

# The use of scientific ranking in the Academic career. An exemplificative survey in an Italian relatively young University.

**Salvatore Chirumbolo**

Department of Engineering for Innovation Medicine, University of Verona.

**Correspondence to:**

Salvatore Chirumbolo

Department of Engineering for Innovation Medicine, University of Verona.

Strada Le Grazie 8 37134 Verona (Italy)

Tel. 0458027645

e-mail [salvatore.chirumbolo@univr.it](mailto:salvatore.chirumbolo@univr.it)

**Published:** 1 Mar 2024

## Abstract

Scientific ranking, usually involved in a metric evaluation of one's own academic reputation, does not seem to even match with the career advancement in the University context. Paradoxically, members with a low ranking in bibliometric evaluation, usually expressed as number of publications (now known as "research products"), Hirsch's index ( $H_{ind}$ ) and citations, cover responsibilities decisively higher than other members with a better ranking position. Although this research has been performed in a single exemplificative Italian Academy, this issue may be expanded to many further

© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, sharing, adaptation, distribution and reproduction in any medium or format, for any purpose, even commercially, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

Italian Universities, representing a great concern for the advancement of science. Ideally, researchers in the field support the thesis that academic career and scientific rankings walk alongside following meritocratic rules [1], yet, sound analyses in the real world make this enthusiastic consideration somehow controversial [2-7]. Following Gelmini's law, in 2010, a significant burden of "subjectivity" on the Expert Committee's evaluation of academic careers, occurring once a candidate participated in earning the National Scientific Qualification for teaching in an Academy, led meritocracy to fail [7]. The apparently shareable consideration that a scientific crew should be empowered in selecting the best candidate suited for the defined project, often points at human and character features, empathy, promptness to obey without discussing head's ideas, self-denial and a poor creative participation, in order to prevent any conflictual proposal, idea or debate. In this arrangement of skills, scientific rankings cannot bear any real support.

Yet, Gelmini's law introduced important novelties to the complete anarchy in selecting candidates for the Academic career, such as the so-called "medians", in order to properly link the expertise of the candidate with his/her own scientific reputation, i.e., its scientific ranking compared to at least the half of current Academic experts in the same professional branch.

Medians would be a paramount method to evaluate one's own reputation on the basis that the candidate has exceeded the 50% of the confirmed experts in a nationwide assessment. Notwithstanding, other "personalized" items were involved in the selection route, just causing real perturbing bias in the correctness of the same selection.

What have we lost in this dramatic drift far from a true, honest meritocracy?

A first, maybe trivial, consideration would be to arrange a cut off of rankings to possibly select a candidate as worth of teaching in an Academy, either as Associate Professor or Full Professor. If rankings are recognized as the only reliable metric to categorize the expertise level of a researcher or a scholar, then primarily an Institution should consider rankings as the leading source of professionalism for a defined field of research.

In this Editorial, I will address this point.

## **An exemplificative model**

Figure 1 shows the different rankings of Associate Professors (APs) in the Department of Engineering for Innovation Medicine, University of Verona, selected because is the most recent borne in the academy and in this context, is should be much more sensitive to the advancement in meritocracy and best career proficiency.

The median of citations is 3,017 (APs = 23), publications is 139, H-index is 30. For citations the lower bound (LB) is 1718.887 and the upper bound (UB) is 4315.11, for publications LB = 113.83

and UP = 164.17 and for H index LB = 25.86 and UP = 34.14 (updated on Jan 9<sup>th</sup> 2024). Considering that the threshold (cut off) might be 3,017 for citations, 139 for publications and 30 for H-index and that are authorized to enter the academic career of Associate Professors those members exceeding the indicated cut off, it is interesting to show that a number of 10 members (43.47%) are below the cut off for all rankings.

Considering the number of issues published within a defined year, for example 2023, members with the highest rankings (n = 5), exhibited a mean of  $13.4 \pm 7.40$  (median = 17). Top Italian Scientists in the investigated Department did not include any AP, except for MM (citations 19,448, Hind = 76) and some Full Professors, whereas among researchers only who is writing (citations 8157, Hind = 49), was included, the same who exhibits 5,509 citations, 351 publications, 38 H-ind, 36 publications in 2023.

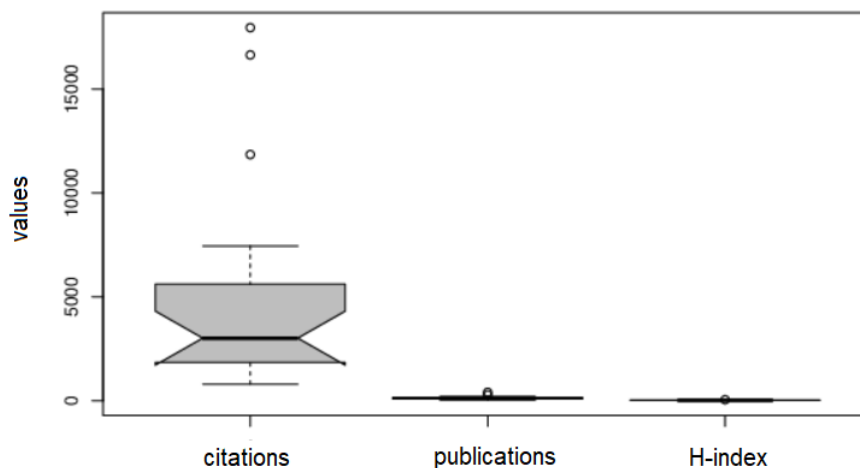
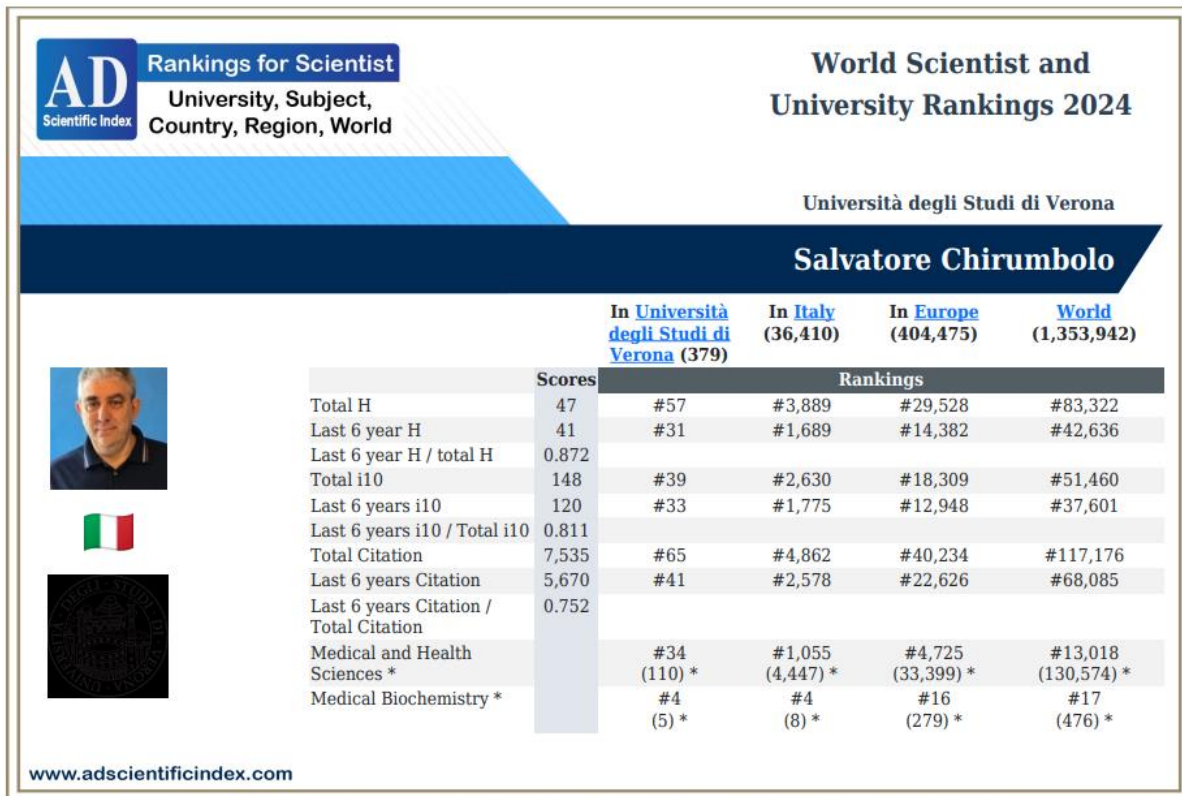


Figure 1. Notched box plots of rankings in APs of the indicated Department

Any Academic institution should expose the major rankings of their members, in order to show transparency in the meritocratic climbing the career, and set for an honest competition among scholars and researchers.

## The international landscape

Many foreign systems, engaged to support the correctness of international scientific rankings (in the reported Figure an example from mine), allow readers to be aware about the scientific reputation of different Academic members, giving scales about the position within the local Academy (and for the various disciplines), Nationwide, in the Continent and worldwide.



The panel allows researchers and investigators, as well as grant funders and stakeholders, to be fully informed about the scientific weight of a defined expert and draw their consequences on career development and progress going ahead.

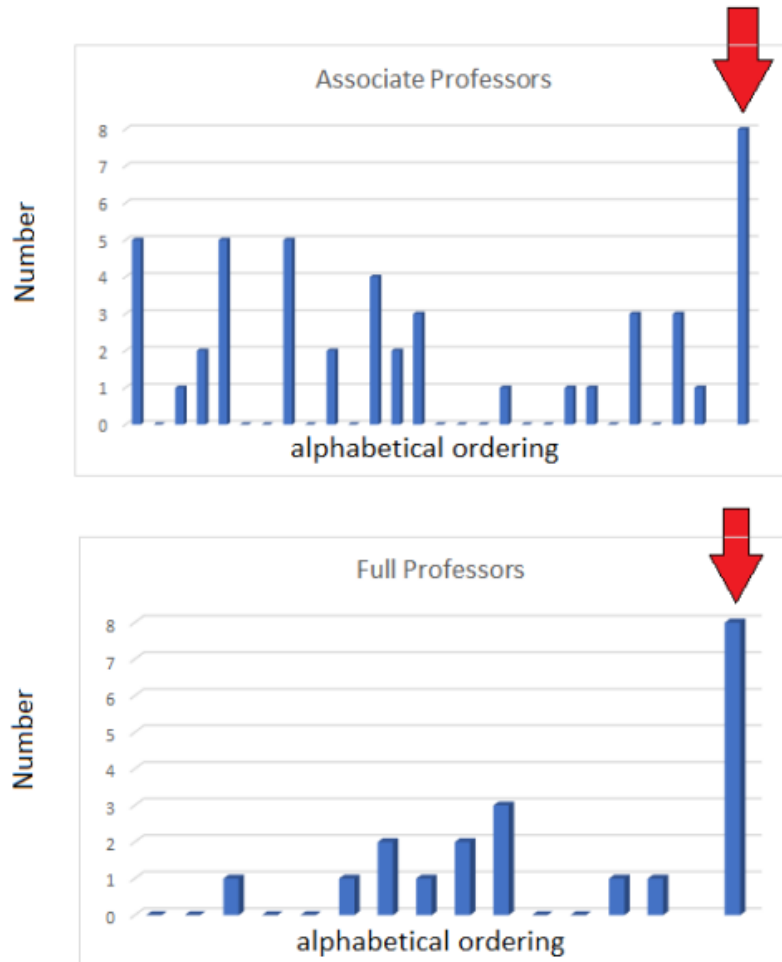
This fundamental evaluation should be a major issue of responsibility for a University Deal. The position ranking of Academic members is fundamental to forward research funds, supports and grants on the basis of the expert's international reputation.

The fundamental question is whether or not, the official scientific rankings, held in Scopus, Web of Science or other major databases, are regularly adopted to improve the career in scholars and researchers or it is only a “bait and switch”, without any real impact on the scientific pathway.

We have highlighted, in this Editorial, that among APs, in the Department, very few members have high scientific rankings. Obviously, this is only an exemplificative case of a wider context. It is particularly crucial to report rankings data from an international viewpoint, aside from Data Warehouses normally used for ranking indexing, such as Scopus.

For example, papers published from the official settlement of the newborn Department of Engineering for Innovation Medicine, University of Verona, amount so far to 111 contributions (update Sept 23rd 2023), according to Pubmed. Yet, a huge deal of resting papers is affiliated to different units or labs respect to the aforementioned Dept, mostly joining the local Hospital Departments. The graphs show

the actual number of contributions reported as correctly affiliated to the Department of Engineering for Innovation Medicine of the local University for each working group in the Academy. The final bar chart (arrow) regards production from this Corresponding Author, to set a comparison (all correctly affiliated).



A correct analysis of reputations, should therefore include or consider:

- An updated ranking exposition for each academic members in order to set his/her reputation in an ongoing context;
- An updated international position and top scientist recruitment;
- A proper affiliation-linkage, in order to prevent the inclusion of papers from other districts/ disciplines;
- The introduction of AI (artificial intelligence) to evaluate career parameters in order to drastically reduce the subjective impact of evaluators;
- The responsibility of the University Deal to promote new advancement in the rankings as possible new members in the Academic life.

The use of scientific rankings, to move the complex development of the Academic environment, should rescue honesty and transparency to the University society, restoring pluralism, democracy and civilization to the most important research and study institution in the human community.

## **Declarations**

### **Conflict of Interest**

The Author declares that there is no conflict of interest.

## **References**

1. Franco, G (2013). Research evaluation and competition for academic positions in occupational medicine. *Arch Environ Occup Health*. 68(2), 123-7.
2. Sun, Y., Caccioli, F., Livan, G (2023). Ranking mobility and impact inequality in early academic careers. *Proc Natl Acad Sci U S A*. 120(34), e2305196120.
3. Polastri, M., Truisi, M.C (2017). Meritocracy? Ask yourself. *J Intensive Care Soc*. 18(4), 276-278.
4. Marino, I.R (2008). Working toward meritocracy in Italy. *Science*. 320(5881), 1289.
5. Dore, M.P., Pes, G.M., Faustinella, F (2019). Italian Adagio: Every Law has Its Loophole. *Sci Eng Ethics*. 25(2), 651-653.
6. Paterlini, M (2009). When in Rome, reform. Radical reform of the Italian research and education systems is needed to address the lack of autonomy and lack of funding. *EMBO Rep*. 10(2), 128-31.
7. Gallina, P., Gallo, O (2020). Asphyxia of Italian academia in medicine and political deference. *Lancet*. 396(10247), 307.