

BEHAVIOR ANALYSIS IN BRAZIL

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ABSTRACT

The history of behavior analysis in Brazil began with the visit of Fred S. Keller as a Fulbright Scholar to the University of São Paulo in 1961. Keller introduced Skinner works to the Brazilian psychologists. His first assistant was Carolina Martuscelli Bori, then a social psychologist influenced by the work of Kurt Lewin. Initially guided by Keller, Carolina Bori was the major force in the diffusion of Behavior Analysis in Brazil, beginning with the psychology course of the University of Brasília, where the first course on Experimental Analysis of Behavior began in August of 1964. Most of behavior analysts in Brazil today were students, directly or indirectly, of Carolina Bori. Several graduate programs throughout the country offer courses in behavior analysis.

Key words: Experimental analysis of behavior, Fred S. Keller, Brazil.

RESUMEN

La historia del análisis del comportamiento en Brasil comenzó con la visita de Fred S. Keller a la Universidad de São Paulo en 1961, cuando él era un académico de la Fundación Fullbright; en aquella época, Keller presentó los trabajos de Skinner a los psicólogos brasileños. Su primer asistente fue Carolina Martuscelli Bori, en aquel entonces una psicóloga social influenciada por el trabajo de Kurt Lewin. Orientada inicialmente por Keller, Carolina Bori fue la principal fuerza

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de difusión del análisis del comportamiento en Brasil, comenzando con el curso de psicología en la Universidad de Brasilia, en el cual, durante agosto de 1964, se dictó el primer curso de Análisis Experimental de la Conducta. La mayoría de los analistas del comportamiento de hoy en día fueron directa o indirectamente estudiantes de Carolina Bori. Actualmente varios programas de psicología en el país ofrecen cursos de análisis del comportamiento.

Palabras clave: Análisis experimental de la conducta, Fred S. Keller, Brasil.

Before 1961 Carolina Martuscelli Bori was a social psychologist with a Master's degree from the New School for Social Research of New York, working in the tradition of Kurt Lewin, studying the Zeigarnik effect. Isaías Pessotti and Rodolpho Azzi were philosophy teachers in small colleges of the State of São Paulo. Maria Amélia Matos, Dora Fix Ventura, Maria Teresa Araújo Silva, Luís Otávio de Seixas Queiroz, Rachel Kerbauy, Mário Guidi, and myself, were undergraduate students of psychology. No one, at the time, knew the work of B. F. Skinner. Fred S. Keller (Figure 1) arrived at the University of São Paulo as a Fulbright Scholar, on a sabbatical from the University of Columbia. No one knew Fred Keller in São Paulo. The conditions under which the invitation occurred are narrated by Keller (1987a). He was invited by the Director of the College of Philosophy, Sciences and Letters of the University, at a request of a former student of Keller in New York, Myrthes Rodrigues do Prado. Keller never heard of her again, but the letter sent by Myrthes in the 10th of April of 1959 initiated a long exchange of letters between the University of São Paulo, Fred Keller and the Fulbright Commission (in New York and Rio de Janeiro). After more than a year of conversations, the Kellers were in Rio on Ash Wednesday of 1961, "no dia depois do carnaval". Biology teachers had an important role in the final decision, including some well known researchers as Paulo Sawaya, Osvaldo Frota-Pessoa (a geneticist who visited Keller in New York), Mário Guimarães Ferri, Erasmo Garcia Mendes (então Secretário Geral a Sociedade Brasileira para o Progresso da Ciência). Arriving in São Paulo he and Mrs Frances Keller were received by perfect strangers,

including Carolina Martuscelli Bori. (Keller, 1987; Matos, 1996, 1998; see Figure 2).



Figure 1. Fred S. Keller, always a gentleman (Columbia University, circa 1960).

During his year as a Fulbrighter in São Paulo, Keller taught a course on Experimental Psychology for undergraduates; "The main objective of the course will be that of giving the problems of modern psychology an experimental treatment from the point of view of reinforcement theory" (Keller, 1987a, p. 88). That certainly was the first course on the experimental analysis of behavior in Latin America. Carolina Bori and Rodolpho Azzi were designated assistants to Fred Keller. Maria Amélia Matos, Dora Fix Ventura, Mário Guidi, Margarida Windholz, Vera Konigsberger, Maria Inês Ro-

cha e Silva, among others, were the first students. Working in the Physiology Department, without proper equipment, the Brazilian students had a practical course, shaping bar press behavior in rats. Keller showed that a good teacher finds his way (Matos, 1996). Under those precarious conditions an experiment on delay of reinforcement was conducted and later published on the *Journal of the Experimental Analysis of Behavior* (Azzi, Fix, Keller, & Rocha e Silva, 1964). "It was necessary to improvise. Bird cages were transformed to house rats and to become experimental chambers. The operandum was a piece of wire twisted in a way that when the rat pressed on an extremity the other would hit a metal plaque; the experimenter then would manually present a wet pole so the rat could lick the water on it" (Kerbaux, 1983). The translation of articles and books was initiated with a preliminary work, that of translating basic operant terminology (Azzi, Rocha e Silva, Bori, Fix, & Keller, 1963).

"In 1961 we started out, in a very small way, which is usually a good idea" (Keller, 1997, p. 94). The 1961 experience in Brazil started a long collaboration with the country, well described in many sources (Bori, 1996; Zannon & Bori, 1996; Guilhardi & Madi, 1996; Pessotti, 1996; Zannon, 1996a, 1996b, 1997; Gorayeb, 1996; Kerbaux, 1996; Matos, 1998). In the academic year 1962-1963 John Gilmour Sherman, a young Ph.D. from Columbia came to replace Keller as a Visiting Professor at the University of São Paulo. Early in 1963 Carolina sent a letter to Keller in New York inviting him to help organize a department of psychology in a new university to begin from scratch: the University of Brasília. Later in 1963 Carolina Bori, Rodolpho Azzi and John Gilmour Sherman went to the United States to buy books and laboratory equipment, and to ask Keller for advice. (Keller, 1977 b, p. 198). At the end of that visit a new way of looking at teaching was born: the Personalized System of Instruction, sometimes known as Keller Plan or Plano Brasília (Keller, 1968; 1972). The new university for a new capital of Brazil wanted everything new in its courses. It was a new

university, not a collection of old colleges as was the tradition in the country. The new department of psychology of the University of Brasília was officially created in 15 of February of 1963 (Todorov, 1995; 1997), with Carolina Bori as Chairperson, Fred Keller, Rodolpho Azzi, John Gilmour Sherman, Isaias Pessotti as teachers, and some teaching assistants. Of the first undergraduate students in the São Paulo course, three were sent for graduate studies to the Columbia University: Dora Fix Ventura, Maria Amélia Matos, and Maria Inês Rocha e Silva, following Keller's advice, to be prepared to return to Brasília to teach. The work began still at the University of São Paulo during the year of 1963 and part of 1964 (Todorov, 1990; 1996; 2003) with laboratory equipment being built or adapted, and books and articles being translated to Portuguese. *Principles of Psychology* (Keller & Schoelfend, 1950), *Science and Human Behavior* (Skinner, 1953), and *Verbal Behavior* (Skinner, 1957) were the first. In January of 1964 a young undergraduate student in education, Luís Marcelino de Oliveira, was accepted as the first psychology student in Brasília and was sent there ahead of the group to look for the establishment of the housing for the rats that would be needed for the first course. In May the entire group was moved, including Dr. and Mrs. Keller.

The move from São Paulo to Brasília was typically old fashioned Latin America. We were supposed to move in early April, but in March 31 a military coup deposed the President, who flew to Uruguay with some of his ministers, including our friend and former President of the University of Brasília, Darcy Ribeiro, the man who had invited Carolina who then invited Keller. It took us four weeks to understand that we still could move (Keller, 1987 b, pp. 198-201).

"No dia 27 de abril, eu falei na PUC sobre o curso planejado —nosso sonho de ouro— sem menção aos problemas pessoais. A audiência era muito receptiva. Dona Carolina, Rodolfo, e os bolsistas estavam lá no fundo, as lágrimas nos olhos de Carolina, João Cláudio nos trouxe para

casa, onde discutimos a fonte de nosso desacordo. Antes da partida dele Gil nos telefonou do laboratório exultante, a dizer que tudo estava resolvido – Brasília ainda era possível”. (Keller, 1987 b, p. 201).

Finally, during May we all moved to Brasília, and by July everything was ready. The first course in the experimental analysis of behavior began in August of 1964, using the personalized system of instruction. Fred Keller and Gil Sherman were then joined by other Americans, invited to be part of a group that would be strong enough to offer a master program for graduate students, Brazilians who then would help them in undergraduate courses as teaching assistants. Robert Berryman (Learning and Motivation), James Russell Nazzaro (Perception and Psychophysics) and Jean Nelson Nazzaro (Statistics) were the first to come.

The initial phase of behavior analysis in Brasilia ended in October of 1965 when the military in power decided to fire 15 teachers accused of members of the communist party. The faculty of the University of Brasília strongly opposed that intervention and resigned collectively. Only Robert Berryman, of the original staff, stayed (Keller, Gil Sherman and the Nazzaros had already left back in July to their jobs in the USA), with a few teaching assistants. Carolina Bori and Rodolpho Azzi went back to the University of São Paulo, where Carolina developed a strong graduate program, helped by Maria Amélia Matos, Dora Fix Ventura, Rachel Kerbauy, and Maria Teresa Araújo Silva, among other behavior analysts. Isaias Pessotti went back to Italy, where he is well known for having introduced the Italians to Keller and Skinner; he translated Keller & Schoenfeld's *Principles of Psychology* to Italian. Of the students, Luiz Otávio de Seixas Queiroz took a job at the Catholic University of Campinas, started private practice and teaching in clinical behavior analysis, and was largely responsible for the organization of a group of behavior therapists who started the Brazilian Association of Psychotherapy and Behavioral Medicine (ABPMC), today a branch of the Association for Behavior Analysis

International (ABA) in Brazil. Luiz Marcelino de Oliveira finished his undergraduate psychology course in Brasília and went to work at a state college in Ribeirão Preto, now a part of the University of São Paulo. He was later joined by Isaias Pessotti, returning from Italy for a job at the University of São Paulo Medical School at Ribeirão Preto, and by me, in 1969, returning from my PhD in the United States.

The second phase of behavior analysis in Brasília ended when Robert Berryman left, after arguing with the military intervention in 1970. Several of his students followed him, beginning two new centers of irradiation of behavior analysis in Brazil: the Federal University of Pará, in Belém, on the mouth of the Amazon River, and the State University of Londrina, in the State of Paraná, in the South. Alcides Gadotti joined Berryman in Belém, as later did José Carlos Fonseca, after a Ph.D. in the American University with Joseph M. Moerschbacher. Rodolfo Carbonari, Heloísa Helena Nunes Sant'Anna, and Dione de Rezende went to Londrina. Rosa Maria Albanuzzi and Maria Luiza Mendonça de Araújo stayed at the University of Brasília through all these years, until their retirement (Maria Luiza was a student of Emilio Ribes in Mexico). Some undergraduate students went to the University of São Paulo for graduate studies and now are major names in new centers as the Federal Universities of Pará (Olavo Galvão) and São Carlos (Julio Cesar de Rose).

With Carolina Bori at the University of São Paulo, most of the new centers of behavior analysis were started by people who worked directly with her or under her influence, as in Minas Gerais (Jardim, 1998), Bahia (Carvalho & Moraes, 1998), the Northeast (Moraes, 1998) and Pará (Matos, 1998). In the State of São Paulo her influence is visible at the Pontifical Catholic Universities of São Paulo and of Campinas, the Federal University of São Carlos, the State University of São Paulo at Ribeirão Preto, and several other public universities in the State, as in Assis, Bauru and Botucatu. In the State of São Paulo her influence is visible at the Pontifical Catholic Universities of São Paulo (Maria do Carmo Guedes) and of Campinas (Luiz

Otávio de Seixas Queiroz and Hélio Guilhardi), the Federal University of São Carlos (Deisy das Graças de Souza, Júlio de Rose, Celso Goyos), the State University of São Paulo at Ribeirão Preto (Ricardo Gorayeb, Isaias Pessotti, Luiz Marcelino de Oliveira), the University of Campinas at Piracicaba (Antonio Bento Alves de Moraes), the Presbyterian University Mackenzie (Maria Martha Costa D'Hubner) and several other public universities in the State, as in Assis, Bauru and Botucatu.

The political organization of behavior analysis in Brazil began in 1971, in Ribeirão Preto, when we decided to organize the Psychological Society of Ribeirão Preto, with an annual meeting designed to be a place to discuss professional and academic issues, and to present experimental findings. With some exceptions, we were almost all behaviorists, but it would be unwise to organize an association for behavior analysis in a place where the rest of psychology was disorganized. I was its first Vice-President in charge of academic affairs, and responsible for the organization of the first annual meeting, inviting speakers of all tendencies so to attract non behaviorists to the society. The meeting was a success and is being held yearly since then, becoming the Brazilian Psychological Society officially in 1991. Some well known behavior analysts have presided the society, like Carolina Bori (when it turned Brazilian), Ricardo Gorayeb, Luiz Marcelino de Oliveira, Isaias Pessotti, Deisy das Graças de Souza, Olavo Galvão. Ricardo and Luiz presided the society for several terms. Hélio Guilhardi of Campinas, a student of Luiz Otávio de Seixas Queiroz, was and has been fundamental in the organization of the behavior analysis association of Brazil, although it started under a different name and in association with cognitive clinical psychologists. Like other specialized associations (of social psychologists, of psychological evaluation, etc.) the ABPMC began within the meetings in Ribeirão Preto.

A third phase of behavior analysis in Brasília began in 1973, when Thereza Pontual de Lemos Mettel and João Claudio Todorov joined the

department in an effort to restart graduate studies, later joined by Celia Maria Lana da Costa Zannon, a former student from Ribeirão Preto with a Ph.D. from the University of São Paulo under Carolina Bori, and Antonio de Freitas Ribeiro, a Ph.D. from Vermont. The group was then joined by Lincoln da Silva Gimenes, who worked with Israel Goldiamond at the University of Chicago. The new Master's Program began in 1975, preparing students in several areas, but strongly supporting behavior analysis, cognitive, developmental, and organizational psychology. Several students went then to the Catholic University of Goiás (Lorismário Ernesto Simonassi, Márcio de Queiroz Barreto, Lauro Eugênio Guimarães Nalini, Cristiano Coelho, Ilma Goulart), now a strong center for behavior analysis. Others were sent to Europe and the US for their Ph.Ds., most of them returning to Brazil to teach behavior analysis. Jorge Mendes de Oliveira Castro Neto went to Auburn and worked with Peter Harzem for the doctorate. Elenice Seixas Hanna studied with Derek Blackman in Wales. Rachel Nunes da Silva went to West Michigan and was a student of Jack Michael. Josele Abreu-Rodrigues worked with Andy Lattal in West Virginia. Laércia Vasconcelos went to Japan to study the effects of radioactive material on behavior. Jorge, Elenice, Rachel, Josele and Laércia are back as members of the faculty of the University of Brasília. Sonia Melo went to Bangor, Wales, for the Ph.D. under Fergus Lowe, and now is teaching at the Catholic University of Goiás. Fernando Capovilla finished his Ph.D. under Phil Heline and is now teaching at the University of São Paulo.

Fred Keller always was a reference point for Brazilians going to the US. Several finished their graduate studies here but went to the US for post-doctoral programs, always in personal touch with Keller, and later on, with Murray Sidman also: Ricardo Gorayeb, Antonio Bento Alves de Moraes, Olavo Galvão, Júlio César de Rose. After the debacle of Brasília in 1965, Keller returned to Brazil only for the first time 1972, for the annual meeting to the Sociedade de Psicologia de Ribeirão Preto. He would come back several times later, in the eighties and the nineties. But

several well known behavior analysts have been visiting Brazil following Keller's footsteps. Robert Berryman invited some during his stay as chairperson at the University of Brasília, from 1966 to 1970: W. N. Schoenfeld, Francis Mechner, Maurice Bitterman, among others. Through the annual meetings in Ribeirão Preto and Campinas came John Millenson, A. Charles Catania, John Staddon, Emilio Ribes-Iñesta, Roberto Ruiz, Peter Harzem, Murray Sidman, Jack Michael, David Eckerman, Armando Machado, William McIlvane, Carol Pilgrim, William Dube, Sigrid Glenn, Maria Malott, Julie Vargas, Garry Martin, Larry Williams, Linda Hayes, Jay Moore, Richard Malott, William Baum, Timothy Hackenberg, Derek Blackman, Steven Hayes, David Sanger, Kurt Salzinger, Timothy Hackenberg, Kennon (Andy) Lattal, Edward K. Morris, Richard Mallot, Jay Moore, and M. E. P. Seligman, for instance.

On the other hand, the number of Brazilian researchers presenting papers in international meetings and publishing in the major journals, like the *Journal of the Experimental Analysis of Behavior*, *Journal of Applied Behavior Analysis*, *Revista Mexicana de Análisis de la Conducta*, *Acta Psychologica*, *Behavior and Philosophy*, *Psychological Record*, increases monotonically since the first article published by Fred Keller and collaborators (Azzi *et al.*, 1964).

Among the Brazilian behavior analysts publishing abroad are Deisy das Graças de Souza (*ddgs@power.ufscar.br*), Elenice Seixas Hanna (*hanna@unb.br*), Elenice Aparecida de Moraes Ferrari (*elenice@unicamp.br*), Júlio César de Rose (*djcc@power.ufscar.br*), Olavo Galvão (*ofg@cpgp.ufpa.br*), Jorge Mendes de Oliveira-Castro, Neto (*jocastro@unb.br*), Josele Abreu-Rodrigues (*abreu@unb.br*), Lincoln Gimenes (*lgimenes@unb.br*), Caio Miguel (*cfmiguel@yahoo.com*), Paulo Guilhardi (*paulo_guilhardi@brown.edu*), Maria Teresa Araújo Silva (*teresar@usp.br*), Ricardo Gorayeb (*rgorayeb@fmrp.usp.br*), Emmanuel Zagury Tourinho (*ezt@cpgp.ufpa.br*), Romariz da Silva Barros (*rsb@cpgp.ufpa.br*), Gerson Aparecido Yukio Tomanari

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A complete report of the state of the art of behavior analysis in Brazil today would be too much for the scope of this work. More information may be found on the sites of the Brazilian Psychological Association (*www.sbponline.org.br*) or the Brazilian Association of Psychotherapy and Behavioral Medicine (*www.abmpc.org.br*). Graduate courses in behavior analysis are offered by many institutions:

- Universidade de Brasilia - *www.unb.br*
- Universidade Estadual de Londrina - *www.uel.br*
- Universidade de São Paulo - *www.usp.br*
- Universidade Federal do Pará - *www.cpgp.ufpa.br*
- Universidade Federal de São Carlos - *www.ufscar.br*
- Universidade Católica de Goiás - *www.ucg.br*
- Pontifícia Universidade Católica de São Paulo - *www.pucsp.br*
- Universidade Católica Dom Bosco - *www.ucdb.br*
- Universidade Metodista de São Paulo - *www.metodista.br*
- Instituto Filadelfia de Londrina - *www.unifil.br*
- Instituto Brasileiro de Análise do Comportamento - *www.ibac.com.br*
- Terapia por Contingências - *www.terapiaporcontingencias.com.br*

The curriculum vitae of Brazilian researchers can be seen in *www.cnpq.br*. A new journal is being published beginning this year, *Revista Brasileira de Análise do Comportamento /Brazilian Journal of Behavior Analysis* (*www.ibac.com.br*).



Figure 2. Carolina Martuscelli Bori in her last visit to the Universidade Católica de Goiás, 2004 (in this picture with Ricardo Gorayeb and João Claudio Todorov).

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