Scholarly Productivity in Behavior Analysis: The Most Prolific Authors and Institutions from 1992 to 2001

Daniel B. Shabani, James E. Carr, Anna Ingeborg Petursdottir,
Barbara E. Esch, and Jill N. Gillett
Western Michigan University

Behavior analysis has matured as a discipline such that there are now over a dozen peer-reviewed journals devoted exclusively to its subject matter. In recent years, researchers have published with increasing frequency a number of bibliometric analyses in which journal content has been quantified and used as an index of research and publication practices in the field. The purpose of the current article was to identify the most prolific authors and institutions in behavior analysis from 1992 to 2001 by reviewing 10 journals that well represented its basic, applied, and conceptual/theoretical areas. The authors and affiliations of each of the articles included in our database were recorded, summed, and ranked. Results identified leading researchers and institutions in the discipline and demonstrated the breadth of journal outlets in which behavior analysts publish.
Keywords: scholarly productivity; behavior analysis journals; bibliometric analyses.

The field of behavior analysis has matured to the point that there are now over a dozen peer-reviewed journals devoted exclusively to its content. Consequently, researchers have published with increasing frequency a number of bibliometric analyses in which journal content has been quantified and used as an index of research and publication practices in the field. Topics of bibliometric analyses of the behavioral literature include journal citation trends (Carr & Britton, 2003), assessment practices (Gresham, Gansle, & Noell, 1993), and general characteristics of applied behavior-analytic research (Northup, Vollmer, & Serrett, 1993), among others.

The authorship of behavioral publications has also received considerable attention. For example, behavioral journals have been evaluated to assess the prevalence of editors as authors (Mathews, 1997), women as authors (McSweeney, Donahoe, & Swindell, 2000), new versus established authors (Dunlap, Clarke, & Reyes, 1998), and international authors (Dymond, Clarke, Dunlap, & Steiner, 2000). In addition, Hayes and Grundt (1996) assessed, as an index of scholarly productivity, the publication frequencies of individual authors and institutions in applied behavior analysis and therapy from 1974 to 1994. The authors' assessment yielded a list of the top 50 authors and institutions in applied behavior analysis and therapy. Assessments such as this one (see also Logan, Lott, & Mayville, 2000) can be useful for clarifying expert resources, assisting students in their selection of graduate schools, and recognizing the achievements of prolific authors and institutions.

Hayes and Grundt (1996) focused on journals in applied behavior analysis and behavior therapy, which necessarily excluded journals, and thus authors and institutions that primarily publish basic research and conceptual/theoretical analyses. Although the authors' findings might be representative of the applied branch of our field, they are most likely not representative of behavior-analytic scholarship in general.

Thus, the purpose of the current investigation was to extend the work by Hayes and Grundt by (a) including only journals whose content is primarily behavior analytic (ensuring coverage of applied, basic, and conceptual/theoretical areas). In addition, we evaluated publications from the most recent decade (as opposed to 1974-1994) to highlight authors and institutions that are currently productive as opposed to those whose contributions might have been made in earlier years.

Method

Issues of behavior analysis journals published between 1992 and 2001 were procured for subsequent coding. To be included on the target journal list, a journal must have (a) been published for at least 2 years, (b) included peer-reviewed articles as its modal publication, and (c) included "behavior analysis" or some variation in its title or (d) been published by Association for Behavior Analysis, Society for the Experimental Analysis of Behavior, or Cambridge Center for Behavioral Studies. These criteria are admittedly stringent because they exclude journals that routinely publish behavioral articles, but are not exclusively behavior-analytic in their orientation (e.g., *Behavior Modification*, *Learning and Motivation*). These articles were not included due to the difficulty in reliably identifying the paradigmatic influence of individual articles. The exclusion of these journals also ensured that our database included *only* behavior-analytic contributions.

The final list of 10 target journals includes periodicals that, collectively, well represent the basic, applied, and conceptual/theoretical branches of the field (see Table 1). Virtually all of the articles published in these journals were included in our review. Types of articles that were included were research (i.e., data-based) articles, discussions articles, replies to articles, comments by readers, book/software reviews, and editorials. Some brief and informal articles were excluded from our review; these included brief editorials that served only to orient the reader to the topic of a special issue, notes from special interest group meetings, advertisements for graduate programs, notifications regarding certification exams, poems, and historical quotations.

The authors and affiliations of each of the articles included in the database were recorded, summed, and ranked. Each of the first six authors (and each of their institutions) received one publication credit per article. Publication credits were awarded regardless of authorship order. If an article had more than six authors, only the first six were recorded because the American Psychological Association (2001) recognizes only the first six authors in its reference/citation system. Institutions did not receive more than one credit if two or more authors of an article were affiliated with the same institution. For example, if an article had four authors from one institution, *each* author received one credit and the institution received *only* one credit. To address name variations, such as when middle initials were omitted or last names became hyphenated, all names were reviewed and consolidated into a single record. Similarly, institutions that included reference to specific departments, schools, or hospitals were collapsed under a single institution. Publication frequencies, per author and institution, were ranked, with ties being assigned to identical ranks.

The aforementioned method was used for all journals except *Revista Mexicana de Análisis de la Conducta* (*Mexican Journal of Behavior Analysis*). Unfortunately, we were unable to locate most of the journal's issues and, therefore, relied on the PsycINFO® database and the journal's cumulative index to document its publications. As a result, some specific author and institution data are omitted (i.e., PsycINFO® does not include complete author and institution information for each article). However, all of the journal's articles are included in the database, along with at least the first author and his or her affiliation.

A PsycINFO® search (1992-2001) was conducted to determine (a) how many articles the 53 most prolific authors in our database published in non-target journals and (b) where these articles were published. To calculate the former measure, the number of articles published in the target journals by each author was subtracted from the total number of publications that appeared in the search. For example, if the search resulted in 37 hits for an author and our target-journal database included 25 publications for the same author, it was concluded that the author had approximately 12 additional publications in journals that were not included in our database. The records of these additional

publications were then reviewed to provide a ranking of the top alternative publication outlets. It is important to note that this list is only an estimate of the alternative journals in which prolific behavior analysts publish because some of the publications included in our primary database (e.g., *The Behavior Analyst Today*, *Japanese Journal of Behavior Analysis*, *European Journal of Behavior Analysis*) are not indexed on PsycINFO® and, thus, the number of publications in non-target journals for each author is an underestimate.

Interobserver Agreement

A second observer independently scored at least 30% of the volumes from each journal. An agreement was defined as both observers recording the same information (e.g., page numbers, author names, institutions) for each article in a journal for a specific year. Interobserver agreement (IOA) was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Point-by-point IOA was 97% (range, 94% to 100%). Most of the errors were due to omissions or variations in the spelling of names and institutions; all identified errors were subsequently corrected.

Results and Discussion

The 10 target journals included in the present review and the number of articles each journal contributed to the database are located in Table 1. Articles from the three major journals in behavior analysis (*JABA*, *JEAB*, *TBA*) comprised 68% of the database, indicating (along with the list's face validity) that the applied, basic, and conceptual/theoretical areas were represented in the database. There were 2,426 articles in the database for the 10-year period. These articles were written by 2,237 authors from a total of 661 institutions. Given that these figures do not include behavior-analytic articles published in other journals or the behavioral work published in related areas (e.g., behavior therapy, animal learning and behavior), it appears that a number of behavior analysts from many institutions are making a substantial contribution to the literature.

Although we initially attempted to identify the 50 most prolific authors and institutions, the ranking process resulted in 53 authors and 56 institutions. The most prolific authors and institutions are listed in Tables 2 and 3, respectively. Although the data in Tables 2 and 3 are available for independent interpretation, a number of findings are worth mentioning. For the top 53 authors in the database, the modal number of publications per author was 14 (range, 13-78) during the review period. An analysis of the total number of publications of each of the 53 authors in Table 2 reveals that they published, on average, 29.2 (range, 14-88) articles during the review period, or an average of 2.9 articles per year. The 11 most prolific authors (ranked 1-10) published, on average, 41.8 articles (range, 26-88) during the review period, or an average of 4.2 per year. For the top 56 institutions in the database, the modal number of publications per institution was 12 (range, 12-113) during the review period. The 11 most prolific authors (ranked 1-10) on the list published 297 (12.2%) of the 2,426 articles in the database. The 10 most prolific institutions accounted for 657 (27.1%) of the articles. The most prolific author was Brian A. Iwata, who authored 78 articles in the database. Interestingly, 9 of his former doctoral students are also among the most prolific 53 authors. Iwata and his former students accounted for 160 (6.6%) of the articles in the database. About half of the authors in the database primarily conduct research in the area of developmental disabilities. Forty-eight (90.6%) of the authors in Table 2 are from the United States, while the remaining 5 (9.4%) have international affiliations. Ten of the 53 authors (18.9%) were women, which is a figure similar to what Hayes and Grundt (1996) reported. Table 2 also includes the current editors of *JABA* and *JEAB*, as well as 4 former editors of each journal.

According to online membership directories (accessed in 2003), 49 (94.2%) of the 52 living authors are members of the Association for Behavior Analysis, whereas only 22 (42.3%) of these authors

are members of the American Psychological Association (APA). Fifteen of the 22 (68.2%) APA members are fellows of Division 25 (Behavior Analysis) and 11 of them are also fellows of other divisions, including Divisions 3 (Experimental Psychology), 12 (Clinical Psychology), and 33 (Mental Retardation and Developmental Disabilities).

Virtually all of the institutions listed in Table 3 are public universities. The only non-university institutions in the database are Father Flanagan's Boys' Home, Kennedy Krieger Institute, and Eunice Kennedy Shriver Center, of which the latter two are affiliated with university medical schools. Although a majority (46; 82.1%) of the institutions are located in the United States, a sizable minority (10; 17.9%) is located in other countries. Notably, four of the institutions are located in New Zealand.

Finally, although our database was comprised entirely of purely behavior-analytic journals, an analysis of the alternative publication outlets (see Table 4) of the 53 most prolific authors indicates that they published articles in a wide range of journals including *Journal of Behavioral Education*, *Animal Learning & Behavior*, *Journal of Organizational Behavior Management*, *Psychonomic Bulletin & Review*, *Pharmacology, Biochemistry, & Behavior*, *Education & Treatment of Children*, *Journal of Experimental Psychology*, and *Developmental Medicine & Child Neurology*.

Although informative, the present bibliometric analysis does have several limitations that are worth noting. First, the dependent measure was publication frequency and, therefore, excluded authors and institutions that contribute high-quality work but at a relatively low frequency. A related concern is that every article was counted equally, regardless of whether it was an exhaustive literature review or a brief report of a minor experiment. Future similar efforts might employ a coding system in which each article was weighted according to journal quality (using a standardized impact factor), number of pages, and type of article. An additional limitation is that we did not include behavior-analytic contributions that were published in non-behavior analytic journals. This practice excluded authors who predominantly publish in non-behavioral journals and disseminate behavior analysis into different areas. Another limitation is the fact that the average number of authors per article was different across journals could have influenced the rankings. Table 1 depicts the average number of authors per article, which ranged from 1.16 (*Behavior and Philosophy*) to 3.06 (*JABA*). This extreme value for *JABA* raises the possibility that it might have influenced the overall rankings of authors in our database. The other 9 target journals in the database included articles that averaged between 1.16 and 2.09 authors per article. Given that the top 53 authors well represent the applied, basic, and conceptual/theoretical areas, and that *JABA* accounted for only 30% of the database, we believe it is unlikely that the rankings were heavily influenced by the number of authors per article. Finally, because authors in academic settings occasionally change jobs, it is possible that some institutions might have been given credit for the work of authors who are no longer employed there. In summary, given these limitations, it is best to interpret the present database and findings as a *sample* of recent behavior-analytic publications that is based solely on publication quantity from explicitly behavior-analytic journals.

In conclusion, the current article indicates that behavior analysts are producing a significant number of scholarly contributions across the applied, basic, and conceptual/theoretical branches of the discipline. Impressively, at least 5 behavior-analytic authors are publishing, on average, more than 3 articles per year in journals whose content is *exclusively behavior analytic*, not to mention articles published in other journals. In addition, although scholarly contributions are being produced by both men and women, domestically and internationally, the vast majority of contributions are made by men within the United States. Finally, it is apparent that veteran researchers continue to make contributions to the field, not only through their own publication practices, but also through the training of future researchers.

References

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.

Carr, J. E., & Britton, L. N. (2003). Citation trends of applied journals in behavioral psychology: 1981–2000. *Journal of Applied Behavior Analysis, 36,* 113-117.

Dunlap, G., Clarke, S., & Reyes, L. (1998). An analysis of trends in *JABA* authorship. *Journal of Applied Behavior Analysis, 31,* 497-500.

Dymond, S., Clarke, S., Dunlap, G., & Steiner, M. (2000). International publication trends of *JABA* authorship. *Journal of Applied Behavior Analysis, 33,* 339-342.

Gresham, F. M., Gansle, K. A., & Noell, G. H. (1993). Treatment integrity in applied behavior analysis with children. *Journal of Applied Behavior Analysis, 26,* 257-263.

Hayes, S. C., & Grundt, A. M. (1996). The top 50 researchers and institutions in behavior analysis and therapy, 1974-1994. *the Behavior Therapist, 19,* 141-142.

Logan, J. R., Lott, J. D., & Mayville, E. A. (2000). Top researchers and institutions in mental retardation: 1979-1999. *Research in Developmental Disabilities, 21,* 257-261.

Mathews, R. M. (1997). Editors as authors: Publication trends of articles authored by *JABA* editors. *Journal of Applied Behavior Analysis, 30,* 717-721.

McSweeney, F. K., Donahoe, P., & Swindell, S. (2000). Women in applied behavior analysis. *The Behavior Analyst, 23,* 267-277.

Northup, J., Vollmer, T. R., & Serrett, K. (1993). Publication trends in 25 years of the *Journal of Applied Behavior Analysis. Journal of Applied Behavior Analysis, 26,* 527-537.

Author Note

We thank Yoshinobu Fujita, Masayuki Shiraishi, and Koji Takeshima for their assistance in coding issues from *Japanese Journal of Behavior Analysis* and Ragnar S. Ragnarsson for his assistance in locating issues of *European Journal of Behavior Analysis.* We would also like to acknowledge several anonymous reviewers who provided valuable feedback on an earlier version of this manuscript.

Address correspondence to James E. Carr, Department of Psychology, Western Michigan University, 1903 W. Michigan Ave., Kalamazoo, MI 49008-5439 (269) 387-4925
(e-mail: jim.carr@wmich.edu).

Table 1

Target Journals Selected for the Database.

Target Journal	# of Articles in Database	% of Articles in Database	Average # of Authors per Article
The Analysis of Verbal Behavior	100	4%	1.64
The Behavior Analyst	299	12%	1.43
The Behavior Analyst Today	83	3%	1.78
Behavior and Philosophy	122	5%	1.16
Behavior and Social Issues	120	5%	1.36
European Journal of Behavior Analysis	47	2%	1.53
Japanese Journal of Behavior Analysis	140	6%	1.49
Journal of Applied Behavior Analysis	720	30%	3.06
Journal of the Experimental Analysis of Behavior	623	26%	2.09
Revista Mexicana de Análisis de la Conducta (*Mexican Journal of Behavior Analysis*)	172	7%	1.79
TOTAL	2426		

Table 2

The 53 Most Prolific Authors.

Rank	Authors	Publications in Target Journals	Publications in Other Journals	Rank	Authors	Publications in Target Journals	Publications in Other Journals
1	Iwata, Brian A.	78	10	26	Hagopian, Louis P.	16	15
2	Fisher, Wayne W.	48	7	26	Poling, Alan	16	34
3	Wacker, David P.	35	10	26	Staddon, J. E. R.	16	18
4	Vollmer, Timothy R.	34	10	31	Foster, T. Mary	15	6
5	Piazza, Cathleen C.	31	15	31	Friman, Patrick C.	15	25
6	Ribes-Iñesta, Emilio	29	14	31	Hackenberg, Timothy D.	15	1
7	Davison, Michael	25	2	31	Hineline, Philip N.	15	3
7	Lattal, Kennon A.	25	5	35	Cooper-Brown, Linda J.	14	10
9	Mace, F. Charles	24	2	35	Derby, K. Mark	14	4
10	Kahng, SungWoo	23	5	35	Fantino, Edmund	14	13
10	Lerman, Dorothea C.	23	5	35	Fraley, Lawrence E.	14	0
12	Critchfield, Thomas S.	22	4	35	Kennedy, Craig H.	14	20
12	DeLeon, Iser G.	22	1	35	Morris, Edward K.	14	4
14	Barnes-Holmes, Dermot	21	16	35	Neef, Nancy A.	14	2
15	Lalli, Joseph S.	20	2	35	Reid, Dennis H.	14	25
15	Miltenberger, Raymond G.	20	46	35	Richman, David M.	14	2
15	Nevin, John A.	20	6	35	Shimamune, Saturo	14	3
18	Cautilli, Joseph	19	0	35	Williams, Ben A.	14	13
18	Hayes, Steven C.	19	24	46	Zarcone, Jennifer R.	14	5
18	Michael, Jack	19	2	46	Berg, Wendy K.	13	4
18	Thompson, Rachel H.	19	3	46	Bruner, Carlos A.	13	6
22	Hanley, Gregory P.	18	4	46	Glenn, Sigrid S.	13	2
22	McSweeney, Frances K.	18	30	46	Heward, William L.	13	8
22	Moore, Jay	18	5	46	Malott, Richard W.	13	4
22	Smith, Richard G.	18	1	46	Stemmer, Nathan	13	1
26	Baum, William M.	16	3	46	Thyer, Bruce A.	13	37
26	Catania, A. Charles	16	5				

Table 3

The 56 Most Prolific Institutions.

Rank	Institutions	Publications	Rank	Institutions	Publications
1	University of Florida	113	28	North Dakota State University	19
2	West Virginia University	98	28	The Ohio State University	19
3	Kennedy Krieger Institute and Johns Hopkins University School of Medicine	96	28	University of Massachusetts, Amherst	19
4	University of Kansas	79	32	Florida International University	18
5	Western Michigan University	71	32	National Autonomous University of Mexico	18
6	Louisiana State University	56	32	State University of New York at Stony Brook	18
7	University of Nevada, Reno	50	35	University of Otago, New Zealand	17
8	University of Iowa	41	35	University of Georgia	17
9	University of New Hampshire	39	37	Emory University	16
10	Auburn University	38	37	University of Wales, Bangor, U. K.	16
10	University of Pennsylvania	38	39	Florida State University	15
12	University of California at San Diego	37	39	University of Minnesota	15
12	University of North Texas	37	39	University of Vermont	15
14	Temple University	36	42	University College Cork, Ireland	14
14	University of Guadalajara, Mexico	36	42	University of South Florida	14
16	University of Wisconsin-Milwaukee	31	44	Father Flanagan's Boys' Home	13
17	Duke University	28	44	Georgia Institute of Technology	13
18	Eunice Kennedy Shriver Center	26	44	Gonzaga University	13
18	Indiana University	26	44	Keio University, Japan	13
18	City University of New York Queens College	26	44	University of Maryland Baltimore County	13
21	Southern Illinois University at Carbondale	25	44	University of Oregon	13
22	Washington State University	24	50	Arizona State University	12
22	University of Waikato, Hamilton, New Zealand	24	50	Osaka City University, Japan	12
24	University of Auckland, New Zealand	22	50	University of Canterbury, New Zealand	12
25	Children's Seashore House	20	50	University of Hawaii	12
25	New England Center for Children	20	50	University of North Carolina, Chapel Hill	12
25	Northeastern University	20	50	University of Washington	12
28	Columbia University	19	50	Virginia Polytechnic University and State University	12

Table 4

The Top 25 Alternative Publication Outlets of the 53 Most Prolific Publishers.

Rank	Journals	# of Publications
1	*Research in Developmental Disabilities*	54
2	*Psychological Record*	33
3	*Behavior Modification*	27
4	*Behavioural Processes*	22
5	*Journal of Behavioral Education*	19
6	*Behavioral Interventions*	15
6	*Journal of Behavior Therapy & Experimental Psychiatry*	15
6	*Journal of Developmental & Physical Disabilities*	15
9	*Journal of the Association for Persons with Severe Handicaps*	14
10	*Animal Learning & Behavior*	13
10	*Journal of Organizational Behavior Management*	13
12	*Psychonomic Bulletin & Review*	12
13	*American Journal of Mental Retardation*	11
13	*Behavioral Residential Treatment*	11
13	*Pharmacology, Biochemistry, & Behavior*	11
16	*Education & Treatment of Children*	10
16	*Learning & Motivation*	10
18	*Behavioral Disorders*	9
18	*Child & Family Behavior Therapy*	9
20	*Behavior Therapy*	8
20	*Journal of Positive Behavior Interventions*	8
22	*Journal of Experimental Psychology*	7
23	*Developmental Medicine & Child Neurology*	6
23	*Psychological Review*	6
23	*School Psychology Review*	6