



In Memoriam: Eugene Garfield

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Abstract

Eugene Garfield developed a theory about using the article's bibliographic citations as an information retrieval procedure more efficient than those in use during 1950s. He undertook the development of a complete citation index to show the propagation of the scientific thought. He founded the Institute for Scientific Information (ISI). There he created Current Contents, the SCI and other products now collected in the Web of Science, the Journal Citation Reports (JCR) and the Impact Factor. Garfield theory corresponds, in the era of Internet, to the development of information retrieval algorithms such as Pagerank, of Google, that uses structured citation between websites through hyperlinks. Garfield revolutionized the world of scientific research and science evaluation.

Eugene Garfield was born in New York in 1925 to a family of immigrants, and earned a PhD in Structural Linguistics at the University of Pennsylvania in 1961. From the experience during his student years on indexing of the National Library of Medicine database, he developed a theory about using the article's bibliographic citations as a better information retrieval procedure than thesauri, subject headings or free vocabulary, which were research hot topics in the 1950s due to the emergence of large computers.

Garfield undertook the development of a complete citation index to show the propagation of the scientific thought, based on the ideas of the Memex presented in Vannevar Bush's famous 1945 article 'As we may think.' Along with other great men of his generation – Robert Merton with the Sociology of Science, and the quantitative theories of scientific citations by Derek J de Solla Price – who were the parents of what we know today as scientometrics. All the others, who made their mark in this specific area came following their footsteps.



Eugene Garfield 2007.

Photo from Chemical Heritage Foundation

Garfield was the founder of the Institute for Scientific Information (ISI) in 1960, located in Philadelphia, Pennsylvania, which was transferred to Thomson Corporation in 1992, later in 2008, to Thomson Reuters, and from 2016, to Clarivate Analytics. He was the creator of Current Contents,

including the Science Citation Index (SCI), the Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (A&HCI), now collected in the Web of Science and the Journal Citation Reports (JCR), the Impact Factor, and along with Henry Small, of Research Fronts detected by co-citations. His bibliographic production exceeds 1,000 documents that can be seen in his personal homepage.

Garfield's citation indexing theory says that if we have an interesting or relevant article that cites certain authors, and other articles that cite those same authors, surely these articles will also be of the same interest or relevance. Garfield based this indexing method on the so-called citing culture; i.e., the more cited a paper is, the greater is its importance or its impact in its scientific field. This Garfield theory corresponds, in the era of Internet, to the development of information retrieval algorithms such as PageRank, used by Google, that uses structured citation between websites through hyperlinks.

Although the ISI has been criticized for establishing idiomatic biases in favor of English, the truth is that it has revolutionized the world of scientific research and science evaluation, marking a before and an after. Indexing by citations, the research fronts and the journal impact factor have been theories and tools on which modern Bibliometrics has been supported.

One of the last giants of documentation has gone.

Notes and References

- Bensman, S J (2013). Eugene Garfield, Francis Narin, and PageRank: The Theoretical Bases of the Google Search Engine..arXiv. 2013. <http://arxiv.org/abs/1312.3872>. [Accessed on 01 March 2017].
- Bush, V (1945). As we may think. Life Magazine. 1945. [http://worrydream.com/refs/Bush%20-%20As%20We%20May%20Think%20\(Life%20Magazine%209-10-1945\).pdf](http://worrydream.com/refs/Bush%20-%20As%20We%20May%20Think%20(Life%20Magazine%209-10-1945).pdf). [Accessed on 01 March 2017]
- De Solla Price, D J A (1976). General theory of bibliometric and other cumulative advantage processes. Journal of the American Society for Information Science. 27 (5), pp. 292–306. DOI:10.1002/asi.4630270505. <http://onlinelibrary.wiley.com/doi/10.1002/asi.4630270505/abstract;jsessionid=F30EC208597CF90DC0BFEEBE533D187B.f04t01>. [Accessed on 01 March 2017]
- Garfield, Eugene (2017). Los índices de citaciones: del Science Citation Index a la Web of Science. BiD: textos universitarios de biblioteconomía i documentació. 2016. No. 37
- Garfield, Eugene (2017). Personal Home Page. 2017. <http://www.garfield.library.upenn.edu/>. Accessed on 01 March 2017.
- Merton, R K (1973). The Sociology of Science: Theoretical and Empirical Investigations. Chicago; London: The University of Chicago Press.
- Wikipedia (2017). Eugene Garfield. http://en.wikipedia.org/wiki/Eugene_Garfield. Accessed on 01 March 2017.

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