Just pimping the CV? The feasibility of ready-to-use bibliometric indicators to enrich cirriculum vitae

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The Feasibility of Ready-To-Use Bibliometric Indicators to Enrich Curriculum Vitae

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ACUMEN academic careers understood through measurement and norms

EUROPEAN COMMISSION — SEVENTH FRAMEWORK PROGRAMME

Introduction

Bibliometric indicators are being added to curriculum vitaes by researchers to show the effect of their work. At the current time it is unclear which indicators are appropriate for which scholars and in which fields. This study examines that gap in knowledge.

Objective

The study was conducted to determine whether ready-to-use bibliometric indicators are informative of the effect of a researcher's body of work and if the results lose their usefulness dependent on field, discipline or gender.

Methods

Publication and citation data on 750 European scholars in the fields of Astronomy, Environmental Science, Philosophy and Public Health, representing 5 academic seniorities was collected in Google Scholar using Harzing's Publish or Perish.

Coverage in Google Scholar was assessed by comparing the amount of retrieved publications to the amount listed on each researcher's CV.

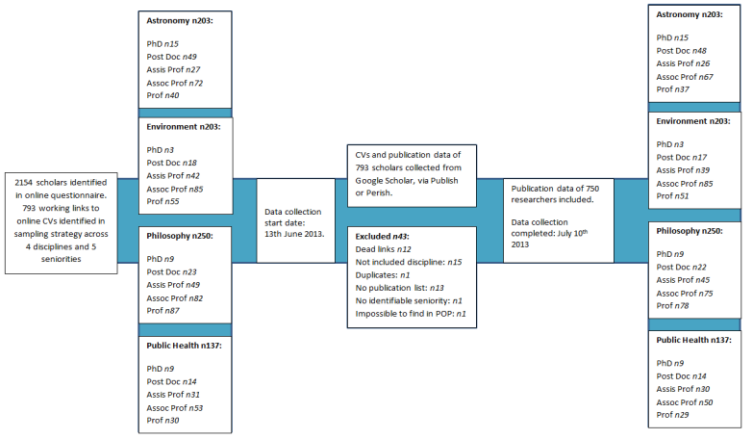
Indicators of cumulative performance were calculated:

P	total number of papers
PY	years since first publication
CPP	cites per paper
CPAY	corrects CPP by dividing by years since first publication
H index	integer number based on the set of a scientist's most highly cited papers and the number of citations they have received.
G index	improves h-index by giving more weight to highly-cited articles
E index	differentiates between scientists with similar h-indices but different citation patterns
AW	age weighted-index that approximates h-index
M-quotient	corrects h for length of publishing career
Mg-quotient	corrects g for length of publishing career

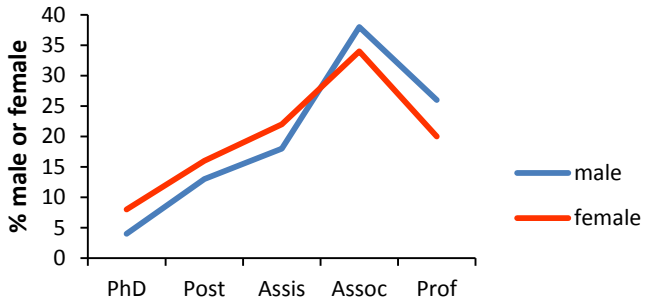
The spread and skewness of individual and seniority data was investigated to detect homogeneity and establish potential performance benchmarks.

Scholars were ranked within their seniority according to each indicator and their placement across the rankings mapped.

Flow chart of data collection



Within gender ratio, all fields



CPP needed to perform well depends on field and seniority

		PHD	Post Doc	Assis. Prof	Assoc. Prof	Prof
Top 25%	Astronomy	-	≥ 18	≥ 19	≥ 27	≥ 28
	Environment	-	≥ 7.3	≥ 14	≥ 16.3	≥ 19.1
	Philosophy	-	≥ 4	≥ 4.1	≥ 6.8	≥ 10.4
	Public Health	-	≥ 24.4	≥ 38	≥ 18.3	≥ 23.2
Middle 50%	Astronomy	-	≥ 3 cites ≤ 8	≥ 7 cites ≤18	≥ 10 cites ≤15	≥15 cites ≤ 27
	Environment	-	≥ 3 cites ≤ 4	≥ 4 cites ≤9.6	≥4.1 cites ≤13,1	≥5.4 cites ≤17.6
	Philosophy	-	≥ 1 cites ≤3.6	≥ 1.4 cites ≤3.7	≥ 1.7 cites ≤4.8	≥2.6 cites ≤9.5
	Public Health	-	≥5.5 cites ≤ 13	≥ 2.4 cites ≤28.9	≥ 7.9 cites ≤17.1	≥19.2 cites ≤21.8
Bottom 25%	Astronomy	≤ 2	≤ 3	≤ 8	≤ 7	≤ 9
	Environment	-	≥ 0.6 cites ≤ 1	≤ 2	≤3.8	≤ 5
	Philosophy	-	≤0.99	≤ 0.7	≤1.2	≤ 2.2
	Public Health	≤ 1	≤2.3	≤ 2.4	≤ 5	≤6.4

Results

Coverage in Google Scholar limits the reliability and informativeness of the indicators.

The performance of each indicator was highly individual. Comparisons are unwise.

No seniority, gender-specific or disciplinary trend between the amount of years active as a scholar, number of papers and number of citations was identified.

PY, P, C, CPP, CPAY are highly individual. No patterns within field or seniority were identified.

The h, g, e, AW, m, mg indices show a predictive relationship. A high or low score on one predicted a high or low score on another.

Conclusions

Expected bibliometric performance varies from field to field, seniority to seniority. They must not be compared.

Even though CPP misrepresents the performance of the individual's entire portfolio of work, it is a more robust indicator than ready-to-use indicators.

CPP can be used as an average disciplinary and seniority benchmark to indicate if a scholar performs in the top, middle or bottom quartile, and thus indicates the informativeness of h, g, e, AW, m or mg rankings.

CPP can be used to estimate if it is at all necessary for scholars to apply bibliometric indicators to their curriculum vitae.

The unnecessary use of indicators can limit the informativeness from the effect of a researcher's academic profile instead of enriching it.

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