

行政院國家科學委員會專題研究計畫成果報告

作者與期刊自我引用研究：兼論同時法與歷時法之比較

The Analysis of Author and Journal Self-Citations: A Diachronous vs. Synchronous Study

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一、摘要及關鍵詞

中文摘要

本研究採用引用文分析法，探討半導體文獻中，高生產力期刊自我引用與作者自我引用的情況，並從自我引用的分析中，比較自我引用研究法——同時法(synchronous)與歷時法(diachronous)的差異。本研究選定的半導體文獻高生產力作者與期刊來自於86與87年度國科會計劃之研究成果報告——「半導體文獻之書目計量學研究 1/2 與 2/2」。

同時法自我引用率，是指某篇文獻在其所附的參考文獻中，引用了自己先前作品的比率；而歷時法自我引用率，則是指某文獻自出版之後，被引用的篇數中，為自己所引用的比率。

在作者引用方面，選定生產力前五十四名的作者為研究對象，利用科學引用索引(Science Citation Index-SCI)資料庫檢索作者的引用、被引用及自我引用數據，再分別計算每一位作者的自我引用率。關於作者的同時法自我引用率分佈為3.64%~23.22%，而作者的歷時法自我引用率分佈則為0.12%~33.78%。

在期刊自我引用方面，則選定生產力前一百名的期刊為研究對象。然而，由於生產力的數據資料是來自於INSPEC資料庫，與期刊引用數據來源資料庫中所搜羅的期刊不盡相同，且合併刊名異動的期刊文獻數據資料後，最後共得有效期刊共87

種。利用期刊引用報告(Journal Citation Reports—JCR)資料庫查詢八十七種期刊的引用、被引用及自我引用數據，再分別計算各期刊的自我引用率，得知期刊的同時法自我引用率分佈為0.08%~31.37%，而期刊的歷時法自我引用率分佈則為2.05%~38.85%。

從半導體文獻高生產力的作者和期刊自我引用率分佈來看，同時法自我引用率較歷時法自我引用率集中；而在兩種自我引用率數值的比較上，同時法自我引用率高於歷時法自我引用率的作者共三十四位，佔了62%，但在期刊方面，則只有十三種期刊，有此現象，僅佔了15%。

在自我引用率與生產力的關係中，以Pearson及Sperman相關係數檢定作者的同時法自我引用率與生產力之相關性時，兩者呈現負相關；而在期刊方面，二者都呈現正相關。但在歷時法自我引用率與生產力間，則作者與期刊兩方面都顯示二者間並無顯著相關性。

在同時法與歷時法兩種自我引用率研究方法的比較上，以T-test檢定的結果顯示，在作者方面，兩種研究法皆無顯著差異；而在期刊方面，兩種研究方法有顯著差異。

關鍵詞：自我引用，作者自我引用，期刊作者自我引用，同時法，歷時法，半導體文獻，高生產力。

Abstract

The purposed study will employ citation analysis techniques to investigate the author self-citations and journal self-citations of semiconductor literature. Both synchronous and diachronous methods will be used to calculate the self-citation rate of each category. The selected authors and periodicals of semiconductor literature of high productivity are from the research reports of National Science Council, Taiwan, in 1997 and 1998 -- "A Bibliometrics Study of Semiconductor Literature (1/2) and (2/2)".

The ratio of synchronous self-citation refers to the frequency of citing the author's previous works of some certain literature in its reference documents; while diachronous self-citation refers to the ratio of self-citation of some cited literature since its publication.

In the aspects of author's self-citation, the research object is focused on the best 54 writers of productivity, with the number of authors' citing, being cited, and self-citation, by means of Science Citation Index-SCI, and calculate each author's citation ratio respectively. Regarding the authors' synchronous self-citation ratio is ranged from 3.64% to 23.22%, and the authors' diachronous self-citation is ranged from 0.12% to 33.78%.

In the aspects of periodical self-citation, the research object focuses on the periodicals of the best 100 productivity. Hence, the number data of productivity is from the source of INSPEC database, it differs from periodical citation number source database, furthermore, after combining periodicals, the periodical literature number data changes. Eighty-seven periodicals' citing, being cited, and self-citation rate number are inquired through Journal Citation Reports -- JCR database, and calculate respectively each periodical's self-citation rate, the synchronous

self-citation ratio of periodicals is ranged from 0.08% to 31.37%; and the diachronous self-citation is ranged from 2.05% to 38.83%.

Viewing from the rate of self-citation of authors and periodicals in semiconductor high productivity literature, synchronous self-citation rate is more concentrated than diachronous self-citation rate. And, comparing the rates of these two self-citations, there are 34 authors who use synchronous study more often than diachronous study, and it occupies 62% of the 54 authors, while for periodicals, only 13 kinds of periodicals have this kind of tendency, which occupies only 15% of the 100 periodicals.

In the relation of self-citation rate and productivity, according to Speraman examining authors' synchronous self-citation rate and the productivity, these two are in a status of negative relation. In the periodical aspect, while examining with Pearson and Speraman, the both are exhibiting positive relation. Nevertheless, in the relation between diachronous self-citation rate and productivity, neither of the authors and the periodicals have apparent relation.

In the comparison of synchronous self-citation rate and diachronous self-citation rate, it indicates that in the aspect of authors, with the T-test examining result, the two research approaches do not relate with each other, nor do these two approaches show obvious differences. While in the aspect of periodicals, the two approaches are related with each other, and these two approaches have apparent differences from each other.

Keywords: self-citation, author self-citations, journal self-citations, synchronous study, diachronous study, semiconductor literature, high productivity.