The Most Influential Scientist in the Development of Medical informatics (17): Eugene Garfield

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EUGENE GARFIELD (1925–2017)

Eugene Garfield (1925–2017) is an American scientist, one of the founders of bibliometrics and scientometrics (1–3). He received a PhD in Structural Linguistics from the University of Pennsylvania in 1961. Dr. Garfield was the founder of the Institute for Scientific Information (ISI), which was located in Philadelphia, Pennsylvania. He founded the ISI in 1960 and developed an indexing system for science literature, based on the analysis of citations used within a given work. Works earn an “impact factor,” a measure of citations to other science journals that serves as an indicator of their importance in the field. The more citations in reputable journals, the higher the impact factor. The ISI sold subscriptions to their publication the Science Citation Index, and over time grew to include the Social Sciences Citation Index (SSCI) and the Arts & Humanities Citation Index (A&HCI). These databases now form the foundation of the online research tool called the Web of Knowledge. He is responsible for many innovative bibliographic products, including Current Contents, the Science Citation Index (SCI), and other citation databases, the Journal Citation Reports, and Index Chemicus. He is the founding editor and publisher of *The Scientist*, a news magazine for life scientists. In 2007, he launched HistCite, a bibliometric analysis and visualization software package. Following ideas inspired by Vannevar Bush’s famous 1945 article “As We May Think”, Garfield undertook the development of a comprehensive citation index showing the propagation of scientific thinking; he started the

Institute for Scientific Information in 1955. The creation of the Science Citation Index made it possible to calculate impact factor, which measures the importance of scientific journals. It led to the unexpected discovery that a few journals like *Nature* and *Science* were core for all of hard science. The same pattern does not happen with the humanities or the social sciences. Garfield’s work led to the development of several Information Retrieval algorithms, like HITS and Pagerank. Both use the structured citation between websites through hyper-links.

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