

Highly Cited Articles. 19.
Human Psychology and Behavior

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Number 18

This is a sequel to our previous report of highly cited articles on physiologic psychology and animal behavior.¹ Here we give a list of highly cited articles on human psychology and behavior.

We planned originally to list all the articles at one time. But we turned up so many articles in the field that had been cited 75 times or more during the period 1961-1973, that it has been necessary to publish the list in two parts. Space was one consideration. Another was the likelihood that some categorization—date of publication, subject—would be useful. As previously noted, we adopted a division suggested by Professor Victor Laties of the University of Rochester Medical Center.¹

Now that all the titles are available to readers, some information about the group as a whole may be of interest.

Altogether, we found 161 articles that had been cited 75 times or more during the period 1961-1973. As a group they had been cited about 25,700 times, an average of 160 each, or about 12 citations a year. There are only 15 or so *journals* that can match that number of citations over a roughly comparable period. That fact supports my contention that libraries would find bound collections of these articles extremely useful.²

Fully two-thirds of the articles are more than ten years old. This contrasts sharply with the overall citation pattern of 'average' articles. In 1973, for example, of all citations in the *Science Citation Index*® (SCI®), less than a quarter were of articles more than 10 years old, while the

citation rate of the average cited article was only 1.8.³

The articles on the two lists come from 41 journals. The heaviest contributors were: *Psychological Review* (33 articles); *Journal of Experimental Psychology* (16); *Psychological Bulletin* (13); *Journal of Abnormal Psychology*, formerly *Journal of Abnormal and Social Psychology* (13); *Journal of Comparative Physiological Psychology* (11); *Psychometrika* (8); *Journal of Experimental Analysis of Behavior* (7); *Science* (5); *Journal of Verbal Learning and Verbal Behavior* (5); and *Psychological Reports* (4). Of the 31 other journals, three contributed three articles each, eight contributed two each, and twenty contributed one each. Except for *Science*, the ten journals named are those that rank highest in terms of 'psychology' impact, as listed in a previous report.⁴

As in other fields, many of these highly cited papers are so-called 'methods' papers. Or, as Professor Laties has pointed out, they have *become* methods papers. Though it was not originally intended as such, the author's experimental design or methodology or rating scale or testing method has become the paper's core of interest. Later citing authors have used it or adapted it to their own purposes. In such cases, the paper is rarely cited purely for its findings. For example, the most highly cited of the papers on the list which follows (item 12) is Taylor's 1953 article, "A personality scale for manifest anxiety." It has been used countless times in psychology stud-

ies of personality. Stroop's 1935 paper (item 2) is a similar example. His method of 'interference' has been adapted for investigation of other psychomotor phenomena. Kruskal's two 1964 papers (items 64 and 65) on multidimensional scaling are being used, for example, in our own work in citation analysis.

In compiling these lists, we observe many interesting phenomena which, unfortunately, we don't have time to investigate immediately. In preparing lists of highly cited articles in other fields, we have usually found four or five articles by the same person in our highly-cited print-outs. Occasionally, we would find also a highly cited book by the same person.

For psychology, the opposite was true. Some authors' names appear more than once on the lists (Dement, Amsel, Nauta, Sperling, Sternberg, etc.). Howev-

er, in most cases there is only one article per author, but that person is also the author of a highly cited book.

Another 'finding' I mention in conclusion because it supports my opinion, noted above, that libraries would find bound volumes of highly cited articles as useful and used as their most called-for item. Because of the age of many of the articles, we have had to go to library shelves and bound journal volumes to verify our citations. It has been reported to me that in an unacceptably large number of cases, the articles we were after had been torn from the volumes. Sometimes they had been replaced by Xerox copies. My research assistant remarked that "...I've never seen anything like it! It certainly didn't happen with the *botany* articles."^{5,6} Any further interpretation of this particular finding about psychology journals, I'd better leave to psychologists.

1. Garfield E. Highly cited articles. 18. Physiologic psychology and animal behavior. *CC* No. 17, 28 April 1975, p. 5-9.
2. Garfield E & Weinstock M. No-growth libraries and citation analysis; or pulling weeds with *ISI's Journal Citation Reports™ (JCR™)*. Paper presented at the Associated Colleges of the Mid-West Conference on Space, Growth and Performance Problems of Colleges and University Libraries, Chicago, 17-18 April 1975.
3. *Science Citation Index 1973 Annual Guide and Journal Lists*. (Philadelphia: Institute for Scientific

- Information, 1974), 108 p. — The *Guide* is included as front matter in volume 5 of the 1973 *SCI*. See page 21 for a statistical summary of the age of articles cited in 1973 by all covered journals.
4. Garfield E. Journal citation studies. 19. Psychology and behavior journals. *CC* No. 9, 3 March 1975, p. 5-9.
 5. -----. Highly cited articles from plant physiology journals. *CC* No. 3, 20 January 1975, p. 5-10.
 6. -----. Highly cited botanical articles from botanical and other journals. *CC* No. 4, 27 January 1975, p. 5-9.

Highly Cited Articles on Human Psychology and Behavior

Times cited 1961-1973
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 Times cited 1973 only

Bibliographic Data

1. 175 (11) **Glaze J A.** The association value of non-sense syllables.
J. Genetic Psychol. 35:255-67, 1928.
2. 163 (27) **Stroop J R.** Studies of interference in serial verbal reactions.
J. Exp. Psychol. 18:643-62, 1935.
3. 139 (13) **Asch S E.** Forming impressions of personality.
J. Abn. Soc. Psychol. 41:258-90, 1946.
4. 96 (11) **Witkin H A.** Individual differences in ease of perception of embedded figures.
J. Personality 19:1-15, 1950.
5. 94 (13) **Cronbach L J.** Coefficient alpha and the internal structure of tests.
Psychometrika 16:297-334, 1951.
6. 119 (12) **Hick W E.** On the rate of gain of information.
Quart. J. Exp. Psychol. 4:11-26, 1952.
7. 126 (15) **Mandler G & Sarason S B.** A study of anxiety and learning.
J. Abn. Soc. Psychol. 47:166-73, 1952.
8. 198 (14) **Noble C E.** An analysis of meaning.
Psychol. Review 59:421-30, 1952.
9. 98 (8) **Barron F.** An ego-strength scale which predicts response to psychotherapy.
J. Consult. Psychol. 17:327-33, 1953.
10. 136 (20) **Bousfield W A.** The occurrence of clustering in the recall of randomly arranged associates.
J. General Psychol. 49:229-40, 1953.
11. 110 (7) **Hyman R.** Stimulus information as a determinant of reaction time.
J. Exp. Psychol. 45:188-96, 1953.
12. 539 (47) **Taylor J A.** A personality scale of manifest anxiety.
J. Abn. Soc. Psychol. 48:285-90, 1953.
13. 96 (1) **Bexton W H, Heron W & Scott T H.** Effects of decreased variation in the sensory environment.
Canad. J. Psychol. 8:70-6, 1954.
14. 143 (28) **Festinger L.** A theory of social comparison processes.
Human Relations 7:117-40, 1954.
15. 105 (12) **Tanner W P & Swets J A.** A decision-making theory of visual detection.
Psychol. Review 61:401-09, 1954.
16. 120 (7) **Crutchfield R S.** Conformity and character.
Amer. Psychologist 10:191-98, 1955.
17. 114 (10) **Osgood C E & Tannenbaum P H.** The principle of congruity in the prediction of attitude change.
Psychol. Review 62:42-55, 1955.
18. 81 (5) **Roth M.** The natural history of mental disorder in old age.
J. Ment. Sci. 101:281-301, 1955.
19. 124 (9) **Taffel C.** Anxiety and the conditioning of verbal behavior.
J. Abn. Soc. Psychol. 51:496-501, 1955.
20. 109 (10) **Attneave F & Arnoult M D.** The quantitative study of shape and pattern perception.
Psychol. Bull. 53:452-71, 1956.
21. 221 (17) **Bateson G, Jackson D A, Haley J & Weakland J.** Toward a theory of schizophrenia.
Behav. Sci. 1:251-64, 1956.

22. 120 (9) **Grant D A.** Analysis of variance tests in the analysis and comparison of curves.
Psychol. Bull. 53:141-54, 1956.
23. 484 (56) **Miller G A.** The magical number seven, plus or minus two; some limits in our capacity for processing information.
Psychol. Review 63:81-97, 1956.
24. 82 (5) **Stevens S S.** The direct estimation of sensory magnitudes; loudness.
Amer. J. Psychol. 69:1-25, 1956.
25. 89 (9) **Bruner J S.** On perceptual readiness.
Psychol. Review 64:123-52, 1957.
26. 108 (23) **Heron W.** Perception as a function of retinal locus and attention.
Amer. J. Psychol. 70:38-48, 1957.
27. 165 (15) **Stevens S S & Galanter E H.** Ratio scales and category scales for a dozen perceptual continua.
J. Exp. Psychol. 54:377-411, 1957.
28. 271 (27) **Stevens S S.** On the psychophysical law.
Psychol. Review 64:153-81, 1957.
29. 371 (47) **Kaiser H F.** The varimax criterion for analytic rotation in factor analysis.
Psychometrika 23:187-200, 1958.
30. 120 (8) **Barnes J M & Underwood B J.** "Fate" of first-list associates in transfer theory.
J. Exp. Psychol. 58:97-105, 1959.
31. 249 (40) **Campbell D T & Fiske D W.** Convergent and discriminant validation by the multitrait-multimethod matrix.
Psychol. Bull. 56:81-105, 1959.
32. 86 (4) **Deese J.** Influence of inter-item associative strength upon immediate free recall.
Psychol. Reports 5:305-12, 1959.
33. 93 (11) **Festinger L & Carlsmith J M.** Cognitive consequences of forced compliance.
J. Abn. Soc. Psychol. 58:203-10, 1959.
34. 109 (16) **Orne M T.** The nature of hypnosis; artifact and essence.
J. Abn. Soc. Psychol. 58:277-99, 1959.
35. 297 (38) **Peterson L R & Peterson M J.** Short-term retention of individual verbal items.
J. Exp. Psychol. 58:193-98, 1959.
36. 76 (3) **Underwood B J, Runquist W N & Schulz R W.** Response learning in paired-associate tests as a function of intralist similarity.
J. Exp. Psychol. 58:70-8, 1959.
37. 84 (15) **Vanderplas J M & Garvin E A.** The association value of random shapes.
J. Exp. Psychol. 57:147-54, 1959.
38. 155 (21) **White R W.** Motivation reconsidered; the concept of competence.
Psychol. Review 66:297-333, 1959.
39. 106 (10) **Alpert R & Haber R N.** Anxiety in academic achievement situations.
J. Abn. Soc. Psychol. 61:207-15, 1960.
40. 242 (24) **Archer E J.** Re-evaluation of the meaningfulness of all possible CVC trigrams.
Psychol. Monogr. 74(497), 1960.
41. 121 (12) **Couch A & Keniston K.** Yeasayers and naysayers; agreeing response set as a personality variable.
J. Abn. Soc. Psychol. 60:151-74, 1960.

42. 217 (23) **Crowne D P & Marlowe D.** A new scale of social desirability independent of psychopathology. *J. Consult. Psychol.* **24**:349-54, **1960**.
43. 183 (34) **Sperling G.** The information available in brief visual presentations. *Psychol. Monogr.* **74**(498), **1960**.
44. 88 (9) **Zuckerman M.** The development of an effect adjective check list for the measurement of anxiety. *J. Consult. Psychol.* **24**:457-62, **1960**.
45. 134 (29) **Byrne D.** Interpersonal attraction and attitude similarity. *J. Abn. Soc. Psychol.* **62**:713-15, **1961**.
46. 122 (19) **Byrne D.** The repression-sensitization scale: rationale, reliability, and validity. *J. Personality* **29**:334-49, **1961**.
47. 109 (24) **Kimura D.** Cerebral dominance and the perception of verbal stimuli. *Canad. J. Psychol.* **15**:166-71, **1961**.
48. 136 (17) **Noble C E.** Measurements of association value (a), rated associations (a'), and scaled meaningfulness (m') for the 2100 CVC combinations of the English alphabet. *Psychol. Reports* **8**:487-521, **1961**.
49. 215 (16) **Swets J, Tanner W P & Birdsall T G.** Decision processes in perception. *Psychol. Review* **68**:301-340, **1961**.
50. 98 (12) **Cornsweet T N.** The staircase-method in psychophysics. *Amer. J. Psychol.* **75**:485-91, **1962**.
51. 237 (29) **Kendler H H & Kendler T S.** Vertical and horizontal processes in problem solving. *Psychol. Review* **69**:1-16, **1962**.
52. 124 (12) **Keppel G & Underwood B J.** Proactive inhibition in short-term retention of single items. *J. Verbal Learn. Behav.* **1**:153-56, **1962**.
53. 79 (0) **Mednick S A.** Schizophrenia: a learned thought disorder. *Proc. 14th Internat. Congr. Appl. Psychol.* **4**:167-78, **1962**.
54. 362 (50) **Orne M T.** On the social psychology of the psychological experiment; with particular reference to demand characteristics and their implications. *Amer. Psychologist* **17**:776-83, **1962**.
55. 303 (55) **Overall J E & Gorham D R.** The brief psychiatric rating scale. *Psychol. Reports* **10**:799-812, **1962**.
56. 110 (14) **Restle F.** The selection of strategies in cue learning. *Psychol. Review* **69**:329-43, **1962**.
57. 180 (22) **Shepard R N.** The analysis of proximities; multidimensional scaling with an unknown distance function. I. *Psychometrika* **27**:125-40, **1962**.
58. 147 (20) **Shepard R N.** The analysis of proximities; multidimensional scaling with an unknown distance function. II. *Psychometrika* **27**:219, **1962**.
59. 148 (20) **Tulving E.** Subjective organization in free recall of "unrelated" words. *Psychol. Review* **69**:344-54, **1962**.
60. 99 (6) **Rosenthal R.** On the social psychology of the psychological experiment; the experimenter's hypothesis as unintended determinant of experimental results. *Amer. Scientist* **51**:268-83, **1963**.
61. 181 (23) **Sperling G.** A model for visual memory tasks. *Human Factors* **5**:19-31, **1963**.

62. 112 (13) **Yntema D B & Trask F P.** Recall as a search process.
J. Verbal Learn. Behav. 2:65-74, 1963.
63. 221 (22) **Conrad R.** Acoustic confusions in immediate memory.
Brit. J. Psychol. 55:75-84, 1964.
64. 221 (40) **Kruskal J B.** Multidimensional scaling by optimizing goodness of fit to a nonmetric hypothesis.
Psychometrika 29:1-27, 1964.
65. 161 (32) **Kruskal J B.** Nonmetric multidimensional scaling; a numerical method.
Psychometrika 29:115, 1964.
66. 116 (18) **Silverman J.** The problem of attention in research and theory in schizophrenia.
Psychol. Review 71:352, 1964.
67. 85 (6) **Underwood B J.** Degree of learning and measurement of forgetting.
J. Verbal Learn. Behav. 3:112-29, 1964.
68. 78 (20) **Ayllon T & Azrin N H.** The measurement and reinforcement of behavior of psychotics.
J. Exp. Analys. Behav. 8:357-83, 1965.
69. 87 (14) **Buss A H & Lang P J.** Psychological deficit in schizophrenia. I. Affect, reinforcement, and concept attainment.
J. Abn. Psychol. 70:2-24, 1965.
70. 83 (12) **Harris C S.** Perceptual adaptation to inverted, reversed, and displaced vision.
Psychol. Review 72:419-44, 1965.
71. 114 (15) **Haygood R C & Bourne L E.** Attribute and rule learning aspects of conceptual behavior.
Psychol. Review 72:175-95, 1965.
72. 107 (17) **Lang P J & Buss A H.** Psychological deficit in schizophrenia. II. Interference and activation.
J. Abn. Psychol. 70:77-106, 1965.
73. 240 (32) **Waugh N C & Norman D A.** Primary memory.
Psychol. Review 72:89-104, 1965.
74. 78 (9) **Witkin H A.** Psychological differentiation and forms of pathology.
J. Abn. Psychol. 70:317-36, 1965.
75. 95 (7) **Bertelson P.** Central intermittency twenty years later.
Quart. J. Exp. Psychol. 18:153-63, 1966.
76. 111 (21) **Bousfield A K & Bousfield W A.** Measurement of clustering and of sequential constancies in repeated free recall.
Psychol. Reports 19:935, 1966.
77. 114 (23) **Ekstrand B R, Wallace W P & Underwood B J.** A frequency theory of verbal-discrimination learning.
Psychol. Review 73:566-78, 1966.
78. 123 (22) **Glanzer M.** Two storage mechanisms in free recall.
J. Verbal Learn. Behav. 5:351-60, 1966.
79. 135 (29) **Lefcourt H M.** Internal versus external control of reinforcement; a review.
Psychol. Bull. 65:206-20, 1966.
80. 82 (14) **Levine M.** Hypothesis behavior by humans during discrimination learning.
J. Exp. Psychol. 71:331-38, 1966.
81. 81 (13) **Roffwarg H P, Muzio J N & Dement W C.** Ontogenetic development of human sleep dream cycle.
Science 152:604-19, 1966.

82. 442 (128) **Rotter J B.** Generalized expectancies for internal versus external control of reinforcement.
Psychol. Monogr. 80(1):1-28, 1966.
83. 169 (41) **Sternberg S.** High-speed scanning in human memory.
Science 153:652-54, 1966.
84. 121 (23) **Tulving E & Pearlstone Z.** Availability versus accessibility of information in memory for words.
J. Verbal Learn. Behav. 5:381-91, 1966.
85. 84 (30) **Bem D J.** Self perception; an alternative interpretation of cognitive dissonance phenomena.
Psychol. Review 74:183-200, 1967.
86. 85 (29) **Johnson S C.** Hierarchical clustering schemes.
Psychometrika 32:241-54, 1967.
87. 123 (26) **Liberman A M, Cooper F S, Shankweiler D P & Studdert-Kennedy M.** Perception of the speech code.
Psychol. Review 74:431-61, 1967.
88. 75 (16) **Posner M I & Mitchell R F.** Chronometric analysis of classification.
Psychol. Review 74:392-409, 1967.
89. 107 (24) **Sperling G.** Successive approximations to a model for short term memory.
Acta Psychologica 27:285-92, 1967.
90. 87 (14) **Sternberg S.** Two operations in character recognition; some evidence from reaction time measurements.
Perc. Psychophys. 2:45-53, 1967.
91. 80 (27) **Cohen J.** Multiple regression as a general data analytic system.
Psychol. Bull. 70:426-43, 1968.
92. 79 (19) **Davison G C.** Systematic desensitization as a counter conditioning process.
J. Abn. Psychol. 73:91-9, 1968.
93. 98 (23) **Kahneman D.** Method, findings, and theory in studies of visual masking.
Psychol. Bull. 70:404-25, 1968.
94. 95 (50) **Paivio A & Madigan S A.** Imagery and association value in paired associate learning.
J. Exp. Psychol. 76:35-9, 1968.
95. 79 (19) **Smith E E.** Choice reaction time; an analysis of the major theoretical positions.
Psychol. Bull. 69:77-110, 1968.
96. 165 (31) **Paivio A.** Mental imagery in associative learning and memory.
Psychol. Review 76:241-63, 1969.
97. 75 (23) **Sternberg S.** The discovery of processing stages; extensions of Donder's method.
Acta Psychologica 30:276-315, 1969.
98. 95 (43) **Sternberg S.** Memory-scanning; mental processes revealed by reaction time experiments.
Amer. Scientist 57:421-57, 1969.
99. 84 (30) **Wickens D D.** Encoding categories of words; an empirical approach to meaning.
Psychol. Review 77:1-15, 1970.