

B. F. Skinner's legacy twenty years after (1990–2010): Behavior analysis in Ibero-America

El legado de B. F. Skinner veinte años después (1990–2010):
el análisis del comportamiento en Iberoamérica

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Abstract

Twenty years after his death (August 18th 1990), B. F. Skinner leaves five major living legacies: 1) radical behaviorism; 2) the experimental analysis of behavior; 3) applied behavior analysis; 4) the Skinner box; 5) the Horcones community (Mexico). Behavior analysis is recognized for its international active presence. Its growth provides a set of opportunities for knowledge and technology transference and reminds us the importance of working for the development of educational and research programs and the arrangement of contingencies which enable its advance. In Ibero-America, behavior analysis, as a Skinnerian legacy, has been an important tradition within psychology. In this article we will present a current synthesis of the central Ibero-American contributions to Behavior analysis. The panorama of Behavior analysis in Ibero-America will be analyzed according to the following dimensions: 1) the most relevant figures; 2) the academic community related to the Behavior Analytic tradition; and 3) the most important research lines. Finally, some of the most general characteristics of Ibero-American Behavior analysis are included.

Key words: history of psychology, B. F. Skinner (1904-1990), experimental analysis of behavior, applied behavior analysis, behaviorism, Ibero-America.

Resumen

Veinte años después de su fallecimiento (18 de agosto de 1990), B. F. Skinner deja cinco grandes legados vigentes: 1) el conductismo radical; 2) el análisis experimental del comportamiento; 3) el análisis conductual aplicado; 4) la caja de Skinner; 5) la comunidad Los Horcones (México). El análisis del comportamiento, básico y aplicado, es reconocido por su activa presencia internacional. Su desarrollo proporciona un conjunto de conocimiento y transferencia de tecnología que nos recuerda la importancia de trabajar en el desarrollo de programas educativos, de investigación y de manejo de contingencias, los cuales permitan su avance. En Iberoamérica, el análisis del comportamiento, como legado skinneriano, ha sido una tradición importante dentro de la psicología. En este artículo presentaremos una síntesis actual de las principales contribuciones iberoamericanas al análisis

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lisis del comportamiento. El panorama del análisis del comportamiento en Iberoamérica será analizado de acuerdo a las siguientes dimensiones: 1) las figuras más relevantes; 2) la comunidad académica asociada a la tradición analítica conductual; y 3) las líneas de investigación más importantes. Finalmente, se presentarán algunas de las características más generales del análisis del comportamiento en Iberoamérica.

Palabras clave: historia de la psicología, B. F. Skinner (1904-1990), análisis experimental del comportamiento, análisis comportamental aplicado, conductismo, Iberoamérica.

B. F. Skinner's legacy

August 18th 2010 was the date of the twentieth anniversary of the death of B. F. Skinner, the most influential American psychologist to date. The above statement can be based on the study by Haggbloom *et al.* (2002), who built the list of "the hundred most eminent psychologists of the twentieth century", supported on the following criteria: 1. Citations in journals; 2. Citations in texts; 3. A survey to 1725 psychologists; 4. Inclusion as a member of the National Academy of Sciences (U. S. A.); 5. Winner of the APA Award; 6. Election as the APA President; 7. Eponym detected (keyword associated with the author). Skinner topped that list, followed by Jean Piaget, Sigmund Freud, Albert Bandura, Leon Festinger, Carl R. Rogers, Stanley Schacter, Neal Miller, Edward Thorndike, and Abraham Maslow, among the top ten.

The life and work of B. F. Skinner (Susquehanna, Pennsylvania, March 20th, 1904 – Boston, Massachusetts, August 18th, 1990) can be seen currently on the website of the B. F. Skinner Foundation.¹ Although he was a very controversial author for his original ideas, almost anybody doubts about his contributions to psychology. Skinner may be defined as a neobehaviorist psychologist or behaviorist of the second generation (along with E. C. Tolman and C. L. Hull), who influenced greatly the later generations of behaviorism (see Pérez-Acosta, Guerrero and López, 2002).

In this paper we pretend to make a tribute to Skinner, a psychologist who left five major living legacies (see Pérez-Acosta, 2010):

1. *Philosophical legacy*: the radical behaviorism, namely, his philosophy of psychology.
2. *Scientific legacy*: the experimental analysis of behavior, i. e., the natural science of the behavior of organisms.
3. *Technological legacy*: the applied behavior analysis, i. e., the application of the principles of the natural science of behavior to solve human and social problems.
4. *Technical legacy*: the Skinner box, considered as the "microscope" for the scientific study of behavior.
5. *Political legacy*: the Horcones community (Mexico) inspired by the Walden Two utopia.

As shown in his political legacy, Skinner's work has had a significant impact on the Ibero-American world. This article presents an updated synthesis of the most important Ibero-American contributions to the Behavior analysis. The following dimensions will be contemplated for this purpose: 1) important authors and personalities; 2) the academic community related to the behavior analysis and 3) more relevant research areas. Finally, Ibero-American behavior analysis general characteristics are included.

Behavior Analysis in Ibero-America

Behavior analysis in Latin America has a long and influent tradition well documented in the monographic number "Behavior Analysis in Ibero-America" (López-López, 2006), and related publications (e.g., Ardila, 1974; Pérez-Acosta, 2002).

Personalities

Behavior analysis in Ibero-America progressed with the effort and initiative of individuals who assumed an active role among a behavioral science that pursues objectivity, rigor and replicability, all of

1 <http://www.bfskinner.org>.

them necessary for supporting a body of knowledge strong in empirical evidence and theoretical-epistemological coherence, and powerful enough for predicting and explaining humans' and other animals' behavior.

Argentina's case is very particular because Psychology's emphasis in this country is predominantly psychoanalytic; nonetheless, important milestones in the history of scientific Latin-American psychology occurred in Argentina.

In 1881, in the province of San Juan, the first Latin-American experimental psychology laboratory was founded (being Victor Mercante the important person commissioned for this event). Seven years later Horacio Piñero founded another laboratory in the Colegio Nacional de Buenos Aires (National School of Buenos Aires). In a similar manner, José Ingenieros, Enrique Mouchet and Pedro Scalabrini were outstanding figures because of their research and important positions across different universities (see Papini, 1976).

Due to the fact that Argentinean academic mainstream differs from experimental psychology, the most important research contributions on this field comes from individuals linked with institutions and/or organizations not necessarily related with universities. Among these researchers, Horacio Rimoldi, María Cristina Richaud, Alicia Oiberman and Alba Mustaca are names worthwhile for being mentioned because of their important contributions in basic research and the configuration of research groups and laboratories (Mustaca, 2006).

Brazil is one of the pioneer countries of Behavior analysis in Latin America. The genesis of the Experimental analysis of behavior in Brazil is associated with Carolina Bori and her work with Fred S. Keller (a scholar from the University of Columbia); authors like Ardila (2004) and Todorov (2006) describe this encounter as the beginning of a "fruitful academic relationship".

Nonetheless, behavioral psychology in Brazil was greatly affected by a military intervention which obligated to spread the different research groups at that moment were beginning to move from The *Universidade de São Paulo* to the *Universidade de Brasília*. As a consequence of these historical circumstances, scholars like Carolina

Bori, Luiz Marcelino, María Amelia Matos, Dora Fix Ventura, Rachel Kerbauy, María Teresa Araújo Silva and Isaías Pessotti went back to their cities of origin and developed local research groups (see Todorov, 2006).

Even though in Chile's history is possible to identify animal learning studies before the 60's decade, Sergio Yulis in 1969 was the person who introduced behavior analysis to Chile when he applied behavioral principles in psychotherapy and in professional training fields (Montesinos & Ugalde, 1983). Yulis' work was fundamental because even though psychoanalysis was really strong in Chile at that time, he had an important contribution teaching psychotherapy as a chair professor at the Universidad de Chile and as the Director of the Universidad Católica (both the only Schools of Psychology open at that time in Chile).

Due to the coup occurred in 1973, a difficult period of international scientific interchange begun; specifically, an important period of Chilean researchers emigration took place during that time; among those researchers was Sergio Yulis, who left the country and established in Canada. Three years later, in 1976, and after finishing his studies in Mexico at the UNAM, Jorge Luzoro went back to Chile and begun to teach in the *Pontificia Universidad Católica* the course titled "Psychology of Learning", following the programmatic book written by Holland and Skinner (Vera-Villaruel, Montesinos & Prieto, 2006).

Later on, the research contributions of Miren Busto, Ronald Betancourt and Francisco Ugalde stands out (ver Betancourt, 1999; Ugalde, 2000); also, these names were important in Chile's behavioral psychology development because of their role in the behavioral principles teaching, psychologists formation and the leadership of laboratories and research groups.

One of the Ibero-American behavior analysis leading countries is Colombia, country where Ruben Ardila, one of the most internationally recognized authors in the field, was born. Ruben Ardila has made several contributions in his country and worldwide, including applied and basic research with humans and animals; several revisions of epistemological, theoretical and applied issues within

behavioral science (Ardila, 1997, 2004); publications analysis (Ardila, Pérez-Acosta & Gutiérrez, 2005; groups, associations and scientific journals foundation (e.g., *Asociación Latinoamericana de Análisis y Modificación del Comportamiento* - ALAMOC – Latin American Association of Behavior Analysis and Modification; and the journal *Revista Latinoamericana de Psicología*) (López-López, Pérez-Acosta, Gamboa, Hurtado & Aguilar Bustamante, 2006).²

Other important names related with the genesis and advance of the Experimental analysis of behavior in Colombia had been Eduardo Arcila, Fernando Barrera, Leonidas Castro, José Antonio Sánchez, Carlos Pereira, Martha Restrepo y Aristóbulo Pérez, especially because of their academic participation and the development of experimental psychology laboratories.

Today, the contributions of Telmo Peña, Germán Gutiérrez, Wilson López-López, Arturo Clavijo, Blanca Patricia Ballesteros, Maritza Sandoval, Aldo Hernández, among others, stands out because of their importance for basic and applied research, and because of the subsequent theoretical development (see Ardila, López-López, Pérez-Acosta, Quiñones y Reyes, 1998; Pérez-Acosta, 2002; Ardila *et al.*, 2005; López-López *et al.*, 2006).

Costa Rica's recent development in the Analysis of Behavior has been incipient. Even though during the mid nineties a study showed how the *Universidad of Costa Rica* psychology students were interested on getting a broader formation in behavioral analysis and the data from that study coincided with the increase in the number of thesis based on the same psychological approach during the 2000 year (Villalobos Pérez, León Sanabria & Araya Cuadra, 2006), there are no structured research groups in this country and there is no explicit institutional statement which defines the academic orientation about this field (instead, the theoretical ascriptions state psychoanalysis as the dominant stream). In any case, nowadays is evident a change in the student's attitudes toward behavioral theory, change showed mainly on the number of behavioral analytic oriented thesis. This fact results

promising because today's young professionals and researchers will decide the future of behavior analysis in Costa Rica. Given the advantages of a behavioral science for explaining the subjects of study in an efficient way, results quite possible future professionals and researchers in Costa Rica will be motivated to work on the development of our field (Villalobos *et al.*, 2006).

In Spain, early XX century scientific psychology was latent in other disciplines. Santiago Ramon y Cajal, Ramón Turró i Darder and Luis Simarro shared an evolutionary and functional view of psychological processes. Even though Luis Simarro was the first scholar in teach a course in experimental psychology, several variables didn't let him explore all his opportunities for developing a research tradition. Cajal defended the primacy of matter over consciousness and behavior, whereas Turró supported a functional perspective, based on the assumption of active and continuously learning organisms by means of the interaction with the surrounding world (Ruiz, Pellón & García, 2006).

In the same way than other Latin American countries did, Spain suffer the consequences of adverse social and political conditions during the middle 20th century. During this period of time some religious personalities took care of the Spanish psychology; among them, Manuel Barbado was an important figure who clearly rejected Watsonian behaviorism and all his revolutionary ideas. In 1943, when José Germain took control of the Experimental Psychology Department, the process that led to the formation of the first cohort of university professors begun (see Carpintero, 1994).

One of the first works related with the animal conditioning techniques published by an Spanish author, was written in Washington by Gonzalo Rodríguez Lafora. Nonetheless, as soon as Rodríguez Lafora went back to Spain, all the related works on the field stopped (Ruiz, Pellón & García, 2006).

During the late middle 20th century a phase of "openness" begun within the Spanish psychology; Ramón Bayés was one the most important "heads" behind many important changes that took place during this period. In 1966 Bayés proposed to the

2 It is important to mention that Dr. Ardila received the APA Award for Distinguished Contributions to the International Advancement of Psychology during the 115 Annual Convention (held in San Francisco in 2007), because of his important pioneer actions.

Fontanella editorial the translation of Skinner's novel *Walden Two*. This project was finally accomplished in 1968 under the title "*Walden Dos. Hacia una sociedad científicamente construida*". Likewise, Jordi Fernández Castro disseminated Skinner's education related contributions by means of his doctoral thesis because it was related with the methods of the programmed instruction (Ruiz *et al.*, 2006).

Today, behavior analytic groups are located in Spain in several cities, for example in Seville (Francisco Fernández Serra, Santiago Benjumea Rodríguez, María Francisca Arias and Salvador Perona Garcelán; see Benjumea Rodríguez & Arias Holgado, 1993), Almería (Carmen Luciano Soriano and Jesús Gil-Roales Nieto; see Wilson & Luciano, 2002), Oviedo (Marino Pérez Alvarez and Luis Antonio Pérez González; see Pérez González & Williams, 2006), Madrid (Ricardo Pellón and Andrés García; see Lamas & Pellón, 1995), Granada (Antonio Cándido and Antonio Maldonado; see Cándido, Maldonado & Vila, 1988) and Cádiz (José Navarro Guzmán and Manuel Aguilar Villagrán; see Pérez-Acosta, Navarro Guzmán & Benjumea Rodríguez, 2002) among others. Also, applied interbehavioral developments, like the one leaded by Miguel Costa, can be found (Costa & López, 1986, 1996) and there is an important number of research groups that hold a cognitive-behavioral perspective.

In Guatemala, same as in Costa Rica and Centro America in general, Behavior analysis has had mostly an applied presence; in the case of countries like Salvador, the recent and open political commitment has generated more behavioral analytic presence in the undergraduate university curriculums, in therapy training programs and in some postgraduate courses (Villalobos *et al.*, 2006).

Mexico has been an outstanding country because of its basic and applied behavior analysis trajectory. One of the most important figures in this country is Emilio Ribes Iñesta, who during the early 80's begun to spread the use of experimental procedures for understanding human behavior; today, Ribes and his disciples continues developing a behavioral theory based on the interbehavioral ideas of Jacob Robert Kantor (see Ribes & López, 1985).

Other individuals who stood out in that country for their contributions to the Experimental analysis of behavior are Florente López, Gustavo Fernández Pardo, Javier Aguilar, Francisco Montes, María Antonieta Maldonado, Arturo Bouzas Riaño, Serafin Mercado, Francisco Barrera, Víctor Alcaraz, Benjamín Domínguez, Carlos Bruner, Laura Acuña, and Juan José Sánchez Sosa. In different generations, they sowed and harvested a psychology which included experimental analysis as a valid and institutionalized procedure in the psychologist's formation (Martínez, 2006).

In Peru, behavioral psychology first gained visibility during the early 70's, both in the basic and the applied fields. Notably, the pioneering work of José Anicama Gómez stands out for its application of behavioral principles to the clinical context (Benites Morales, 2006). In that country, several groups made an effort to organize themselves in a manner which would contribute to the experimental analysis of behavior. This is mostly evident in a scholars group distributed across several universities around the country, and in the formation of groups and societies that facilitated associations between the basic and applied worlds.

Among the notable figures in Peru, one can mention Julio Inga, Nelly Ugarriza, Emperatriz Torres, Rafael Navarro, Victoria Arévalo, William Montgomery, Roberto Bueno, Basilio Sifuentes, Luis Pérez, Luz Sánchez, Manuel Bello, and Luis Benites Morales, among others (Benites Morales, 2006).

Finally, in Venezuela, behavioral analysis was mostly developed at the Universidad Central de Venezuela (led by Rocío Vegas, Rosa Lacasella, and Esther Contreras), the Universidad Católica Andrés Bello (under the guidance of Gustavo Peña Torbay; this institution gave rise to José Burgos, currently residing in Mexico) and Universidad Simón Bolívar (Guillermo Yáber Oltra and Elizabeth Valarino).

Academic communities

In Argentina, experimental psychology had its greatest development at *Universidad de Buenos Aires* and *Universidad de la Plata*. In that country,

up to the 1930's, psychology was lectured only by faculties or schools of philosophy. At that time, in Argentina existed a positivist tradition which understood psychic activity from a naturalist perspective (Papini, 1976).

Nevertheless, Argentina felt the strong influence of a spiritualist movement. This began to steer the helm towards an indeterminist conception, heightened by the formation of careers in psychology stressing a psychoanalytic perspective, which lasts to this day (Papini, 1978).

Argentina's academic activity based on scientific advancement is linked to the courses of the Methodology of Research, or General Psychology, and breakthroughs in neuroscience. This accounts for the strong eclecticism in the formation of today's psychologists (Mustaca, 2006). However, today it is possible to find associations which sponsor or support research and applications in behavioral analysis, such as the following: *Asociación Argentina de Terapia y Modificación de la Conducta*, *Sociedad Argentina de Terapia del Comportamiento*, and the *Asociación Argentina de Ciencias del Comportamiento*.

In Brazil, the pioneering work of Luiz Octavio de Seixas Queiroz, at the *Pontificia Universidade Católica de Campinas* (Sao Paulo), led to the foundation of the *Associação Brasileira de Psicoterapia e Medicina Comportamental* (ABPMC), which later became the Brazilian chapter of ABA International (Todorov, 2006). In 1999, the *Instituto Brasileiro de Análise do Comportamento* was founded, which publishes the semestral periodical *Revista Brasileira de Análise do Comportamento*.³

In Chile, the formal introduction of Behavioral Psychology into the Academic World dates back to 1969, when the distinguished researcher Sergio Yulis acts both as Psychology Department Director for the *Pontificia Universidad Católica*, and scholar at the *Universidad de Chile*.

Subsequently, in 1981, the *Ley de Universidades* (Universities Law) was passed under the military regime. This allowed for a proliferation of universities and schools of psychology, which went from an enrollment of 500 students in 1989,

to 18,566 registered students in 2003 (Villarroel & Moyano-Díaz, 2005).

There are currently over 60 schools of psychology in Chile, and all of them include experimental analysis as part of their curriculum – whether they be lectures on clinical specialization, or basic entry-level courses; classes with titles akin to “The Psychology of Learning” or “Basic Processes” (Vera-Villarroel *et al.*, 2006).

Many schools of psychology contain laboratories that support learning and research. These have aided in the formation of professionals and future researchers who are already presenting their contributions to behavioral analysis, both basic and applied (e.g., Vera-Villarroel and Alarcón, 2000). Also, the Chilean indexed journal *Terapia Psicológica* has published some works related to behavior analysis (Pérez-Acosta, 2005; Rey *et al.*, 2006; Rosa-Alcázar *et al.*, 2007; Costa & Barros, 2008; Guerra Vio *et al.*, 2009).

During the 1970's, in Colombia existed a movement which challenged the prevailing psychoanalysis of the time, promoting instead the experimental method as a way to bridge the gap between science and psychology. This orientation was called “experimentalism,” and had some influence at the *Universidad Nacional de Colombia*. Rubén Ardila, who contributed important publications in the psychology of learning, gave lectures in the 1970's based on his pioneering work, *Psicología del Aprendizaje* (Psychology of Learning: Ardila, 1970) at *Universidad Nacional de Colombia*, *Universidad Pedagógica Nacional* and *Pontificia Universidad Javeriana* (López-López, Pérez-Acosta, Gamboa, Hurtado & Aguilar, 2006).

In 1972, Ardila founded in the *Universidad de los Andes* an animal learning laboratory; during the same period of time existed the locally “famous” Laboratory of Experimental Psychology Watson (Vinaccia, 2003). Ruben Ardila configured the Psychology curriculum at the *Universidad de los Andes* including courses like Learning, Experimental Analysis of Behavior and Applied behavior analysis; in the meanwhile José Antonio Sánchez begun to work at the *Universidad Católica de Colombia*

3 More information of the *Instituto Brasileiro de Análise do Comportamento* and the journal may be found at <http://www.ibac.com.br>

and initiated a psychology program based on an “experimentalist” perspective (López-López *et al.*, 2006). Today, almost all the psychology programs in Colombia include some sort of instruction in behavior analysis and have laboratories practices that make part of basic and applied formation.

Besides the before mentioned presence of Experimental analysis of behavior and Applied behavior analysis in the Colombian universities, is worthwhile to mention this country was the place where one of the most important associations of professionals and researchers in behavior analysis was created: the *Asociación Latinoamericana de Análisis y Modificación del Comportamiento* (ALAMOC), founded by Ruben Ardila in 1975 (López-López *et al.*, 2006).

In 1999, ABA International granted its support for the development of a Colombian chapter, under the presidency of Wilson López-López, leading to the creation of the *Asociación Colombiana para el Avance de las Ciencias del Comportamiento*.⁴ This organization has remained in the forefront of promoting, disseminating, and giving international visibility to behavioral analysis in general, as well as some of its applied achievements.

In Spain, one of the institutions which promoted scientific development in the early 20th century was the *Junta para la Ampliación de Estudios e Investigaciones Científicas* (J.A.E.), run by Santiago Ramón y Cajal until 1934. Through a scholarship program for travel abroad, and the foundation of several laboratories, the institution facilitated the development of scientific psychology, introduced from Germany and the Wundt's work. However, like in many other countries, and as was common to psychology in general, psychological research in Spain was performed by other fields, particularly those tied to medicine and education. Likewise, courses covering wholly psychological content were mostly imparted by faculties of philosophy and literature (see Carpintero, 1994).

One could say that psychology's formal induction into the Spanish academic realm begins with the creation of the *Departamento de Psicología Experimental* at the *Consejo Superior de Investiga-*

ciones Científicas, as part of the *Instituto Luis Vives de Psicología*, in 1943. In 1970, the Complutense University of Madrid oversees the creation of the first Laboratory of Operant Behavior, in its faculty of philosophy and literature, as well as the Laboratory of Behavioral Psychology, in its faculty of medicine. A few years later, both were joined to configure the *Laboratorio de Conducta* (Ruiz *et al.*, 2006).

In 1980, the government approved a law that allowed for an independent Spanish degree in psychology, with a curriculum programmed over five years for the achievement of a Master of Arts degree in psychology. During the early 80's, one could note the existence of at least four laboratories of animal behavior at different universities: *Universidad Autónoma de Barcelona*, *Universidad Complutense de Madrid*, *Universidad Autónoma de Madrid*, and *Universidad de Granada*. This allowed for the formation of research groups run by notable scholars, which published their findings through international journals. Thanks to their educational efforts, these laboratories went on to become true centers for the formation of future experimental psychologists (see Carpintero, 1994).

In the case of Mexico, the Xalapa project experience is exemplary. In the late sixties, in the city of Xalapa, Florente López established a center for special training and education; it was founded the first master's program in behavior modification, followed by the realization of the first Symposium on Behavior Modification. In later years the Master's degree in psychology was established, thanks to the efforts of Emilio Ribes and Víctor Alcaraz (see Martínez, 2006). With all these achievements, the *Universidad Veracruzana* in the city of Xalapa became the most important place for the Experimental analysis of behavior in Mexico. Not only were courses dictated on the mechanisms for behavioral modification, but administrative projects were developed to create laboratories and research programs. Subsequently, during a decentralizing policy implementation, the head offices of the *Universidad Nacional Autónoma de México* (UNAM) in Iztacala set into motion and innovative academic

4 More information of ABA Colombia may be found at <http://www.abacolombia.org.co>

plan, which included a modular curriculum design based on three axis: Theoretic Module, Experimental Module, and Applied Module. This design included a curricular arrangement which strongly favored a psychological formation based on the principles of objective science and experimental procedures. Consequently, the Iztacala project not only promoted further enhancement for numerous scholastic enthusiasts, but also attracted professors, from various Latin American countries, who were enduring the turmoil of armed conflicts in their respective nations. Similarly, the UNAM was visited and assessed by important professors of international renown, such as Schoenfeld, Bijou, and Kantor, among others.

In Peru, the experimental analysis of behavior has been present in numerous universities, in the form of mandatory and/or elective courses within the curricular structure of its schools of psychology. Among these, we have: *Universidad Nacional Mayor de San Marcos*, *Universidad Inca Garcilazo de la Vega*, *Universidad Martín de Porres*, *Universidad Federico Villareal*, *Pontificia Universidad Católica de Perú*, *Universidad Ricardo Palma*, *Universidad de Lima*, *Universidad San Agustín*, *Universidad Privada de Chiclayo*, *Universidad Particular Andina del Cuzco*, and *Universidad Cayetano Heredia*, the last of which being the only to provide an eminently behaviorist formation. That country has seen the establishment of numerous organizations and associations which share a common focus in behavioral analysis. Among these, the following stand out (Benites Morales, 2006):

- *Núcleo de Investigaciones en Ciencias de la Conducta (NUCICC)*
- *Sociedad Peruana de Análisis y Modificación de Conducta (SPAMC)*
- *Asociación de Análisis Conductual Aplicado (ASACAP)*
- *Asociación Peruana de Análisis Conductual Aplicado a la Educación (ACAE)*
- *Asociación de Ingeniería Conductual (ASINC)*
- *Centro de Nivelación Escolar y Modificación de Conducta (CENIMOC)*

Finally, in Venezuela the *Universidad Central*, in Caracas, has maintained an important tradition due to its *Laboratorio de Análisis Experimental de la Conducta*, which has given rise to researchers such as: Henry Casalta; Roberto Ruiz; Rosa Lacasella; Rocío Vegas; Esther Contreras; Ana Lisette Rangel; Elsa Ritter; Myriam Dembo; and María Teresa Guevara (see Dembo and Guevara, 1992).

Research programs

In Argentina, the lines of research that utilized the experimental analysis of behavior have been related to psychophysiology, pedagogy, and both normal and pathological psychology. However, it is important to note that these advances predominantly took place at faculties or schools distinct from psychology, particularly the biomedical fields. In this context, the addressed topics include anger mechanisms, interspecies communication between domestic dogs and humans, and single case studies with autistic individuals (Mustaca, 2006).

In Colombia, the tradition of research in behavioral analysis has initially revolved around animal studies, as well as research related to several applied fields. This work has been reflected in several monographic numbers edited by the *Revista Latinoamericana de Psicología*, which focused on behavioral therapy beginning in 1970, followed by early learning processes studies in 1975, and Latin American experimental psychology in 1976. This last was concerned with the application of operant principles to various topics. These monographic numbers were followed by issues dedicated to subjects such as biofeedback (Vinaccia, 1983), and beginning in the 1990's, monographs of a more philosophical orientation. These include essays on the experimental synthesis of behavior (Alarcón, 1997), the application to social problems (Ellis and López-López, 2003), and more contemporary issues, such as the analysis of cognition and language (Hernández and García, 2005).

One must mention the textbook *Manual de Análisis Experimental del Comportamiento*, edited by Biblioteca Nueva (Madrid, Spain), which was

linked to a Colombian research group interested in behavioral analysis. This group included Rene Quiñones, Fredy Reyes, Andrés M. Pérez-Acosta, and Wilson López-López. With the eventual editorial collaboration of Ruben Ardila, they were able to publish this unusual book; a relevant international contribution to behavioral analysis in Ibero-America (Ardila, López-López, Pérez-Acosta, Quiñones and Reyes, 1998).

This book, with 22 chapters and eight parts, discussed topics such as the conceptual and historic aspects of behavioral analysis (Edward Morris, along with Wilson López-López, 1998), maximization and matching (Fredy Reyes and Andrés M. Pérez-Acosta, Charles Shimp and Hebranson, Arturo Clavijo, Leonard Green, and Ben Williams), the dynamics of behavior (William Vaughan, Diana Forero & Rene Quiñones), schedule-induced behavior (Ricardo Pellón, Pilar Flórez, and Derek Blackman), behavioral ecology (Edmund Fantino and Wendy Williams, as well as Germán Gutierrez), the biological factors of operant behavior (Alba Mustaca, Michael Domjan and Crawford, and a chapter by Victor Colotla), and animal and human cognition (chapters by Vincent Lollordo, Marc Richelle, Helga Lejeune, Steven Hayes, Elizabeth Gifford, Linda Hayes, and the contribution from Luis Antonio Pérez González).

Additionally, it is necessary to mention several contributions with applications to clinical contexts, which appeared both in the now expired publication by the ACATC (*Revista de Análisis del Comportamiento*), and the journal *Suma Psicológica* (see Bruner, Lattal & Acuña, 2002). Other publications with similar tendencies appeared in the following journals: *Acta Colombiana de Psicología* (Pérez-Acosta, 2002), *Revista Latinoamericana de Psicología* (Ellis & López López, 2003), *Avances en Psicología Latinoamericana* (López López *et al.*, 2006), and *Universitas Psychologica* (Rivera-Garzón, 2008; Cruz *et al.*, 2009). It is worth mentioning the applied social essays by Ballesteros de Valderrama (2002), and Ballesteros de Valderrama, López-López, and Novoa (2003).

Colombia has been one of the Ibero-American countries, along with Mexico and Spain, to lead the research based on the Experimental analysis

of behavior. As an applied science, there have mainly been contributions in the areas of special education, clinical psychology, and health. In the realm of basic science, advances have been made in early learning, behavioral pharmacology, classical conditioning, negative reinforcement, and choice behavior. Currently, there are research programs interested in complex human behavior, particularly symbolic behavior (López-López, *et al.*, 2006).

In Chile, research in behavioral psychology is centered on the applications to health, education, organizations, and social fields; developing, as of late, a focus on evidence-based intervention (Vera-Villarroel *et al.*, 2006).

In Costa Rica, the Behavior analysis is an incipient discipline. Currently, work has been done in the fields of education, behavioral medicine, clinical application, behavioral management of organizations, sport, and addictive behavior; in general, a truly broad range of applied fields (Villalobos, *et al.*, 2006).

In Spain, at the same time the principles of human behavior began to gain acceptance in the applied world, basic research on humans and other animals continued developing inside the laboratories, focused mainly on the effects of aversive stimulation, avoidance behavior, operant conditioning, and physiological responses, among others. Even though in this context the research interests tended to be dominated by studies in animal learning, at the present moment several productive lines of research keep growing now interested for example in adjunctive behavior, behavioral regulation, stimulus class formation, and contingency/causality judgments; all of which see publication in their specialized journals (Ruiz *et al.*, 2006).

Similarly, experimental analysis of behavior in Mexico experienced substantial local advancements in empirical research (see, for example, Carlos Bruner's research line: Bruner, 1992; Bruner & Landaverde, 1987; Bruner, Lattal & Acuña, 1994, 2002; Bruner & Vargas, 1991; Gutiérrez, Ayala Velásquez & Acuña, 2000). This was concretized in the creation of scientific divulgation media, the *Revista Mexicana de Análisis de la Conducta*. Despite the scarce financial support and the lack of an administrative team dedicated to its distribution,

the journal has, to this day, firmly establish itself in various institutions (see Martínez, 2006). Among the lines of research developed in Mexico, one can mention basic experimental research, social psychology, organizational psychology, pharmacology, ecology, health, and education. A portion of this research and valuable reflections have been published in the main Mexican psychological journal: the *Revista Mexicana de Psicología* (see, for example: Penagos y Aguilar, 2009; Greer *et al.*, 2008; Lattal & Porritt, 2008; Rutherford, 2008; Gutiérrez, Ayala Velásquez & Acuña, 2000; Bruner, 1992).

Despite being supported by distinguished research centers, such as the CEIC at the Universidad de Guadalajara, the publication *Acta Comportamental*, under the direction of professor Emilio Ribes, has not been sufficiently prominent in the Ibero-American context. However, it is clear that its leadership, focusing on experimental and theoretic work for over 50 years, is one of the most relevant in Ibero-America.

In Peru, experimental behavior analysis has possessed an eminently applied character, especially in the fields of education, special education, and clinical psychology (Benites Morales, 2006). Also this country has published one of the journals specialized in behavior analysis: *Aprendizaje y Comportamiento*, edited by Rafael Navarro Cueva.

Lastly, while lines of research may not be abundant in Venezuela, they certainly show strong diversity; from research into basic animal conditioning to applications in the field of child development (see Dembo and Guevara, 1992, 2001).

Conclusions

Behavioral analysis in Ibero-America has not had an easy path. On the contrary, it has been characterized by the enduring of multiple obstacles of different kinds. For example, in the case of Spain, Brazil, and Chile, military interventions stunted preliminary initiatives. In these countries, scientific activity could only be resumed once repression was no longer a threat to the development of experimental analysis of behavior.

Additionally, it is often the case that distinguished figures in various countries have maintained

their interest and contributions to behavioral science, despite the dominant perspectives which are neither behavioral nor experimental. However, these efforts have not managed to institutionalize the development of the experimental analysis of behavior; instead, the institutionalization process continues.

Another characteristic of behavioral analysis in Ibero-America is the predominant interest for the applied field over basic science. Perhaps due to the social and economic conditions in these countries, there is urgency for the practical application of behavioral principles to the problems afflicting the general populace. In particular, behavioral analysis has repeatedly demonstrated its aptitude for explaining, predicting, and modifying individual, group, and social situations.

The applications in clinical and educational psychology stand out, especially those aimed at populations undergoing difficulty, and not necessarily for the advancement of healthy behavior. In other words, the behavior analysis has traditionally maintained an emphasis on rehabilitation, more than promoting good health.

Outstanding is the advancement and tradition of behavioral analysis in countries such as Spain, Mexico, Brazil, Colombia, and Venezuela; having concerned themselves in a greater scale to the development of experimental and applied behavioral analysis, in comparison to their neighbor countries like Chile, Argentina, Peru, Guatemala, and Costa Rica. A consequence of this differences is the greater number of publications coming from the before mentioned countries.

Similarly, attention should be given to the large number of associations and groupings formed in countries such as Peru, Mexico, and Colombia. This can be explained by the need for fellowship felt by the precursors of the experimental analysis of behavior, brought about when academic spaces were censured for advocating an eminently naturalist behavioral science.

It is necessary to review the nuances which each of these countries embrace behavior analysis. While some authors defend behavioral psychology, others seem comfortable with denominations which would, in the past, have been considered mentalist

(such as “cognitive,” or “cognitivist”). Also, inter-behavioral perspectives need to be taken into account because of their critical posture with regards to traditional Skinnerian behavioral analysis.

Finally, while we have reviewed a representative sample of Ibero-American countries where behavioral analysis has had some presence, it is important to stress the need for additional descriptions and analyses of what occurs in other countries also

reached by the experimental analysis of behavior and applied behavior analysis; such as Ecuador, Uruguay, Bolivia, Paraguay, Panama, and Puerto Rico, among others. Even when it is clear that every reconstruction is incomplete, and surely contributions were left out, this type of reviews allows for a broad view of the development of behavioral analysis in Ibero-America.

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