H

ntrolled trial. *Journal*
icine, 8, 685–688.
oot the dog. The new
ing. New York: Ban-

shaping of a behav-

Self, S. G., Allison,
., Ray, R., Quin, Q.,
(1997). Randomized
ination in Shanghai:
nary results. *Journal*
stitute, 89, 355–365.
pigeon as a quality
lrich, T. Stachnik, &
of human behavior:
havioral laboratory
IL: Scott Foresman.
ck! & treat training
& Treat Products,

The Behavior Analyst 1997, 20, 109–119 No. 2 (Fall)

International Publication Trends in the Experimental Analysis of Behavior

Simon Dymond
University of Wales

The present paper assessed international publication trends in the experimental analysis of behavior by recording the geographical origin of the first authors of articles in the *Journal of the Experimental Analysis of Behavior* (*JEAB*), the *Journal of Applied Behavior Analysis* (*JABA*), and *The Behavior Analyst* (*TBA*). Five international categories were identified: Australasia, Europe, Latin America, the Middle East, and North America. A cooperative category was also employed to assess the number of publications with authors from different international categories. First, the percentage and number of international articles published in *JEAB, JABA,* and *TBA* are presented. Second, a more detailed analysis of the publication rates within the international categories is presented. The number and rate at which new authors from the categories appeared and the percentage of articles published by different authors are also presented. Some limitations of the review and suggestions for increasing international participation in behavior analysis are outlined.

Key words: international publication trends, number and percentage of articles, cooperative publications, number and rate of new authors, international categories, *Journal of the Experimental Analysis of Behavior, Journal of Applied Behavior Analysis, The Behavior Analyst*

Recently, several authors have highlighted trends and issues that are important to the future of the experimental analysis of behavior (see, e.g., Dougherty, Nedelman, & Alfred, 1993; Hyten & Reilly, 1992; Myers, 1992). An important factor in the continued and successful dissemination of behavior analysis is the degree to which the research and scholarly activities of behavior analysts can be said to be "international."

The primary organization for behavior analysts is the Association for Behavior Analysis: International (ABA). However, Bijou (1992) voiced his concern in an *ABA Newsletter* that ABA "is not international enough" (p. 5; see also Morris, 1992). He suggested that at least one page of the *Newsletter* should carry contributions "describing a behavior analysis program in some city or state outside of this country [United States]" (p. 5). In the same newsletter, Place (1992) wrote about the "survival" of behavior analysis along the "Celtic Fringe" in "isolated centers" in Wales, Scotland, and Ireland, and by "isolated individuals" in England. He concluded that it was a "depressing picture" but there were "signs" that "things may be changing once again" (1992, p. 7). Unfortunately, no details were provided about what these signs were or how the situation in this behavioral "wasteland" was set to change.

A study by Williams and Buskist (1983) highlighted the extent of this "wasteland." The authors found that in the first 25 years of the *Journal of the Experimental Analysis of Behavior* (*JEAB*), the percentage of articles published by foreign authors (i.e., those from outside the United States) reached an all time high of 26% in 1982. Williams and Bukist suggested that this high point may be "a temporary aberration in a steady downward

A previous version of this paper was presented as a poster at the annual conference of the Experimental Analysis of Behaviour (EAB) Group, London, April 1995, and in a symposium at the Third European Meeting for the EAB, Dublin, July 1997. Thanks to Mary Foster, Pip, and several anonymous reviewers for supportive comments on earlier versions of the paper; to Dermot Barnes for comments and the generous loan of some of his *JEAB* library; and to Rose Quirke and Richard Shull for kind assistance.

Address correspondence and requests for reprints to Simon Dymond, School of Psychology, University of Wales, Bangor, Gwynedd LL57 2DG, United Kingdom
(E-mail: s.dymond@bangor.ac.uk).

trend" (1983, p. 163). This suggests that a further updated and expanded attempt should be made to assess international publication trends in the experimental analysis of behavior by recording the international location of articles published in the main behavior-analytic journals: *JEAB*, the *Journal of Applied Behavior Analysis* (*JABA*), and *The Behavior Analyst* (*TBA*). The current paper, therefore, has compiled statistics on the international origin of authors publishing in *JEAB*, *JABA*, and *TBA* from their inception up to and including 1996.

Five International Categories

In order to record the international origin of articles, it was necessary to create five international categories: Australasia (Australia, New Zealand, Hong Kong, Japan), Europe (including Belgium, Germany, France, Ireland, Spain, United Kingdom), Latin America (Brazil, Chile, Mexico), the Middle East (Israel), and North America (Canada, United States, and U.S. territories).

An international category was created if a minimum of three publications appeared in that category during the review period; this requirement resulted in the exclusion of one article. All articles were assigned to a category by determining the address of the first author given on the first page. Articles that listed the addresses of universities or institutions in two or more of the five international categories were defined as Cooperative publications. Editorials, obituaries, and introductions to special issues were excluded.

The Number and Percentage of Articles Published in JEAB, JABA, *and* TBA *from Five International Categories*

JEAB. Of the five international categories, the highest number of articles published in *JEAB* comes from North America. In total, 2,763 North American articles were published, with a mean of 71 per year. In 1969, this category contained a high of 119 articles, with a low of 31 in 1995.

Of the four other categories, Europe accounts for the most articles (total number of articles = 160; mean of four per year). In 1996, nine of the articles in *JEAB* were by European authors. All but two of these nine articles were commentaries on a target article that appeared in the January issue (Vol. 65, No. 1). Australasian authors published nearly that many (total number of articles = 159; mean of four per year), with a high of 12 articles in 1995. A total of 20 articles were published by the category of Latin America, with a high of two articles in 1973, 1980, and 1984. Authors from the Middle East category published a total of five articles, with a high of two articles in 1964. Finally, a total of 40 Cooperative articles were published, with a high of five in 1996.

Figure 1 shows the data expressed as the percentage of total articles published in *JEAB*. As the data on the total number of articles indicated, North American authors published the highest percentage of articles in *JEAB*: In 1959, 100% of articles were published by North America, with a mean of 87% of articles throughout the review period. Australasia and Europe were joint second highest categories of international publications. Both categories accounted for 5% of total articles, with Australasia reaching a peak of 24% of articles in 1995 and Europe peaking at 11% of articles in 1996. The Latin America category published a mean of 0.5% of articles with a peak of 2.5% in 1984. Middle Eastern articles accounted for 0.15% of articles, with a high point of 2% in 1964 and 1990. Finally, Cooperative articles represented 1% of the total articles in *JEAB*, with a high of 6% in 1995 and 1996.

In summary, of the five international categories, North America published a mean of 87% of articles in *JEAB*. The four remaining categories published a combined mean of 11%, with Cooperative articles making up the remaining 1%.

igh of 119 articles,
1995.
categories, Europe
ıost articles (total
160; mean of four
nine of the articles
ropean authors. All
ıine articles were
target article that
ary issue (Vol. 65,
authors published
ɔtal number of ar-
of four per year),
rticles in 1995. A
were published by
n America, with a
n 1973, 1980, and
the Middle East
total of five arti-
ɔf two articles in
of 40 Cooperative
ed, with a high of

data expressed as
ɔtal articles pub-
e data on the total
indicated, North
ıblished the high-
icles in *JEAB*: In
es were published
ıth a mean of 87%
t the review peri-
Europe were joint
ories of interna-
oth categories ac-
ɔtal articles, with
a peak of 24% of
Europe peaking at
1996. The Latin
ɔlished a mean of
a peak of 2.5%
stern articles ac-
f articles, with a
1964 and 1990.
ırticles represent-
ırticles in *JEAB*,
1995 and 1996.
five international
erica published a
es in *JEAB*. The
ɔries published a
%, with Cooper-
ıp the remaining

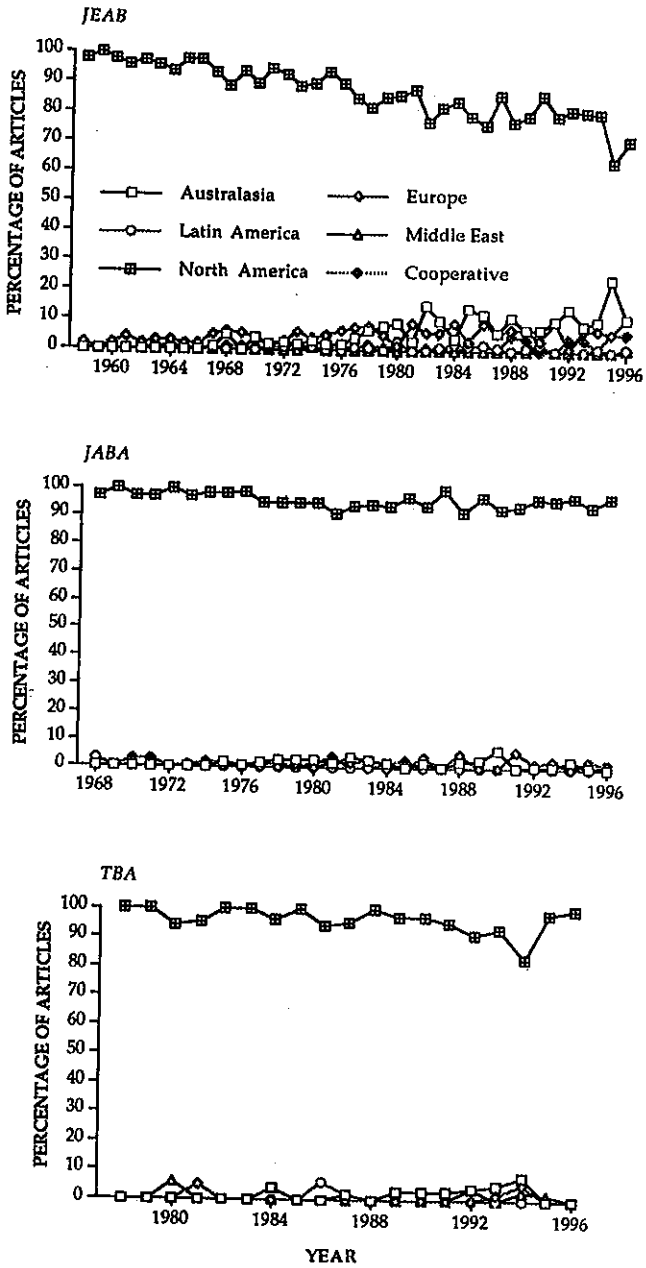

Figure 1. The percentage of articles published in *JEAB*, *JABA*, and *TBA* from five international categories and a Cooperative category.

JABA. In *JABA*, the category of North America again accounts for the most articles, with a total of 1,539 articles and a mean of 53 per year. In 1977, North American authors published a high of 93 articles, following a low of 33 in 1970. Of the other categories, Australasia and Europe published a mean of one article per year, with a total of 26 and 22, respectively. Australasia reached a high of three articles in 1990, and European publications peaked at five in 1991. Latin American articles totaled three, with

one article appearing in 1968, 1992, and 1996. There were no articles from the Middle East category.

Figure 1 shows the data expressed as the percentage of total articles in *JABA*. The category of North America again accounts for the highest percentage of articles, with a mean of 96% per year. On three occasions (1969, 1972, and 1987) the percentage of articles published in *JABA* by North American authors reached 100% and never fell below 91% during the entire review period. Australasia, Europe, and the Cooperative category each published a mean of 1% of total articles. Australasia reached a high of 6.5% in 1990; Europe a high of 6% in 1991; and the Cooperative category published a high of 3% of articles in 1970, 1971, and 1985. Latin America accounted for only 0.2% of total articles and reached a high of 3% in the first year of *JABA*'s publication (1968).

In summary, the trend observed in *JEAB* was found to be more pronounced in *JABA*. That is, North American authors accounted for 96% of total articles, with Australasian, European, Latin American, and Cooperative authors making up the remaining 4%.

TBA. In *TBA*, North America again accounts for the majority of articles. This category published a total of 520 articles, with a mean of 27 per year, and reached a high of 42 articles in 1987 and 1995. The lowest number of articles from North America (six) was observed in 1978, which was *TBA*'s first year of publication when the journal was largely a newsletter for the Midwestern Association for Behavior Analysis. The remaining categories—Australasia, Europe, Latin America, and the Middle East—published totals of 11, 4, 3, and 4 articles, respectively. The combined mean of these categories is one article per year.

Figure 1 shows the data expressed as the percentage of total articles in *TBA*. Once again, articles originating in North America dominate *TBA*. On seven occasions, in 1978, 1979, 1982, 1983, 1985, 1988, and 1996, North American articles accounted for 100% of articles published, never dropping below 83%, with a mean of 96% per year. Australasia published a mean of 2% of articles per year, with a high of 8% in 1994, and was the strongest contender of the other categories. Europe, Latin America, and the Middle East published a mean of 0.6%, 0.4%, and 0.7% of articles per year, respectively, with the highest percentage being recorded by the Middle East, which accounted for 6% of articles in 1980. There were no Cooperative articles during the review period.

Overall, the data from *TBA* reconfirm the findings obtained from both *JEAB* and *JABA*, namely that articles from North America dominate the contents of the three main behavioral journals.

The Cumulative Number of New Authors in JEAB, JABA, *and* TBA *from Five International Categories*

It could be argued that the data presented thus far represent a rather molar account of international publication trends. For instance, combining multiple publications by a single author from a particular country may give an inflated view of behavior-analytic activity in that international category *as a whole*. One possible means of assessing, in more detail, the publication trends in the different international categories would be to record the number and rate at which new authors appear. This would also permit a determination of the number of articles being published by different authors. In other words, are the majority of articles from the international categories being published by a minority of authors?

In order to assess the number of new authors publishing in the three main behavioral journals from the five international categories, two measures were undertaken. First, the number of new first authors per year from each category was calculated. This measure provides information as to the rate at

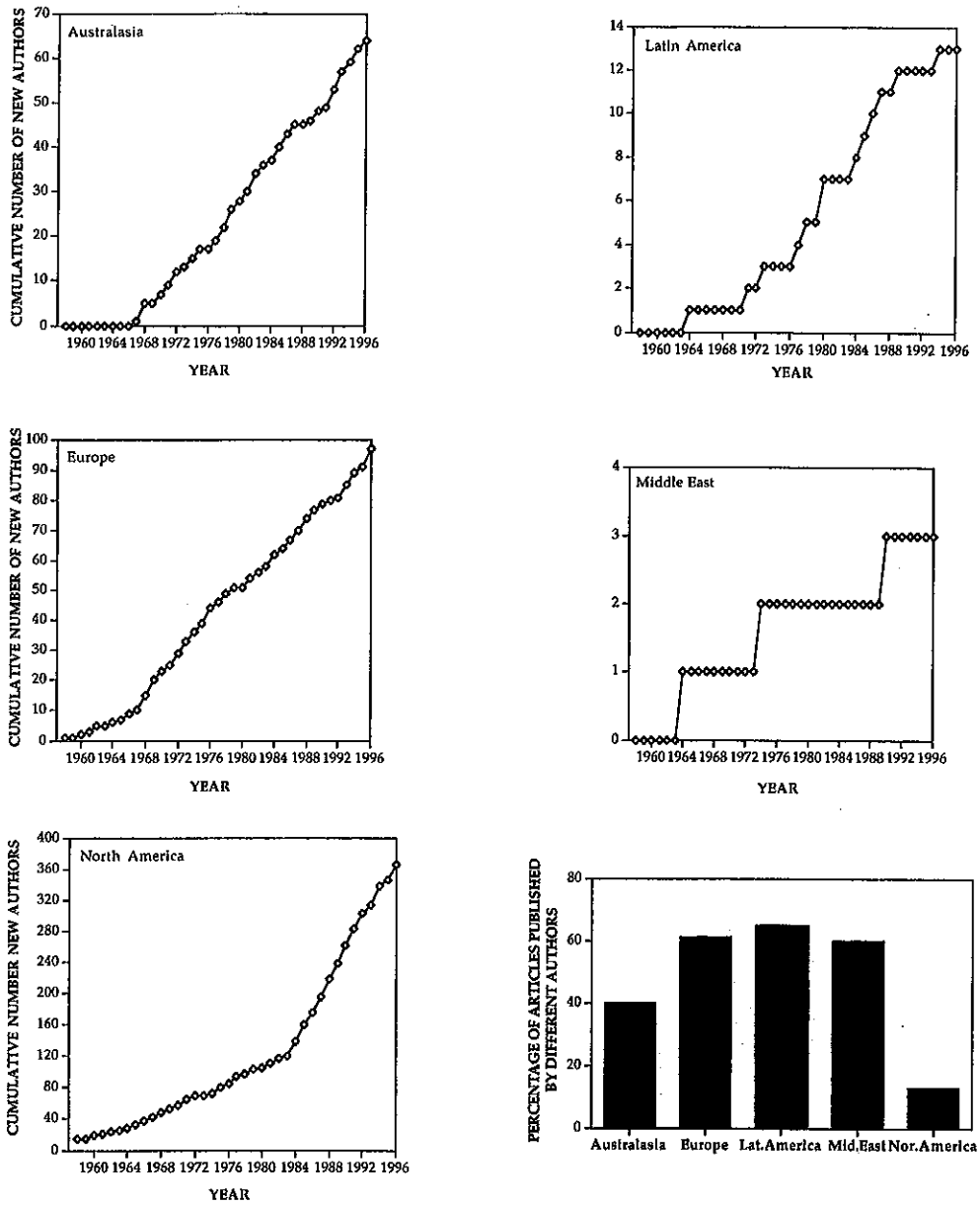

Figure 2. The cumulative number of new authors appearing in *JEAB* per year from each of the five international categories. Also shown is the percentage of articles published by different first authors.

which new authors have appeared in *JEAB, JABA,* and *TBA* from the international categories since their inception. The second measure concerns the manner in which publications are distributed *across first authors* from each category. In other words, how many of the articles published by an international category are from different first authors?

JEAB. Figure 2 presents the cumulative number of new authors publishing in *JEAB* from each of the five international categories. The cumulative number of Australasian authors publishing in *JEAB* per year has been

growing steadily since 1967, with the highest growth occurring in 1968, 1979, 1982, 1992, and 1993, when four new authors appeared each year. The cumulative number of European authors has grown steadily since the first volume of *JEAB* appeared in 1958, with the highest growth occurring in 1996, when six new authors appeared. The cumulative number of Latin American authors has grown somewhat more slowly since 1964, with the highest growth occurring in 1980 (two new authors), whereas the cumulative number of Middle Eastern authors has grown at a rate of one per year in 1964, 1974, and 1990. Finally, articles published by North American authors grew at a steady cumulative rate throughout the review period, with the highest growth occurring in 1994, when 24 new authors published articles in *JEAB*.

The findings concerning the second measure, that of the number of articles published from different authors, provide a more detailed breakdown of the distribution of articles within each international category (Figure 2, bottom panel). Of the total articles published by the category of Australasia, 40% were by different authors; Europe, 61%; Latin America, 65%; the Middle East, 60%; and North America, 13%. Clearly, the majority of articles from Europe, Latin America, and the Middle East are published by different first authors, whereas articles from Australasia and North America are published by a minority of authors.

JABA. Figure 3 presents the cumulative number of new authors publishing in *JABA* from each of the five international categories. The cumulative number of Australasian authors publishing in *JABA* per year has grown steadily since 1975, but went through a lean period between 1983 and 1988. However, the category recovered and in 1990 reached a peak when three new authors published articles. The cumulative number of European authors publishing in *JABA* has been somewhat lower, with the highest growth occurring in 1991 when four new authors appeared in one special issue. Latin American authors have scarcely appeared in *JABA*: The cumulative number of new authors from this category has only reached a total of three. Finally, articles published by North American authors have grown at a steady cumulative rate throughout the review period, with the highest growth occurring in 1977 when 53 new authors published articles in *JABA*. There were no articles from the Middle East category.

The number of articles published in *JABA* from different authors is as follows (Figure 3, bottom panel). Of the total articles from Australasia, 92% were by different authors; Europe, 77%; Latin America, 100%; and North America, 57%. Clearly, the majority of articles from Europe, Latin America, and Australasia are published by different first authors, whereas articles in *JABA* from North America are published by a minority of authors.

TBA. As Figure 4 shows, the cumulative number of new authors publishing in *TBA* from Australasia has been growing relatively steadily at the rate of one per year since 1984. New European authors have published in *TBA* since 1981, but the highest growth occurred in 1994 when two new authors appeared. The categories of Latin America and the Middle East were represented by one new author each during the review period. New North American authors have appeared in *TBA* at a steady rate since its inception, with the highest growth occurring in 1987 when 30 new authors published articles.

Regarding the number of different authors publishing in *TBA* from each international category, the percentage from Europe was the highest at 100% (Figure 4, bottom panel). Of the other categories, 45% of articles from Australasia were by different authors; Latin America, 33%; the Middle East, 25%; and North America, 53%. In effect, all of the articles from Europe and just over half of the articles from North

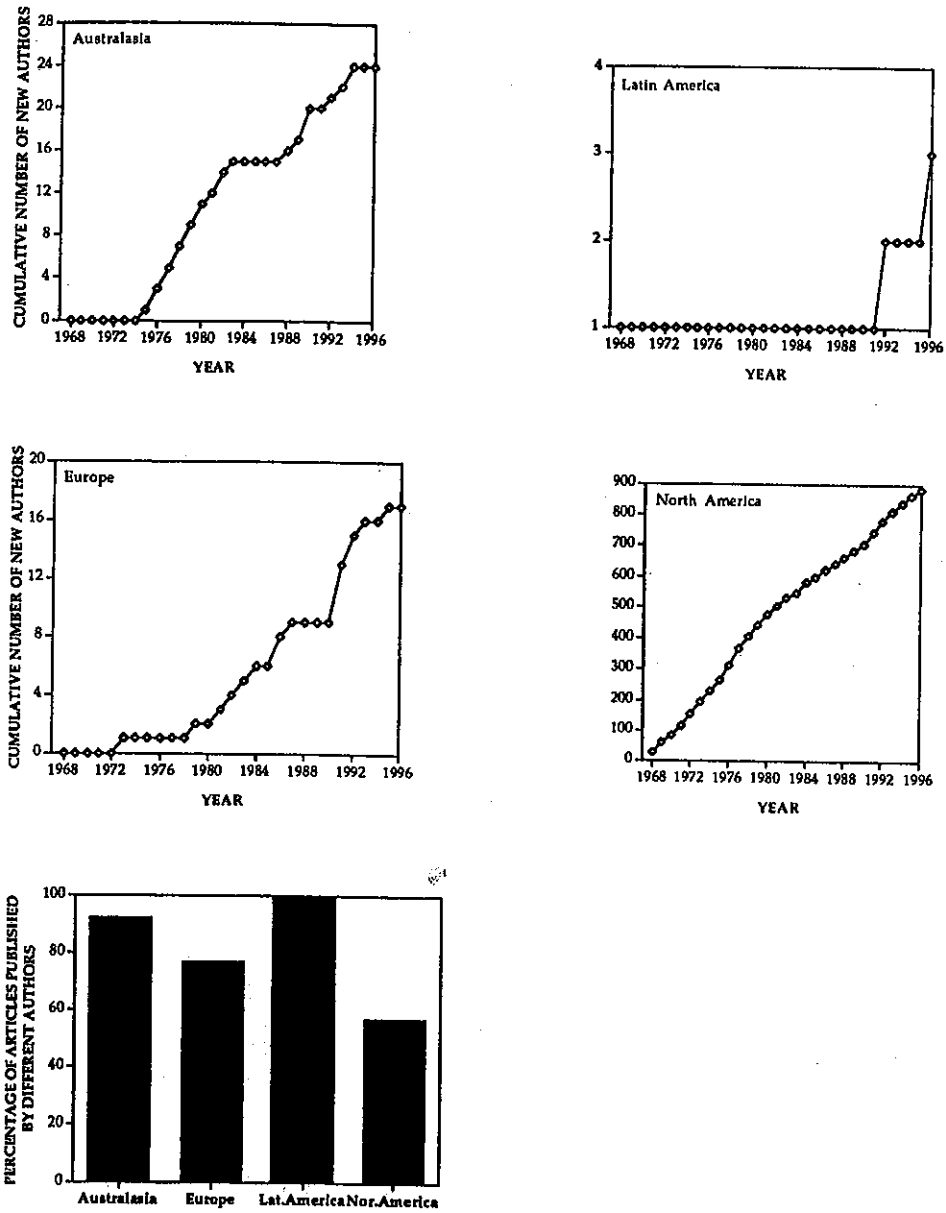

Figure 3. The cumulative number of new authors appearing in *JABA* per year from four of the five international categories. Also shown is the percentage of articles published by different first authors.

America were published by different first authors.

Discussion

These data highlight several issues of concern regarding international publication trends in the three main behavioral journals. It was perhaps not surprising to discover that the category of North America accounted for the majority of publications in *JEAB, JABA,* and *TBA*. These journals were all founded in the United States by American researchers with the objective of providing a publication outlet for behavioral work—basic, applied, and

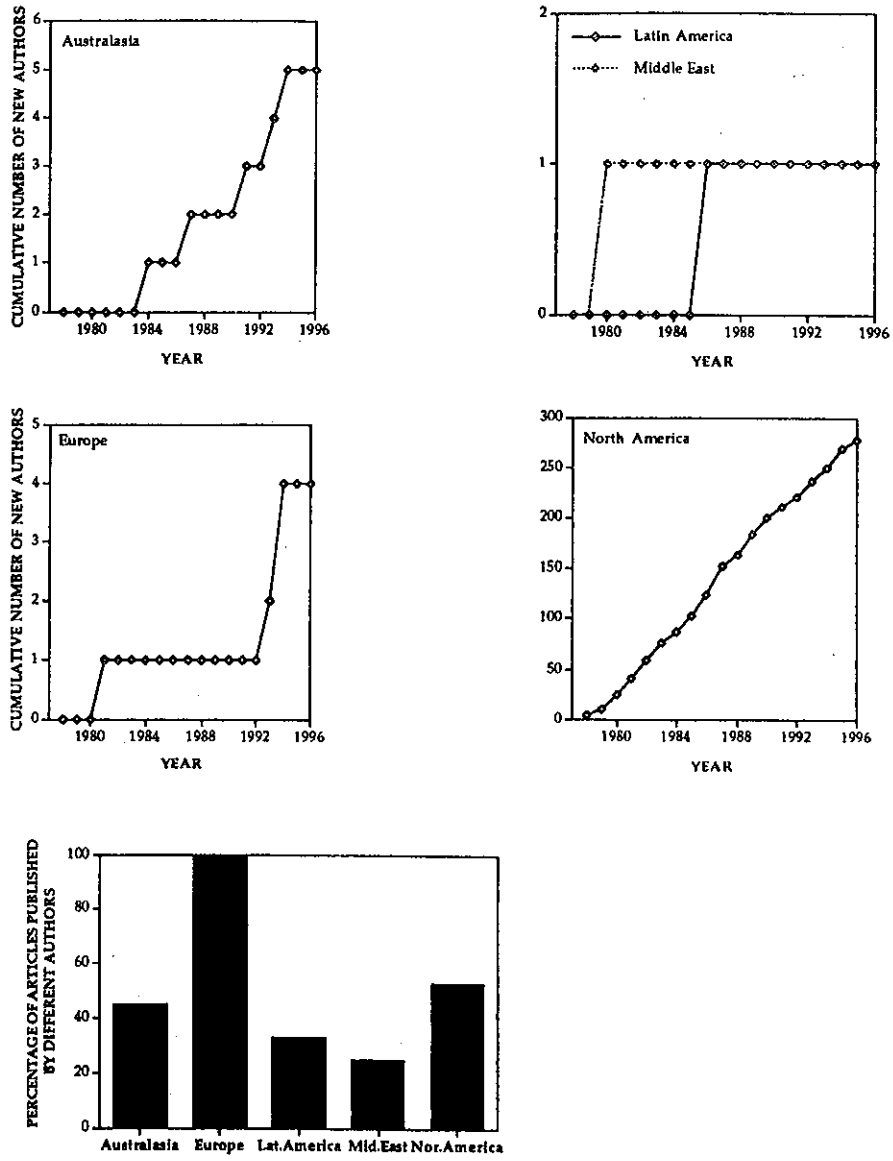

Figure 4. The cumulative number of new authors appearing in *TBA* per year from each of the five international categories. Also shown is the percentage of articles published by different first authors.

conceptual—where none had existed previously (see Laties, 1987). The importance of the group of people who established these journals is shown in the finding from Williams and Buskist (1983, p. 164) that in *JEAB*'s first year of publication, over half of the articles were by members of the Board of Editors. However, it appears that the other categories have suffered from this historical advantage, in that their publications have either begun to appear in *JEAB* sporadically from the beginning (Europe and Latin America) or at a later point but by a minority of researchers (Australasia), rather than consistently throughout, albeit again by a minority of authors (see Figure 2).

Of course, there are numerous possible reasons for these and other findings. First, there are arguably more behavior analysts in North America than

any other category. In fact, inspection of the 1997–1998 ABA Membership Directory reveals that 92% of members are North American, with European members making up 3%, Australasian and Latin American members 2%, Middle Eastern members 0.2%, and others 0.9%. But ABA membership is not necessarily a prerequisite for publishing in *JEAB, JABA,* or *TBA* (although all ABA members receive an automatic subscription to *TBA,* this is not the case with *JEAB* and *JABA*). In effect, the percentage of articles and the pattern of authorship observed in the three journals are not disparate from ABA membership. Additional sources of data (such as research resources available to each international category) may provide further insight into the trends observed in the present paper, but the difficulty in obtaining and standardizing such data outweighs their value, a point echoed by Williams and Buskist (1983).

Second, it could be that authors from the weaker international categories are simply publishing elsewhere. There now exist an array of journals appropriate for the publication of behavior-analytic work, such as *The Psychological Record* (see Buskist, Sherburne, & Critchfield, 1996), *The Analysis of Verbal Behavior, Behavioural Processes, Behavior and Philosophy, Journal of Experimental Psychology: Animal Behavior Processes,* and *The Quarterly Journal of Experimental Psychology,* as well as the publications and newsletters of the special interest groups of ABA such as the *Experimental Analysis of Human Behavior Bulletin.* It remains to be seen whether a future review will detect publication trends away from the three main behavioral journals to these and other new publication outlets, particularly within the burgeoning human operant research area (see Buskist et al., 1996; Hyten & Reilly, 1992).

Third, language barriers, coupled with the rising professional standards of journals published in North America, may deter authors from non-English-speaking countries from participating in ABA and publishing in English-language journals. It was perhaps not surprising that the lowest percentage of articles in *JEAB, JABA,* and *TBA* were from the largely non-English-speaking categories of Latin America and the Middle East (see also Hutz & Adair, 1996, p. 146). Is this reflective of a lack of behavioral representation in these categories (as ABA membership levels would suggest) or are behavior-analytic authors publishing elsewhere? Interestingly, almost all of the countries in the international categories have their own-language journals in which behavior analysts may publish (e.g., Mexico: *La Revista Mexicana de la Conducta*; Colombia: *Revista Latinoamerica de Psicologia*; Brazil: *Psicologia Teoria e Pesquisa*; New Zealand: *Behaviour Change*; Japan: *Japanese Journal of Behavior Analysis*). Although a new own-language journal may provide an outlet for behavior-analytic work where none had existed previously, it may inadvertently contribute to a continuation of the isolation experienced by some researchers by largely concerning itself with a limited audience.

Conclusions and Suggestions to Increase International Participation: What Can or Should Be Done?

Assuming that it is agreed that something should be done to increase international participation above the approximate figure of 5% to 10% foreign (i.e., non-North American) publications in *JEAB, JABA,* and *TBA,* is improving participation at the level of journal publication rates the only answer? Clearly, it is not. In fact, to seek to increase international journal publication rates, a whole host of factors must be taken into consideration for the intervention to be successful. Publication is often the culmination of years of planning, teaching, and research by authors, and if one is to seek to increase the level of foreign publi-

cations a number of points need to be addressed.

As a first step, the behavior-analytic community could begin by acknowledging the practical difficulties faced by international authors in publishing in North American journals. For instance, delays that are inherent in corresponding and replying to journals from distant continents by foreign authors can be facilitated by taking measures aimed at speeding up the process, such as conducting the reviewing and proofreading stages of the publication process via electronic mail. Many journals are taking this step and are to be encouraged in their efforts to overcome these difficulties.

Taking a more active role in the mechanisms that exist within ABA is another means by which one can facilitate international participation. For instance, at the annual ABA convention, the International Development Committee meets to discuss issues pertinent to increasing international involvement in ABA. Also, at the ABA Expo, universities from around the world have the opportunity to promote behavior analysis programs in their host country. Although such structures may exist for the benefit of ABA members, it could be argued that in practice they are largely undersubscribed. Specifically, the 1997 ABA convention program lists only three non-North American posters out of a total of 19 on display at the Expo. Similarly, the current president-elect of ABA is only the first non-North American to be elected in the organization's 22-year history. It appears that attempts to internationalize ABA and the research activities of behavior analysts in general, at least by North American individuals and organizations, are in danger of establishing a parochial attitude towards foreign involvement. That is, the objective of increasing foreign participation could be actively encouraged simply because it is underrepresented at present and not for the wider benefits that may accrue to the field as a whole. The only way to prevent the development of this trend is for foreign authors to initiate steps and procedures independently, both within their regions and in larger organizations such as ABA.

Journal editorial boards also have a role to play in improving international participation. For instance, the geographical distribution of *JEAB*'s current editorial board (January 1996) includes only four members (three from Australasia and one from Europe), out of a total of 34 editors, who come from countries outside North America (see also Laties, 1987, pp. 502–503). Although editorial membership remains at the discretion of the particular journal, perhaps a system of equal representation from the international categories that publish in the journal, calculated annually, would be advantageous to the field as a whole and to foreign authors in particular (see also Myers, 1992, p. 85).

Suggestions for increasing cooperative research activity and publications of behavior analysts are many, and although they may be subject to difficulties similar to those outlined above, both national and international chapters or groups could begin by, for example, cohosting a conference or meeting in their state or country. The ABA convention has never been hosted by a country outside North America. Hosting the convention in a different country would be a practical and readily achievable goal towards increasing the international spread of behavior analysis. Another suggestion would be to invite foreign speakers to conferences and to review and publish articles in foreign journals. Behavior analysts can also cooperate with colleagues in foreign countries through funded research programs such as the U.S. National Science Foundation's International Programs Division (see *American Psychological Society Observer, 9,* No. 4, 8–9). But perhaps the most important and productive suggestion to improve international participation concerns the various student and faculty exchange and travel research programs (e.g., the European-funded ERASMUS and the

Training and Mobility of Researchers schemes). With the aid of such programs, a graduate or postdoctoral student may travel to a foreign laboratory and conduct research with established experts in a particular field. On returning, the student may continue to research within that field and may establish a productive research center in his or her home country. By focusing on increased student involvement in cooperative research projects, one guarantees the future survival and international dispersal of behavior-analytic methods.

In conclusion, the present paper provides a first step in the assessment of international publication trends in the experimental analysis of behavior. Much work remains to be done, but factors such as those raised by the present paper will require attention if behavior analysis is to truly blossom into the complete and accepted, international, account of behavior that it was founded to provide.

REFERENCES

Bijou, S. (1992). A letter from Sid Bijou. *The ABA Newsletter, 15,* 5.

Buskist, W., Sherburne, T. R., & Critchfield, T. S. (1996). A home for operant research: Contributions of *The Psychological Record. Experimental Analysis of Human Behavior Bulletin, 14,* 4–6.

Dougherty, D. M., Nedelman, M., & Alfred, M. (1993). An analysis and topical bibliography of the last ten years of human operant behavior: From minority to near majority (1982–1992). *The Psychological Record, 43,* 501–529.

Hutz, C. S., & Adair, J. G. (1996). The use of references in Brazilian psychology journals reveals trends in thought and research. *International Journal of Psychology, 31,* 145–149.

Hyten, C., & Reilly, M. P. (1992). The renaissance of the experimental analysis of human behavior. *The Behavior Analyst, 15,* 109–114.

Laties, V. G. (1987). Society for the Experimental Analysis of Behavior: The first thirty years (1957–1987). *Journal of the Experimental Analysis of Behavior, 48,* 495–512.

Morris, E. K. (1992). Message from the President: The best of times, but sometimes a Dickens of a term. *The ABA Newsletter, 15,* 1–4.

Myers, D. L. (1992). Participation by women in behavior analysis. II: 1992. *The Behavior Analyst, 16,* 75–86.

Place, U. T. (1992). Behaviorism and behavior analysis in Britain: An historical overview. *The ABA Newsletter, 15,* 5–7.

Williams, R. A., & Buskist, W. F. (1983). Twenty-five years of *JEAB*: A survey of selected demographic characteristics related to publication trends. *The Behavior Analyst, 6,* 161–165.