Creative Collaborations from Afar: The Benefits of Independent Authors[1, 2]

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Abstract

The number of times that an article is cited has served as an indicator of both its creativity and impact (Feist, 1994; Griggs & Proctor, 2002). In this study, we investigated the relationship between citations and two very simple variables—the number of authors and the number of separate locations. Previous research, on balance, would support the notion that an increased number of collaborators would increase the quality of the product, at least to some asymptote (Ziller, 1957; Torrance, 1971). Research on the effect of separate locations is more sparse. Most work favors collaborations at the same locale, given a sharing of perspective and benefits in terms of coordination and motivation (Handy, 1995; Jarvenpaa & Leidner, 1999). However, research from the minority influence literature documents the stimulating effects of independent and differing views (Nemeth, 2003), leading to the conclusion that independent locations would be an asset. Results from an analysis of six journals over a 10-year period show the benefit of both the number of authors and the number of independent locations. Journals also differed in their citation average, Psychological Review being cited significantly more often than any of the other five journals.

Creative Collaborations from Afar: The Benefits of Independent Authors

Publishing basic research is a primary activity of most academics and practitioners and one of the goals is to stimulate research and to reach as broad an audience as possible. The number of citations has often been used as an indicator of such "influence" both in terms of complex and creative thinking and in terms of its importance and "impact" on the thinking and research of others (Feist, 1994; Helmreich, Spence, Beane, Lucker, & Matthews, 1980; Griggs & Proctor, 2002). Number of citations is viewed as an objective index of scholarly impact and suggests methodological and/or theoretical advances (Rushton, 1974).

With such impact in mind, one of the most crucial decisions to make at the beginning stages of a research project is whether or not to collaborate and with whom. In considering citations as a proxy for creativity and impact, what is the value of multiple authors? Does having a collaborator (or two or three) increase an article's impact? Or is there an asymptote, beyond which an increase in collaborators decreases the impact and creativity of the article? This issue has broader application than publications. The relationship between size of group and performance has a long history and continues to be an important issue in understanding group process and group performance. Less researched but equally important is where the collaborators are located. We will suggest and investigate the possible impact of collaborating from "afar," from having authors at different universities or locations. The literature on this relationship is more sparse and conflicted.

Following the classic work by Steiner (1972), there is evidence that increasing the size of the group increases the resources available for the endeavor (time, energy, expertise) but can create coordination problems (Diehl & Stroebe, 1987; Latane, Williams, & Harkins, 1979) as well as motivational problems such as social loafing or free riding (Albanese & Van Fleet, 1985;

Karau & Williams, 1993). As group size increases, conflict increases (Slater, 1958; O'Dell, 1968), participation decreases (Bass & Norton, 1951) and consensus decreases (Hare, 1952) with some indication of an asymptote (Brewer & Kramer, 1986; Kerr, 1989).

The evidence on quantity or quality of output, however, is somewhat mixed. Hackman and Vidmar (1970) find little evidence of the effects of group size on quantity of group performance leading Cummings, Huber and Arendt (1974) to conclude that the literature shows "either inconsistent or no size effects in relation to measures of group performance and productivity" (p. 463). On the other hand, there is evidence that, as group size increases, both the originality of answers and objective quality of the group's decision increases (Ziller, 1957; Renzulli, Owen, & Callahan, 1974). Such evidence is consistent with Torrance's (1971) contention that working with others can provide mutual stimulation. Further, groups especially profit from the fact that they are particularly good at being able to detect errors and eliminate wrong answers (Shaw, 1932; Azar, 1994).

For collaborations, however, the issue is not really whether increased size is better than the same individuals working separately. It is whether additional authors increases the quality and impact of the product. The research literature, while mixed, permits the hypothesis that increased number of authors leads to a higher quality publication, one with greater impact.

The benefits of additional collaborators raises another issue, that of independence of that knowledge or judgment. This raises the interesting possibility that the number of locations is important. Collaborators can be in the same location or they may be at geographically different locations, not easily permitting face-to-face communication. Does such a distance impair performance or might it, under some circumstances, aid the quality of the published article?

There is little available literature on collaboration at a distance in Social Psychology. Some pertinent research in Organizational Behavior on virtual teams has studied companies with far-flung offices who have employees who are located across time, space and cultures (Mowshowitz, 1997; Kristof et al., 1995) and who communicate by electronic means or telephone, and rarely have face-to-face interactions. Such distant collaborations have been found to suffer from lowered commitment and higher absenteeism and social loafing (O'Hara-Devereaux & Johansen, 1994), leading some researchers to hypothesize the necessity of frequent face to face interaction especially for communication, trust and intimacy (Handy, 1995). However, there is some evidence that intimacy can be even greater in computer mediated communication than in face to face groups (Walther, 1995, 1997).

Researchers have further argued that the physical proximity reinforces shared values and expectations and heightens the threat from failure to meet expectations (Latane et al., 1995; see generally Jarvenpaa & Leidner, 1999). In this context, the question is whether that distance with the primary modes of communication being the telephone and electronic means, serves as a detriment to the finished product or not. Most researchers suggest that multiple authors would be better served by being in one location rather than dispersed across several locations. Almost none would suggest that collaboration from afar is an advantage.

Such shared values and expectations might lead to an opposite prediction. A contrasting viewpoint could be argued from the perspective of research showing the value of independent and even competing viewpoints (Nemeth, 1997, 2003). Faced with dissenting viewpoint, people search for more information in an unbiased manner, utilize more strategies and consider more options. As such, performance is improved; errors are detected and creativity is enhanced (see generally Nemeth 1997, 2003). To the extent that being in geographically different locations

increases the likelihood of independence of thought, an assumption consistent with evidence that conformity is higher in highly cohesive and face to face groups (Deutsch & Gerard, 1955; Schachter, 1951), this would suggest that there is value in collaborating "from afar," from geographically different locations. Such an hypothesis is consistent with research showing that there is the perception of higher quality judgments when there is agreement between independent individuals relative to those who can be categorized together, the latter are assumed to share a bias (Wilder, 1977).

In the present study, we investigate the number of citations across a wide range of journals over a 10-year period to assess the effect of number of authors and number of locations. While the relationship is an empirical matter, we hypothesize that citations will increase with additional authors with possibly a decrease at the point where coordination and motivational issues outweigh the additional resources. Regarding number of locations, many would predict an inverse relationship with citations, given the potential problems with communication, coordination and intimacy when collaborating "from afar." However, given the possibility that differing locations permits an independence from which divergent perspectives and creativity is likely to be enhanced, we hypothesize a positive linear relationship between number of locations and number of citations, again with the possibility of a point where the problems outweigh the benefits.

Method

Data and Procedure

Data were collected from the Social Science Citation Index, a searchable database of academic articles from more than 1700 journals across more than 50 disciplines, published since the year 1972. For each article published, the index records the names of each author, his or her affiliation, and the number of times that particular article has been cited (listed in the reference

section) in other published papers. For our analysis, we collected data on all articles published from 1981 to 1990 in six journals: American Psychologist, Psychological Review, Psychological Bulletin, Journal of Personality and Social Psychology, Journal of Applied Psychology, and Organizational Behavior and Human Decision Processes. There are a total of 5,113 articles in our analysis.

To obtain information on each article, we selected "Full Search" from the index menu, specified the particular year of our search (e.g., 1981) and selected the journal to be searched (e.g., American Psychologist). This permitted us to view every article published in a particular journal in a given year. For each article we noted the number of authors who wrote the paper, the number of locations represented by the authors, and the number of times that paper was cited. The unit of analysis was the individual article.

As an example, the article: Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. Journal of Personality and Social Psychology, 45, 2, 357-376, was coded as one author, one location (Brandeis University), and 103 times cited.

Dependent Variable

Times Cited. Our primary dependent variable was the number of times each article was cited in other published articles.

Independent Variables

Number of authors. For each article, the citation index specifies the authors who contributed to the piece. The number of those authors constituted a main independent variable.

Number of locations. Each author has an affiliation listed. This can be at the same institution as another author on that article or a different institution. Two authors from the same university were entered as one location because they are both affiliated with the same institution. Two authors who were each from a different university were entered as two locations.

Control Variables

Journal. Given likely citation differences between journals, we controlled for journal in all analyses. We created a dummy variable for each journal, using Organizational Behavior and Human Decision Processes as the reference category.

Year. The year in which an article was published was also controlled in that it is likely that older articles were cited more often than more recent ones. Thus, a variable was created such that 1981 = 1, 1982 = 2 and so forth until 1990.

Results

As mentioned above, data were collected from 6 leading journals over a 10-year period and consisted of nearly 5100 articles which were coded for the number of authors and the number of locations. To map the sample, the vast majority of articles had 1 or 2 authors, this comprising 71.3% of the sample. If one includes articles with three authors, over 90.6% of the sample is represented. By contrast, articles having more than 5 authors were miniscule, comprising only 1% of the sample. Similarly, the vast majority of articles had either 1 or 2 locations, this comprising 91.7%; adding 3 locations accounts for 98% of the sample. The number of articles with more than 5 locations was 0.5%. The mean number of authors was 2.12; the mean number of locations was 1.45. The average number of citations across all articles was 46.03.

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Insert Table 1 about here

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Citations also differed considerably by journal. Articles published in the Psychological Review articles were cited significantly more often than articles in any of the other journals. All comparisons were significant at less than the .05 level. Articles in the Psychological Bulletin

were next most cited. While significantly less often than those in the Psychological Review, they were cited significantly more often than those in the American Psychologist, Journal of Personality and Social Psychology, Journal of Applied Psychology and Organizational Behavior and Human Decision Processes ($p<.05$ for all comparisons).

American Psychologist and Journal of Personality and Social Psychology were next. While not significantly different from each other, articles in these two journals were cited significantly more often than those in the Journal of Applied Psychology and Organizational Behavior and Human Decision Processes ($p<.05$). The latter two did not differ significantly from one another in number of citations but were the least cited in this group of 6 journals. All differences reported are significant at less than the .05 level.

Insert Table 2 about here

To test the various hypotheses, we computed ordinary least squares regressions. Since the data were highly skewed (skewness = 9.62; range of 0 to 2,130; mean of 46) and given that linear regression analysis assumes a normal distribution of values, we log transformed the times cited variable. In all analyses and in Table 3 we report standardized beta coefficients unless otherwise indicated. Model 2.1 is a baseline model showing differences in citations by journal. It also shows that papers published earlier do not have significantly more citations than papers published more recently ($\beta = .07$, ns).

Model 2.2 tests the hypothesis regarding the relationship between number of authors and citations. The variable Number of Authors is positive and significant, indicating than as number of authors on the paper increases, the number of citations to this paper significantly increases (β

= .05, $p < .05$). . The model's adjusted R Square is .067, indicating that the variables in the model explain 6.7% of variance in the dependent variable.

Model 2.3 tests the hypothesis regarding the value of different locations. The variable Number of Locations is positive and significant indicating that papers published by authors from different universities are cited significantly more often than those produced by authors with the same affiliations ($\beta = .03$, $p < .05$). This result is independent of the number of authors. The model's adjusted R Square is .068, indicating that the variables in the model explain 6.8% of variance in the dependent variable. Quadratic terms were not significant either for authors or locations and are not included in the models.

Insert Table 3 about here

Of some interest is the fact that, while articles published in the Psychological Review are cited more than those in any of the other 5 journals we studied, it did not publish the article with the most citations. Table 4 shows the first and second most cited article in each of the 6 journals. The Baron and Kenny (1986) article in Journal of Personality & Social Psychology took the honors with 2130 citations followed by Bandura (1982) in the American Psychologist with 1660 citations. The most cited article in Psychological Review--McClelland and Rumelhart (1981)--had 1118 citations. However, the mean number of citations is highest in Psychological Review, averaging just over 134 citations over the 10-year period.

Insert Table 4 about here

Discussion

We started with the hypothesis that increasing the number of authors, holding number of locations constant, would increase the number of citations, at least to some asymptote. Further, we predicted that increasing the number of locations, holding authors constant, would increase the number of citations. We assumed that being in different universities increases the likelihood of independence and decreases the uniformity that being in the same normative environment tends to produce. Results support these hypotheses. While these variables do not account for a large part of the variance, the Beta coefficients are significant, indicating that both number of authors and number of locations **independently** predict the number of citations. It should be remembered, however, that the vast majority of publications had 1, 2 or 3 authors in 1, 2, or 3 locations.

Given the many and varied reasons for the number of times an article is cited, we find it interesting that simple variables such as number of authors and number of locations are significantly related to citations in a large sample of over 5100 articles from 6 leading journals over a 10-year period. Previous research on size of group and performance points out the advantages of size for resources but also demonstrates an increase in coordination and motivational problems. It is noteworthy that we find no evidence for an inverted U shaped relation; citations do not decrease even when there are a large number of authors or locations; they just don't add to the article's impact. For these data, the pattern is quite simple—and linear.

We suspect that part of the reason for the simple linear relation is that some of the coordination and motivational problems found in experimental settings may not be operative in collaborations. Most importantly, people choose whether or not to collaborate and, further, with whom they will collaborate. Authors are identified; they each recognize the importance of their contribution and, most likely, they trust one another, all of which have been found to lessen

social loafing and to increase motivation to perform well (Kerr, 1989; Renzulli, Owen, & Callahan, 1974). Such a choice of collaborator would also increase the likelihood of an "assembly effect," a good combination of talents (Rosenberg, Erlick, & Berkowitz, 1955; Michaelsen, Watson, & Black, 1989). Thus, it is not surprising that number of authors would relate to citations.

What is less obvious is the prediction that number of locations would contribute to the number of citations, holding number of authors constant. One might easily have hypothesized a negative rather than a positive relationship in that collaborations "from afar" would likely have more coordination and even motivational problems. Yet, as hypothesized from the literature emphasizing the importance of independence and differing views for creativity, we find support for the premise that such independence, as defined by being in different geographical locations, actually aids the article's impact and creativity, as defined by the number of times it is cited in the literature. Again, we find no evidence for an inverted U shaped relationship.

It is of interest that citations differed considerably by journal. Psychological Review articles were cited significantly more often than articles in any of the other 5 journals. Articles published in the Psychological Bulletin were next most cited. American Psychologist and Journal of Personality and Social Psychology were next. While not different from each other, articles in these two journals were cited significantly more often than those in the Journal of Applied Psychology and Organizational Behavior and Human Decision Processes. The latter two did not differ from one another in number of citations but were the least cited in this group of 6 journals. Psychological Review and Psychological Bulletin are disseminated more widely across fields of Psychology and represent theory and integrative reviews respectively. Articles in empirical

journals are cited less frequently but the Journal of Personality and Social Psychology is clearly more cited than the other two empirical journals.

While the average number of citations were in the order indicated above, it is interesting that the most cited article over the 10-year span was published in the Journal of Personality and Social Psychology. That article, by Baron and Kenny (1986) was cited 2130 times. The second most cited article was by Bandura (1982), published in American Psychologist and cited 1660 times. The third most cited was Bower (1981), published in American Psychologist and cited 1372 times.

The conclusion or advice from these findings for increasing the number of times an article is cited is: collaborate with others, especially others in different universities. If possible, publish the article in the Psychological Review--that is, unless your last name begins with “B.”

References

Albanese, R., & Van Fleet, D. D. (1985). Rational behavior in groups: The free-riding tendency. *Academy of Management Review, 10,* 244-255.

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology, 45*, 357-376.

Azar, B. (1994) Teams that war flinders are often the cause of tragic errors. *APA Monitor*, May, p. 23.

Bandura, A. (1982). Self-efficacy mechanisms in human agency. *American Psychologist, 37*, 2, 122-147.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Bass, B. M., & Norton, F. T. (1951). Group size and leaderless discussions. *Journal of Applied Psychology, 35*, 397-400.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246.

Biederman, I. (1987). Recognition by components: A theory of human image understanding. *Psychological Review, 94*, 115-147.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129-148.

Brewer, M. B., & Kramer, R. M. (1986). Choice behavior in social dilemmas: Effects of social identity, group size, and decision framing. *Journal of Personality and Social Psychology, 50*, 543-547.

Cummings, L. L., Huber, G. P, & Arendt, E. (1974). Effects of size and spatial arrangements on group decision making. *The Academy of Management Journal, 17*, 460-475.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influence upon individual judgment. *Journal of Abnormal and Social Psychology, 195*, 629-636.

Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology, 53*, 497-509.

Feist, G. J. (1994). Personality and working style predictors of integrative complexity: A study of scientists' thinking about research and teaching. *Journal of Personality and Social Psychology, 3*, 474-484.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during 3 stages of a college examination. *Journal of Personality and Social Psychology,48*, 150-170.

Griggs, R. A., & Proctor, D. L. (2002). A citation analysis of who's who in introductory textbooks. *Teaching of Psychology, 29*, 203-206.

Hackman, R., & Vidmar, N. (1970). Effects of size and task type on group performance and member reactions. *Sociometry, 33*, 37-54.

Handy, C. (1995). Trust and the virtual organization. *Harvard Business Review, 73*, 40-50.

Hare, A. P. (1952). Interaction and consensus in different sized groups. *American Sociological Review, 17*, 261-267.

Helmreich, R. L., Spence, J. T., Beane, W. E., Lucker, G. W., & Matthews, K. A. (1980). Making it in academic psychology: Demographic and personality correlates of attainment. *Journal of Personality and Social Psychology, 39*, 896-908.

Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science, 10*, 6, 791-815.

Karau, S. J., & Williams, K. D. (1993). Social loafing: A meta-analytic review and theoretical integration. *Journal of Personality and Social Psychology, 65*, 681-706.

Kerr, N. L. (1989). Illusions of efficacy: The effects of group size on perceived efficacy in social dilemmas. *Journal of Experimental Social Psychology, 25*, 287-313.

Kristof, A. L., Brown, K. G., Sims, H. P., Smith, K. A. (1995). The virtual team: A case study and inductive model. In M. M. Beyerlein, D. A. Johnson, S. T. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams, vol. 2* (pp. 229-253). Greenwich, CT: JAI Press.

Latane, B., Liu, J. H., Nowak, A., Bonevento, M., & Zheng, L. (1995). Distance matters: Physical space and social impact. *Personality and Social Psychology Bulletin, 21*, 795-805.

Latane, B., Williams, K. D., & Harkins, S. (1979). Many hands make light work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology, 37*, 822-832.

Locke, E. A., Saari, L. M., Shaw, K. N., & Latham, G. P. (1981). Goal setting and task performance (1969-1980). *Psychological Bulletin, 90*, 1, 125-152.

McClelland, J. L., & Rumelhart, D. E. (1981). An interactive activation model of context effects in letter perception: An account of basic findings. *Psychological Review, 88*, 55, 375-407.

McGrath, J. P. (1984). *Groups: Interaction and performance*. Englewood Cliffs, N.J.: Prentice-Hall.

Michaelson, L. K., Watson, W. E., & Black, R. H. (1989). A realistic test of individual vs. group consensus decision making. *Journal of Applied Psychology, 74,* 834-839.

Mowshowitz, A. (1997). Virtual organization. *Communications of the ACM, 40,* 9, 30-37.

Nemeth, C. J. (1997). Managing Innovation: When Less is More. *California Management Review, 40,* 59-74.

Nemeth, C. J. (2003). Minority dissent and its "hidden" benefits. *New Review of Social Psychology, 2,* 21-28.

O'Dell, J. W. (1968). Group size and emotional interaction. *Journal of Personality and Social Psychology, 8,* 75-78.

O'Hara-Devereaux, M. R. Johansen (1994). *Global work: Bridging distance, culture and time*. San Francisco: Jossey-Bass.

Renzulli, J. S., Owen, S. V., & Callahan, C. M. (1974). Fluency, flexibility and originality as a function of group size. *The Journal of Creative Behavior, 8,* 107-113.

Rosenburg, S., Erlick, D. E., & Berkowitz, L. (1955). Some effects of varying combinations of group members on group performance measures and leadership behaviors. *Journal of Abnormal Social Psychology, 51,* 195-203.

Rushton, J. P. (1974). (Im)pure genius-psychoticism, intelligence, and creativity. In H. Nyborg (Ed.), *The scientific study of human nature: Tribute to Hans J. Eyesenck at eighty* (pp. 404-421). Amsterdam: Pergamon/Elsevier Science Inc.

Schacter, S. (1951). Deviation, rejection and communication. *Journal of Abnormal and Social Psychology, 46,* 190-207.

Shaw, Marjorie, E. (1932).Comparison of individuals and small groups in the rational solution of complex problems. *American Journal of Psychology, 44,* 491-504.

Slater, P. E. (1958). Contrasting correlates of group size. *Sociometry, 21*, 129-139.

Steiner, I. (1972). *Group process and productivity*. New York: Academic Press.

Thomas, E. J., & Fink, C. F. (1963). Effects of group size. *Psychological Bulletin, 60*, 371-384.

Torrance, E. P. (1971). Stimulation, enjoyment, and originality in dyadic creativity. *Journal of Educational Psychology*, *62*, 43-48.

Walther, J. B. (1995). Relationship aspects of computer-mediated communicaton: Experimental observations over time. *Organization Science, 6,* 186-203.

Walther, J. B. (1997). Group and interpersonal effects in international computer mediated collaboration. *Human Communication Research, 19,* 50-88.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 6, 1063-1070.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548-573.

Wilder, D. A. (1977). Perception of groups, size of opposition and social influence. *Journal of Experimental Social Psychology,13*, 253-268.

Ziller, R. C. (1957). Group size: A determinant of the quality and stability of group decisions. *Sociometry, 20*, 165-173.

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Table 1

Number of Articles in Sample: Author and Location Distribution

	1	2	3	4	5	>5
Authors	1627	2011	980	329	97	55
%	31.9%	39.4%	19.2%	6.4%	1.9%	1.1%
Locations	3357	1320	339	59	10	26
%	65.7%	25.8%	6.6%	1.2%	0.2%	0.5%

Table 2

Citations by Journal

	N	Mean Number* of Citations
Psychological Review	180	134.35_a
Psychological Bulletin	357	56.95_b
Journal of Personality and Social Psychology	2268	47.76_c
American Psychologist	939	43.85_c
Journal of Applied Psychology	912	31.76_d
Organizational Behavior and Human Decision Processes	442	26.47_d

Note. Subscripts in common are not significantly different at the .05 level.

Table 3

Ordinary Least Squares Regression of Effects of Number of Authors and Number of Locations on Citation Count (Standard errors shown in parentheses)[a]

	Model 2.1	Model 2.2	Model 2.3
American Psychologist	.06**	.07**	.07**
	(.028)	(.028)	(.028)
Psychological Review	.26**	.26**	.26**
	(.043)	(.043)	(.043)
Psychological Bulletin	.09**	.09**	.09**
	(.035)	(.035)	(.035)
Journal of Personality and Social Psychology	.22**	.21**	.21**
	(.025)	(.025)	(.025)
Journal of Applied Psychology	.05*	.05**	.05**
	(.028)	(.028)	(.028)
Year	.03	.02*	.07*
	(.009)	(.009)	(.009)
Authors		**.05***	**.03***
		(.013)	(.013)
Locations			**.03***
			(.011)

*p < .05, **p < .01 by one tailed tests.

[a] Betas reported are standardized coefficients.

Table 4

Most Cited Articles

Journal	Author(s)	Location[1]	Article	Year	Citations[2]
1 J.P.S.P.	Baron & Kenny	U. of Connecticut	The moderator mediator variable in social psychological research: Conceptual, strategic and statistical considerations	1986	2130
2 American Psych.	Bandura	Stanford U.	Self-efficacy mechanisms in human agency	1982	1660
3 American Psych.	Bower	Stanford U.	Mood and memory	1981	1372
4 Psych. Review	McClelland & Rumelhart	U.C. San Diego	An interactive activation model of context effects in letter perception: An account of basic findings	1981	1118
5 J.P.S.P.	Watson, Clark & Tellegen	Southern Methodist U. U. of Minnesota	Development and validation of brief measures of positive and negative affect: The Panas Scales	1988	1010
6 Psych. Bulletin	Bentler	U.C. Los Angeles	Comparative fit indexes in structural models	1990	915

7 J.P.S.P.	Folkman & Lazarus	U.C. Berkeley	If it changes it must be a process: Study of emotion and coping during 3 stages of a college examination	1985	707
8 Psych. Review	Biederman	SUNY Buffalo	Recognition by components: A theory of human image understanding	1987	706
9 Psych. Review	Weiner	U.C. Los Angeles	An attributional theory of achievement motivation and emotion	1985	663
10 Psych. Bulletin	Lock, Saari, Shaw & Latham	U. of Maryland, U. of Washington (Psych), U. of Washington (Business)	Goal setting and task performance (1969-1980)	1981	654

[1]Affiliation at time of article publication.

[2]Citation count accurate at the time of data collection.