Essays of an Information Scientist, Vol:2, p.231-235, 1974-76 Current Contents, #9, p.5-9, March 3, 1975

"Current Comments"

Journal Citation Studies. 19. Psychology and Behavior Journals

March 3, 1975 Number 9

Here is an analysis of some citation data on a group of psychology and behavior journals. As in some previous studies,[1,2] we have considered the journals *as a unit,* to discover what journals they as a group cite most, and what journals most cite them as a group.

Unless you've been involved in citation analysis—and sometimes even when you have—it is at times difficult to keep clearly in mind what is citing and what is being cited, particularly when dealing with journal groups. Some readers may find it helpful in this analysis of journals as a group to think of a hypothetical but nevertheless quintessential psychology/behavior journal. Call it *Psychology Research Papers (PsRP),* and imagine that it is representative of the psychology/behavior literature. If that's done, the purpose of the study is easier to express: what journals have cited our hypothetical quintessential *PsRP* most often, and what journals has *PsRP* cited most often. Thinking of the problem in this way eases the inevitable confusion caused by the fact that many of the same journals figure prominently in the two categories of 'what journals they cite' and 'what journals cite them.'

Seventy-seven journals formed the data base for this study. With certain exceptions, noted below, they are the journals in the overlapping categories *Psychology* and *Behavioral Science* in the 1969 *Science Citation Index® (SCI®).* [3] The data for this study are derived from the *SCI* for the last quarter of 1969. Methodology of the analysis has been described elsewhere.[4]

For the purpose of this study, we omitted journals with titles including the word *psychiatry* and other clinical terms. Previous studies have shown that we can be somewhat arbitrary in this matter. For, if we wrongly strike a journal from the data base, the results of the study will reveal the mistake. For example, we omitted the *Journal of Psychosomatic Research (JPR)* and the *Journal of Nervous and Mental Disease (JNMD).* We've found we were justified in omitting the *JPR.* In the period covered by the study, it was cited only seven times by two of the 77 data-base journals. We were wrong, however, about the *JNMD.* It was cited 54 times by ten of the journals. Thus, even a moderately significant journal that was wrongly excluded from the data base will turn up, despite the fact that its exclusion from the base deprives it of the statistical benefit of its self-citations.

Figure 1 shows the fifty journals that cited our *PsRP* psychology/behavior journal group most often. (Hereafter, I refer to the data-base journals simply as *psychology* or *PsRP.*) With eight exceptions (*italicized* in the list), they are journals from the data base itself. *Science,* one of the exceptions, ranks 37th. Another notable exception is the *Annals of the New York Academy of Sciences,* which ranks seventh. This is probably an accident of the quarter-year sample. The *Annals* frequently dedicates whole issues to single topics. It is significant that the *Annals* does not appear in Figure 2. *Nature* did not show up among the top fifty. On a longer list it ranked about 65th.

It is interesting to compare some of the percentages in Figure 1 with similar percentages from a recent study of botany journals.[2] The self-citing rate of the average botany journal, in relation to all the citations it made, was 34%; the corresponding figure for the psychology journals is only 11%. Thus, the average botany journal cites itself much more frequently than the average psychology journal. Yet when the two *groups* are considered, the situation is reversed. The self-citing rate of the botany journals as a group averaged 11%; the self-citing rate of the psychology journals *as a group* averaged 27%. This appears to me to reflect the undeniable existence of 'subspecialties' in botany. If they exist in psychology, they seem not to be as well established as in botany. At least, they do not reveal themselves in these citation patterns to have become the preserve of highly specialized journals.

Figure 1. Journals that Cited Psychology Journals. An asterisk in the list below indicates that the journal appears also on the list in Figure 2. **A** = total citations *of* other journals (including **B** and **C**). **B** = total citations of psychology journals (including **C**). **C** = self-citations. **D** = **B/A**, psychology citations in terms of total citations. **E** = **C/A**, self-citations in terms of total citations (self-cit*ing* rate). **F** = **C/B**, self-citations in terms of psychology citations. **G** = overall impact.

Journal	A	B	C	D	E	F	G
1. *J. Exp. Psychol.	1482	**1005**	400	67.8	27.0	39.8	1.867
2. *Psychonomic Science	1497	**907**	154	60.6	10.3	17.0	0.616
3. *J. Comp. Phys. Psych.	1208	**616**	298	51.0	24.7	48.4	1.938
4. *Psychol. Reports	1252	**597**	81	46.3	6.5	14.0	0.409
5. *Perc. Motor Skills	1247	**510**	108	40.9	8.7	21.2	0.438
6. *J. Exp. Anal. Behav.	594	**404**	255	68.0	42.9	63.1	2.395
7. *Ann. N.Y. Acad. Sci.*	10461	**376**	—	3.6	—	—	1.815
8. *J. Pers. Soc. Psych.	701	**370**	163	52.8	23.3	44.1	1.698
9. *Psychol. Bull.	672	**347**	21	51.6	3.1	6.1	3.081
10. *Physiol. Behav.	1032	**305**	48	30.0	4.7	15.7	1.496
11. *J. Cons. Clin. Psych.	718	**273**	61	38.0	8.5	22.3	1.217
12. *Psychol. Rev.	438	**266**	15	60.7	3.4	5.6	4.433
13. Annee Psychologique	573	**241**	11	42.1	1.9	4.6	0.065
14. *J. General Psych.	421	**232**	5	55.1	1.2	2.2	0.259
15. *Psychophysiology	451	**184**	63	40.8	4.0	34.2	0.723
16. *Behav. Res. Ther.	386	**180**	68	46.6	17.6	37.8	1.504
17. *J. Personality	389	**174**	32	44.7	8.2	18.4	0.761
18. *Perc. Psychophys.	333	**168**	41	50.5	12.3	24.4	0.991
19. *J. Verb. Learn. Beh.	265	**166**	45	62.6	17.0	27.1	1.374
20. *J. Abnormal Psych.	423	**165**	28	39.0	6.6	17.0	1.586
21. Acta Psychologica	369	**164**	—	44.4	—	—	1.345
22. Brit. J. S&C Psych.	381	**163**	8	42.8	2.1	14.9	—
23. *J. Soc. Psychol.	376	**151**	25	40.2	6.7	16.6	0.433
24. *J. Couns. Psychol.	328	**125**	57	38.1	17.4	45.6	—
25. *J. Educ. Psychol.	339	**124**	39	36.6	11.5	31.5	1.044
26. J. Clin. Psychol.	294	**117**	40	39.8	13.6	34.2	0.367
27. *J. Genetic Psychol.	373	**115**	15	30.8	4.0	13.0	0.148
28. J. Exp. Child Psych.	237	**106**	13	44.7	5.5	12.3	0.403
29. *Amer. Psychologist	395	**94**	38	40.4	9.6	40.4	0.331
30. *J. Nerv. Ment. Dis.*	561	**94**	—	16.8	—	—	0.707
31. *Behaviour	419	**90**	39	21.5	9.3	43.3	1.294
32. *Educ. Psych. Meas.	256	**90**	19	35.2	7.4	21.1	0.279
33. J. Math. Psychol.	219	**90**	17	41.1	7.8	18.9	1.224
34. *J. Res. Music. Educ.*	411	**88**	—	21.4	—	—	—
35. *Amer. J. Ment. Defic.*	560	**86**	—	15.4	—	—	0.431
36. *Animal Behavior	395	**84**	41	21.3	10.4	48.8	1.518
37. **Science*	5699	**72**	—	1.3	—	—	2.894
38. Pers. Psychophysiol.	189	**68**	18	36.0	9.5	26.5	—
39. *J. Appl. Psychology	149	**63**	28	42.3	18.8	44.4	0.804
40. *Amer. J. Psychology	196	**62**	17	31.6	8.7	27.4	0.464
41. *Psychopharmacologia*	435	**62**	—	14.3	—	—	2.409
42. Canad. Psychologist	151	**58**	24	38.4	15.9	41.4	0.170
43. *Canad. J. Psychology	100	**55**	4	55.0	4.0	7.3	1.291
44. Jap. Psychol. Res.	98	**55**	—	56.1	—	—	—
45. *J. Exp. Soc. Psych.	127	**52**	6	40.9	4.7	11.5	1.904
46. *Psychometrika	102	**51**	37	50.0	36.3	72.6	0.983
47. *Brit. J. Psychology	159	**50**	8	31.5	5.0	16.0	0.776
48. *Int. J. Cl. Exp. Hyp.*	236	**49**	—	20.8	—	—	—
49. *J. Exp. Educ.*	283	**46**	—	16.3	—	—	0.258
50. *J. Psychology	188	**45**	5	23.9	2.7	11.1	0.468

Figure 2. Journals Cited by Psychology Journals. An asterisk in the list below indicates that the journal appears also on the list in Figure 1. **A** = total citations *by* other journals (including **B** and **C**). **B** = total citations by psychology journals (including **C**). **C** = self-citations. **D** = **B/A**, psychology citations in terms of total citations. **E** = **C/A**, self-citations in terms of total citations (self-cited rate). **F** = **C/B**, self-citations in terms of psychology citations. **G** = overall impact.

Journal	A	B	C	D	E	F	G
1. *J. Exp. Psychology	1443	1252	400	86.8	27.7	32.0	1.867
2. *J. Comp. Phys. Psych.	1143	999	298	87.4	26.1	29.8	1.938
3. *J. Pers. Soc. Psych.	1177	988	163	83.9	13.9	16.5	1.698
4. *Psychonomic Science	567	482	154	85.0	27.2	32.0	0.616
5. *J. Exp. Anal. Behav.	504	449	255	89.1	44.6	50.1	2.395
6. *Psychol. Review	586	447	15	76.3	2.6	3.4	4.433
7. *Psychol. Bull.	604	434	21	71.9	3.5	4.8	3.081
8. **Science*	9739	423	—	4.3	—	—	2.894
9. *J. Cons. Clin. Psych.	472	358	61	75.9	12.9	17.0	1.217
10. *Psychol. Reports	420	334	81	79.5	19.3	24.3	0.409
11. *J. Verb. Learn. Beh.	344	310	45	90.1	13.1	14.5	1.374
12. *Amer. J. Psychology	339	238	17	70.2	5.0	7.1	0.464
13. *Perc. Motor Skills	312	223	108	71.5	34.6	48.4	0.438
14. *Amer. Psychologist	254	171	38	67.3	15.0	22.2	0.331
15. J. Clin. Psychol.	217	161	40	74.2	18.4	24.8	0.367
16. *J. Personality	203	147	32	72.4	15.8	21.8	0.761
17. *Anim. Behavior	276	127	41	46.0	14.9	32.3	1.518
18. *J. Appl. Psychol.	175	120	28	68.6	16.0	23.3	0.804
19. *Canad. J. Psychol.	161	114	4	70.8	2.5	3.5	1.291
20. *J. Psychology	191	111	5	58.1	2.6	4.5	0.468
21. *J. Couns. Psychol.	143	110	57	76.9	39.9	51.8	—
22. *Behav. Res. Ther.	132	108	68	81.8	51.5	63.0	1.504
23. *Psychol. Monogr.*	183	108	—	59.0	—	—	—
24. *Perc. Psychophys.	131	104	41	79.4	31.3	39.4	0.991
25. *Brit. J. Psychol.	178	101	8	56.7	4.5	7.9	0.776
26. *Psychometrika	174	98	37	56.3	21.3	37.8	0.983
27. Q. J. Exp. Psychol.	123	91	—	74.0	—	—	0.389
28. *Educ. Psych. Meas.	142	87	19	61.3	13.4	21.8	0.279
29. *J. Abnormal Psych.	151	82	28	54.3	18.5	34.2	1.586
30. *Psychophysiology	124	82	63	66.1	50.8	76.8	0.723
31. *Physiol. Behav.	138	80	48	58.0	34.8	60.0	1.496
32. Child Development	156	76	—	48.7	—	—	0.507
33. *EEG Clin. Neurophys.*	719	76	—	10.6	—	—	0.388
34. *J. Social Psychol.	119	76	25	63.9	21.0	32.9	0.433
35. *Amer. J. Physiology*	5417	72	—	1.3	—	—	3.379
36. *Nature*	15310	72	—	.5	—	—	2.244
37. *Arch. Gen. Psychiat.*	784	68	—	8.7	—	—	1.409
38. *J. Educ. Psychology	163	68	39	41.7	23.9	57.4	1.044
39. *Behaviour	135	62	39	45.9	28.9	62.9	1.294
40. *J. Acoust. Soc. Amer.*	1203	61	—	5.1	—	—	0.563
41. *Aerospace Medicine*	257	58	—	22.6	—	—	0.551
42. *J. Genetic Psychol.	159	58	15	36.5	9.4	25.9	0.148
43. *J. Exp. Soc. Psychol.	66	57	6	86.4	7.6	8.8	1.904
44. *J. General Psychol.	119	56	5	47.1	4.2	8.9	0.259
45. **J. Nerv. Ment. Dis.*	348	54	—	15.5	—	—	0.707
46. *J. Neurophysiology*	1015	48	—	4.7	—	—	4.582
47. *Amer. J. Psychiatry*	561	45	—	8.0	—	—	0.673
48. *Amer. Sociol. Review*	123	45	—	36.6	—	—	—
49. *Endocrinology*	2546	45	—	1.8	—	—	2.986
50. Human Relations	76	43	7	56.6	9.2	16.3	0.347

Figure 3. Journals Cited by Psychology Journals, with 'Psychology Impact'. **P** = 'Psychology' impact factor. **B** = total citations by psychology journals (including **C**). **C** = self-citations. **D** = **B/A**, psychology citations in terms of total citations. **E** = **C/A**, self-citations in terms of total citations (self-cited rate). **F** = **C/B**, self-citations in terms of psychology citations. **G** = overall impact.

Journal	P	B	C	D	E	F	G
1. *Psychol. Review	**351.8**	447	15	76.3	2.6	3.4	4.433
2. *Psychol. Bull.	**227.3**	434	21	71.9	3.5	4.8	3.081
3. *J. Exp. Anal. Behav.	**219.2**	449	255	89.1	44.6	50.1	2.395
4. *J. Exp. Psychology	**174.4**	1252	400	86.8	27.7	32.0	1.867
5. *J. Exp. Soc. Psychol.	**158.7**	57	6	86.4	7.6	8.8	1.904
6. *J. Pers. Soc. Psych.	**151.8**	988	163	83.9	13.9	16.5	1.698
7. *J. Comp. Phys. Psych.	**148.5**	999	298	87.4	26.1	29.8	1.938
8. *J. Verb. Learn. Beh.	**118.4**	310	45	90.1	13.1	14.5	1.374
9. *Behav. Res. Ther.	**118.4**	108	68	81.8	51.5	63.0	1.504
10. *Canad. J. Psychol.	**116.7**	114	4	70.8	2.5	3.5	1.291
11. *J. Abnormal Psych.	**91.3**	82	28	54.3	18.5	34.2	1.586
12. *J. Cons. Clin. Psych.	**83.0**	358	61	75.9	12.9	17.0	1.217
13. *Physiol. Behav.	**81.9**	80	48	58.0	34.8	60.0	1.496
14. *Perc. Psychophys.	**69.8**	104	41	79.4	31.3	39.4	0.991
15. *J. Educ. Psychology	**68.7**	68	39	41.7	23.9	57.4	1.044
16. *Anim. Behavior	**67.5**	127	41	46.0	14.9	32.3	1.518
17. *J. Personality	**66.6**	147	32	72.4	15.8	21.8	0.761
18. *J. Couns. Psychol.	**64.1**	110	57	76.9	39.9	51.8	—
19. *J. Appl. Psychol.	**59.8**	120	28	68.6	16.0	23.3	0.804
20. *Psychometrika	**59.0**	98	37	56.3	21.3	37.8	0.983
21. *Behaviour	**52.9**	62	39	45.9	28.9	62.9	1.294
22. *Brit. J. Psychol.	**50.5**	101	8	56.7	4.5	7.9	0.776
23. *Psychonomic Science	**50.0**	482	154	85.0	27.2	32.0	0.616
24. *Psychophysiology	**42.9**	82	63	66.1	50.8	76.8	0.723
25. *Psychol. Reports	**34.5**	334	81	79.5	19.3	24.3	0.409
26. *Perc. Motor Skills	**32.7**	223	108	71.5	34.6	48.4	0.438
27. *J. Psychology	**32.4**	111	5	58.1	2.6	4.5	0.468
28. Child Development	**30.4**	76	—	48.7	—	—	0.507
29. *Amer. J. Psychology	**28.7**	238	17	70.2	5.0	7.1	0.464
30. *J. Social Psychol.	**28.3**	76	25	63.9	21.0	32.9	0.433
31. *Amer. Psychologist	**27.5**	171	38	67.3	15.0	22.2	0.331
32. J. Clin. Psychol.	**25.0**	161	40	74.2	18.4	24.8	0.367
33. *J. General Psychol.	**18.5**	56	5	47.1	4.2	8.9	0.259
34. *Educ. Psych. Meas.	**18.2**	87	19	61.3	13.4	21.8	0.279
35. Q. J. Exp. Psychol.	**18.2**	91	—	74.0	—	—	0.389
36. *Aerospace Medicine*	**13.8**	58	—	22.6	—	—	0.551
37. *Nature*	**11.8**	72	—	.5	—	—	2.244
38. **Science*	**11.6**	423	—	4.3	—	—	2.894
39. **J. Nerv. Ment. Dis.*	**11.5**	54	—	15.5	—	—	0.707
40. Human Relations	**8.7**	43	7	56.6	9.2	16.3	0.347
41. *J. Neurophysiology*	**8.0**	48	—	4.7	—	—	4.582
42. *J. Genetic Psychol.	**7.4**	58	15	36.5	9.4	25.9	0.148
43. *EEG Clin. Neurophys.*	**5.2**	76	—	10.6	—	—	0.388
44. *Endocrinology*	**4.2**	45	—	1.8	—	—	2.986
45. *Amer. J. Physiology*	**3.4**	72	—	1.3	—	—	3.379
46. *J. Acoust. Soc. Amer.*	**2.4**	61	—	5.1	—	—	0.563
47. *Amer. J. Psychiatry*	**1.4**	45	—	8.0	—	—	0.673
48. *Arch. Gen. Psychiat.*	**1.0**	68	—	8.7	—	—	1.409
49. *Psychol. Monogr.*	—	108	—	59.0	—	—	—
50. *Amer. Sociol. Review*	—	45	—	36.6	—	—	—

The absence of psychiatric journals in Figure 1 interests me. We can regard the *Archives of General Psychiatry* as an exception, even though it cited the data-base group only 41 times—not enough to put it on the list among the top fifty. No other psychiatric journal cited the group more than four times. Even journals in audiology, acoustics, etc. did so more frequently.

The special case of the *Archives of General Psychiatry* prompted me to look at its citation record. The four journals it cites most are: itself, *American Journal of Psychiatry, British Journal of Psychiatry,* and *Journal of Nervous and Mental Disease.* Otherwise, it cites journals in psychology and the behavioral sciences, general medicine, biochemistry, and physiology more than in psychiatry. The same is true of *JNMD.* I believe that this accounts for the appearance of both of these journals on the list in Figure 2—journals that were most *cited by* psychology journals. I wonder whether the absence of psychiatric material is what most psychiatrists and psychologists would have expected. In any case, as a layman, I find it rather surprising and interesting. Is it another example of the failure of communication between two—one would think—vitally related 'cultures'? Another statistic indicates the importance of these fifty journals: they account for 89% of all citations made to the 77 journals in the data base.

Figure 2 shows the journals most often cited by our quintessential *Psychology Research Papers* data-base group. Thirty-five of the journals also appear on the list in Figure 1. Those unique to Figure 2 are themselves psychology journals that didn't make Figure 1's top fifty. Or they are journals concerned with phenomena suitable for (audiology) or required of (aerospace medicine) psychologic investigation. One of them, *Psychological Monographs,* was not covered by the *SCI* in 1969. The appearance on this list of the *Archives of General Psychiatry* confirms our estimation of it above.

As on virtually every list of 'specialty' core journals that we have published previously, *Science* and *Nature* turn up here. The fifty journals in Figure 2 account for 77% of all the citations made by the 77 journals of the data base during the period studied. Of all citations received by the journals in Figure 2, the fifty data-base journals on the list account for 54%. The self-cited rate for the data base journals is overall about average, 19.6%. Self-citedness accounts on the average for 30% when only 'psychology' citations are considered, about matching the self-citing 'psychology' rate.[5]

The last column in both Figures 1 and 2 gives the general impact of the listed journals—the number of citations per article published in terms of all citations. In Figure 3, the first column shows the 'psychology' impact. This is the rate of citation, per article published, by the 77 data-base journals only. As noted previously,[2] we multiply by 100 here to make it easier to distinguish between the two impacts. The 'specialty' impact can be considered a measure of field-orientation, or non-generality of a journal. It is interesting to note how closely the psychology impacts correspond in rank with the general impacts. It is, I believe, a reliable reflection of the homogeneity of the two lists in Figures 1 and 2, and of the parochialism of psychology. As is expected, the journals rank quite differently by impact than when ranked by citations alone.

I would not go so far as to say that psychologists and behavioral scientists work in a closed tower, but very obviously they seem not to look too much at the research world elsewhere. If they do, they seem not to have found much that is helpful. If they have, they aren't admitting the fact in their citations.

In the near future, we plan to publish lists of most-cited articles from psychology journals. They will provide another view of this important area of study. In these citation studies, it is not our purpose only to intrigue the specialist with data from this or that field, but also to tell those outside the field what its specialists regard as important. In that sense, our citation studies are intended as a new genre in scientific journalism.

---

1. **Garfield E.** Journal citation studies. 15. Cancer journals and articles. *Current Contents® (CC®)* No. 42, 16 October 1974, p. 5-9.

2. ----------. Journal citation studies. 18. Highly cited botany journals. *CC* No. 2, 13 January 1975, p. 5-9.

3. *Science Citation Index 1969 Guide & Journal Lists.* (Philadelphia: Institute for Scientific Information, 1970). — The subject category listing of indexed journals appears on pages 6–10 of the *1969 Guide.*

4. **Garfield E.** Citation analysis as a tool in journal evaluation. *Science* **178**:471–79, 1972.

5. ----------. Journal citation studies. 17. Journal self-citation rates–there's a difference. *CC* No. 52, 25 December 1974, p. 5-7.