

SELF- AND CROSS-CITATIONS IN THE JOURNAL OF APPLIED
BEHAVIOR ANALYSIS AND THE JOURNAL OF THE
EXPERIMENTAL ANALYSIS OF BEHAVIOR: 1993–2003

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Self- and cross-citations in *JABA* and *JEAB* from 1993 through 2003 were examined. Yearly mean levels of self-citation for *JABA* and *JEAB* were 34.9% and 33.2%, respectively. Overall, 7.8% of *JABA* citations were *JEAB* articles, and 0.6% of *JEAB* citations were *JABA* articles. The former value, but not the latter, is substantially higher than the cross-citation level reported for earlier years. The two *JEAB* articles most often cited in *JABA* were published over 20 years ago and are concerned with establishing operations and the matching law.

DESCRIPTORS: applied behavior analysis, basic research, citations

For the past 30 years, behavior analysts have discussed real and ideal interactions between applied behavior analysis and the experimental analysis of behavior (e.g., Mace, 1994). Citation analysis provides an empirical method for examining interactions between the two. The *Journal of Applied Behavior Analysis (JABA)* is generally recognized as the flagship journal for applied behavior analysis; the *Journal of the Experimental Analysis of Behavior (JEAB)* has the same status for the experimental analysis of behavior. Therefore, cross-citation rates provide a tenable index of the degree of interaction between the two.

From 1983 through 1992, 2.4% of *JABA* citations were *JEAB* articles, and 0.6% of *JEAB* citations were *JABA* articles; these data suggest there was limited integration of the applied and experimental areas at that time (Poling, Alling, & Fuqua, 1994). Since the early 1990s, *JABA* editors have taken steps to foster productive interchanges between the basic and applied

areas, including (a) publication of a series of articles on the applied significance of basic research findings, (b) publication of *JEAB* abstracts in *JABA*, and (c) appointment of members of the *JEAB* Board of Editors to the *JABA* Board of Editors. It seems that such steps should increase citation of *JEAB* articles in *JABA*. One of our purposes was to determine whether they did so.

Poling et al. (1994) reported that two of the three *JEAB* articles most often cited in *JABA* from 1983 through 1992 dealt with the matching law (Herrnstein, 1961, 1970); the other was concerned with establishing operations (Michael, 1982). Our second purpose was to ascertain from the most cited *JEAB* articles the areas of the experimental analysis of behavior that were of greatest interest to applied researchers from 1993 through 2003. This information has implications for training applied behavior analysts, who should be familiar with those areas. Our third purpose was to ascertain self-citation rates for *JABA* and *JEAB*. Self-citation rates may provide an index of the relative isolation of particular journals and approaches to the study of behavior (e.g., Krantz, 1971).

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METHOD

Reference lists for each article published in *JABA* and *JEAB* from 1995 through 2003 were scored for the number of (a) total citations, (b) *JABA* citations, and (c) *JEAB* citations. A second person independently scored 10% of the articles, selected at random. Interobserver agreement was calculated by dividing the smaller count by the larger count and multiplying by 100% for each article, then averaging across articles. Agreement was above 99% for each of the three categories. The volume and page numbers of *JEAB* articles cited in *JABA* were recorded so that the specific articles most often cited could be determined. After the five *JEAB* articles most often cited in *JABA* were determined, the 2002 and 2003 *JABA* articles in which they were cited were scored as primarily conceptual or primarily empirical, and their authors were recorded.

RESULTS AND DISCUSSION

Figure 1 shows the percentage of total citations that were self- and cross-citations for *JABA* and *JEAB*. Overall, 7.8% of *JABA* citations from 1993 through 2003 were *JEAB* articles. This percentage is substantially higher than the value for 1983 through 1992 (2.4%; Poling *et al.*, 1994). In contrast, relatively few (0.6%) of the sources cited in *JEAB* were *JABA* articles. Editorial actions by *JABA* editors intended to increase integration of basic and applied research, listed previously, may well have contributed to the overall increase in *JEAB* citations in that journal. The level of *JEAB* citations in *JABA* has, however, remained relatively stable in recent years and does not appear to be increasing. *JEAB* editors have not instituted editorial policies intended to increase the integration of applied and basic research, and *JABA* articles continue to be rarely cited by those who publish in *JEAB*. Twenty-five years ago, few *JEAB* editors read *JABA* (Poling, Picker, Grossett, Hall-Johnson, & Holbrook,

1981), and we doubt that this has changed. If so, basic research may suffer, because applied problems often are a good source of direction for basic research. Certainly this model is popular—and productive—in medicine. Some of the behavioral problems addressed by *JABA* researchers might well generate experimental questions that could be pursued via basic research. In 1981, we encouraged all behavior analysts to read widely (Poling *et al.*). We also encouraged applied researchers to point out where basic research might provide a foundation for better efforts to improve behavior. These encouragements bear repeating.

The five *JEAB* articles most frequently cited in *JABA* from 1993 through 2003 were Michael (1982), Herrnstein (1970), Green and Freed (1993), Herrnstein (1961), and Mace (1994), which were cited 47, 26, 18, 17, and 17 times, respectively. During 2002 and 2003, these articles collectively were cited in 10 *JABA* articles that were primarily empirical and in three *JABA* articles that were primarily conceptual, suggesting that articles published in *JEAB* affected the practice of applied behavior analysis. Moreover, several different research teams authored the empirical articles, suggesting that the influence was rather broad.

The Michael (1982) and Herrnstein (1970) articles, which also were the *JEAB* articles most frequently cited in *JABA* from 1983 through 1992, are seminal discussions of establishing operations (Michael) and the matching law (Herrnstein). One of the two fourth-most-cited articles (Herrnstein, 1961) also addresses matching. Clearly, matching and establishing operations are topics of enduring interest to applied behavior analysts and should be covered in training programs. Matching and establishing operations have proven to be useful in conceptualizing and treating a range of troublesome behavior. To the extent that applied researchers and practitioners learned about these topics from *JEAB* articles, those articles certainly influenced applied behavior analysis.

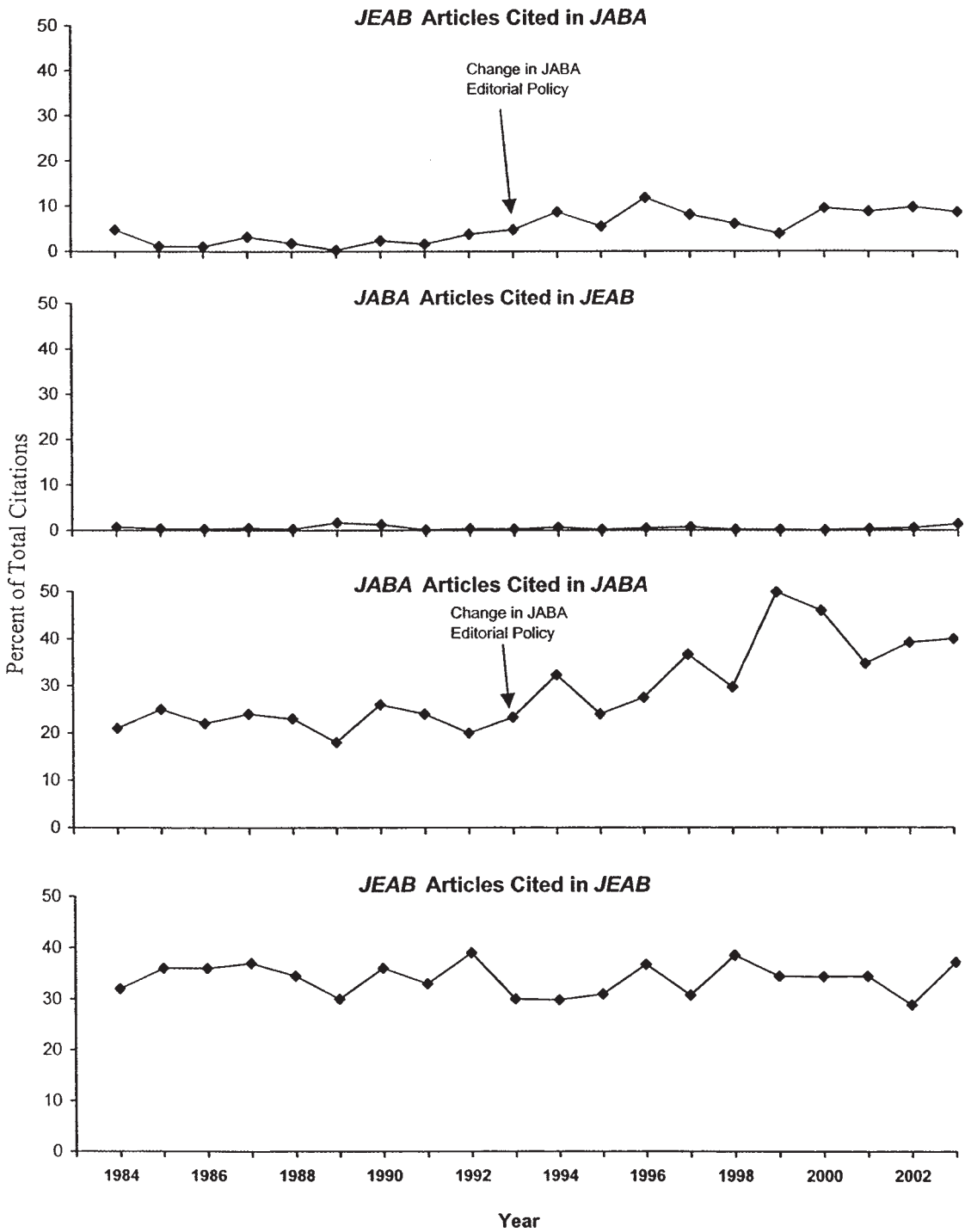


Figure 1. Percentage of total citations that were cross-citations (top) and self-citations (bottom) in *JABA* and *JEAB* from 1984 through 2003. Data prior to 1993 are from Poling et al. (1994).

Nonetheless, it is noteworthy that the two *JEAB* articles most frequently cited in *JABA* appeared 20 or more years ago. One wonders: Is there little of applied significance in more recent issues of *JEAB*, must considerable time pass before that significance is realized, or are the Michael and Herrnstein articles simply so important as to overshadow other contributions? The answer is unclear but, as Critchfield *et al.* (2000) point out, “operant research articles in general—at least those published in *JEAB*—tend to have an unusually long citation half-life (i.e., they are cited long after publication)” (p. 257). Therefore, the fact that the two *JEAB* articles most cited in *JABA* are relatively old does not provide a good basis for judging the applied significance of more recent *JEAB* articles. In addition, the third-most-cited (Green & Freed, 1993) and one of the fourth-most-cited (Mace, 1994) *JEAB* articles were published in the 1990s. The former article deals with the substitutability of reinforcers and discusses a range of related issues, some of which are applied (e.g., addictions, drug abuse, behavior therapy). The latter article calls attention to the need for basic research that is relevant to applied issues. Although they appeared in *JEAB*, these two articles do not deal with the experimental analysis of behavior *per se*. Neither does the Michael (1982) article, which is conceptual rather than empirical.

Clearly, simply counting cross-citations between *JEAB* and *JABA* provides a relatively narrow index of interactions between the fields of the experimental analysis of behavior and applied behavior analysis. More detailed citation analyses that take into account the actual contents of the articles cited and in which citations appear, as well as their authors, and include journals other than *JEAB* and *JABA* are necessary to provide a detailed picture of how the fields interact. Unfortunately, such analyses are difficult to conduct, and there is no consensus as to the appropriate methodology (e.g., Borgman, 1990). Despite these difficul-

ties, Critchfield and Reed (2004) recently have conducted elaborate citation analyses that help to illuminate how findings from basic behavioral research are translated into applied interventions.

The value for self-citations ranged from 23.3% to 49.9% across years for *JABA* and from 28.8% to 38.5% for *JEAB*, with yearly means of 34.9% and 33.2% for the respective journals. Compared to values for 1983 through 1992 (Poling *et al.*, 1994), *JABA* self-citations have increased, whereas *JEAB* self-citations have not changed. Both *JABA* and *JEAB* self-citation rates in recent years are similar to the *JEAB* self-citation levels in the 1960s taken by Krantz (1971) to indicate that operant psychology is insular and isolated from nonoperant psychology. Moreover, the self-citation rates in both journals are high when compared to those of other journals. Frisby (1998), for instance, reported 1990 through 1994 self-citation rates below 5% for each of the seven major school psychology journals and self-citation rates below 14% for 14 journals in related fields.

Although *JABA* and *JEAB* self-citation rates are relatively high, most citations in each journal come from other journals. In addition, Critchfield and Reed (2004) reported that in 2002 18 other journals cited *JABA* articles at least 20 times, whereas 16 other journals cited *JEAB* articles at least 20 times. Cross-citations were relatively common between *JABA* and other journals concerned with developmental disabilities or cognitive-behavioral therapy. *JEAB* and other journals concerned with animal behavior processes or psychopharmacology frequently cited one another. *JABA* and *JEAB* are insular, insofar as their self-citation rates are high in comparison to other journals, but both are linked by cross-citations to a substantial number of other journals, not all of which are behavior analytic. Nonetheless, the topics studied by behavior analysts and the methods used to study those topics are in many cases different from those characteristic of other

approaches to the study of behavior (Poling, Methot, & LeSage, 1995). It is natural for authors who publish frequently in *JABA* and *JEAB* to build on, and therefore to cite, prior publications in those journals. *JABA* and *JEAB* represent scientific communities that sometimes overlap mainstream psychology, but—as Krantz proclaimed three decades ago—are in a real sense separate from it. And therein their value resides.

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