Casting a Wider Net: an Analysis of Scholarly Contributions of Behavior Analysis Graduate Program Faculty

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Abstract

As interest in careers in behavior analysis has grown, there has been a concomitant increase in the number of training programs providing coursework in behavior analysis. There is a growing need for indices of quality of these programs, with some authors recently suggesting that faculty research productivity might serve as one indicator of program quality. We continue this conversation, taking a broad view of faculty scholarly contributions by conducting a search of all articles authored by instructors in graduate-level Behavior Analyst Certification Board verified course sequences (VCSs) and published from 2000 to 2015 in peer-reviewed journals indexed by the PsycINFO database. The resulting list includes 8,906 publication records in 715 journals, authored by 1,232 instructors from 224 programs. Our analysis suggests that graduate-level VCS instructors have published in a broad array of journals and topic areas. We discuss implications of these data for prospective students' evaluations of program quality and fit.

Keywords Behavior analysis · Scholarship · Graduate training · Faculty publications

As interest in careers in behavior analysis has grown, there has been a concomitant increase in the number of training programs providing coursework in behavior analysis. Many of these programs offer course sequences that are verified by the Behavior Analyst Certification Board (BACB), as students who obtain a graduate degree from a program with a verified course sequence (VCS) and who obtain supervised applied experience are eligible to sit for an examination to become a Board Certified Behavior Analyst (BCBA).

Importantly, BACB course-sequence verification is not an endorsement of a graduate training program. It is simply an indicator, provided by the BACB, that a program teaches the content required for certification (J. Carr, personal communication, July 1, 2015). There currently are about 250 VCSs for individuals seeking certification as a behavior analyst (i.e., as a BCBA). Unfortunately, students seeking to make informed

decisions about the relative merits of one program over another often struggle, as there is little standardized information available to aid them. The Association for Behavior Analysis International (ABAI) Accreditation Board accredits training programs in behavior analysis; accreditation is designed to be an indicator of program quality and is based on a number of criteria such as the training model, mentoring practices, attrition rate, and postgraduation employment status (ABAI, 2015; Hopkins, 1991; Hopkins and Moore, 1993). To date, only 20 master's level programs have received ABAI accreditation, and applicants considering programs with a BACB VCS but without ABAI accreditation have little information about quality indicators.

Dixon, Reed, Smith, Belisle, & Jackson (2015a) began an important conversation about the need for indices of quality for these programs, arguing that faculty research productivity is an important indicator of program quality. We echo Dixon et al.'s call for the development of such indices and continue the discussion here by taking a broader view of faculty scholarly contributions and providing some additional context around the topic of program quality and prospective students' choices. Two reviews to date have examined research productivity of faculty by reviewing publications in peer-reviewed journals. First, Dixon et al. selected 74 graduate programs offering a BACB VCS and reviewed all faculty publications in six prominent behavior-analytic journals published by

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ABAI and the Society for the Experimental Analysis of Behavior (SEAB). They reported that faculty in 67.6% of training programs included in their analysis produced 10 or fewer publications and that faculty in 14 programs had not published any articles in the selected journals. Wilder, Lipschultz, Kelley III, Rey, & Enderli (2015) conducted a follow-up review of the same programs identified in the Dixon et al. (2015a) paper but, to reduce bias against newer programs, restricted dates of publication from 2000 to 2014. In addition, Wilder et al. (2015) included only empirical studies published in three of the same journals identified by Dixon et al. (2015a; *Behavior Analysis in Practice*, the *Journal of Applied Behavior Analysis*, and *The Analysis of Verbal Behavior*) and three other journals chosen for their focus on applied behavior analysis (*Behavioral Interventions*, the *Journal of Behavioral Education*, and the *Journal of Organizational Behavior Management*). Wilder et al. (2015) conducted their review via the journals themselves and assigned publication credit to academic programs with which each study's authors were affiliated at the time of publication. Although the two reviews identified somewhat different "Top 10 Lists" of research-productive programs, both defined research productivity as publication within a selection of behavior-analytic journals.

In light of recent calls for behavior analysts to broaden the scope of their applications (LeBlanc, Heinicke, and Baker, 2012; Normand and Kohn, 2013) and to reach out to a wider audience by authoring popular-press books (Vyse, 2014) and publishing in nonbehavioral journals (Friman, 2014; Schlinger, 2014; Wilder et al., 2015), it may be useful to take a broad view of faculty scholarly contributions when evaluating graduate programs. First, faculty who heed the aforementioned calls may publish behavior-analytic work in journals other than those reviewed by previous authors (Reeve, 2015; Wilczynski, 2015). In fact, Dixon, Reed, Smith, Belisle, & Jackson (2015b) noted in their response to the commentaries on their review that faculty might be publishing in journals other than those included in their review. Wilder et al. (2015) suggested that "future research might include studies published in other non-behavior analytic journals. Publishing in non-behavior analytic outlets may be particularly beneficial for the field, as it helps disseminate the utility of behavior analysis to other disciplines" (p. 157). Second, in addition to disseminating research, scholarly contributions may serve other purposes, such as advancing behavior-analytic philosophy and methodology in areas that are historically the domain of other traditions.

Our analysis builds on previous studies in the following ways. First, we focused only on graduate training programs with BACB VCSs, as ABAI accreditation is, in itself, an indicator of quality. Second, we restricted our search to faculty publications from 2000 to 2015. Third, we included all peer-reviewed publications indexed in the PsycINFO database,

rather than restricting our search to ABAI and SEAB journals. Finally, we are primarily interested in the range of scholarly journals in which behavior analysis faculty have recently published work, rather than the number of publications authored by individual faculty or groups of faculty. The resulting analysis is designed to inform prospective students' evaluations of training programs, not to provide an indicator of quality for any specific program.

Method

We obtained from the BACB a list of instructors affiliated with each VCS as of June 2016. From that list we selected instructors affiliated with graduate-level (BCBA) sequences, including those located both inside and outside the United States. Some instructors were affiliated with more than one VCS. For the purposes of our analysis, publications followed the instructor, such that each institution with which the instructor was affiliated at the time of this review was credited with all publications from that particular instructor. Our rationale for this is that, insofar as scholarly publications correlate with expertise and mentorship opportunities for students, those resources are tied more closely to faculty than to programs. For example, a prospective student reviewing the scholarly contributions of faculty in a graduate program today would do well to consider the recent publication records of current faculty in that program. This is true even if some instructors are new to the program and were affiliated with other programs at the time that some of their work was published.

We searched the PsycINFO (EBSCO) database for publications authored by each instructor affiliated with each program meeting our selection criteria. We limited our search to articles appearing in peer-reviewed journals; we excluded books, book chapters, dissertations, and non-peer-reviewed periodicals. We also limited our search to articles published in the years from 2000 to 2015 to focus on recent contributions. After entering these search terms, we manually reviewed the resulting publications to determine, based on affiliation and topic, whether they were authored by the instructor of interest. Our interest was in the array of journals in which graduate-level VCS instructors were publishing, so we did not attempt to filter journals or articles based on whether the content was behavior analytic. We excluded publications for which the author's listed affiliation did not match any of the instructor's known affiliations (past or present, as determined by searching program websites and known publications by the author for affiliations) and those that were clearly unrelated to that instructor's topic of interest (e.g., an article on ethnocentrism and government policy). If a search resulted in zero publications for a particular instructor, we checked the website for the program with which that instructor was affiliated to search for alternate names and repeated the search as

necessary. Search results were entered into our database and each entry was then independently reviewed by at least one other researcher. Entries that were not verified to meet all criteria were excluded from data analyses.

Results

We conducted literature searches for 1,232 instructors from 224 programs. We found 8,906 publication records that met our qualifications. In addition to other relevant analyses, we provide results specific to ABAI and SEAB journals to enable direct comparison with the original Dixon et al. (2015a) analysis.

Analyses by Journal

Graduate-level VCS instructors published in 715 peer-reviewed journals. Figure 1 shows the number of journals with instructors publishing in each of five ranges. Table 1 lists the names of each journal in which 10 or more unique instructors published, along with the number of unique instructors publishing in each journal. Six journals appearing in our sample include the words *behavior analysis* in the title and were not included in previous analyses (Dixon et al., 2015a; Wilder et al., 2015). Fifty-six instructors published in these journals: the *Journal of Speech and Language Pathology—Applied Behavior Analysis* ($n = 23$), *Revista Mexicana de Análisis de la Conducta* (the Mexican *Journal of Behavior Analysis*; $n = 17$), *Behavior Analysis: Research and Practice* ($n = 7$), the *Journal of Behavior Analysis of Offender and Victim Treatment and Prevention* ($n = 5$), the *Japanese Journal of Behavior Analysis* ($n = 2$), and the *Journal of Behavior Analysis in Health, Sports, Fitness and Medicine* ($n = 2$). Several journals included in previous analyses, most notably the *Journal of the Experimental Analysis of Behavior*, *The Behavior Analyst*, and *The Analysis of Verbal Behavior*, were not among the top 10 journals in order of number of instructors publishing.

Fig. 1 Number of journals with instructors publishing in each of five ranges

Analyses by Program

Of the 224 programs in our sample, 199 (89%) had at least one instructor with at least one publication. For comparison with the Dixon et al. (2015a) review, 137 of these (69%) had faculty with publications in ABAI or SEAB journals. Ninety-five programs (42%) had 10 or fewer publications across faculty. The median number of publications per program was 16. The median number of faculty per program was 4 (mean = 5, mode = 3, range = 1–54), and the median number of faculty publishing articles in peer-reviewed journals per program was 2 (mean = 3, mode = 2, range = 0–18). Of the 199 programs with publishing faculty, 44 programs (22%) had only one instructor publishing. Five of these were programs with only one instructor listed. Of this same group, 127 programs (64%) had fewer than 50% of instructors publishing peer-reviewed articles.

Analyses by Instructor

Of the 1,232 instructors in our sample, 741 (60%) had at least one publication meeting our selection criteria. Of these, 356 (48%) had publications in ABAI or SEAB journals. For the 741 instructors with publications, the mean number of publications per faculty member was 12. The median number of publications was 6, and the mode was 1. The average percentage of each instructor's publications appearing in ABAI or SEAB journals was 22%. Table 2 shows the number of instructors with publication totals in five different ranges and the average percentage of instructor publications appearing in ABAI or SEAB journals.

Discussion

To gather more information about scholarly work of faculty in graduate-level BACB VCSs, we searched the literature to identify publications affiliated with each instructor. We discovered that well over half of faculty have published at least one manuscript and that publications appear in a broad range of journals. Although the 715 journals on our list span a broad array of topic areas, this likely is not a complete list of journals in which publications authored by graduate-level VCS instructors have appeared. Because we conducted our search via PsycINFO, the resulting publications were limited to those appearing in journals indexed in that database. PsycINFO indexes peer-reviewed journals in “behavioral science and mental health”; some journals of interest to behavior analysts might be outside its purview. For example, the first author has published in animal behavior journals that are not indexed in PsycINFO; other examples include medical and business journals. Also, it was not possible to ensure with perfect accuracy that publication authors matched the instructor of

Table 1 Number of unique instructors publishing per journal for journals with 10 or more VCS instructors publishing from 2000 to 2015

Journal name	Unique instructors publishing
Journal of Applied Behavior Analysis ⁺ [^]	260
Behavioral Interventions [^]	140
Research in Developmental Disabilities	125
Journal of Behavioral Education [^]	122
Education & Treatment of Children	121
Research in Autism Spectrum Disorders	114
Behavior Modification	104
Journal of Autism and Developmental Disorders	99
Behavior Analysis in Practice ⁺ [^]	94
Education and Training in Autism and Developmental Disabilities	79
The Psychological Record ⁺	78
Journal of Positive Behavior Interventions	78
The Behavior Analyst Today [*]	77
Journal of Developmental and Physical Disabilities	75
Journal of the Experimental Analysis of Behavior ⁺	70
The Behavior Analyst ⁺	65
The Analysis of Verbal Behavior ⁺ [^]	64
Psychology in the Schools	60
Focus on Autism and Other Developmental Disabilities	57
Behavioral Processes	44
Journal of Organizational Behavior Management [^]	44
Journal of Early and Intensive Behavior Intervention	43
School Psychology Review	40
Child & Family Behavior Therapy	39
Remedial and Special Education	37
Journal of Special Education	33
Topics in Early Childhood Special Education	32
International Journal of Behavioral Consultation and Therapy	31
School Psychology Quarterly	27
Behavioral Development Bulletin	26
Exceptionality	25
Developmental Neurorehabilitation	24
Journal of Evidence-Based Practices for Schools	24
Assessment for Effective Intervention	24
American Journal on Intellectual and Developmental Disabilities	24
Journal of Speech and Language Pathology – Applied Behavior Analysis [*]	23
Journal of Emotional and Behavioral Disorders	22
Journal of School Psychology	20
American Journal on Intellectual and Developmental Disabilities	20
Learning Disabilities Research & Practice	20
Behavior and Social Issues	19
Journal of Applied School Psychology	19
Journal of Intellectual and Developmental Disability	18
Behavior Therapy	18
Behavioral Disorders	18
Journal on Developmental Disabilities	17
Revista Mexicana de Análisis de la Conducta [*]	17
Exceptional Children	16
Intellectual and Developmental Disabilities	16

Table 1 (continued)

Journal name	Unique instructors publishing
Journal of Psychoeducational Assessment	15
Journal of Early Intervention	15
Experimental and Clinical Psychopharmacology	14
Autism	14
Research and Practice for Persons With Severe Disabilities	14
Psychopharmacology	14
Journal of Applied Research in Intellectual Disabilities	14
Journal of Disability Policy Studies	13
Infants & Young Children	13
Journal of Child and Family Studies	12
Clinical Case Studies	11
Journal of Educational and Psychological Consultation	11
International Journal of Disability, Development and Education	11
PsycCRITIQUES	11
Journal of Precision Teaching and Celeration	10
Behavioral Pharmacology	10
Addictive Behaviors	10
Journal of Vocational Rehabilitation	10

⁺ Journals included in Dixon et al.'s (2015a) analysis

[^] Journals included in Wilder et al.'s (2015) analysis

*Journals with titles including the words *behavior analysis* or *behavior analyst* that were not included in previous analyses

interest, so there is some degree of possible error involved in the resulting analyses.

The fact that the graduate-level VCS instructors are publishing in a wide array of topic areas has multiple plausible interpretations. One interpretation is that behavior analysts are publishing “outside the box” and making contributions that are recognized in the broader scholarly community. This is consistent with recent recommendations (Friman, 2014; Schlinger, 2014; Wilder et al., 2015) and is likely beneficial both to the progress of behavior analysis in general and to students in particular as they seek training, and potential career paths, in diverse areas of application. There are many reasons that VCS instructors might choose to publish in outlets that are less typical for behavior-analytic work. These include reaching non-behavior-analytic audiences with behavior-analytic or behavior-analysis-related content, collaborating with peers in other fields and publishing in journals relevant

to those fields, and seeking out journals with higher impact factors. Another, less optimistic, interpretation might be that the diversity of journals represented here suggests that some instructors are not conducting and/or publishing behavior-analytic work. An evaluation of the content of instructor publications is beyond the scope of this analysis, and it is certainly possible that some instructor publications may not meet strict definitions of behavior analysis. This is not necessarily a negative feature. A publication need not be strictly behavior analytic to be helpful in advancing behavior-analytic methodology or interpretations.

When considering instructor publications as a component of program quality, it is important to note that no published analysis, including ours, accounts for different types of faculty roles or for seniority of faculty within VCSs. For example, some instructors in a VCS might hold teaching-focused positions that do not include publishing scholarly work as a

Table 2 Number of instructors with publication totals in each of five ranges

Instructor publications	No. of instructors	Average % of publications appearing in ABAI or SEAB journals
0	491	
1–4	322	18
5–9	153	27
10–19	135	22
20+	131	42

contractual requirement. Some programs may include multiple instructors with this focus. A measure of sheer volume of publications per instructor could place these instructors and programs, as well as newer instructors, at a disadvantage. A lower rate of publications for these instructors and/or programs would not necessarily indicate lower quality training. In fact, the opposite could be true. Instructors in positions in which publishing is a contractual requirement need to divide their time among these different categories of responsibilities, with more time allocated to categories that are weighted most heavily in promotion evaluations. This does not necessarily lead to lower quality teaching and mentoring, but that is one possible outcome. In reviewing instructor publications, our intention is not to draw conclusions about connections between publishing productivity and program quality but rather to comment on the diversity of journals in which instructors are publishing and to suggest that prospective students consider the publication records of program faculty in the context of individual student goals and of other program features.

Depending on their specific interests, different students may apply different criteria in the selection of behavior-analytic graduate training programs and may prioritize criteria differently (Arena, Chambers, Rhames, and Donahoe, 2015). For instance, students may be interested, to varying degrees, in research and practical training. Students may differ as well in the degree to which they desire close supervision, in-depth research mentoring, small or large classes, and online versus “brick and mortar” classes. Further, some students may seek programs providing in-depth training in a particular application of applied behavior analysis (e.g., supporting individuals with autism spectrum disorders or traumatic brain injury), whereas others may seek a breadth of experiences. No single index of program quality can account for all of these criteria, so it is important to consider multiple indices of quality when evaluating programs.

There is limited evidence of a relation between publishing productivity and training outcomes. Dixon et al. (2015b) reported a positive correlation between the number of faculty publications per program in ABAI and SEAB journals and the percentage of program graduates who passed the BCBA examination. Dixon et al. (2015b) noted that though there is no evidence that passing the certification exam is predictive of practical competency, the correlation between faculty publishing productivity and exam pass rates does not support the assertion that training programs in which faculty publish prolifically are less focused on practical competency. It is reasonable to postulate that faculty publishing productivity may relate to the degree to which students are likely to be exposed to active research programs during their training (Dixon et al., 2015b). Although this kind of exposure is likely to aid in the development of important skills and may be a relevant criterion for some students, effective consumption of research and other scholarly writing is also an

important skill that may be particularly relevant for practitioners. Faculty scholarly contributions, viewed more broadly, may be related to the availability of other important features of training. For example, faculty publishing in diverse areas of work, including theory and philosophy, basic science, and various applications, may be best equipped to offer high-quality mentorship around practical experiences in those areas. Further, faculty who routinely publish in a given area may be more familiar with the current literature in that area than a faculty member not engaged in those scholarly activities.

Because the proliferation of behavior analysis graduate programs is a relatively recent development, the challenges of helping prospective students choose from among hundreds of available graduate programs are new to our field. It may be instructive to examine how these challenges are addressed in other fields. For example, the American Psychological Association, which currently accredits 379 programs at the doctoral level, publishes online materials aimed at assisting prospective students in understanding the graduate training application process and choosing a training program that fits their needs.

Ideally, prospective students would be able to easily obtain information about the key features of a graduate program when making decisions about which programs they may wish to attend. The publication record of a program’s faculty is but one feature students may find valuable in their decision-making process (for discussion of the relative value of this metric, see Critchfield, 2015; Hayes, 2015; and McDowell, 2015). Graduation rates, employment rates, number of practicum or internship requirements or opportunities, program size, funding, opportunities for interaction with mentors and peers, and a variety of other measurable program features would also likely be helpful (Hineline, 2015). When programs do not provide this information in program materials, prospective students may wish to ask about these features before applying or during the application process. As our field evolves, we urge credentialing and accrediting bodies such as the BACB and ABAI to work with training programs to make such information available to prospective students.

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Compliance with Ethical Standards

Conflict of Interest The first and second authors are recent representatives to the Association for Behavior Analysis International Executive Council. The third author declares that she has no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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