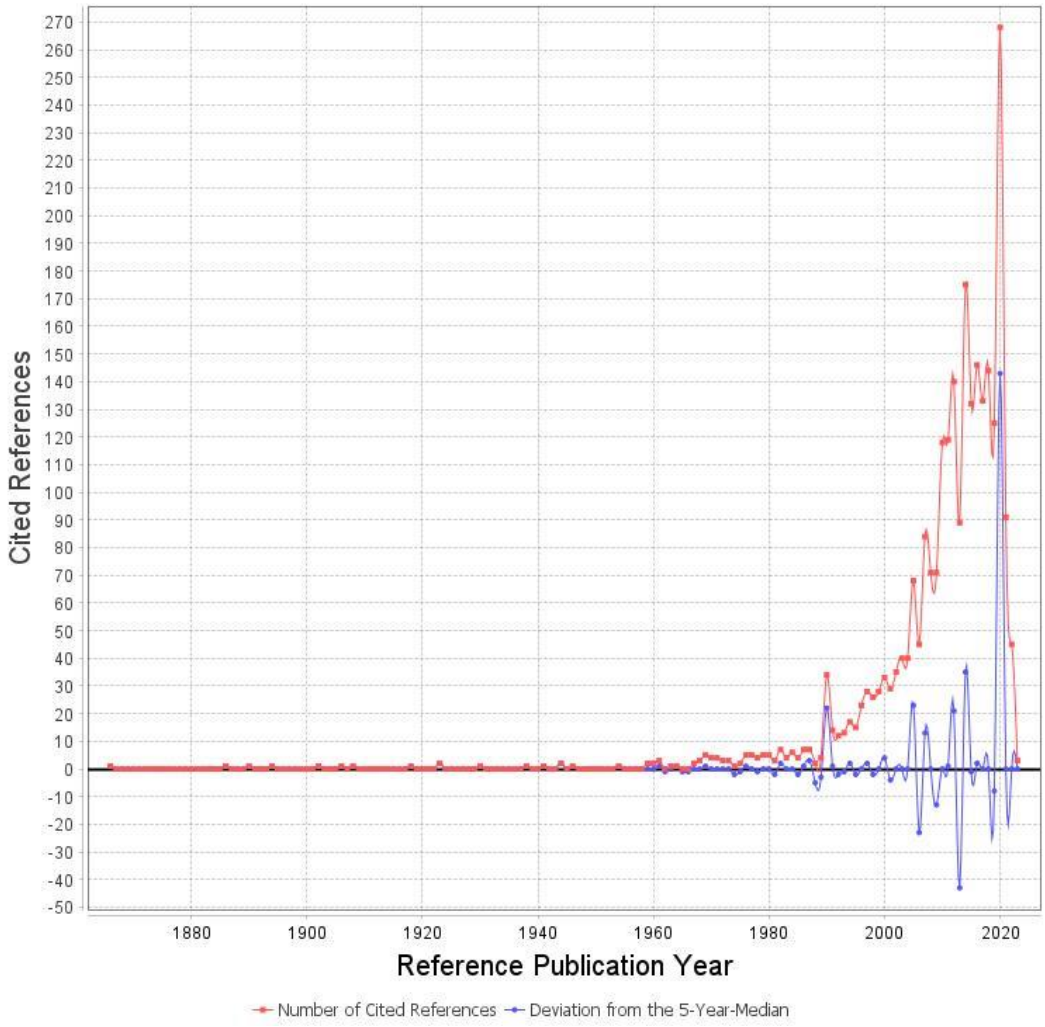
Lutz Bormann is the most frequently used reference, according to figure 2, which shows the distribution of references used based on the year of reference or when using the RPYS approach. Researchers also used complete and straight counts to analyse the data to determine who was the most often cited source. Lutz Bormann himself is the most referenced author in bibliometric research, according to both the complete count (349) and straight count (215) methods. Leydesdorff L wrote as many as (121) entries in the entire count, but only (48) entries in the straight count. As a result, only 39.67% of the time does Leydesdorff L write as the main author rather than more often as a co-author. Waltman L wrote 107 pieces overall, and 61 pieces straight,

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according to the complete count. This indicates that Waltman L. contributes more to this work as a co-author than as the primary author, who only accounts for 57% of it.

Yuhshan Ho



The references employed by Yuhshan Ho in his bibliometric study, with publication years ranging from 1866 to 2023, are based on the results of spectogram references. With up to 268 references, the 2020 reference is the most popular. Furthermore, 175 references were utilised in 2014, which was the most. Additionally, there were 140 references in 2012, 146 references in 2016, and 144 references in 2018.

Eight citations from two article titles make up the majority of references utilised by Yuhshan Ho as a source of reference. Both "Bibliometric analysis of tsunami research" and "A bibliometric analysis of world volatile organic compounds research trends" are examples. While "Bibliometric analysis of homoeopathy research during the period of 1991 to 2003" comes in third place with 7 citations. Furthermore, the most commonly used reference contains six citations in three article titles. Zhi Li and Yuh-Shan Ho's article "Use of citation per publication as an indicator to evaluate contingent valuation research" was published in the journal Scientometrics in 2008. Hui-Zhen Fu, Ming-Huang Wang, and Yuh-Shan Ho's work was named "the most frequently cited adsorption research articles in the Science Citation Index (Expanded)" in 2012. Yuh-Shan Ho's paper "Top-cited articles in chemical engineering in Science Citation Index Expanded: A bibliometric analysis" was published in the Chinese Journal of Chemical Engineering in 2012. The reference with the most citations is the one with two titles, namely "Global stem cell research

trends: bibliometric analysis as a tool for mapping of trends from 1991 to 2006" by Yaqi Li, Jing Li, and Shaodong Xie. In 2016, Environmental Earth Sciences published this reference. Furthermore, "A bibliometric study of the trend in articles related to risk assessment published in Science Citation Index" is the work of Ning Mao, Ming-Hung Wang, and Yuh-Shan Ho. In 2010, this research appeared in Human and Ecological Risk Assessment: An International Journal. The most often cited reference is the reference, which has four citations and two titles. Yuh-Shan Ho, Hiroaki Satoh, and Shih-Yuan Lin created "Japanese lung cancer research trends and performance in Science Citation Index." In 2010, it was published in the journal Internal Medicine. The final one is "High-impact papers presented in the subject category of water resources in the institute for scientific information's essential science indicators database." Kun Yang Chuang, Ming Huang Wang, and Yu-Shan Ho created the title in 2011.

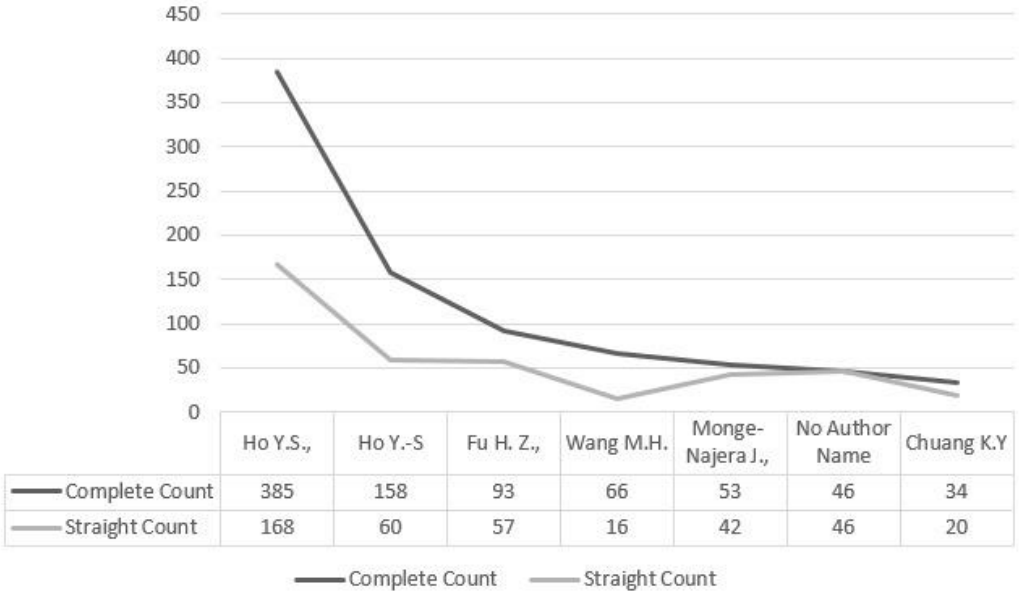


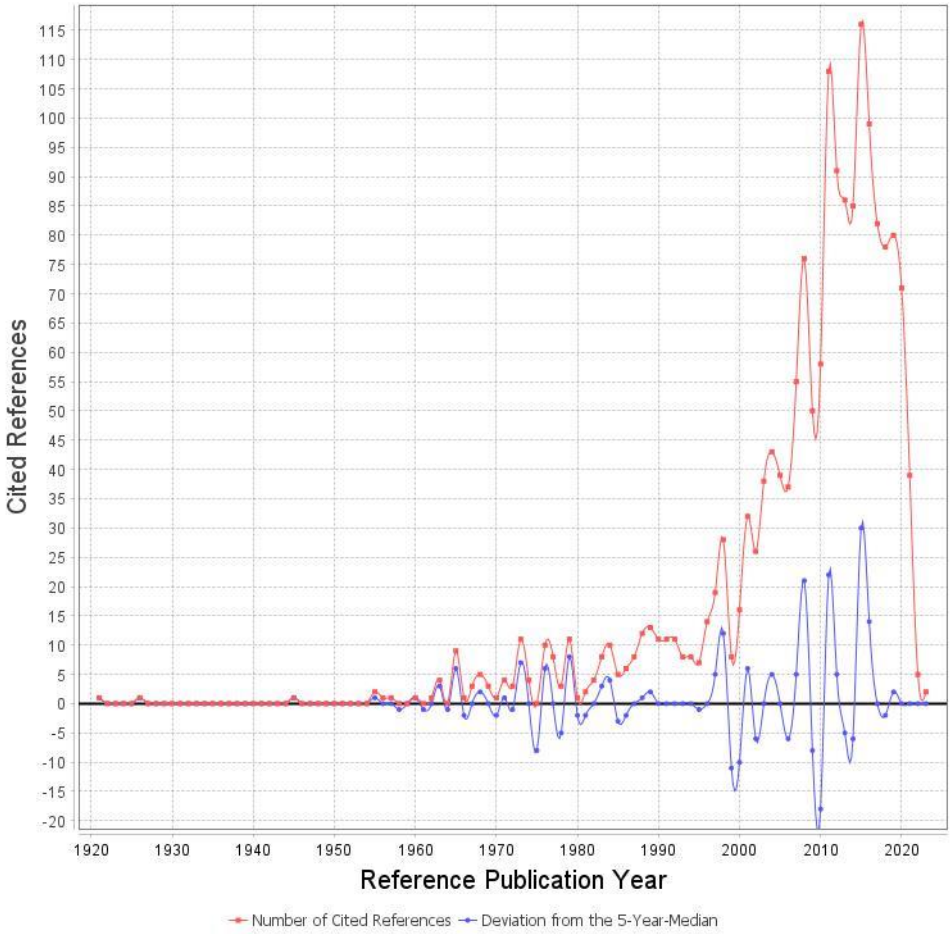
Figure 3. The most cited authors by Yuhshan Ho using the complete count straight count techniques
Source: Author's processed data, 2023

Figure 3 depicts the distribution of references utilised by Yuhshan Ho based on the year of reference or using the RPYS approach. The study also used straight count and complete count approaches to determine who was the most mentioned. Yuhshan Ho's most referenced individual in bibliometric research is Ho Y.S., utilising both the complete count (385) and straight count (168). Ho Y.-S. wrote as many as (158) in complete count, but only (60) in straight count. In the entire count, Fu H. z. wrote as much as (93) and in the straight count as much as (57). This suggests that Fu H. z. authored more as a co-author than as the principal author in this case, which was just 61.2%.

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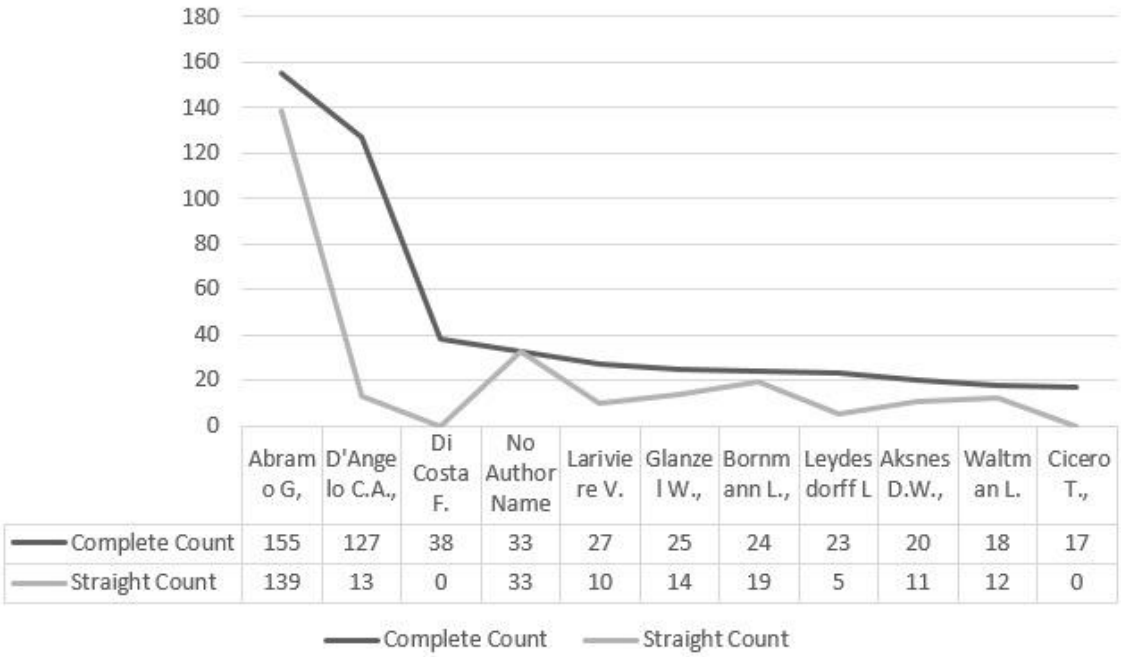
Giovanni Abramo



The references used by Giovanni Abramo in bibliometric research, ranging from 1921–2023, are based on the results of spectogram references and publication years. The most used reference is the 2011–2015 reference. The most used reference is the 2015 reference, with 116 references. The 2011 reference has 108 references, the 2012 reference has 91 references, the 2013 reference has 96 references, and the 2014 reference has 85 references.

Giovanni Abramo's most often cited source is an article titled "How do you define and measure research productivity?" with 13 citations. Abramo G. and D'Angelo C.A. created the title. While the work by Abramo G., Cicero T., and D'Angelo C.A. himself with the title "Revisiting the Scaling of Citations for Research Assessment," with 11 citations, is the second most used reference. The third paper has ten citations and is titled "The collaboration behaviours of scientists in Italy: A field level analysis" by Abramo G., D'Angelo C.A., and Murgia G. Giovanni Abramo's own work is one of the three most frequently mentioned references. While the fourth is the work of D'Angelo C.A., Giuffrida C., Abramo G., A with the title "heuristic approach to author name disambiguation in bibliometrics databases for large-scale research assessments" with up to ten citations. In 2011, the title appeared in the Journal of the American Society for Information Science and Technology. The fifth reference is Abramo G's paper, "Revisiting the scientometrics conceptualization of impact and its measurement," which has ten citations. In 2018, the title was published in the Journal of Informetrics. There are six citations between the sixth and tenth references. Abramo G, D'Angelo C.A, and Murgia G. published "The relationship between research productivity, research collaboration, and their determinants" in the Journal of Informetrics in 2017. "The impact of research collaboration on scientific productivity" follows. Lee S. and Bozeman B. created the title. In 2005, it was published in the journal Social Stidies of Science. The following reference is titled "Predicting long-term public impact using early citations and journal impact factor." Abramo G., D'Angelo C.A, and Felici G. created the title. In 2019, their study was published in the Journal of

Informetrics. "Predicting the long-term citation impact of recent publications," according to the ninth reference. Stegehuis C, Litvak N, and Waltman L created the title. In 2016, this article was published in the Journal of Informetrics. The final work is "A Farewell to MNCs and Like Size-Independent Indicators" by Abramo G. and D'Angelo C.A. In 2016, it was published in the Journal of Informetrics.



	Abramo G,	D'Angelo C.A.,	Di Costa F.	No Author Name	Larivière V.	Glanzel W.,	Bornmann L.,	Leydesdorff L	Aksnes D.W.,	Waltman L.	Cicero T.,
Complete Count	155	127	38	33	27	25	24	23	20	18	17
Straight Count	139	13	0	33	10	14	19	5	11	12	0

Figure 4. The most cited authors by Giovanni Abramo using the complete count straight count techniques
Source: Author's processed data, 2023

The most frequently used reference, in addition to looking at figure 4, is Giovanni Abramo, who is also the most frequently used reference when using the RPYS technique. In order to identify the most often referenced person, we also performed complete and straight counts on the data. Abramo G is the author who has been cited the most by Giovanni Abramo in bibliometric studies, according to both the complete count (155) and straight count (139) methods. D'Angelo C.A. wrote as many as (127) in the entire count, but only (13 in the straight count). In this instance, D'Angelo C.A. contributed more as a co-author than as the primary author, who accounted for only 10% of the work. Di Costa F.'s complete count wrote as many as (38) but the straight count never wrote even once ((0)), which is a notable difference.

Discussion

Since 2017, academic origins of bibliometric study on José Mara Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo have been published. All writers (José Mara Merigó; Lutz Bormann; Yuhshan Ho; Giovanni Abramo) employ greater self-citation of their own works when utilising straight count and complete count methodologies, which is similar to prior research undertaken to analyse Eugene Garfield's bibliometric works (Bornmann et al., 2018). However, when viewed geographically, Yuhshan Ho comes from Asia, using more references from Asian countries as well, such as Huzhein Fu and Minghuang Wang, besides Yuhshan Ho himself. Yuhshan Ho comes from Taiwan, while Huzhein Fu comes from China, and Minghuang Wang comes from Taiwan, so it can be said that Yuhshan Ho uses more references from Asian countries in conducting bibliometric research. In contrast, José María Merigó uses more references from Spanish countries, such as Herrera-Viedma E, Herrera F, and Cobo MJ. However, what is interesting about José María Merigó and Yuhshan Ho is that there are references to authors who are included in the top 5 most cited

authors from Latin American countries, namely Costa Rica and Chile. Those authors are Monge-Nájera, Julián, and Laengle, Sigifredo M.

Lutz Bormann mostly uses references from European countries such as the Netherlands and Germany, such as Lydesdorff, Loet, Waltman, Ludo, and Haunschild, Robin. In addition to himself being used as a source of citation, Lutz Bormann himself comes from Germany. Similarly, Giovanni Abramo also uses references from countries on the European continent, such as Italy, Belgium, and Germany. These authors include D'Angelo, Ciriaco Andrea; Di Costa, Flavia; Glanzel, Wolfgang; and Bormannn, Lutz. The Latin American writer cited by Giovanni Abramo is Larivière, Vincent, from Canada.

4. CONCLUSION

The academic roots of the prolific authors of bibliometric research on José María Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo published in 2017 until now show that all of them are more self-citation in using references than previous research, both using the straight count and complete count methods. No one is used as a role model or mecca in conducting bibliometric research by the four bibliometrics research experts. It is hoped that future research can research intrinsic motives related to citations by José María Merigó, Lutz Bormann, Yuhshan Ho, and Giovanni Abramo.

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