

Narrative Bibliometrics

Definition and Applications of ¹

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***Abstract:** The paper explores the concept of Narrative Bibliometrics as a novel approach in academic evaluation. It presents a bridge between traditional metrics and the storytelling aspects of a researcher's contributions, offering more nuanced and contextualized evaluations. The paper identifies four types of narratives—Position, Context, Agents, and Audience—that provide practical applications of bibliometric indicators beyond mere "bean counting." It asserts that Narrative Bibliometrics aligns with Evaluative Bibliometrics and advocates for its systematic incorporation into narrative Curriculum Vitae (CV). The article not only adds transparency to academic evaluations but also suggests a methodology for the practical application of this concept.*

1. Definition and Framework of Narrative Bibliometrics

We are all now aware of the changes in various evaluation systems that are coming with the implementation of the CoARA principles, their assimilation into the LOSU, and the approval of Royal Decree 678/2023 (Spanish Context). One of the most interesting tools that has been proposed to prevent the misuse of indicators is the narrative Curriculum Vitae (CV), where one has the freedom to explain and detail merits. This way, the infinite display of a poorly interconnected sequence of merits usually based on journal publications is avoided. In principle, this type of CV should be useful for evaluators. We understand that, within this narrative-based format, different types of narratives can fit, among which a narrative based on objective indicators, bibliometric indicators, could evidently be included.

That is, a narrative that encourages the researcher to break down the indicator, preventing it from being presented crudely ("bean counting") and giving it meaning. Therefore, narrative bibliometrics serve as a bridge between figures and contexts, articulating the story or narrative behind the data, and offering reconciliation to those who have previously rejected their value (Torres-Salinas et al., 2023). With what has been presented so far, and given its conceptual simplicity, we believe we can now approach a definition of Narrative Bibliometrics. This would be: the use of bibliometric indicators to generate stories and narratives that allow the defense and exposition of a scientific curriculum and/or its individual contributions within the framework of the new evaluation policies promoted by CoARA. Therefore, Narrative Bibliometrics essentially acts as a support for the detailed writing and presentation of evidence and clues related to the attention, dissemination, or influence that scientific results have, especially publications. Narrative Bibliometrics falls under Evaluative Bibliometrics, as the different narrative bibliometrics have as their main objective to assist experts and evaluators in decision-making. In addition, they must necessarily respect its basic principles, as the information must always be contextual, multidimensional, and verifiable.

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2 Basic Applications of Different Narratives

In what follows, we will briefly and graphically illustrate how to appropriately apply indicators to defend publications in narrative curricula. All examples seek to avoid "Bean Counting" and outline objective narratives derived from indicators:

- **Position Narrative:** allows us to situate and compare contributions within a broader set. This could involve the use of normalized indicators such as Category Normalized Citation Impact (CNCI) or Field Weight Citation Impact (FWCI). Quartile position (we are not referring to Impact Factor!) or percentile ranking of the publication based on a specific indicator within a database can also be used. For instance, Altmetric.com offers a phrase like "*In the top 5% of all research outputs scored by Altmetric*" to indicate position.
- **Context Narrative:** Indicating where our publications are mentioned or cited can help us build a narrative about their possible utility and application by other researchers. The idea is to generate a context where mentions are categorized based on, for instance, the section of the article where they appear. Thus, it would be useful for an evaluator to know if an article is predominantly cited in the introduction, methodology, or discussion. Such contextual metrics have been incorporated into Web of Science, as described by Orduña-Malea (2022).
- **Agents Narrative:** Indicating who the agents (authors, groups, institutions, etc.) are that use, read, and reference our contributions provides objective information that helps the evaluator approach the scope of a given scientific contribution. This can help us qualify the type of impact (educational, social, economic, etc.). Currently, many platforms allow us to access this data; for example, with Overton, we could determine if our publication has been used in a WHO Situation Report, an EU White Paper, or the latest PISA report. The possibilities and sources are endless here.
- **Audience Narrative:** The potential reach of the findings is crucial in determining their impact among audiences with shared interests. It is essential to quantify and subsequently qualify the target groups of our message. For instance, when evaluating influence in the press, not only the media should be considered but also potential readers and their scope (local, national, or international). On platforms like Twitter, not only the number of mentions is relevant, but also the potential reach, considering the number of followers of those who retweet. The description of the profile of the audience, whether academic or media-based, enriches the analysis. This approach has been discussed by Arroyo-Machado and Torres-Salinas in 2023, especially in contexts like Twitter, Wikipedia, and media outlets.

Other aspects that should be indicated in these narratives aim to ensure that the information provided is replicable. For example, it is essential to include a note about the sources and refer to their limitations and scope. It is also imperative to indicate the date on which the information sources were downloaded or consulted to avoid discrepancies depending on the consultation date. Comparisons with other colleagues and their work should be avoided, as well as the use of self-made lists.

3. Final Reflection

The intent of this conceptual proposal is to delineate, at least in broad terms, the working framework we will adopt in the near future. We have always undertaken the breakdown of indicators and the drafting of evidence, albeit invisibly and in an unsystematic manner. An improvement, standardization, and openness of these processes could be highly useful for narrative curricula. Moreover, if properly systematized in its method and descriptions, Narrative Bibliometrics allows us to clearly explain our work to managers, eliminating any suspicion towards bibliometrics.

As the academic sphere shifts from static metrics towards more holistic and meaningful approaches in evaluation, Narrative Bibliometrics could emerge as a narrative solution serving as a starting point for researchers across disciplines. It is crucial to provide the necessary training, tools, and support to ensure its effective and coherent use. In summary, this little text can be condensed into three points:

Narrative Bibliometrics must be configured as a task dedicated to the detailed exposition and contextualization of bibliometric indicators for their use in the defense and exposition of narrative CV.

Narrative Bibliometrics not only brings transparency and recognition to a previously invisible labor but also aims to establish standards, offer practical cases, and solutions for the breakdown of bibliometric data.

Narrative Bibliometrics is a tool that aligns with Evaluative Bibliometrics, allowing the defense and exposition of curricula in harmony with the rest of the narratives that the new evaluative criteria demand.

4. Case study

To conclude, we want to practically illustrate how Narrative Bibliometrics would materialize in the specific case of a paper. We will create a report mainly supported by Web of Science, ResearchGate, Mendeley, and Altmetric.com. In this context, raw citation data is only a minor aspect, and the narrative focuses on position, context, agents, and audiences. For this, we use and break down citation metrics and, above all, social metrics.

As a result, an organic presentation and contextualization of the usefulness and real scope of the research is carried out. Furthermore, always, the use of tools to ensure transparency is reflected.

According to Web of Science, the article has been cited 193 times across its various citation indices and 186 times in its main collection. Looking at where the paper is cited within different documents, under the "Citing items by classification" section, 39 citations were identified from Introductions and 25 from Discussions.

The paper is also available on the ResearchGate platform, where it has accumulated a Research Interest Score of 251.16. According to the platform, "this item's Research Interest Score is higher than 99% of research items on ResearchGate". The same platform indicates that the work has garnered a total of 5192 readers. In terms of readership on Mendeley, it has been downloaded and read by 974 different users, of which 54% are categorised as PhD / Postgrad / Masters students and 24% as Lecturers / Postdocs. We thus infer the tremendous educational value of our contribution beyond its scientific impact.

This work has received significant social attention. Consulting the Altmetric.com database, it has an Altmetric Attention Score of 904, placing it "In the top 5% of all research outputs scored by Altmetric". Specifically, it has received 70 mentions from 70 different news sources. Of these news sources, 35 are from the United States, 10 from France, and 8 from Australia. Notable mentions include the Daily American, Fox News 26, Los Angeles Times, The Conversation, FranceTV Info, and France Culture.

According to Altmetric.com data, it has also had significant political influence, having been mentioned in four different policy reports. Importantly, it was cited twice in PISA reports, first in the 2019 edition and subsequently in the 2022 edition. It was also cited in a report published by the European Union titled "Innovation & Digitalisation: A report of the ET 2020 Working Group on Vocational Education and Training (VET): EIGHT insights for pioneering new approaches".

We also found mentions on other platforms, such as Wikipedia. Specifically, two mentions were identified in the German edition of Wikipedia, in the entries "Stavanger-Erklärung" and "Lesekompetenz". In terms of Twitter, Altmetric.com indicates significant dissemination, with our work cited or mentioned in 650 tweets by 529 different users. Based on the followers of these accounts, Altmetric.com estimates the article could have reached a potential audience of 3,386,353 followers.

Lastly, we would like to note that PlumX also indicates high values, showing that the paper has been discussed 785 times on Facebook and increasing the number of Policy Citations to 13.

POSITION NARRATIVE

Situate and compare research within the broader landscape

CONTEXT NARRATIVE

Highlight mentions to contextualize research impact and utility

AGENTS NARRATIVE

Identify the agents who engage research

AUDIENCE NARRATIVE

Quantify reach, consider audience profiles, and enrich impact analysis across platforms

5. References

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