

OPERANTS

THE B. F. SKINNER FOUNDATION REPORT

QUARTER I, 2014

2014: A SPECIAL YEAR

2014: 25th Year of the Foundation



The Foundation welcomes Brenda Terzich-Garland to the Board of Directors of the B. F. Skinner Foundation. Brenda is a Board Certified Behavior Analyst, one of two who founded Applied Behavior Consultants in California. For more on Brenda see page 5. Brenda replaces Mark Sundberg, who completed his six years in 2013. Board Members serve up to three two-year terms.

The year of 2014 is the 110th anniversary of Skinner's birth and the 25th anniversary of the B. F. Skinner Foundation. It is difficult for me to think that the Foundation is in its 25th year. We are certainly much busier than in the first two decades. Our current activities include updating the website, producing *Operants*, converting Skinner books into e-book format, archival work, and the usual book sales, information, and permission requests.

The Foundation had to change its website so it would work on all devices including cell phones. The new site is still temporary. Please bear with us while we are fixing problems. As soon as we can, we will be adding videos and new photographs, and many new features. As usual, suggestions are welcomed.

Converting Skinner's books to e-book formats for Kindles, Nooks, iPads, and mobile phones became a bit more drawn out than expected. Hardcover copies of *Verbal Behavior* were sent to a team in India (where much of this work is done). The Indian team sent three electronic versions (PDF, ePub and Mobi) for review. The Foundation was lucky that a volunteer helped with proofing, and showed how and where errors were likely to crop up. Proofing uncovered errors that were corrected. But new problems were discovered, including problems with the footnotes (placement, links, etc.). The files are now in the fourth iteration. We are close to completing *Verbal Behavior*, and will soon start on converting the next two books: *Contingencies of Reinforcement* and *The Behavior of Organisms*.

The Foundation is also exploring support for reprinting Skinner's three volume autobiography with additional photos, notes, and (in an electronic version) video or audio clips. In the fall of 2013, the Foundation submitted a grant to the National Endowment for the Humanities to support this work.

Additional materials continue to be sent to the Foundation's archival collection. We received letters in 2013, and two films in 2014. The films will join the two dozen films the Foundation donated for proper preservation to the Harvard University Film Archives. MP4 files made from the new films will be viewed and added to the Foundation's electronic collection. For the future, a comprehensive data base would make it possible for students or professionals to find topics that were captured in film or video tape. If you have even a rough video of a talk that Skinner gave at your university, or club, or home, the Foundation would love to have a copy.

There is an increased interest in interning with the Foundation. Two students from Brazil are applying for funding to come to Cambridge to work at the Foundation office and to visit the Harvard University Archives. A high school student from a local high school is also coming to the office two afternoons a week as a volunteer. A professional from Italy who spent a summer as an intern several years ago may also return. Our offices will be bulging. Still, we welcome visitors as well as interns.

Operants is now a report. We are also starting an International section where articles will be presented in languages other than English. See page 20 for this Presidential Column in Spanish

The new Foundation website is online: Please send comments, corrections, or suggestions to me at julie.vargas@bfskinner.org. Have a great year!

Julie S. Vargas, Ph.D.
President, B. F. Skinner Foundation

Memorial: Nate Azrin 4

Foundation Board Member: Incoming
Brenda J. Terzick-Garland.....5

Reflections:
A Plea for a Science
Jacob Azerrad, Ph.D.....7

The Arts
Gilda Oliver.....8

Reflections:
Tacitus and Skinner
Paolo Taras, Ph.D.....9

Skinner’s Corner
Are Theories of Learning Necessary?
E. A. Vargas.....11

Culture
Skinner’s science and psychology
Kae Yabuki, MS, BCBA.....12

Profiles
Erik Arntzen.....17

Skinner’s Science in the News
Skinner’s Behavior Science and the CIA
Josh Pritchard, PhD, BCBA-D.....17

editorial staff

Editor-in Chief:



Joyce Tu, Ed.D., BCBA-D

Managing Editor: Konstantin Evdokimov

Associate Editors: Alexandre Federov, Ph.D. - Russia

Sheila Habarad, MA, BCBA - USA

Amanda Kelly, Ph.D., BCBA-D - USA

Monalisa Leao - Brazil

Anna Luzi, Ph.D. - Italy

Steven Rodriguez, BS - USA

Monica Vandbakk, MA - Norway

Kae Yabuki, MS, BCBA - USA

Operants is a quarterly report produced by the B. F. Skinner Foundation.

*“We shouldn’t
teach great
books; we
should teach a
love of reading.”
— B. F. Skinner*

in memoriam

Nate Azrin (1930-2013)

My thoughts on my father, Nathan Harold Azrin

by Rachel Azrin, daughter, with contributions from sons Mike, David and Rick

As the oldest of Nate Azrin's four children, and as someone who continues to practice in the field of behavioral psychology myself as a certified behavioral analyst, I was honored to be asked to share my thoughts, along with my brothers', on my father, Nathan Azrin, who passed away last year and who left a lasting legacy of wisdom and inspiration to his family, colleagues and the field.

As a father/husband/sibling, Nathan Azrin was inspirational and supportive. His ability to propose solutions to any problems that came up was impressive. He was able to discern what was important to his relatives and identify how a positive solution could be reached. He was loving, close and kind to his family. Nate Azrin believed family celebrations were an opportunity to be together with his family. He had one daughter (Rachel, a behaviorist) and three sons (Michael, a doctor; David, a lawyer; and Rick, a psychologist) all successful

professionals. He had seven grandchildren (Jessica, Joshua, Daniel, Lauren, Jacob, Sarah and Lexi). In most of his pictures you will notice he is waving as if to reach out to reinforce people taking or looking at the picture. He also had a long and enjoyable marriage with his wife Victoria, a psychologist as well, and they wrote a number of books and often worked together. Nate believed in the techniques he developed and especially utilized reinforcement continuously. Although an intermittent schedule is more

effective, he believed in people using continuous reinforcement. The reason for this choice was that often a continuous schedule becomes intermittent, due to circumstances that prevent the delivery continuously.

He was the kind of father and person who believed in you. He also believed that we should try to make our decisions in life based on scientific research. Rather than imposing his views, he encouraged us to look at research such as journals, consumer reports, and at medical research to guide us in our life decisions and choose something that would achieve the functional outcome we wanted for ourselves. He was always available to discuss things or go to family or convention activities, and he never said he was too tired to do something with us. He was always there for dinner and at night. He chose to work late into the night, after dinner, rather than take time away from his family and friends. He believed in showing love for others with actions and would even cry when he saw a sad movie about someone and

their problems. He took that extra time and was patient while teaching his children

everything from using the bank to fishing. He seemed to understand what you were thinking or concerned about, and how to help you try to solve your problem while he taught you something. He would often discuss with you in detail the options and the pros and cons based on the facts and research of the options. This empathetic, kind, step-by-step, scientific, patient manner with others made it very easy to learn things and to make difficult or important decisions.



He believed in showing love for others with actions

continued on page 10

foundation welcomes the new board member

Brenda J. Terzich-Garland

Brenda J. Terzich-Garland, M.A., BCBA received her bachelor's and master's degrees in psychology (with a concentration in behavior analysis) from California State University, Sacramento. She is co-



founder, vice president and chief clinical officer (CCO) of Applied Behavior Consultants (ABC) Inc., a Sacramento, California-based company that provides ABA services for children with Autism/ASD and other behavior disorders.

*Ms. Terzich-Garland is also a board certified behavior analyst and a certified PECS implementer/supervisor. She is a member of the international and state-levels of the Association for Behavior Analysis. She has more than 25 years of extensive clinical experience in the behavioral treatment of autism/ASD, has worked with ADHD/ODD and other behavioral disorders for over 15 years, and is the developer of ABC's generalization program *Recreating Environments to Accelerate Learning (R.E.A.L., 1996)* and clinical staff training (*Caring and Effective ABA, 1993*) which ABA programs are built upon. Ms. Terzich-Garland participated in ABAI's international delegations. She continues to be instrumental in disseminating ABA Internationally within Singapore, the Philippines, Portugal, and Bahrain in conjunction with Dr. Joseph Morrow, ABC's other co-founder.*

Ms. Terzich-Garland has received the Certificate of Merit: Outstanding Poster Award (1988, Association for Behavior Analysis international), Outstanding Alumni Award in Psychology, Outstanding Service Award presented by Families for Effective Autism Treatment (FEAT), Outstanding Service on Behalf of Children and Adults with Mental Retardation, and "Good Works" Award, presented by Healing Pathways, Inc. by Dr. Paul Copeland (psychiatrist).

*She has conducted numerous workshops and in-services on ABA including discrete trials; verbal behavior; PECS; social behavior; play assessment analysis; and generalization. She has also presented nationally and internationally on a wide range of topics concerning the treatment and education of children with autism, ADHD, and other developmental disabilities. Ms. Terzich-Garland has co-authored and presented several research papers on the behavioral treatment of autism. Her work is described in the textbook *Behavior Analysis and Learning (Epling and Pierce, 1995)**

You could say that I was a behaviorist in the making ever since I declared psychology was my major in college in 1980. Little did I know that I would end up taking business law classes for a semester after one year of college because Psychology 101 had little to offer outside of Freudian theory and circular reasoning for describing why people behave the way they do. Then I decided to give psychology another try because the professor who was teaching the class was handsome and I thought maybe I had given up too soon as business law didn't really impact me much. I enjoyed the teaching of the psychology course and what I was learning, so I continued with this major. In 1983, I transferred to CSU, Sacramento, and based on a friend's recommendation for an advisor, I met Dr. Joseph Morrow and my college years changed forever.

My introduction to Skinner's work was in the class Dr. Morrow taught, Applied Behavior Analysis. On the first day of that course, I clearly remember Dr. Morrow stating that there were two sets of rules: "the rules of religion and the rules of science," and that this class was based on the latter. This allowed me to set aside my fundamental religious upbringing and really embrace what was being taught. The course and required book, *Science and Human Behavior*, converted me from majoring in humanistic psychology to becoming a behaviorist. I said to myself "Now this makes sense, you can really make some significant changes in human behavior and the world."

in her own words

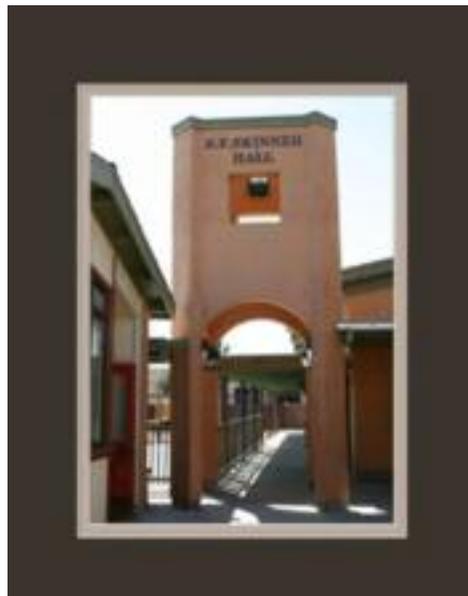
Before SAABA (Student Association for Applied Behavior Analysis) was formed, I started a club on campus called the "Behavioral Forum," dedicated to the understanding of behaviorism, dispelling myths and misconceptions about Skinner's work, and offering a fair academic forum for students to learn about his writings and give a lecture as well.

My first introduction to Skinner in person was in 1984 (and then again in 1988) after completing my Bachelors degree. Dr. Morrow, whom I will refer to as Joe, was friends with Skinner. They had met at Indiana University where Joe was teaching. Joe asked me and some other students if we wanted to meet Skinner at the ABA conference in Nashville. It was my first ABAI conference and I was going to meet the Father of Behaviorism. Unbelievable!! It was one of the most memorable moments in my life sitting next to Skinner having breakfast.

Even though he was kind, easy to talk to, and socially pleasant, I was too intimidated to talk about anything in behavior analysis, so



*Clockwise, from the top:
with B. F. Skinner in
1984 and 1988; with
ABC, Inc. co-founder
Joseph Morrow; ABC
headquarters and its
crown jewel –
B.F. Skinner Hall*



we just talked about how he met Joe and a little about his book *Walden Two*.

Another memorable time at the same conference was after I had won the Outstanding Poster Award for my thesis “Does Interposing Continuous Reinforcement after Intermittent Reinforcement Expedite Extinction.” Skinner gave his end-of-the-conference keynote address and everyone anticipated he would talk about a new advanced theory in Behavior Analysis, but instead, Skinner discussed the importance of basic research for the continued advancement of our field.

After the conference, I still wanted to pursue my interest in OBM, however, I had an opportunity to do some summer work with foster and group home children, as well as consult in residential care homes for individuals with developmental disabilities. I pretty much went into the applied area of behavior analysis kicking and screaming and learned that my skill area was in the application of ABA and training others.

I was invited to go to West Virginia University’s Ph.D. program to study under Dr. Robert Hawkins and Dr. Michael Perone, but then the summer before I was to leave, Joe asked me if I wanted to start an ABA company with him, and the rest is history. We started the company, Applied Behavior Consultants, Inc. in 1987, in his living room with five employees doing in-home parent training and ABA intervention for developmentally disabled individuals (children and adults). We have since grown to 500 employees and expanded our services to specializing in ABA-intensive treatment for autism/ ASD and other behavior disorders (ADHD, OCD, etc.). These services are provided in the home, community, our school, and center-based programs for all ages.

We have served over 1000 individuals over twenty-six years across six regions in California and internationally who have benefited from the effective science of ABA treatment. My passion lies in the heart of this science of behaviorism, and I will forever thrive in teaching others whether it is direct with populations we serve, training others in ABA, or developing and writing training material/books. ■

reflections

A Plea for a Science of Human Behavior

Jacob Azerrad, Ph.D.

When sifting through mountains of ash and dust in the aftermath of 9/11, forensic experts were able to isolate the remnants of the terrorists – a feat that would have been unimaginable less than a decade earlier. But the cellular fragments that proved their identities offered not a single clue to why they did it.

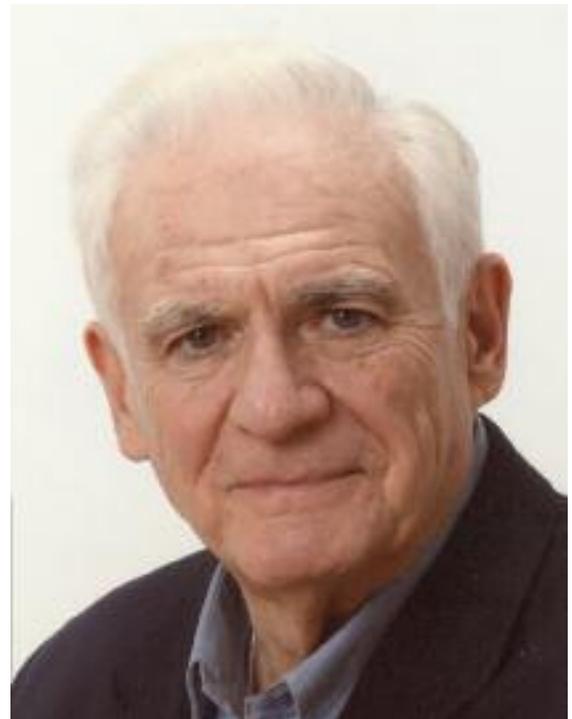
The answers will not be found in the wreckage. Self-destructive fanaticism seems an illogical trait for genetic transmission. It is more reasonable to assume that it is not inherited but learned.

The same is true of most behavior, violent or otherwise. When a behavior becomes a social norm and is passed from one generation to the next, in almost every case the mechanism of transmission is environmental rather than genetic. Suicide bombers are the products of societal molding. So are rescuers, soldiers, and saints.

At the moment, we know far more about the building blocks of life than we do about the guidance system that determines how our lives are used. One is the subject of a newly emerging but already powerful science, while the other, though studied for millennia, still remains largely an art. Our knowledge of human behavior is as murky and incomplete as our understanding of the vast oceans. There has never been a more urgent need for a true science of human behavior.

There is a temptation to seek answers to behavior in the human genome, not only because the street is much better lit and there is now a map, but because it's morally easier to reduce human character to a roll of the hereditary dice. An early evolutionist, the French naturalist Lamarck raised a scientific sail with his insights to the architecture of natural structures, but at the same time he dropped an anchor with his belief in the inheritance of acquired characteristics. We now know that learned behavior leaves no imprint in the genes. Most of our faults and virtues are not in our stars, but in what we have been taught. In the one area where he is best remembered, Lamarck was dead wrong.

Sigmund Freud is now viewed by many behaviorists as the Lamarck of modern psychology: brilliant, innovative, and equally off the target. But the mental health profession as a whole is no more immune to the power of learned behavior than the rest of us, and this particular folly has proven to be unusually persistent. Despite a century of unmet promises, the industry is still so heavily invested in the mumbo-jumbo of ids, egos, and superegos that most practitioners can't afford to take the write-off.



*Jacob Azerrad, Ph.D. is a clinical psychologist, in private practice in Lexington, Massachusetts. He is the author of *From Difficult to Delightful in Just 30 Days* (McGraw Hill) and *Anyone Can Have a Happy Child* (Warner Books.) He has served on the faculty of the University of Virginia Medical School and University of Virginia. He interned at The Children's Hospital Medical Center in Boston. He has appeared in several media outlets including *Parents Magazine*, *Psychology Today* and *The Boston Globe* as well as numerous radio and television programs.*

Pioneers are few and far between in any branch of knowledge, and massive change is always first perceived as heresy. To many of his peers, B. F. Skinner put his short-term reputation in a black box when he demonstrated how the principles governing human behavior are the same as those guiding the actions of our phylogenetic lessers. But he opened the door to a new era of understanding, as inviting, as mysterious, and as filled with rich promise as a door to the deep sea or outer space.

Skinner ... opened the door to a new era of understanding, as inviting, as mysterious, and as filled with rich promise as a door to the deep sea or outer space.

What is desperately needed now is a properly conceived and well-funded Manhattan Project for the study of human behavior. Such a study, with the commitment we gave to the human genome, will yield more bounty than we can imagine. It will hold the cure to diseases of our communal spirit, which threaten our lives, our civilization, our species and our planet.

Given the extreme violence perpetrated in our communities and around the world, the need is urgent. The time is now. ■

the arts



Gilda Oliver with B. F. Skinner and his sculpture, 1985-86

Gilda Oliver is an internationally acclaimed clay artist, painter, sculptor, and digital photography artist. She is well known as a director and facilitator of large scale social art projects integrating children and adults in artistic expression and community-building, and much of her work focuses on implementing positive change in society, especially in the areas of challenged children and animal rescue.

reflections

Tacitus and B. F. Skinner, masters of humanity

Paolo Taras, Ph.D.

Tacitus style is affirmative and universal. These are characteristics he has in common with Skinner. In both it is not the orator who speaks but a master of humanity.

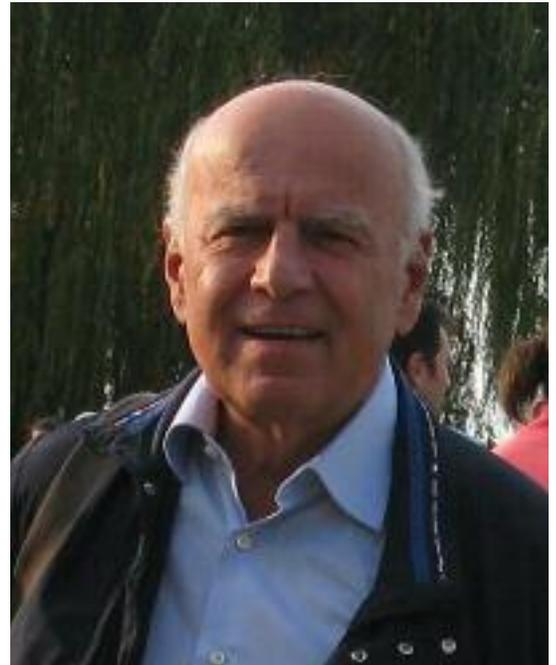
The most famous sentence of Tacitus referred to the ruthless solutions the Romans chose to avoid retaliations from their conquered: *Solitudinem faciunt, pacem appellant*. Another relates to Germans whom he admires for being sober and proud even in suffering: *Mulieribus lugere honestum est; viris meminisse*. The extraordinary strength of such sentences is the two utterly different scenarios they depict: "they make the desert, and call it peace"; "women can cry" (give room to the expression of sorrow), "men remember" (proudly hold back their rage to strike in another time).

About Behaviorism expresses this form of sentence as does *Science and Human Behavior*. But you can find plenty in *Verbal Behavior* too. I just opened it at random and picked up the following: "In defining verbal behavior as behavior reinforced through the mediation of other persons we do not, and cannot, specify any one form, mode, or medium. *Any movement capable of affecting another organism may be verbal.*" (p. 14) [My emphasis.] "This is often for the benefit of the listener; but it may have indirect effects in shaping and maintaining the behavior of the speaker. *We learn to speak to be understood.*" (p. 280) [My emphasis.]

Interestingly enough, I came across a quotation from Tacitus, which shows, implicitly, how Skinner cultivated that reading. "Drugs which favor the emission of verbal behavior act mainly upon the ecstatic phase." Tacitus reported that the Germans made their decisions at night when drunk and acted upon them the next day when sober. (p.382) (Here again the contrast that likely hit Skinner: drunk/sober) "Just as there are speakers who require an optimal audience for their best verbal achievements, so there are those who are productive verbally only when writing in solitude, and for themselves. Solitude is not only freedom from distraction, it is a condition in which the self is an important audience." (p.412) (See the contrast? On one side the lonely man, on the other the crowd inside)

I just open casually two pages of *Beyond Freedom and Dignity* and find what follows: "In Dante's hell, he will suffer the special tortures of those who "lived without blame and without praise," like the "angels who were . . . for themselves." To be for oneself is to be almost nothing. (p. 123) (Beautiful: when you think you are, you are not) "But no man survives for long, or any governmental, religious or economic agency for very long. What evolve are practices." (p.133) (Here again the striking contrast: you may search in vain for the survival of men and his institutions but they shall die; what you'll find will be practices. Survive versus evolve.)

Most of all, Tacitus and Skinner share the pleasure of being iconoclasts, of telling us: This is how it looks, but that is what it is. ■



Dr. Paolo Taras has been working in the HR consultancy field designing people management systems, delivering courses and assessing people potential for career orientation. He earned his Doctorate degree in Psychology at the University of Padoa in 1982 with a thesis about the epistemology of social sciences. When, unsatisfied of the few Italian translations of Skinner's books he went in search of the original English texts, he came across the Foundation and since then he developed a deep and long lasting friendship with Julie and Ernest Vargas. A definite Skinner addict who finds continuous inspiration in studying Skinner's works, he is planning to organize and select his heaps of notes to make them become a reading guide and commentary on the man he reckons to be the re-born Galileo of contemporary science.

Nate Azrin

continued from page 4

As a colleague/friend he also inspired people. He had the ability to listen to them talk about themselves and identify the most exciting ideas they had. He would inspire the other person to pursue these goals with great vigor. Many people have expressed to the world and his children that my father changed their life after even just one conversation with him. He was well known for talking to colleagues late into the night at conferences, work, and even at home too. His eyes, facial expression and arms would be excited and moving around, as he intently focused on the other persons' passions, and together they found a plan to promote the dreams for projects they discussed.

He founded and inspired a multitude of organizations, journals, procedures that became common practice in society. He had the ability to gather others into a common force to achieve a goal through an organization. He inspired the birth of journals, conferences, oversight regulations and groups as well as new principles and areas of research in the field of psychology. Some of these developments included time-out, overcorrection, token economy, marital counseling, and procedures for drug addiction, Tourette's, job finding, self-injury, self-stimulation, toilet training, bedwetting, stuttering (regulated breathing), habit reversal for nervous habits (ex. nail biting, ticks), positive practice and reinforcement techniques.

Nate was born in Boston (to Harry and Esther) in a family with seven children (Jack, Morris, Violet, Trudy, Sylvia and Dorothy) and went to Boston University and to Harvard. He studied with B. F. Skinner at Harvard. Skinner was supportive of his efforts to find new ideas and techniques in his research at Harvard. They would spend hours talking about theories and research possibilities. I often feel the room seems empty without the excitement and intensity these men brought to every conversation.

Skinner inspired Nate to take the tech-

niques that were theoretical and research-based and use them in applied settings in numerous areas. Nate repeatedly, in all his talks, asked that his colleagues go forth and continue to apply research-based principles to any problems they were presented with in life. Nate was discouraged with the techniques then available in psychology and wanted to develop techniques that were validated and based on research, which could be used by people throughout the world. Nate stressed that we should find the problems that are especially troublesome to people and solve those first as a priority. The reason for this was so that we could develop new programs and procedures that would have the greatest impact to be useful and helpful to the most people.

The magnitude (number of people affected) of the impact of his ideas, dreams, goals and work in the human population is astounding. There are millions of people with developmental disabilities, autistic spectrum, job problems, Tourette's, marital problems, toileting or other self-care problems that used my fathers' techniques to solve their problems. I remember talking with him one time, and telling him the astounding numbers, maybe millions of people (I tried to estimate the exact numbers based on each of his procedures) he had affected with his work, and as he listened to me, his eyes stared ahead intently deep in thought, wistfully and contently at me quietly for what seemed quite a long time. Dr. Nathan Azrin was an expert at discerning the problems that needed to be solved and arranging a large number of new innovative psychological techniques that were able to solve the problems. These techniques were based on outcome research. He was one of the first to stress the importance of outcome-based research in psychology.

Many of the basic principles Nathan Azrin developed are now standard practice – the “gold standard” in the field. There are research programs that follow in his approach in universities around

the world, including Australia, Scandinavia, China, Japan, South America, and throughout the United States. He wrote seven books and published about 200 articles, and he received eight lifetime achievement awards from different organizations, including a Trailblazer award.

“I loved my father and so did the world” that is the very last thing I said to him before he passed away, and even at that final moment he had his famous smile on his face. The number of new smiles and new lives he contributed to developing normally is astounding. My father was known for starting new ideas and techniques and hoped that others would use them - and they did. He was truly a founding father of behavioral psychology. And I am grateful that he was my father as well. ■



To enjoy seeing more pictures from Azrin's life, a list of his books and articles, and watch speeches that he gave, visit www.nathanazrin.com.

On Skinner's article "Are Theories of Learning Necessary"



Commentary: E. A. Vargas, Ph.D.

On Skinner's article "Are Theories of Learning Necessary" in Cumulative Record. Paper first presented in 1949 and published in 1950.

[Any edition of Cumulative Record will do. I recommend the Definitive Edition (1999) edited by V. G. Laties and A. C. Catania. They did a fine job in integrating prior editions and provide an excellent foreword.]

Among the charges levied against B. F. Skinner is that he was anti-theory. A curious charge indeed (!) considering that his first book, *The Behavior of Organisms*, lays out the parameters of a new behavioral science complete with new terms and formulations along with the experimental data to back them up. And based on the experimental science earlier formulated, a later book—*Verbal Behavior*—provides an alternative theory by which to interpret linguistic behavior. Skinner himself protested against such a mishandling of his position. In his preface to *Contingencies of Reinforcement* he notes his various theoretical contributions and sums these, with a tincture of sarcasm, "not a bad record for a Grand Anti-Theoretician". He adds a bit more salsa to his tincture by adding a subtitle "a theoretical analysis" to *Contingencies of Reinforcement* and then by describing the theoretical aspects of each of the three parts of his book. Perhaps one reason for such a charge is his article, "Are Theories of Learning Necessary?"; the critics apparently only read the title and drew the curious conclusion that he was against "theory". Well almost a cigar; it was a certain kind of theory that he was against.

Skinner was against that sort of theory that referred to explanatory events outside the dimensional domain of behavior. He opposed theory that resorted to "any explanation of an observed fact which appeals to events taking place some-

where else, at some other level of observation, described in different terms, and measured, if at all, in different dimensions." In short, he was for a behavioral science supported by its own philosophical and epistemological foundations and whose data on actions led to theoretical formulations based on the analysis and synthesis of those behavioral data. It meant not presuming the controls of those data in a dimension outside the behavioral data themselves as by the presumption of a mind responsible for those data; an effort often leading to circularity (a mind making a choice whose presence is asserted by the choice made) or to an entity outside the reaches of any science (an undiscoverable "essence" or "eide" in Ernst Mayr's terms). But Skinner involves an even more subtle issue. As Skinner puts it, "When we attribute behavior to a neural . . . event, we are likely to forget we still have the task of accounting for the neural . . . event". Even if plausible to connect with actual events, a behavioral science should not ground its explanations in the dimensional domains of the physical and biological sciences. The dimensional systems of cats and marigolds as well as those of rocks and stars differ from song, poetry, and kindness.

What I now say extrapolates a bit from Skinner's position. Three kinds of events occur: physical, biological, and behavioral. These three categories exhaust the kinds of events with which

"Skinner's Corner" from the *Operants* Editors appears in each issue of *Operants* and provides a brief encounter to a share of Skinner's science. Such an effort points out issues still relevant to our current concerns. We encourage readers to suggest other topics, as well to send them with commentary.

continued on page 16

call for volunteers

If you would like to volunteer, we would be interested in your contribution. You would be working with Dr. Ernest A. Vargas. The effort would initially concern itself with *Operants* and its subscription base, but any other organizational problem that occurs would be addressed.

You should have a personal computer. It would be preferable if you are in the Cambridge, MA area and could come to the Foundation office for at least two or three hours a week. Clearly, however, with a computer, the required endeavor could be done at home whether around the corner or a few thousand miles away. Age is irrelevant. Any package of skills would be useful. Best: a tolerance for ambiguity and a predilection to enjoy problem solving.

You may email Dr. Vargas
directly: eavargas@bfskinner.org

Noteworthy Articles

Kae Yabuki, MS, BCBA



*In this feature, Associate Editor Kae Yabuki summarizes an article by Robert Jensen and Helene Burgess: *Mythmaking: how introductory psychology texts present B. F. Skinner's analysis of cognition*. Yabuki's Q&A interview of Jensen and Burgess follows. The full article and references are available here: <http://bit.ly/1icGpIL>*

In 1997, Robert Jensen and Helene Burgess examined 15 introductory psychology texts in order to determine if they had included B.F. Skinner's radical behaviorism view on cognitive processes. These texts were analyzed using three questions: (a) Did the textbook acknowledge Skinner's treatment of cognitive activities such as thinking and problem solving? (b) If so, was there some description of the behavioral treatment of cognitive activities? (c) How complete and accurate was the description? Out of the 15 books, only five acknowledged the radical behaviorism viewpoint. Within these five texts, none included a complete and accurate representation of Skinner's explanation of cognitive processes. Though the radical behaviorism opinion may have been mentioned, in depth explanations and exemplars remained absent. Unfortunately, the remaining 10 textbooks analyzed either did not mention behavioral treatment (six books) or denied the case that radical behaviorism can be applied to internal events (four books).

The authors concluded that the introductory texts were more likely to disregard, distort, or ignore Skinner's viewpoint of the use of behavioral principles when faced with cognitive processes. Unfortunately, research has indicated that students in their later years of college were less likely to change their misconceptions of radical behaviorism than students just beginning their higher education (DeBell & Harless, 1992). Therefore, it is essential for authors of introductory texts to accurately and completely represent Skinner's radical behaviorism perspective for new students.

Q.: How did this topic arise? What got you interested in this topic?

A. We each had been teaching one or more sections of introductory psychology for more than fifteen years. Initially we each required Skinner's *Science and Human Behavior* as the course text. It became increasingly difficult to find a sufficient number of copies for our students, and then Carlson's first edition of his introductory text was published. We then chose Carlson because his treatment of Skinner was adequate and with sufficient depth that his text could be readily adapted for our classes.

Meanwhile, our friendly book reps chatted us up each semester, and either dropped off or mailed to us the "newest," "most educationally sophisticated," "most pedagogically advanced," introductory psychology text. When technology became the touchstone for the savvy instructor, "the text with the most technologically effective supplements" that would "ensure mastery of critical concepts and course-relevant information" came our way.

We each made it a point to examine a textbook (frequently while the book rep waited patiently). We would peruse the introductory chapter, and then the learning chapter and, if presented, the chapters on thinking, language, and/or psychological treatment.

Because of our radical behavioral background, the learning chapter was the most important of the chapters, and what we found was a near-invariance in their structure, content, and misinformation. The misinformation included the claims that Skinner was an association psychologist and that Skinner's theory could not explain notable phenomena such as (1) insight; (2) learning to traverse a complex maze in the absence of reinforcement, thus requiring that a cognitive map be formed by rats; (3) the effects of

a model on the behavior of an observer; and (4) learned helplessness. Furthermore, according to textbook authors, because Skinner rejected "mental" events, the development of skills such as concept formation and problem solving were said to require the cognitive processes not found in the Stimulus->Response model that writers attributed to Skinner.

After reading through a text, we reported to the book rep the erroneous writing we had found. On many occasions one or the other of us would give a copy of the table of contents from *Science and Human Behavior* or *About Behaviorism* to the book rep to show unequivocally the errors in the author's characterization of Skinner's ideas.

We repeatedly asked book reps to report back to textbook authors and their publishers and ask them to present accurate information. And then we waited for the newer editions of existing texts that we had previously reviewed, and thought perhaps new texts from the same publishers would display accurate descriptions. Alas, somewhere along the way, our attempts to bring accuracy to writers and publishers fell on deaf ears.

We then designed and conducted the research that became the article published in 1997.

Have there been any changes in presentation of Skinner's radical behaviorism in introductory psychology texts since this study was published?

In order to answer this question, we reviewed ten introductory psychology textbooks obtained from faculty members currently teaching introductory psychology at California State University, Sacramento. As in our earlier article, we assessed each book on the basis of three factors: (1) if a textbook author accurately presented Skinner's analysis of private behaviors; (2) if the author omitted or failed to acknowledge Skinner's analysis; or (3) if the author denied Skinner's analysis altogether. Table 1 shows the reviewed texts. The texts indicated with an asterisk (*) are later editions of those we reviewed in our 1997 article.

: We provide herein a few examples in order to give the reader a sense of the current presentation of *radical behaviorism* in introductory psychology texts.

Of the ten introductory textbooks examined, none presented a complete and accurate picture of Skinner's perspective on private behaviors. Only Wade and Tavis (2003, p. 249-250) accurately presented Skinner's approach to the study of private behaviors. In the section of their text entitled Skinner: The Man and the Myth, Wade and Tavis correctly criticize psy-

chologists who portray Skinner as denying the existence of private behaviors and further elaborate his position that there are many ways these private behaviors can be studied, such as observing our own private behaviors and examining the conditions under which they occur.

Unfortunately, Wade and Tavis undermine their excellent depiction of Skinner's views when they contrast behaviorists with social-cognitive learning theorists by saying that social-learning theorists believe that "...people learn not only by adapting behavior to the environment, but also by imitating others and by thinking about events around them." (p. 20). The implication is that behaviorists omit imitation and thinking from their analysis of human behavior. Furthermore, in their segue from operant conditioning to latent learning and observational learning, Wade and Tavis incorrectly portray the behavioral view as not only ignoring private behaviors, but as Stimulus->Response psychology.

Similar to Wade and Tavis, Douglas Bernstein (2011) contrasts the "strict" behavioral approach [of Watson and Skinner, p. 15] with the cognitive-behavioral approach by asserting that "strict" behaviorists deny the application of learning principles to private behaviors.

Accordingly, psychologists who take a strict behavioral approach concentrate only on observable behavior. They want to know how life's rewards, punishments, and other learning experiences act on the "raw materials" provided by genes and evolution to shape behavior into what it is today. (p.15)

Additionally, although Bernstein cites research showing the role experience plays in insight learning, he falls in line with other authors in suggesting that research on "learned helplessness, latent learning, cognitive maps, insight, and observational learning" (p. 194) show the limitations of the behavioral approach.

Paul Okami (2014) omits behaviorism or behavioral psychology from his list of psychological fields of study. He introduces students to Skinner in a section of the first chapter entitled "Pioneers of Modern Psychological Science." Okami revisits Skinner's radical behaviorism in the chapter on learning where he claims that Skinner insisted "that psychology could never be a science of mind, but only a science of behavior" (p. 348). He contradicts himself, however, in the section of the text on the limits of operant conditioning where he states, "Whether it is distress or 'bad behavior' that is being treated through operant conditioning, the basis is the same: desired behaviors and mental states are shaped using reinforcement and punish-

ment." (p. 355). Ironically, this one correct sentence in a sea of misinformation encapsulates Skinner's theory of private behaviors:

Table 1

Author and date	Prior
Bernstein (2011)	
Comer & Gould (2014)	
Franzoi (2014)	
King (2012)	
Manley & Spivey (n.d.)	
Myers (2014)	*
Okami (2014)	
Wade & Tavis (2003)	*
Weiten (2014)	*
Zimbardo, Johnson & McCann (2009)	

that they are behaviors subject to the same laws of nature as any other behavior.

Stephan Franzoi (2014) denies Skinner's application of operant conditioning principles to the study of private behaviors. In a section of the learning chapter entitled "Operant Conditioning Theory Overlooks Genetic and Cognitive Influences," Franzoi asserts



Robert Jensen

that: "As a traditional behaviorist, Skinner focused solely on observable stimulus-response relationships and overlooked the impact that genetic predispositions and cognitive processes might have on learning" (Kirsch et al., 2004). "Therefore, it became the task of other investigators to test and revise aspects of operant conditioning related to these two factors." (p. 318)

Franzoi follows this paragraph with the usual topics of biological constraints on

learning, latent learning, learned helplessness, and observational learning: topics that purport to show the limitations of radical behaviorism.

Likewise, Zimbardo, Johnson, and McCann (2009, p. 102) deny outright Skinner's analysis of private behavior. They assert, "Skinner refused to consider what happens in an organism's mind, because such speculation cannot be verified by observation." Despite studies to the contrary, Zimbardo et al. write in their description of Kohler's studies on insight learning with Sultan the chimpanzee, "Behaviorism had no convincing explanation for Kohler's demonstration. Neither classical nor operant conditioning could account for Sultan's behavior in stimulus-response terms." (p. 116).

With regard to Tolman and Honzik's 1930 latent-learning experiment, Zimbardo et al. (2009) write, "As with Kohler's experiments, what made Tolman's work both significant and provocative was its challenge to the prevailing views of Pavlov, Watson, and the other behaviorists. While Tolman accepted the idea that psychologists must study observable behavior, he showed that simple associations between stimuli and responses could not explain the behavior observed in his experiments. Tolman's cognitive experiments, therefore, presented a provocative challenge to behaviorism (Gleitman, 1991)" (p. 116). In addition to miscasting Skinner as a Stimulus->Response psychologist, these authors fail to give existing accounts of radical behavioral analyses of latent learning and insight learning.

In summary, all of the currently reviewed texts contain the same errors and omissions concerning Skinner and radical behaviorism as the textbooks we reviewed in our original 1997 paper. None of the currently reviewed textbooks presented a completely accurate account of radical behaviorists' treatment of private behavior.

Only Wade and Tavris (2003) contained a section that correctly presented Skinner's view. Unfortunately, Wade and Tavris's accuracy was undercut by errors in other parts of their text. The remaining authors either denied or failed to acknowledge Skinner's analysis of private behaviors. Additionally these authors failed to distinguish Skinner's theoretical analysis of private behaviors and the practicality of moving the science forward through controlled research. Moreover, all of the authors followed the old saw that Skinner's radical behaviorism is fatally flawed because it cannot account for private behaviors such as latent learning, observational learning, and complex human thought.

Why do you think that a lot of textbook authors deny or ignore Skinner's belief about private activities?



Helene Burgess

The most charitable answer to the question of why authors of most introductory psychology texts erroneously deny or ignore Skinner's beliefs about private behavior is that these authors are not aware of their own misconceptions. These authors appear unable to assimilate Skinner's nuanced distinction between his theoretical view of private behaviors and the direction that he believes psychological research should take. Regarding his theoretical view, Skinner has written extensively that he believes private behaviors do exist and that development in neurobiology and other technologies will allow psychologists to study them directly.

Until behaviors "enclosed within the organism's own skin" (Skinner, 1965, p. 257) become observable, they can only be studied indirectly. The fact that these private behaviors can only be studied indirectly does not, therefore, confer on these behaviors the status of hypothetical constructs found, for example, in the architecture of executive functioning that is claimed to function as an independent variable for some observed behavior.

Skinner simply believed that psychologists should examine the environmental conditions that modify and change overt behavior and, consistent with the principle of parsimony, maintain the working assumption that behaviors occurring inside the skin are as lawfully related to environmental events as public behaviors. Some of these behaviors will be elicited by stimuli while others will have been acquired during a person's lifetime, and shaped and strengthened by environmental consequences in the presence of antecedent environmental events. The private behaviors are therefore dependent variables in a science of behavior.

A further assumption Skinner made is that technology will eventually allow for private behaviors to become observable. Perhaps, then, textbook authors conflate Skinner's statements eschewing the use of private behaviors as putative independent variables

and his theoretical view that private behaviors exist and play an important role in human behavior.

Furthermore, introductory psychology textbooks pose a particular problem for authors who are forced to cover the entire range of psychology, from history and theory to individual subspecialties. Given that neither the authors nor reviewers of the most widely used textbooks are radical behaviorists, and that misconceptions about Skinner's views are so prevalent in academia, it is not surprising that Skinner's views of private behaviors are misrepresented. An early study by DeBell and Harless (1992) would support the argument that misconceptions of Skinner are ubiquitous. DeBell and Harless asked beginning graduate students, advanced graduate students and faculty members to answer a questionnaire consisting of seven myths about radical behaviorism and seven filler questions. Of the seven

myths, the graduate students and faculty made an average of three errors with no significant differences in the error rate among the three groups. The implication of this finding is that a continuity error about Skinner's beliefs and writings is

passed down in revolving-door fashion from professors to graduate students, who then become professors, then to another generation of graduate students who become professors who teach graduate students who become professors ad infinitum. However, this "revolving-door" theory becomes hard to believe when one looks at the ready availability of Skinner's own writings and the writings of other radical behaviorists. Skinner has affirmed his belief in the existence of private behaviors in numerous publications. He has written that it is necessary for a science of behavior to understand the function of private behaviors and he has given a theoretical explanation of their role in human behavior. Additionally, at least three papers have addressed directly the errors and misrepresentations of Skinner's views in introductory textbooks (Jensen and Burgess, 1997; Todd and Morris, 1983, 1990).

Given that ignorance on the part of authors is doubtful in light of the available publications, why then is it that these myths persist? The least charitable answer is that the authors know that they are misrepresenting Skinner's views but willfully refuse to change what they have written. Ironically, behaviorism may provide an answer to this question by examining the contingencies under which authors of introductory textbooks operate. One contingency is monetary. Steurer and Ham II (2008) report that the U.S. market for introductory textbooks consists of 1.6 million students and that all psychology textbooks earn for publishers upwards from \$150 million dollars per year. However, the longer a given edition is on the market, the less profit accrues to the publisher because more used copies are purchased. Since the consequence for the publisher is to lose profitability if textbook authors take too long to revise a current edition, there is time pressure on textbook authors to revise old editions as efficiently as possible. Be-

cause behaviorists comprise, at best, a minority of most psychology department faculties there is little pressure on the authors to self-correct for such a small part of the introductory psychology textbook market.

Another powerful contingency in academic life is the awarding of tenure or promotion for academic achievement. However, few, if any, psychology department tenure or promotion committees would penalize a faculty member for writing that Skinner denied the existence of private behaviors and faculty members who repeat this error may even find comfort (i.e., reinforcement) from colleagues who believe similarly.

Nonetheless, the misrepresentations of Skinner's work by introductory textbook authors should not be tolerated by academicians

and publishers, particularly in light of the American Psychological Association's guidelines for scientific publication that specify the basic ethical principle for scholarly writing should be to "ensure the accuracy of scientific and scholarly knowledge" (APA, p. 348, sec. 8.05) and the avail-

ability of Skinner's own writings on the matter. For example, *Science and Human Behavior* (free download at bfskinner.org) contains chapters on "Thinking," "Private Events in a Natural Science," and "The Self." In fact, Skinner may have been the first psychologist to include a chapter on self-control in an introductory level textbook (Skinner, quoted in Catania and Harrard, 1994, p.32).

Somehow, as a profession, psychologists have permitted errors and misrepresentations to go uncorrected. Jensen (2006) shows the persistence of unfounded claims in introductory psychology texts regarding the "cognitive map." Hobbs and Chiesa (2011) examined introductory text authors' assertions that a "cognitive revolution" supplanted behaviorism. What they concluded is that the revolution is but a myth. Habarth, Hansell and Grove (2011) have shown inaccurate or misleading statements about psychoanalytic theory, and Steuer and Hamm II (2008) in their review of paragraphs randomly chosen from introductory psychology texts found misrepresentations of "fact or finding" in up to 44% of the paragraphs. Moreover, up to 36% of the paragraphs contained citation errors. It does a great disservice to students of introductory psychology courses whose first and perhaps only source of information about the field of psychology might actually be a compendium of misinformation. ■

The most charitable answer to the question of why authors of most introductory psychology texts erroneously deny or ignore Skinner's beliefs about private behavior is that these authors are not aware of their own misconceptions.

part two of this article will appear in the next issue of *Operants*

science deals. These events are displayed by the dimensional framework in which the various types of sciences not only describe those events but explain them. The physical and biological and behavior sciences work within their physical, biological, and behavioral dimensions. The language each of the sciences uses specifically suits itself to the contact of the peculiarity of their events within each dimensional framework. Of course, scientists draw metaphors often from outside the framework of a given science's dimension. A physical property may be said to have "charm" or be "colorful"; but these metaphors lose their idiosyncratic attributes and soon become abstractions within a science's dimensional framework. Their meaning resides there—in the controls that dictate their account. Analyzing the physical force by which a pencil made a mark in a voting booth does not reveal the significance of the political selection. The behavioral sciences do not gain a greater understanding of their subject matter by defaulting to the explanatory terms (or even descriptive terms, unless used metaphorically) of the physical sciences, or for that matter, of the biological sciences. Defaulting to the prestige of another science is the sort of status seeking that bankrupts the intellectual resources of any science. As well, it is a position that biologists, such as Ernst Mayr and Richard Lewontin, have taken with attempts to explain events in the biological dimension with explanations within the physical one. In his *Toward A New Philosophy of Biology*, Mayr spends an entire chapter on the issue of whether "biology is an autonomous science" and firmly concludes that "biology's unique characteristics explains why attempts to reduce biology and its theories to physics have been a failure". As Richard Lewontin in *The Triple Helix* put it, "The problem for biology is that the model of physics, held up as the paradigm for science, is not applicable because the analogues of mass, velocity, and distance do not exist for organisms." Biologists demand that a theory to be biological must operate only within the dimensional do-

main of life. As well for behavioral scientists: If a theory is to be a behavioral theory, it must operate within the dimensional domain of behavior. There, within this dimension, the various behavioral sciences—to name a few: anthropology, economics, linguistics, political science, sociology—reflect the depth and range of behavioral events.

In "Are Theories of Learning Necessary?" Skinner does more than state that only a certain kind of theory promotes progress in the behavioral sciences. He presents his own. He contrasts his theoretical approach from others by examining various issues in what was typically called "learning". He addresses what the "basic datum" should be, and "why learning occurs", and the substance of "complex learning". In each of these examinations, he advances the advantages of a theory of behavior that maintains both description and explanation within the behavioral dimension. For what datum should be used and why learning occurs, he provides his alternative theoretical position (rate for the first and contingencies for the second) within the behavioral dimension. And in examining complex behavior, he pulls off a tour de force by peeling back observational layers. (So let's take a closer but brief look; it is well worth the glimpse.) As done earlier in his article, Skinner ties his analysis to data directly observed, and provides graphs by which readers, themselves, may see those data. He starts by pointing out that though other theories may initially use behavioral terms, "in traditional practice they refer to processes in another dimensional system." For example, "it is commoner to say" that a response to two available stimuli "is the result of choice, meaning by the latter a theoretical pre-behavioral activity. The higher mental processes are the best examples of theories of this sort . . ." But "choosing (like discriminating, matching, and so on) is not a particular piece of behavior. It is not a response or an act with specified topography. The term characterizes a larger segment of behavior in relation to other variables or events". He illustrates his po-

sition by analyzing a number of complex actions within his formulation such as "preference"; denoted directly by experimental data illustrating the control of concurrent stimuli at two keys at which actions may take place. He notes that in an experimental space, "preference might be expressed in terms of the relative rates of responding to the two keys. The preference, however, is not in striking a key but in *changing* [emphasis added] from one key to another." He then drives home the point that it is not mere topography of behavior that is of issue here, or even the controls that give that topography meaning, but the relation between two actions with respect to their controlling elements. As he states, "The probability that the bird will strike a key regardless of its identifying properties behaves *independently* [emphasis added] of the preferential response of changing from one key to another." In this examination of complex behavior, Skinner provides a further level of analysis where one set of actions is based on its relation to a prior set of actions, and both to their ambient controls. (It is later echoed in his analysis of the autoclitic—Part IV in *Verbal Behavior*; see for example, p. 313, and demonstrated throughout Part IV, such as the almost casual consideration of relational frames.) He ends this section on "higher processes" by stating "These experiments of a few higher processes have necessarily been very briefly described. They are not offered as proving that theories are not necessary, but they suggest an alternative program in this difficult area. The data in the field of the higher mental processes transcend single responses or single stimulus-response relationships". Following such a survey within his theory of behavior, Skinner concludes "There seems to be no a priori reason why a complete account is not possible without appeal to theoretical processes in other dimensional systems." He firmly pursued this position as he continued to fill out his theory of behavior. ■

Erik Arntzen

profiles

Interview by Joyce Tu, Ed.D., BCBA-D, Editor-in-Chief



How did you become interested in Skinner's work?

I was born in Sweden and lived a couple of years in Odense in Denmark before I moved to Norway with my parents and two sisters. After finishing high school and one year of mandatory military service, I started to study chemistry and biology at the University of Oslo. After two years or so, I was getting interested in behavior analysis through a part-time job I had at an institution for mentally disabled people (although it is not an appropriate label today).

At that time, there were some quite huge institutions in Norway. Emma Hjorths Hjem was such an institution where I had a part-time job to fund my studies at the university. At this institution, and especially at the school at the institution, some quite successful behaviorally-based interventions had been done, and some new ones were running at the time I was there. The braveness and the power of tackling some very challenging types of behavior, in addition to exciting programs for establishing different types of behavior within self-skill, academic skills, etc., drew my attention and interest towards behavior analysis.

I started studying psychology at the University of Oslo. At that time it was a one-year course in general psychology for which anyone could apply if they were accepted as a student at the university. This was followed by a five-year course in both general psychology and more specialized areas of psychology. As a student, it was possible to apply for this five-year course if you had above a ► p. 18

Skinner's Behavior Science and the CIA

skinner's science in the news

Josh Pritchard, PhD, BCBA-D

In the October 2013 issue of Smithsonian Magazine, Tom Vanderbilt wrote "The CIA's Most highly-Trained Spies Weren't Even Human." While describing ravens trained to drop eavesdropping equipment and cats trained to spy on an Asian head of state, Vanderbilt showcased the immense power of operant conditioning to engender seemingly impossible behavior of animals in the name of national security during the cold war era. Happily, Vanderbilt's account was largely accurate and favorable, making it easier to forgive his succumbing to a few mentalisms oft-invoked in explanations of behavior.



Josh Pritchard

ner's project PELICAN with the department of defense. Following this, students Keller and Marian Breland created Animal Behavior Enterprises (ABE) after leaving Skinner's lab in 1947. They quickly became the premiere animal training outfit in the country. Due to their commercial success, they were sought out to consult on multiple national projects, and most importantly, a Navy defense project with marine mammals.

Here, they met Bob Bailey, a person with no formal education in behavior science, but who may now be considered one of the best animal trainers alive.

The article chronicles the development animal operant work in this area, beginning with Skin-

continued on page 19

Erik Arntzen

certain grade in the one-year course. Furthermore, you had to wait about one year before starting the five-year course because it was so popular and no more than 36 students were accepted each year.

When I started the five-year course, I very soon got in touch with Terje Sagvolden. He had worked with Charlie Catania in Maryland, and had a rat lab, which I attended. Most of the time, I was working in the rat lab even though I had to do all the mandatory psychology requirements. My thesis for the psychology degree was on temporal and spatial discrimination in rats. We had constructed an experimental chamber with a certain number of holes ordered in four columns and five rows. The equipment was inspired by some previous work done by Iver Iversen. Instead of lever-pressing, nose-poking in a certain hole was followed by access to a droplet of water.

After finishing my degree in psychology, I worked in several treatment centers and schools for youth with autism, and people with developmental disabilities. Carl Erik Grenness provided me with two articles he had recently published in *Journal of the Experimental Analysis of Behavior*. Even if he was not much into this type of research, Grenness told me that he thought these articles were some very important publications.

After some years, I applied for the PhD program at University in Oslo. The proposal was based on experiments in stimulus equivalence. Per Holth and I collaborated on doing a series of experiments in this period.

Your research is primarily in equivalence relations. What can you tell us about your current projects?

I got a position at Oslo and Akershus University College (it was only known as Akershus University College at that time) as of July 1, 2000, and have been there since. I have been running a lab for more than fourteen years in which the main focus has been on experimental studies on complex human behavior. The lab started as a one-person operation and over a few years I

was able to build a more robust group of students.

Our studies have focused on basic and applied research in behavior analysis. We have done studies in areas such as remembering, attention, and concept formation to mention a few. Since the very beginning, when I read those papers I mentioned above, I have been mostly interested in variables influencing the equivalence class formation. This was the main focus of my doctoral thesis.

Right now, we have a number of experiments going on and I'll mention some of them. One project involves related variables that influence remembering or what is traditionally called short-term memory. We are studying the effects of distractors in the delayed MTS ("match-to-sample") procedures and also what type of self-talk the participants have in the delay. Another type of experiment, which is related to this delayed MTS experiment, is done with people with dementia. For example, we use a titrating delayed MTS procedure, which means that the delay is increasing by a small step (e.g., 100 ms) when choice responses are correct, and the delay decreases when the choice responses are incorrect. We are then able to increase the delay between the offset of the sample and the onset of the comparisons.

The last type of study I want to mention is a series of experiments concerning the mimicking of meaningfulness. This is series of experiments my lab is collaborating with Lanny Fields's lab. We are trying to find out how a portion of the class-enhancing effects of meaningful stimuli can be attributed to different discriminative functions.

Why are you interested in equivalence relations? What can you tell practitioners about the utility of equivalence relations?

My interest in this research area has been four-fold:

(1) The emergence of new relations—not directly trained.

This implies that when training a certain, few number of relations, a high number of relations emerge as a result of the training—but without any programmed consequences. This very solid finding has been shown in variety of participants, stimulus material, and so forth.

(2) Variables that can influence the emergence of equivalence relations.

There are number of variables influencing equivalence class formation. For example, there is a difference in outcome on equivalence tests, depending on which training structure is employed. As a general finding, the linear series training structure is less effective in formation of equivalence classes compared to the many-to-one and the one-to-many training structure. Another important variable is, for example, the inclusion of some familiar stimuli in the trained stimulus sets. This enhances the outcome on the equivalence tests.

(3) That complex repertoires (i.e., concepts, problem solving, and language formation) are amenable to behavior analysis. For example, a study by Murray Sidman on how equivalence classes can be expanded by just training a few relations is important in understanding complex human behavior.

(4) The impact of research of stimulus equivalence on the arrangement of effective conditional discrimination procedures in behavioral programs.

I think it is important and interesting to emphasize that Murray Sidman's first study (1971) focused on how to establish reading skills (reading with understanding) in a young man with developmental disabilities. Prior to that, he ran a number of interesting experiments using matching-to-sample procedures with different patients with a variety of brain injuries, for example, studies with the famous patient H. M., who showed a behavioral pattern labeled as heavy anterograde amnesia, as well as temporally-graded retrograde amnesia.

We have done a number of studies in my

lab with youth with autism spectrum disorder, in which the research questions have been how to establish different skills as music skills, botanical skills, and verbal skills. I think it is important to mention a book on derived relations edited by Ruth Anne Rehfeldt and Yvonne Barnes-Holmes (*Derived Relational Responding. Applications for Learners with Autism and Other Developmental Disabilities*), which is a partial overview of the application of stimulus equivalence. Furthermore, a recent published review paper by Laurie K. McLay and others gives some solid information about the utility of equivalence relations.

Another area of application of stimulus equivalence is in the context of teaching. A couple studies by Lanny Fields and colleagues, and Thomas Critchfield and colleagues, have shown to be effective in teaching knowledge about statistical interactions to college students.

Tell us about behavior analysis in terms of its development in Europe.

Behavior analysis has had a quite strong position in Europe for a long time. However, the development of many masters programs in behavior analysis organized all over Europe has made the position even stronger. In Norway, behavior analy-

sis has had a very strong position in the applied field for a long time. The Norwegian Association for Behavior Analysis was founded already in 1973, one year before the US ABA. Arne Brekstad played a very important role of the development and dissemination of behavior analysis in Norway.

At the 4th International Congress on Behaviorism and Sciences of Behavior in Seville in 1998, the first official meeting for discussing the possibility of founding a European Association for Behavior Analysis was arranged. Fergus Lowe (Wales), Paolo Moderato (Italy), and Arne Brekstad (Norway) were initiators in founding EABA. During the ABAI conference in Vienna in 2001, an interim board was founded, and later in 2008 a board of five members was elected. EABA organizes biennial conferences. So far, the conferences have been arranged in Parma (2003), Gdansk (2005), Milan (2006), Madrid (2008), Crete (2010), and Lisbon (2012). The upcoming conference will be arranged in Stockholm in the beginning of September this year.

Another important behavior organization, which is worth mentioning, is the Experimental Analysis of Behavior Group (EABG). EABG is localized at the University of Bangor in Wales and organizes a

conference in London every other year, which is not in conflict with EABA conferences.

The Norwegian Association for Behavior Analysis has published EJOBA (European Journal of Behavior Analysis) since the start of the journal in 2000. The journal publishes two issues yearly, including experimental reports and theoretical/conceptual papers relevant to the analysis of the behavior of individual organisms.

What are some of your favorite book(s) or article(s) by Skinner?

Of course, *Verbal Behavior* is one of my favorites. *Contingencies of Reinforcement* is also special to me because I struggled a lot to understand what was meant by contingencies of reinforcement. If I were to make a selection of my favorite articles, it will be as follows, in chronological order: The Generic Nature of the Concepts of Stimulus and Response (1935), Are Theories of Learning Necessary (1950), A Case-History in Scientific Method (1956), Behaviorism at 50 (1963), The Ethics of Helping People (1976), Symbolic Communication between two Pigeons (*Columba Livia Domestica*) (1980), and Can Psychology be a Science of Mind? (1990). ■

Skinner's Behavior Science and the CIA

continued from page 17

In fact, he is currently busy touring the world offering "chicken training camps" to teach people principles of behavior and shaping. Vanderbilt offers a glimpse into the source of Bailey's success with Skinnerian science. When in undergrad, he took a job trapping kangaroo rats, in the course of which he noticed a patch of alfalfa that attracted rabbits that, in turn, attracted coyotes. Bailey wondered if he could condition the coyotes' path-choosing behavior. By placing rabbits along one of the paths, 85% of the time the coyotes followed his designated path. After that, he began to add white strips of cloth near the rabbits and was able to eventually fade out the rabbits. He was quite excited at this success. Anyone familiar with Skinner's penchant for tinkering and his inductive

approach to science and his subject matter should note some similarities in Bailey's experiences and reactions.

While the use of CIA and spies in the title likely captured the attention of the audience, I felt that Vanderbilt did a very good job of fading those sensational parts into the background of a story that really showcased the ability of behavior scientists to develop fascinating behavioral repertoires with animals that would otherwise appear to come directly from a work of fantasy fiction. I recommend you read the article to find out more about the time Bailey announced to Susan Garrett (and her class) that she now had a trained spider in the bathroom! ■

2014: 25 años de la Fundación

translation by Steven Rodriguez, B.S.



La Fundación le da la bienvenida a Brenda Terzich-Garland a la Junta Directiva de la B. F Skinner Foundation. Brenda es una analista certificada de comportamiento, una de las fundadora del consultatorio de comportamiento aplicado en California. Brenda sustituye a Mark Sundberg quien completó sus seis años en 2013. Miembros de la Junta sirven hasta tres periodos de dos años.

En el 2014 se celebra el 110 aniversario del nacimiento de Skinner y el 25 aniversario de la Fundación B. F. Skinner. Es difícil para mí pensar que la Fundación está en sus 25 años. Estamos ciertamente mucho más ocupados que en las primeras dos décadas. Nuestras actividades actuales incluyen actualización del sitio web, produciendo Operantes (Operants), convirtiendo los libros de Skinner en formato eBook, trabajos de archivístico y las ventas generalmente de libros, información y las peticiones de permiso.

La Fundación tuvo que cambiar el sitio web para que funcione en todos los dispositivos incluyendo teléfonos celulares. El nuevo sitio es aún provisional. Tan pronto como podamos, agregaremos nuevas fotografías y videos y muchas nuevas características. Como de costumbre, sugerencias son bienvenidas.

Conversión de libros de Skinner a eBook formatos para Kindle, Nooks, iPads y teléfonos móviles llegó a ser un poco más tendida de lo esperado. Copias de tapa dura de Comportamiento Verbal fueron enviados a un equipo en la India (donde gran parte de este trabajo se realiza). El equipo Indio envió tres versiones electrónicas (pdf, ePub y Mobi) para revisión. La Fundación tuvo la suerte que un voluntario ayudó con la impermeabilización y demostró cómo y dónde errores eran probables que surgan. Corrección de errores al descubierto fueron corregidos. Pero fueron descubiertos nuevos problemas, incluyendo problemas con las notas (colocación, enlaces, etc.). Los archivos están ahora en la cuarta iteración. Estamos cerca de completar el Comportamiento Verbal y pronto comenzará sobre la conversión de los siguientes dos libros: Contingencias de Refuerzo y el Comportamiento de los Organismos. La Fundación también está explorando soporte para reimprimir autobiografía de tres volúmenes de Skinner con fotos adicionales, notas y (en una versión electrónica) clips de audio o vídeo. En el otoño, la Fundación presentó una subvención para la dotación nacional para las Humanidades apoyar esa labor.

Materiales adicionales continúan siendo enviado a colección archivo de la Fundación. Hemos recibido cartas en 2013 y dos películas en 2014. Las películas se unirá a los más de dos docenas de películas la Fundación donaron para la adecuada preservación de la Filmoteca de la Universidad de Harvard. Archivos MP4 de las nuevas películas se visitaron y agregados a la colección electrónica de la Fundación. Para el futuro, una base de datos completa sería posible para los estudiantes o profesionales encontrar temas que fueron capturados en la película o cinta de vídeo. Si usted tiene incluso un video áspero de una charla que dio Skinner en su Universidad, o club, o casa, la Fundación le encantaría tener una copia.

Hay un creciente interés en una pasantía con la Fundación. Dos estudiantes de Brasil están solicitando fondos para venir a Cambridge a trabajar en la oficina de la Fundación y visitar los archivos de la Universidad de Harvard. Un estudiante de secundaria de una escuela secundaria local también está considerando una pasantía con la Fundación. Un profesional de Italia que pasó un verano como pasante hace varios años también puede devolver. Nuestras oficinas se ser saltones. Aún así, damos la bienvenida a visitantes como residentes.

Julie S. Vargas, Ph.D.

President, B. F. Skinner Foundation

(English)

Become a Friend

Your charitable donation supports the Foundation's activities, such as the Research Awards for Students. We appreciate your help in establishing new programs and expanding our current work.

See our website for more information: bfskinner.org. Thank you for supporting the Foundation.

The B. F. Skinner Foundation is a 501-C3 tax-exempt organization.

(Spanish)

Conviertase en un Amigo
Sus generosas donaciones se utilizarán para apoyar las actividades de la Fundación. Nosotros apreciaremos su ayuda para poder establecer nuevos programas y expandir los ya presentes.

Visite nuestra página para más información:
bfskinner.org. Muchas gracias por apoyar la Fundación.

The fundacion B.F. Skinner Foundation es una organización exentos de impuestos 501-C3.

(Norwegian)

Bli en venn
Ditt bidrag vil bli brukt til å støtte Stiftelsens aktiviteter. Vi setter stor pris på din hjelp for å etablere nye program og for å utvide pågående virksomhet.

Se vår web-side for mer informasjon: bfskinner.org
Takk for din støtte til Stiftelsen.

(Italian)

Diventa nostro amico sostenitore

Ti saremo grati del tuo aiuto economico per supportare le attività della Fondazione. La tua donazione sarà utilizzata per intraprendere nuovi programmi di studio e implementare quelli già in corso.

Per maggiori informazioni visita il nostro website: bfskinner.org

Grazie per il sostegno che darai alla Fondazione.

(Chinese)

成为朋友
你的慈善捐款将用于支持该基金会的活动。我们非常感谢您帮助, 建立新的计划和扩大我们目前的工作。

请参阅我们的网站了解更多信息: bfskinner.org

感谢您支持基金会。
BF斯金纳基金会是一个501-C3免税的组织

(Japanese)

ご寄付のお願い
皆様からのご寄付は、財団が取り組んでいる様々な活動に用いられます。お寄せ頂いたお金は、新たなプログラムの創設や、現在行っている活動を拡大させていくのに活用させていただきます。

詳細については下記のウェブサイトをご覧ください。
bfskinner.org
皆様のご理解、ご協力をお願い致します。

B. F. Skinner Foundation (B. F.

スキナー財団)

B. F. スキナー財団は、501-C3の非課税法人です。

(Russian)

Стань другом

Ваше благотворительное пожертвование будет использовано для поддержки деятельности Фонда. Мы ценим вашу помощь в создании новых программ и расширении нашей текущей активности.

Посетите наш сайт для получения дополнительной информации:
bfskinner.org

Благодарим вас за поддержку Фонда.

Фонд Б. Ф. Скиннера является освобожденной от налогов организацией.

As always, the editors welcome your feedback. Suggestions and news items are very welcome. Feel free to contact any of us by emailing info@bfskinner.org.

from the
archives



B. F. Skinner at the birthday dinner table.

*This photograph from the family archive has not been published
before.*



B. F. SKINNER FOUNDATION

B.F. Skinner Foundation
18 Brattle Street, Suite 451
Cambridge, MA 02138
Tel.: +1.617.661.9209
Email: info@bfskinner.org
Web: www.bfskinner.org