

## Citation Statistics for Psychologists in New Zealand Universities: 1975-1977

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Citation counts were taken from Social Sciences Citation Index to determine the research visibility of New Zealand psychologists listed in the Commonwealth Universities Yearbook in 1975-1977. Eight among the 82 psychologists in the sample accounted for 60 per cent of all citations. Citation rate varied across levels of academic appointment and between university departments. The order of departments in terms of the total citations gained by staff members over the three year period was Auckland, Wellington, Otago, Canterbury, Waikato, and Massey. Comparisons are made between citation patterns found for Australian, New Zealand, and North American psychologists.

The use of citation statistics to evaluate research impact is based on the premise that one scientist will cite the research of other scientists to the extent that his research has been influenced by these sources. Although clearly there can also be negative or superficial reasons why one author might cite the work of another (and thus why some scientists receive high citation rates), several studies have demonstrated that frequency of citation correlates highly with research awards, as specified by subjective ratings, standing, and honours (Clark, 1959; Myers, 1970).

Recent studies have used citation counts from Social Sciences Citation Index (SSCI) both to rank departments of psychology in Australian, British, and North American universities and to identify highly cited individuals (for example, Endler, Rushton, & Roediger, 1978; Over & Moore, 1979; Rushton & Endler, 1977). Two studies have reported citation statistics for New Zealand universities. White and White (1978), as part of a study concerned with relationships between productivity and impact, ranked 20 Australasian departments in terms of mean citation rates. In a more recent analysis based on citation counts from SSCI for 1970-1977, White (1979) found that the ordering of New Zealand departments in terms of mean citation per staff member was Wellington, Auckland, Canterbury and Otago (equal), Waikato, and Massey.

The present study compares citation patterns for Australian and New Zealand psychologists. In addition to ranking New Zealand depart-

ments in terms of the citations staff gained in SSCI for 1975-1977, the survey identifies the highly cited psychologists in New Zealand universities over this period as well as their most cited publications.

### Method

A list of full-time academic staff at the level of lecturer or above was established for the Psychology Departments of New Zealand universities from the 1975, 1976, and 1977 editions of the Commonwealth Universities Yearbook. The sample size was 64 in 1975, 68 in 1976, and 73 in 1977, but there was an overall total of 82 individuals due to the mobility of academics. Citation counts were obtained (but only for the years during which the staff member held appointment) for each person from the 1975, 1976, and 1977 editions of Social Sciences Citation Index. Cross-citations from Science Citation Index were included in the count, but citations by authors to their own publications were not.

### Results

The rates at which New Zealand psychologists were cited varied with level of academic appointment, although there was considerable variability within each level. The median annual citation rates for 1975-1977 were 0 for lecturers ( $N = 25$ ), 1.00 for senior lecturers ( $N = 28$ ), 4.50 for readers and associate professors ( $N = 6$ ), and 5.00 for professors ( $N = 9$ ). Comparable values established by White (1979) for the period 1970-1977 were 0 for lecturers ( $N = 23$ ), 0.90 for senior lecturers ( $N = 36$ ), 3.12 for readers and associate professors ( $N = 9$ ), and 4.75 for professors ( $N = 11$ ). Median annual citation rates for Australian universities in 1975-1977 (Over & Moore, 1979) were 0.85 for lecturers ( $N = 115$ ), 1.39 for senior lecturers ( $N = 97$ ), 3.83 for readers and associate professors ( $N = 24$ ), and 19.70 for professors ( $N = 35$ ).

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Table 1  
Individuals with highest mean citation rates in  
SSCI 1975-1977

Name (University)	Total Citations		
	1975	1976	1977
White, M. J. (Wellington)	45	44	50
Schaefer, H. H. (Auckland)	34	33	27
Hughes, R. N. (Canterbury)	25	12	27
Vaughan, G. M. (Auckland)	18	16	10
Marks, D. F. (Otago)	14	12	15
Gregson, R. A. M. (Canterbury)	8	17	15
Hartley, L. R. (Otago)	5	14	18
Davison, M. C. (Auckland)	3	9	18

Sixty per cent of Australian lecturers and 78 per cent of New Zealand lecturers attracted no citations within the period 1975-1977. It is clear that Australasian universities have recruited staff on the basis of research potential rather than research achievement. Since few senior lecturers are highly cited (42 per cent in New Zealand and 38 per cent in Australia gained no citations over the three years), tenure and promotion have been granted without regard to whether the person has had impact on the international scientific community through published research. Only 26 per cent of readers, associate professors, and professors in New Zealand departments attracted 10 or more citations per year in 1975-1977 (compared with 54 per cent of psychologists in these categories in Australian universities), even though appointment at this level is thought of as signifying research standing. The major difference between countries was at the professorial level. Only one New Zealand professor averaged more than 20 citations per year, compared with 15 Australian professors.

The eight New Zealand psychologists who attracted a mean of 10 or more citations per year between 1975 and 1977 are listed in Table 1 in order of mean citation rate. Only four of 15 readers, associate professors, and professors in the sample are in this group of most cited psychologists. In contrast, the 20 most cited psychologists in Australian universities included 16 of 35 professors and two of 24 readers and associate professors. Four of the eight most cited psychologists obtained an undergraduate or postgraduate qualification within the New Zealand system.

The papers by New Zealand psychologists that gained most citations between 1975 and 1977 were: (1) White, M. J. Laterality differences in perception: A review. *Psychological Bulletin*, 1969, 72, 387-405 (67 citations); (2) Vaughan, G. M. and Corballis, M. C. Beyond tests of significance: Estimating strengths of effects in selected ANOVA designs. *Psychological Bulletin*, 1969, 72, 204-213 (33 citations); (3) White, M. J. Hemispheric asymmetries in tachistoscopic information-processing. *British Journal of Psychology*, 1972, 63, 497-508 (20 citations).

Although 17 women and 65 men were listed in the Commonwealth Universities Yearbooks for 1975-1977 as holding appointments in the Psychology Departments of New Zealand universities, there were no women among the psychologists who gained most citations. In Australian universities where women held 42 of 271 positions at lecturer or above, three women were among the most cited psychologists. The mean annual rate at which women psychologists gained citations in 1975-1977 was 0.78 in New Zealand, and 2.82 in Australia. Although these values are below the respective national averages, citation rates for women in New Zealand universities do not differ significantly from those of men in the same university department and at the same level of appointment (see Over, 1979).

Table 2 ranks the six New Zealand departments as well as the 14 Australian departments in terms of the mean number of citations that were gained by academic staff

Table 2  
Citation statistics for Australasian departments

University	Mean	Median	Total
	rate 1975-77	rate 1975-77	citations 1975-77
Flinders	16.9	4.0	725
Western Australia	11.6	4.2	705
Monash	9.8	3.3	351
Adelaide	8.9	2.7	390
Wellington	7.1	1.8	178
La Trobe	7.0	1.8	211
Queensland	6.1	1.0	424
New South Wales	5.6	0.0	376
Otago	5.5	0.8	138
Auckland	4.7	3.0	220
Macquarie	3.9	2.6	217
A.N.U.	3.4	0.2	106
Canterbury	3.4	0.2	106
Sydney	2.9	0.0	243
Newcastle	2.4	0.9	99
New England	1.9	0.0	55
Tasmania	1.7	0.0	51
Melbourne	1.4	0.0	86
Waikato	1.4	0.0	57
Massey	1.2	0.0	42

over 1975-1977. Since the departments differed in size, totals as well as medians are given for this same period. Neither mean nor median measures may truly describe departments. The means are distorted by the few heavily cited individuals, and the medians do not vary much between departments since a large proportion of the sample attracted few or no citations. There nevertheless is a product moment correlation of  $+0.83$  between means and medians,  $+0.75$  between medians and totals, and  $+0.90$  between means and totals. The total citation counts for New Zealand universities correlate  $+0.95$  with the values reported by White (1979), and the mean citation rates correlate  $+0.89$ .

#### Discussion

The citation measures reported in the present paper can be compared with values obtained for Australian departments over the same period. In terms of mean citation rates per year between 1975 and 1977, Wellington would rate fifth, Otago ninth, Auckland tenth, Canterbury equal twelfth, Waikato equal eighteenth and Massey twentieth, among 20 Australasian departments. M. J. White (ranking sixth) and H. Schaefer (ranking tenth) are the only two New Zealand psychologists among the 25 Australasian psychologists whose research was most often cited between 1975 and 1977 (see Over & Moore, 1979). No Australasian psychologist would gain a place in the list of 100 most-cited psychologists prepared by Endler et al. (1978), and probably few Australasian psychologists would rank among the top 100 internationally in terms of research impact.

Since impact requires prior productivity, the limited visibility of Australasian psychologists as a group could reflect a shortfall in research output rather than in the quality of research. However, the mean annual publication rates reported by White and White (1978) for Australasian psychologists over the period 1970-1975 are high relative to North American values (Endler et al., 1978). It may be that Australasian psychologists publish in comparatively few journals or in research specializations that have a high base rate of citation. A "Matthew effect" (Merton, 1967) leading to undue citation of those known to an author by general reputation or through invisible college networks, could also operate to disadvantage researchers who are geographically removed

from the possibility of such contact.

Although citation analysis has been advocated as an objective and reliable technique for assessing research impact, the method can yield different outcomes in accord with the procedures followed by investigators. For example, rankings have varied markedly across different methods used to establish the importance of psychology journals (Over, 1978). The rankings established for New Zealand departments and for individuals in the present study might well change over time. Since citations lag behind publications, a different group of psychologists, including some who gained few citations in the period 1975-1977, may attract most attention internationally during the 1980s. Departments also change in composition. For example, three of eight psychologists gaining most citations in 1975-1977 (Table 1) no longer hold appointment in a New Zealand university. Other psychologists, including M. C. Corballis (Auckland) who gained 132 citations in SSCI in 1975-1977, have taken up appointment. It will be of interest to determine whether departments maintain uniform ranking over a substantial period of time despite changes in personnel.

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