

Foreword to the “Case Studies in Scientometrics” special issues

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Case study is a time honored form of scientific publication. It “has long had a prominent place in many disciplines and professions, ranging from psychology, anthropology, sociology, and political science to education, clinical science, social work, and administrative science” (Wikipedia¹ with reference to Mills et al. 2010 and Yin 2014). In the medical literature, a major part of such studies are published as “case reports”. Although some authors try to make a distinction between the two, usually claiming that case studies should add an element of analysis to the mere descriptive character of the reports, there is a general consensus on the equivalence of the two terms (see, e.g., Crowe et al. 2011); both present anecdotal evidences based on a single case or on a non-representative small sample.

The number of both publication types apparently shows dynamic growth. Figure 1 shows the growth rate of papers having the respective terms in their titles as included in the Thomson Reuters Web of Science Core Collection database. By the 2000’s, the doubling time of case studies is as short as 6 years. The growth curve of case reports seems to flatten by the 2010’s.

The vast majority of the papers with “case-study” in their titles are actual case studies. Strikingly, some of the most cited papers among them are not case studies but papers about case studies (so to say, “meta-case-studies”), similarly to the present Editorial. A rather highly cited such “meta-case-study” paper helps a lot in defining the role of case studies in

¹ https://en.wikipedia.org/wiki/Case_study.

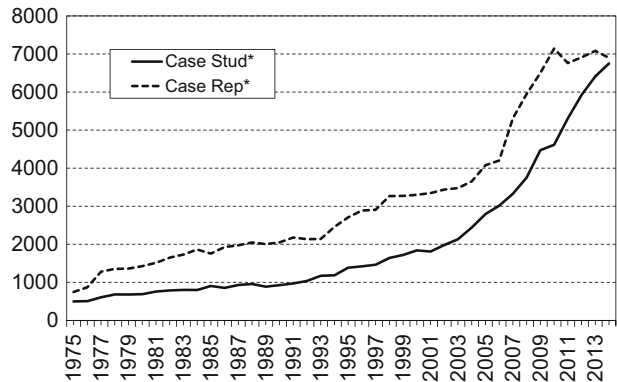
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Fig. 1 The growth rate of papers having “case-study” and related terms in their titles. *Source:* Thomson Reuters Web of Science Core Collection database



scientific inquiry. Flyvberg (2006) lists five common misunderstandings about case-study research:

- (a) theoretical knowledge is more valuable than practical knowledge;
- (b) one cannot generalize from a single case, therefore, the single-case study cannot contribute to scientific development;
- (c) the case study is most useful for generating hypotheses, whereas other methods are more suitable for hypotheses testing and theory building;
- (d) the case study contains a bias toward verification; and
- (e) it is often difficult to summarize specific case studies.

By explaining and correcting these misunderstandings one by one, the paper concludes that “a scientific discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars, and a discipline without exemplars is an ineffective one.” The main focus of the paper is on social sciences, but its conclusions seem to be generally valid.

In a present study (Schubert 2015), the vast majority (more than two third) of the case studies/case reports was found to be published in the medical, biomedical and biological sciences followed by social sciences and humanities and then by environmental sciences, engineering (particularly in computer engineering and information technology) and geosciences. Chemistry and physics, and—quite understandingly—mathematics do not excel in producing case studies, at least as the presence of the term in the title of the papers is concerned.

According to an unsupported statement of the Wikipedia²: “Many international journals will publish case reports, but they restrict the number that appear in the print run because this has an adverse effect on the journal’s impact factor.”

In the above mentioned study (Schubert 2015) it was found that in 12 Web of Science Categories (the four most productive from each of the area of medical sciences, non-medical sciences and social sciences), the mean citation rate of case studies/reports was uniformly less than the half of the category average. The Wikipedia statement seems, therefore, to be reasonably supported.

Case studies/reports are present also in scientometrics. Although “case study” as title term is present only in about 2.5 % of scientometrics literature, the number is rapidly

² https://en.wikipedia.org/wiki/Case_report.

growing. Furthermore, quite strikingly, the citation rate of case studies in scientometrics was much closer to the topic average (almost 90 %) than for any of the subfields studied in Schubert (2015). The relative contribution of the 16 case studies published in 2012–2013 to the 2014 impact factor of the journal *Scientometrics* was 97.6 %.

Impact considerations, therefore, do not justify the restriction of case studies in the journal *Scientometrics*. As Editors of the journal, however, we think that the leading journals of a field should prefer papers presenting new methodologies and/or insights over routine applications of established methodologies even if the results may claim substantial interest. Authors are, therefore, usually encouraged to try to publish such manuscripts in local journals (in case of case studies of national or regional nature) or in journals of the studied special topics.

At the same time, we attempted to persuade our Publisher to launch an online Supplement to the journal specifically devoted to such case studies. At the moment, the success of this attempt is still awaited. Until then, as a workaround, two special issues are devoted exclusively for case studies. Depending on the success of this experiment (both in qualitative and quantitative terms), such issues might follow also in the future.

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