SELF- AND CROSS-CITATIONS IN THE JOURNAL OF APPLIED
BEHAVIOR ANALYSIS AND THE JOURNAL OF THE

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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).
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 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 difficulties, 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.

REFERENCES


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