



PROFESSIONAL FIELD AND CERTIFICATION IN APPLIED BEHAVIOR ANALYSIS: SPAIN AND EUROPE

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Applied behavior analysis is a scientific field devoted to the modification of socially relevant human behavior. This area has grown significantly in recent years. Although this has been driven mostly by an increasing demand for intervention in autism and developmental disabilities, there have been major developments in a number of other areas. The growing demand for high quality professional services requires the development of standard criteria for professional training and certification. The Behavior Analyst Certification Board[®], Inc. (BACB) is a non-profit corporation that has developed an international certification program for behavior analysts that has been widely adopted by professionals in the field in the United States, Europe and elsewhere. Access to certification occurs through academic, coursework and supervised experience requirements, in addition to a certification exam. In this paper we discuss the potential of this certification scheme for the credentialing of behavior analysts in Spain and Europe.

Keywords: Applied behavior analysis, behavior analysis, autism, certification, BCBA.

El análisis aplicado de la conducta es un área científica dirigida a la comprensión y modificación de comportamientos socialmente relevantes. Esta área ha experimentado un notable desarrollo profesional en la última década. Aunque la mayor expansión se ha dado en la intervención en autismo y otros trastornos del desarrollo, ha habido avances en numerosas áreas. La creciente demanda de servicios profesionales requiere estándares para la formación y certificación de profesionales. El Behavior Analyst Certification Board, Inc. (BACB) es una agencia sin ánimo de lucro que ha desarrollado un programa internacional de certificación de analistas de conducta con una notable difusión en Estados Unidos, Europa y otras regiones del mundo. El acceso a la certificación contempla criterios de formación académica, teórica y de práctica supervisada, y requiere de la superación de un examen de certificación. Se discuten las posibilidades de difusión de las certificaciones profesionales en análisis de conducta en España y Europa.

Palabras clave: análisis aplicado del comportamiento, análisis de conducta, autismo, certificación, BCBA.

Appplied behavior analysis is a science intended to understand and improve socially significant human behaviors. Its subject of study is behaviors and their relationship with environmental independent variables (Baer, Wolf & Risley, 1968). Applied behavior analysis can not be completely understood apart from a specific approach to science, and from its basic

counterpart, the experimental analysis of behavior. The behavior-analytic approach to science is characterized by determinism, empiricism, explanatory parsimony and experimentation. The publication of *The Behavior of Organisms* by B. F. Skinner in 1938 was a landmark of the field. This work presented an approach to behavior which emphasized antecedent, and particularly consequent environmental variables in explaining behavior. The so-called three-term contingency (antecedent-behavior-consequence) was the core feature of this analysis. This approach enabled the author to explore basic learning processes as discrimination and reinforcement. It was not until decades later when the first applications of the experimental analysis of behavior drove the start of applied behavior analysis. A year of importance to this crucial step was 1968, when the *Journal of Applied Behavior Analysis* was first published. In Spain, interest in behavior analysis dates back to the

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mid-Sixties with Ramón Bayés and his team in Barcelona (Bayés, 2003).

Although behavior analysis is a classic field within psychology and education it has expanded greatly in recent years due to theoretical developments and the dissemination of effective intervention procedures (Cooper, Heron & Heward, 2007). Behavior-analytic intervention in conditions known as Pervasive Developmental Disabilities, including autism, Asperger syndrome, and others, stands out among the areas that have had the greatest professional impact. There have been more than twenty independent studies conducted in the United States, United Kingdom, Norway, Argentina, Israel and Australia supporting the effectiveness of this approach. Positive results have been demonstrated in the areas of daily living skills, academic performance, communication skills and other areas for children with autism (e.g., Eikeseth, Smith, Jahr & Eldevik, 2007; Eldevik, Hastings, Hughes, Jahr & Eikeseth, in press; Howard, Sparkman, Cohen, Green & Stanislaw, 2005; Remington et al., 2007; Virués-Ortega et al., 2008). There have been also significant expansions in other applied areas of behavior analysis. Among them, clinical intervention for typically developed adults has focused increasing attention on the application of behavior analysis to psychotherapeutic interventions through procedures derived from relational frame theory (Luoma, Hayes & Walser, 2007; Luciano-Soriano, 2001), and the direct implementation of behavioral principles (Ferro, Valero & Lopez-Bermudez, 2007; Frojan-Parga, 2004). Clinical behavior analysis has accumulated a considerable amount of outcome research in anxiety, mood and psychotic disorders, among others (e.g., Bach & Hayes, 2002; Forman, Herbert, Moitra, Yeomans & Geller, 2007). Education in typically developing children is another area of considerable expansion, e.g., precision teaching, schooling models (Greer, 2002; Johnson & Layng, 1994). In addition, organizational behavior management, targeting the improvement of work conditions and performance, has increased significantly in recent years incorporating a variety of interventions such as improvement of work groups management, safety, and productivity (Austin, 2008). Other areas include sports psychology (Martin, 2007), behavioral intervention in chronic diseases as dementia (Brenske, Rudrud, Schulze & Rapp, 2008) and behavioral intervention for large groups (Hovell, Wahlgren & Gehrman, 2002). In summary, applied behavior analysis

is a general approach to socially significant behavior which has expanded its areas of influence in the last decades.

The effectiveness of behavior-analytic intervention in autism and other areas and the development of an international behavior analyst certification have been followed by a parallel growth in service demand which has expanded both applied and academic fields. For example, the number of Behavior Analyst Certification Board, Inc. (BACB) certificants and BACB-approved university course sequences has grown exponentially in the last 10 years (Hughes & Shook, 2007). A similar growth has occurred in the number of members of the Association for Behavior Analysis International, the number of convention attendees (93% and 112% increase since 1999 respectively), the creation of new journals, new professional associations throughout the world and a new job market for those trained in behavior analysis (ABA International Team, personal communication, January 10, 2009; Malott, 2008). This development has started to have effects on health and social policies and the Ontario Ministry of Education, Canada (Ministry of Education, 2007), the New York Department of Health (New York State Department of Health, 1999) and the Public Health Service of the United States (U.S. Public Health Service, 1999) have endorsed and promoted behavior-analytic intervention for children with autism. Behavior-analytic intervention for autism has been explicitly recommended by the clinical guides of California (California Department Developmental Services, California Department of Education, 1997), New York (New York State Department of Health, 1999), Manchester (MADSEC Autism Task Force, 2002), Ontario (Children's Mental Health Ontario, 2003), Sidney (Roberts, 2003) and by the Guide for Good Practices for the Treatment of Autism Spectrum Disorders developed by the task force on autism spectrum disorders of the Instituto de Salud Carlos III in Madrid (Fuentes-Biggi et al., 2006). The latter report states: "In spite of the methodological limitations of the revised studies, [those based on behavior-analysis] are considered the best intervention studies in autism literature The Task force indicates that behavioral programs and the procedures based on learning theories are essential elements to support people with autism, both to promote their development and to cope with behavior problem (p. 428)."

The professional development of a discipline with a growing demand brings the need for training and professional certification. The Behavior Analyst



Certification Board[®], Inc (BACB) is a non-profit organisation that has worked extensively towards the professional certification of behavior analysts throughout the last decade. The BACB has created consensus documents on professional ethics and basic curricula for university and practicum programs for behavior analysts. In addition, the BACB manages the only system for professional credentialing of behavior analysts in the field. In this article we briefly present the operating features and international development of professional certification of behavior analysts.

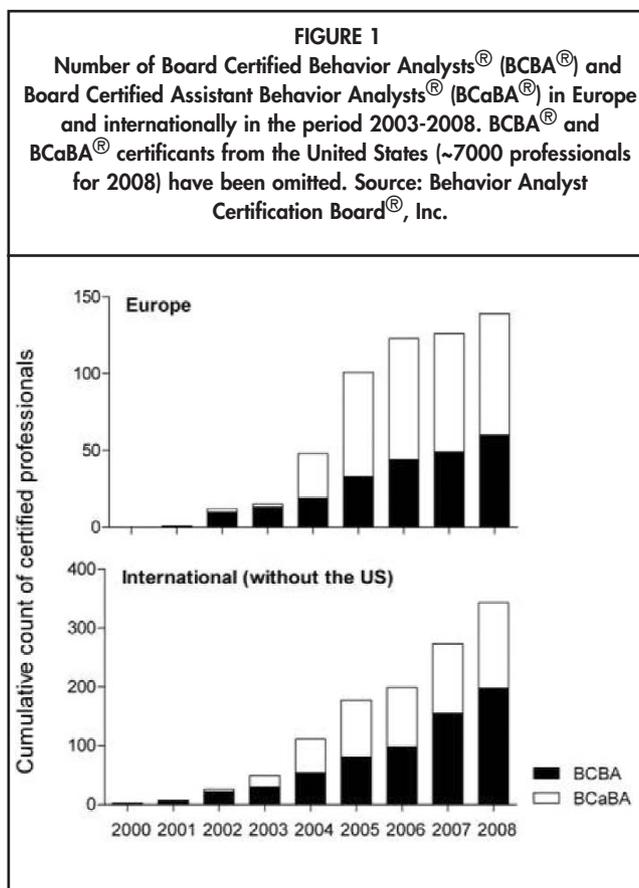
DEVELOPMENT OF A CERTIFICATION SYSTEM

Prompted by cases of misuse of behavior analytic procedures in the state of Florida in the 1980s, the state government established a certification examination for behavior analysts. A similar process using the Florida examination was established in other states until 1999 when the responsibility for professional certification of behavior analysts was transferred from individual states to the BACB, who not only certified professionals but also approved course sequences for behavior analytic university and practicum programs. Certification issued by the BACB is endorsed by other professional bodies such as the Association for Behavior Analysis International, the Association of Professional Behavior Analysts, and Division 25 of the American Psychological Association. The BACB credentials are recognised by the National Commission for Certifying Agencies in the United States. The certification system has experienced a great development with 7,000 professionals certified in 29 countries since it was created (see figure 1, Hughes & Shook, 2007) and more than 150 programs approved throughout the world, 16 of them in Europe (see figure 2). However, the international development of the certification program has been uneven across countries. In Europe, despite the growing trend, the actual number of certificants remains relatively small. In other regions of the world, such as Latin America, there are still no certificants.

The BACB has developed two professional certificant levels for behavior analysts: the Board Certified Behavior Analyst[®] (BCBA[®]) and the Board Certified Assistant Behavior Analyst[®] (BCaBA[®]). The academic degree, in-class training (225 versus 135 hours) and supervised experience requirements (1500 versus 1000 for the Supervised Independent Fieldwork pathway) are higher for those pursuing BCBA[®] certification (BACB 2009a). In

addition, the BCBA[®] certification exam has more questions in conceptual and intervention procedures compared to the BCaBA[®] exam (Table 3). The BCBA[®] credential is aimed at professionals assuming a high level of responsibility for the design, implementation and follow-up of intervention programs. It is a requirement that the BCaBA[®] must be supervised by a BCBA.

Professional certification in behavior analysis has a number of beneficial effects to the field: (a) the accreditation of training specific to the field of behavior analysis, (b) the development and increase of professional networking, (c) the ongoing continuous education and professional development of professionals already certified, (d) the development of common criteria for the content and structure of course sequences, (e) increased visibility of the profession for service users and other organisations through a certificant registry (BACB, 2009), and (f) assistance for potential employees to validate their training and credentials. The certification system encourages ongoing professional development through continuous education requirements. Certificants must accrue a specific number of continuing education credits

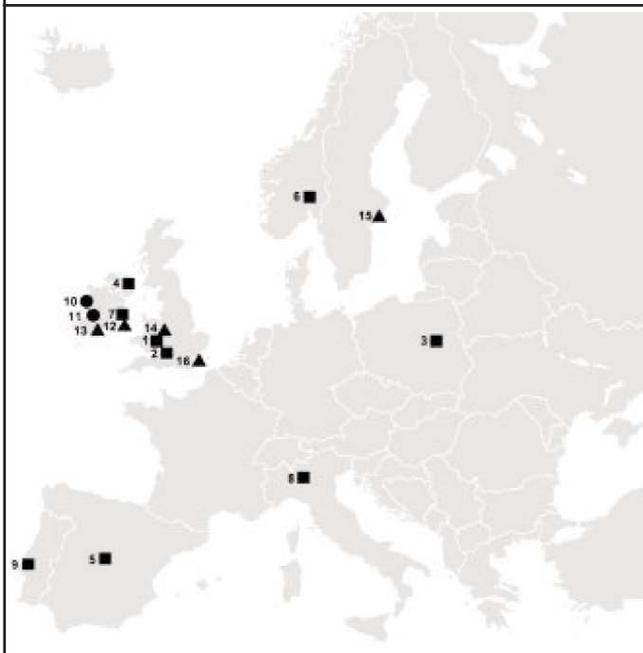


through, for example, attending conferences, teaching, supervising and participating in other activities that have been granted continuing education credits by the BACB.

Behavior analytic certification empowers the job market by assisting both employers and employees. For example, the Association for Behavior Analysis International maintains an online job placement service for behavior analysts (Service to Apply, Recruit and Train - START) and has an average of 200 job offers at any given time, most of which explicitly reference BCBA[®] and BCaBA[®] certification. This, however, should not be interpreted as a disadvantage to professionals not holding BACB credentials, but still credentials of this kind assure minimum training standards and makes professional communication more fluent.

FIGURE 2

Institutions with BACB approved course sequences for Board Certified Behavior Analyst[®] (BCBA[®]) and Board Certified Assistant Behavior Analyst[®] (BCaBA[®]) programs in Europe. *Notes.* Triangles: BCaBA; Squares: BCBA; Circles: BCBA[®] and BCaBA. 1. Bangor University, Gales; 2. University of Wales, Swansea; 3. Social Psychology School, Varsovia; 4. University of Ulster, Coleraire; 5. ABA España, Madrid; 6. Akershus University College, Oslo; 7. National University of Ireland, Maynooth; 8. IESCUM, Milano; 9. SEI Formação, Lisbon; 10. National University of Ireland, Galway; 11. University of Limerick, Limerick; 12. University College Dublin, Dublin; 13. University College Cork, Cork; 14. Cardiff University, Gales; 15. Stockholm Institute of Education, Stockholm; 16. University of Kent, Canterbury



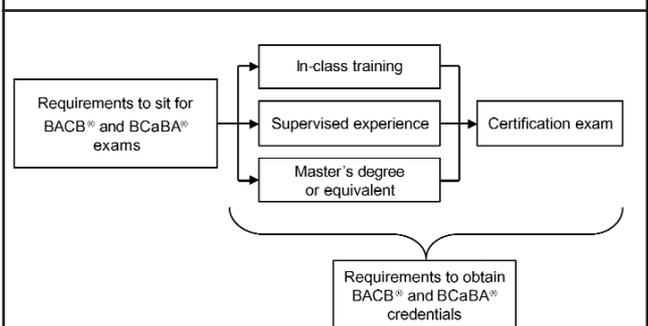
THE CERTIFICATION PROCESS

The development of the certification system in behavior analysis has followed standard procedures for professional certification: (a) systematic assessment of essential contents of the professional field through a 'job analysis', in which a number of professionals in the field are surveyed systematically on the contents of their work; (b) ascertainment of a systematic list of professional contents and skills ('task-list'); and (c) creation of a basic structure for the syllabi of university programs and the contents of the certification examination based on the task-list.

The job analysis extensively surveys hundreds of qualified professionals, mainly BACB certificants, on the contents and tasks composing the field. The results of this process are summarized in a list of content areas and specific skills that a qualified professional must know and be able to exhibit. The job analysis is revised approximately every five years resulting in updates to the task-list and the certification examination (Shook, Johnston & Mellichamp, 2004). Specific in-class education and practicum requirements are derived from the task-list (BACB, 2005). University programs interested in having their students meet requirements to sit for the certification examination need to follow the BACB consensus on coursework content and must request the approval of their course sequence. Table 1 shows the detailed contents of a program course sequence required

FIGURE 3

ELIGIBILITY FOR BACB CERTIFICATION EXAMS. *NOTE. THE 'LICENCIADO' DEGREE REQUIREMENT APPLIES ONLY FOR THOSE GRADUATED IN SPAIN; OTHER APPLICANTS NEED AN ACADEMIC DEGREE EQUIVALENT TO A MASTER'S DEGREE*



Note. The 'licenciado' degree requirement applies only for those graduated in Spain; other applicants need an academic degree equivalent to a Master's Degree.



to meet approval for accreditation at BCBA[®] and BCaBA[®] levels.

The content areas of the certification exam are also derived from the task list. The applicant is only eligible to sit for the examination once the academic degree, in-class training and the supervised experience requirements have been fulfilled (see figure 3). These criteria are described in some detail in the sections below.

1. Academic requirements

In order to meet the eligibility requirements for the certification examination the applicant must hold a university degree equivalent to a Master’s degree (*Licenciado* for those graduated in Spain) or a Bachelor’s Degree for those pursuing BCBA[®] or BCaBA[®] certification respectively; or an equivalent degree in the event of changes in the university plans.

2. Requirements for in-class training in behavior analysis

Requirements for theoretical and in-class training on behavior analysis can be met by completing an approved university (or a professional institution in special cases) graduate program in behavior analysis. These programs must have their course sequence approved by the BACB (a complete listing of academic training programs is available at www.bacb.com). These programs assure proper representation of the relevant content areas in the field: Ethics, Definition and Characteristics, Principles, Processes and Concepts, Behavioral Assessment, Experimental Evaluation of Interventions, Measurement of Behavior, Displaying and Interpreting Behavioral Data, Selecting Intervention Outcomes and Strategies, Behavior Change Procedures, Systems Support. A certain number of discretionary hours within each course sequence may give particular focus to different applications of behavior analysis (e.g., organizational behavior management, autism and developmental disabilities, verbal behavior, etc.). The organization of course content in these programs should follow the above-mentioned task-list (BACB, 2005).

3. Supervised experience requirement

Practicum experience should provide students with the specific knowledge, skills and abilities described in the task-list. Activities should follow the dimensions of applied behavior analysis as described by Baer, Wolf and Risley (1968). It is recommended that trainees get their

supervised experience in more than one practicum site, under several supervisors and with several clients; protecting. However, the minimum duration of practicum experiences should be consistent with the requirements of adequate supervised learning. Appropriate clients are any person for whom a behavioral intervention has been demonstrated appropriate according to the empirical evidence available. Examples of relevant practicum activities are:

- Assessing the need for behavioral interventions.
- Designing, implementing and following up behavior analytic programs.
- Following up and implementing behavior-analytic programs developed by other professionals.
- Designing and implementing behavioral research (recording, displaying and interpreting behavioral data for research projects).
- Any other activities associated with the design and implementation of behavior-analytic programs and with the supervision and assessment of behavior analysts.

Other activities which behavior analysts normally perform and that may be directly related to behavior analysis (e.g., attending and managing professional meetings about ongoing programs, literature reviews for a given program, discussion with colleagues about a given program, and research).

The BACB recognizes two main forms of supervised experience which differ in the workloads and density of supervision hours with a senior behavior analyst: (a) Supervised Independent Fieldwork (SIF) and (b) Practicum. The student undergoing SIF should be

CONTENT AREA	BCBA [®] & BCABA [®]
1. Ethics	15
2. Principles, processes and concepts	45
3. Behavioral assessment and intervention design	35
4. Experimental assessment of interventions	20
5. Measurement of behavior and data management	20
6. Behavior change procedures	45
7. Discretionary	45
Total hours	225
<i>Notes.</i> Notice that some content areas have been collapsed	



supervised at least every other week and those undergoing a practicum should be supervised weekly. Valid supervisors are those that already hold the BCBA[®] certification and also professionals that can demonstrate a relevant background in the field or have been approved as supervisors within a course sequence examined by the BACB. The workload distribution of supervised experience under the SIF and practicum requirement is summarized on Table 2.

4. Certification exam

Once the requirements of holding an academic degree, behavior analysis coursework and supervised experience are achieved (see figure 3), the student may apply to the BACB for eligibility to sit the relevant certification examination. Once the applicant is approved the student can schedule his examination at one of the Pearson VUE testing sites. Examinations are computer-based and can be scheduled in high security examination centers throughout the world. The certification examination can

be scheduled within two years upon approval and in three annual 15-day time windows. The BCBA[®] examination is composed of 150 multiple choice questions with 4 alternatives; most of them directly related to the application of behavior analysis. The examination time is 240 minutes that can be extended to 270 minutes for applicants from non-English speaking countries. Table 3 shows the number of items in both the BCBA[®] and BCaBA[®] certification examinations by task-list content areas (BACB, 2005).

CERTIFICATION IN SPAIN

The professional status of behavior analysis in Spain has been favored by pioneering intervention centers, research groups and approved training programs. The latter has been enforced by the non-profit professional association

	SIF	Practicum
Total hours	1500 h	1000 h
Independent fieldwork, h/sem (Mín – Máx)	10 – 30 h	10 – 25 h
Frequency of supervision sessions	Bi-weekly	Weekly
Supervision hours, % (total h)	5% (75 h)	7,5% (75 h)
One-to-one, % (total h)	≥50% (≥37,5 h)	≥50% (≥37,5 h)
Group format, % (total h)	≤50% (≤37,5 h)	≤50% (≤37,5 h)

Notes. h: hours; h/sem: hours per week; SIF: Supervised independent fieldwork.

Content area	BCBA [®]	BCaBA [®]
1. Ethics	18	18
2. Definition and characteristics	7	7
3. Principles, processes and concepts	24	19
4. Behavioral assessment	10	10
5. Experimental assessment of interventions	8	8
6. Measurement of behavior	16	15
7. Displaying and interpreting behavioral data	6	5
8. Selecting intervention outcomes and strategies	12	8
9. Behavior change procedures	43	36
10. Support systems	6	6
Total items	150	132

Program	Prevalent activities	Specific methods	Type ^a
Centro Al-Mudaris [®] , Córdoba	ECE, ENP, PIT, INV, SEP, TRS	CV	CE
Centro CIEL, Oviedo	ECE, PIT, TRS	CV	DO
ABA private consultant, Barcelona	ECE, PIT, SEP	-	DO
ABA private consultant, Madrid (1)	ECE, ENP, PIT, SEP, TRS	AS	DO
ABA private consultant, Madrid (2)	ECE, ENP, PIT, SEP	CV, AS	DO
Fundación Ilusiones para el Autismo, Islas Canarias	ECE, PIT	-	CE
Fundación Planeta Imaginario, Barcelona	ECE, PIT, SEP, TRS	-	DO
Grupo Inves. Aprendizaje Complejo, Univ. Oviedo	INV	CV	-

Notes. AS = Activity schedule; CV = Verbal behavior; ECE = Clinical and educational assessment; ENP = Parents' training; INV = Research; PIT = Early intervention program, SEP = External supervision of intervention programs; TRS = Transition to regular school program.
^a CE = Clinic-based, DO = Home-based.



ABA España, an affiliated chapter of the Association for Behavior Analysis International. In addition, there are eight intervention programs on developmental disabilities located in Oviedo, Barcelona, Madrid, Córdoba and Santa Cruz de Tenerife that have a BACB approved practicum program (see specific features of these programs on table 4). Future challenges for continuous improvement of practicum opportunities in Spain include: (a) higher availability of program characteristics available to students and consumers, (b) external evaluation of professionals and procedures, and (c) development of specific standards for the approval and certification of intervention programs.

The recent resolution of the BACB to translate the certification examination into Spanish and the creation, by ABA España, of the grant program 'Donald M. Baer' (ABA España, 2008) for Latin-American students gives a new momentum to the field in Spanish-speaking countries. The consolidation of the certification system in Spain and Europe demands a much wider dissemination among professionals and consumers and also the recognition by national certification agencies and professional associations. In this respect, an analogy could be traced between BACB certifications and the EFPA/COP European Psychotherapy Specialist Certification recently developed by the European Federation of Psychology Associations and the Colegio Oficial de Psicólogos (Colegio Oficial de Psicólogos, 2007).

The usefulness of the certification, in addition to the more general benefits mentioned above, may be a function of the degree of recognition that could be recruited from local accreditation and professional institutions in years to come. Also the number of certificants may be an important factor, as a critical mass of certificants may facilitate the appreciation of the BACB certification program by employers and clients.

CONCLUSION

The growth of applied behavior analysis needs to be followed by a high level of professional excellence which may be hard to maintain without an effective management of professional accreditation. Professional certification will be highly beneficial and facilitate the development of international consensuses on the knowledge, skills and abilities of professionals working within the field, the essential features of professional training programs and the requirements for continuous education. Behavior analytic certification will facilitate the

unity of the currently small and scattered group of behavior analytic academics and practitioners in Spain and the rest of Europe. The growth in activity in the field that has been fostered by the increase in the number of BACB-approved training programs in Europe in recent years will contribute significantly to (a) the convergence of professional criteria, (b) the dissemination of behavior-analytic applications, and (c) satisfy the growing social demand of highly qualified professionals in developmental disabilities and other areas.

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