

The Journey of a Pioneer Woman Applied Behavior Analyst



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The year was 1935. As a first-grader attending P.S. 173, Manhattan, I determined I would be a teacher, just like our Miss Bouton. Patiently, she guided us to read, write, and do our sums. I was eager to become as skillful a reader as my older sister, Cynthia, was able to transport herself into the settings of tales of Betty Gordon, Nancy Drew, Heidi, the Oz series and I longed to do the same. With her example and Miss Bouton's and Mother's guidance, that miracle came to pass.

Although I can't recall the exact moment when I no longer had to rely on Cynthia or my mother to read to me, I do remember that triumphal day in the New York City 42nd Street Public Library, when I actually found myself capable of reading practically the whole Grimm Brothers' *Twelve Dancing Princesses* with but just a few hints. Afterward, I depended on contextual cues from the story to help me decipher most of the words, but didn't bother to learn how to spell them. Yes, clearly, I was hooked on reading and Mother was overjoyed!

Indeed, positive recognition, especially from the women in my family, my mother, Celia Winer (later Golden) and my aunt, Sylvia Haskel, my mother's youngest sister, impacted my life in significant ways. One of five girls and a boy, my mother was born in in 1900 in a small town in the Pale,¹ Lithuania, to a gentle father, Lewis, and a warm, socially-active mother, Ida Horwitz. Grandma had learned to read and write her native tongue, Yiddish—an unusual accomplishment for women in that society. Along with many other Jewish people at the time, the family immigrated to America to escape the dangers of the pogroms.² Once settled in the United States, besides playing her role as wife and mother, Grandma became socially active—organizing the ladies auxiliary at her temple, feeding starving scholars, and performing numerous other good deeds in her community.

Though described by her family as “a good girl,” Mother did have a bit of a rebellious streak. To illustrate: Without informing her parents, who she felt would not approve, she walked the long distance to school, saving her carfare to take lessons in modern interpretive dancing of the kind performed by her heroine, Isadora Duncan. Like the Queen Mother in the Brothers Grimm's *Twelve Dancing Princesses*, Grandma wondered why Celia's shoes wore out so rapidly.

Although Mother was determined to obtain an education, family finances were such that her parents asked her to drop out of high school to join the workforce. So at age 16, she applied for and received a clerical job at United Artists films (progenitor of Warner Brothers). When Sylvia, the baby in the family, reached age 16, my mother confronted her parents and declared, “If Sylvia isn't allowed to complete high school and college, I'll give up my job and return to school myself!” The outcome: Sylvia was permitted to continue her education. Majoring in mathematics, she eventually graduated from Hunter College (free for gifted New York City “girls”). Given the lack of availability of teaching jobs during the “Great Depression,” upon graduation she became a salesgirl, then a buyer of lingerie for women's chain stores.

Meanwhile my mother had been enrolling regularly in individual college courses of interest to her. She continued that practice following her marriage to my father, Ben Zion Winer, then after my sister Cynthia's (1926), my own birth (1929) and childhood, her divorce from my father, during her own career as a buyer, her re-marriage to Arthur Golden,

¹This comprised specific locations in Russia to which Jewish people were restricted.

²Episodes of violence committed by gangs of anti-Semitic peasants, often encouraged by their superiors, right up to the Russian Tzar.



Figure 1 Sylvia Haskell (left), Rita Lipman, a friend (center) and Mother, Celia (right) were depicted in the *New York World Telegram* as being among the first women in the city to register for jury duty.

and her later return to work in the legal department at Warner Brothers. Ultimately, at about age 67, she graduated college, with a major in dance therapy. Following graduation, she attended the Dance Therapy Institute and earned a post-graduate certificate in dance therapy.³ Surely, readers can recognize why, at a time when women generally were relegated to home and hearth, both my sister, Cynthia⁴ and I accepted it as a matter of course that we would have both a career and a family!

In retrospect, it is no wonder that Mother took up social activism herself. Her own mother had led the way. In one instance, immediately after the law was changed in 1937 to allow women to serve on juries in New York City, she was among the first to volunteer to do so.

Not surprisingly, Mother was determined to provide us with as broad and dense an education as feasible. At the time, New York City had an abundance of free or very low-cost cultural venues to which we were taken regularly: Art museums like *The Metropolitan Museum of Art*, *Frick Collection*, *Modern Art*, *Guggenheim* (I fell in love with Frank Lloyd Wright's architectural wonder *Fallingwater* which had been reproduced there); the Central Park and Bronx Zoos, Rockefeller Center's Museum of Science and Industry (long since gone, as are Diego Rivera's stunning murals depicting Central American workers).

Beyond a doubt, my top favorites were the New York World's Fair, which we visited on numerous occasions, the *Museum of Natural History* with its adjoining *Hayden Planetarium*

³Students and personnel at the Walden Learning Center (a laboratory pre-school program affiliated with our Developmental Disabilities Training Program at the University of Massachusetts) will recall Mother, or as the children addressed her, "Grandma Cele," who in her eighties and nineties led an integrated group of typically developing preschoolers and those with special needs in various dances, songs and games. Others may remember her teaching a dance class at the Association for Behavior Analysis Convention, during my presidential year, 1982.

⁴Cynthia ultimately became the Director of Operations of a major organization, the ARA Food Company; then assumed the Presidency of the Riverside Cemetery—a multi-generational organization on my fathers' side

and the long-since closed-to-the-public *Museum of the American Indian* on 155th street—and Broadway, just a mile from home. While we were unable to afford concerts at Carnegie Hall, Mother also saw to it that we attended the summer outdoor New York Philharmonic performances at Lewisohn Stadium, on the City College campus, for a twenty-five cent admission fee. No wonder I grew up with a love and appreciation for music, the arts...

But, now back to my early school experiences: Once all in the class were fluent reader, our teachers assigned the pages we were to peruse—and then we were to STOP and WAIT (though I confess to having peeked ahead more than once to discover what happened next).

Being more interested in the general contents than the exact phraseology within the piece, when faced with a new word, I would take an educated guess and plow on. This hit-or-miss approach transferred over into spelling. Despite successfully decoding most words, I was too impatient to memorize the exact sequence of its letters, with the result that I rarely earned an A grade in spelling. (Thank goodness for spell-check these days!)

Arithmetic was a different story. Addition and subtraction were simple, and when the times tables came along, I could readily calculate the correct answers. One very vivid memory is a times-table contest held on the auditorium stage. To my surprise I was the last student eliminated and consequently the winner.

My biggest trial, though, was penmanship. I'd learned an improper grasp of the pen, and, paired with my generally mediocre muscular coordination, have never been able to overcome that deficiency. (Thankfully, after gaining access to a desktop computer, my written communication skills began to improve substantially.)

Partial salvation came considerably later on, in the form of my ninth-grade science class. I found the experiments fascinating, as in observing a can collapsing when the air was pumped out of it, or a fire extinguish when deprived of oxygen. I couldn't wait for subsequent demonstrations. In addition, noting my apparent interest in science in general, and in our classroom terrarium in particular, the teacher charged me with its care. Then, instead of being required to sit rigidly with my hands folded on completing an assignment, I had access to exciting alternative activities, such as watering the plants and feeding the turtles and salamanders housed therein.

To my surprise and delight, after entering the tenth grade the following year, I found myself assigned to an honors biology class. That, along with my math class, was challenging, yet thoroughly fascinating. The scores I earned in the New York State Regents Exams were well above average. But, most importantly, a life-long dual love of math and science emerged from those experiences.

All was not roses, though. When it came time for me to register for advanced high-school courses in calculus, chemistry, and physics, I was discouraged from doing so, because, the academic advisor informed me, girls were incapable of learning such complex material. From that point on, I couldn't wait to escape from the boredom of high school, managing to do so by attending a private school during the summer and graduating a semester early.

ATTENDING COLLEGE

Mother could not afford to send me to a private college, especially one requiring boarding away from home. Fortunately, at the time, the City of New York funded several free

colleges, one of which, The College of the City of New York (CCNY) in Morningside Heights, located just a few miles from home, was the most geographically accessible. The college had a stellar reputation, ranking only second to Harvard in preparing students to enter and complete doctoral programs. Until 1945, the college had admitted only males, (except for the few women who enrolled in the School of Engineering). Then, due to the huge post-World-War II need for teachers, it opened its doors to women in its College of Education, just in time for me to apply the following year.

All applicants were required to undergo a set of entrance exams, distributed across two full days. Beyond covering English, the social sciences, plus a general assessment of intelligence, it tested our performance across the full range of math and science subjects of the kind that talented (male) high school students were expected to have mastered. As one would have predicted, I felt so totally defeated when confronted with questions covering the subjects I had not been permitted to study, that I concluded it would be fruitless to return for the second day of testing. But, by using her most persuasive arguments (“What do you have to lose? You never know...”), Mother talked me into returning to the next session and completing the battery of tests.

That summer (1946), I had a job as a waterfront counselor, which kept my thoughts occupied with matters related to that responsibility. Yet, feeling as if the Sword of Damocles was hanging hung over my head, I really worried that I might have to attend the all-female college (Hunter—to which I’d already been admitted).

Then one day during mail-call, I was handed an envelope displaying the CCNY return address. Afraid of what it might say, I held it in my shaking hand for several minutes. “Go on. Let’s bite the bullet. I’m here with a shoulder for you to cry on if you need it,” one of my fellow counselors urged me. So I opened the envelope. To my amazement and delight, it was an acceptance letter. “It must be a mistake,” was my first thought. But there, loud and clear the letter said: “It gives us great pleasure to inform you that you have been admitted to the City College of New York (“City”), Class of 1950, as a major in Elementary Education.” This was accompanied by a set of instructions about where, when, and how to register for classes, free of charge, except for minimal laboratory fees.

By the time the fall semester came along, I was ready and eager to begin attending classes, in which, other than Hygiene and Physical Education, typically, I was one of two or three females present. Also, compared to the snail’s pace of instruction of my earlier schooling, now the demands were substantially greater. Yet, because I’d been able to get by easily before, I’d never developed the knack of intensive studying. Grading was based on the curve. To my dismay, by the end of the first semester, I received a string of C grades (except for one of the three B’s given in our math class).

It took a few more semesters for me to turn my performance around by learning how to take detailed notes, acceptably complete all the required assignments, read as many suggested supplementary materials as feasible, and then review all those materials prior to taking exams or handing in assignments. In other words, I had to learn how to study.

Junior year was the time we began to focus on our majors and to pursue our own areas of interest. That may well have been responsible for my turnaround. Now my name appeared on the Dean’s List—an honor—as a result of performing in the A to B range in such fascinating topics as psychology, education, biology, geology, contemporary literature, music, art, and creative writing.

ENTERING THE WORLD OF PEDAGOGY

Our student-teaching experience took place during our senior year. It was my good fortune to be assigned to a public school (P.S. 192) adjacent to our Morningside Heights campus. The main lesson I learned during that time, though, was how to cope with diversity. Unlike my own middle class, largely learning-oriented Washington Heights Jewish neighbors, this student body was a varied lot. The children's families spanned a wide range of socioeconomic and cultural backgrounds, including CCNY professors, middle class members of various ethnicities (most of the rest of the City at the time was de facto segregated), along with a goodly proportion of poor and middle-class Blacks and Spanish-speaking, recent émigrés from Puerto Rico.

During student teaching, especially when my mentor-teacher left the room, I noted that quite a few of her second-grade students "misbehaved," not in the way I had—by whispering or peeking ahead in my textbooks—but by shouting, hitting and kicking one another, wandering around the room, throwing or destroying objects and so on. When the teacher returned in the midst of that mayhem, she would scold everyone so severely that they were rapidly frightened into submission. Those observations concerned me. When I became certified as a teacher with a class of my own, would I be able to avoid such distasteful disciplinary tactics?

Our CCNY professors generally had been supportive of "progressive education," designed to permit individual students, within broad limits, freely to follow their own particular interests and preferences. As if such trials didn't exist, issues of class management had never been broached during our training. I certainly valued student learning and wanted to help my pupils succeed as fully as possible. Yet, following my graduation and once actually on the job as a first-grade teacher (in the very same school), when my own pupils became particularly unruly, I saw no alternative to doing exactly as my mentors had: I scolded and punished. That tactic was successful in briefly subduing the pandemonium; yet everyone suffered because I was ignorant about issues related to the motivation and management of students with their particular backgrounds.

Weeks would pass, and each day I'd return home hoarse from shouting, dissatisfied, not only with my students when their behavior got out of hand, but also with myself, for not fulfilling the role of the effective and much-loved teacher I had envisioned. Those frustrations impelled me to search for a better way.

One glimmer of hope presented itself, during those early teaching years. I had noted with surprise what models of decorum Mr. Lomax's fifth-grade students seemed to be out in the hallway, at lunch, or while respectfully and confidently entering and remaining seated in the auditorium. Now, I was quite certain that those youngsters had not been hand-picked, but typified the general array of students in our school. There they were, right before my eyes; and that even included some former big trouble-makers. Apparently Mr. Lomax brought out the best in his students. By some magical technique, he'd nurtured a sense of pride and confidence in them.

I asked Mr. Lomax if he could share his secret. He thanked me, but seemed unable to describe his magic in words. So I thought I'd ask him if he would be willing to allow me to observe in his classroom while he taught. During that brief time, I noted how he treated each individual pupil with respect; but I failed to uncover much more. Yet, there it was, proof positive that indeed, students' classroom behavior could be effectively managed

without the teacher needing to resort to threats or reprimands. The mystery remained: What explained that turn-around?

Edward Stanton Sulzer Enters My Life

I began to get a handle on this issue a year later, when Edward Stanton Sulzer came into my life. While working toward my master's degree in elementary education, once again at CCNY, I had been attending a summer-session class in Government. One warm summer evening, during our break, a young man approached.

"Gosh, it's a hot one, isn't it?" One thing led to another, eventuating in his inviting me to take a ride out to one of the beaches, to enjoy its cool breezes.

"I'll call my Dad to see if he'll lend me his car."

I agreed. But unfortunately the car was unavailable. So I, in turn, suggested we take the double-decker bus back to my place, so I could drop off my books; then we could stroll along Riverside Drive, cooled by the neighboring Hudson River. As it rapidly became clear that Ed and I were kindred spirits, our friendship blossomed. We shared similar backgrounds, values, and world views and even the same kinky-curly hair. Beyond that, he was brilliant, evidenced by his having been accepted as a student by the University of Chicago at age 15. (Unfortunately Ed had been forced to leave the University of Chicago three years later, when his mother contracted, then perished from tuberculosis.) I found him to be one of the most interesting, selfless, kind, caring, and socially active people I'd ever encountered. Long story short: A year from the following October, we were married!

By then, Ed had enrolled in a heavily psychoanalytically-oriented Ph.D. program in clinical psychology at Teacher's College, Columbia University. Among the courses he attended across campus, though, was distinctly different; one taught by Nat Schoenfeld, co-author with Fred Keller of *Principles of Psychology* (1950). The course broadly covered B. F. Skinner's and colleagues' behavioral concepts and principles. With his heavy University of Chicago undergraduate background in the physical and biological sciences, Ed found this more scientific approach to the analysis of learning and behavior to be especially appealing.

While I remained at P. S. 192, Ed supported my efforts to apply some of those operant learning concepts toward both my pedagogical and classroom management techniques. Additionally, as I had been counseled in my college classes, I tried to relate the instructional content to the lives of my students, apparently more relevant and appealing to them. For instance, I went beyond the suburban middle-class setting of *Fun with Dick and Jane*⁵ (the almost nation-wide basic primary-level reader of the forties and fifties) by, as our professors had suggested, asking them to dictate stories relevant to their own situations. I then would read back those experience charts to the class; then invite my pupils to do the same. That way they learned to decode the words both in context and later, in isolation, on flash cards. I also allowed students with special aptitudes to exercise those within the context of the material I was trying to teach. For instance, I encouraged one of my artistically talented pupils to produce wooden figures to use in dramatic sketches within which new vocabulary and arithmetic concepts were woven. In other words, I changed focus from the

⁵The theme of the then-contemporary *Dick and Jane* basic reading series followed the actions of a white, suburban, middle-class family, one totally alien to our students.

standard reading texts to intrinsically reinforcing material composed jointly by the students and myself.

Emphasizing the Positive

In terms of classroom climate and conduct, thanks to Ed's input, with considerable determination and effort, I began to shift over from scolding misconduct to complimenting my students' adaptive and constructive behavior. For instance, I posted a checklist on which specific students' positive behaviors were recognized, designed a Citizen of the Week competition, which consisted of the class as a whole nominating a student, who had not previously been chosen for that honor, but who had displayed the most improvement for that week. I rewarded those "citizens" in groups of four or five, by treating them, with parental permission, to a visit to any place in the City they chose: the Polo Grounds (then the home of the New York Giants) for a baseball game, the Museum of Natural History, the circus, and so on. Our artistically talented student convinced the other members of his group to opt for the Metropolitan Museum of Art. Over time, the entire classroom atmosphere became transformed. Attendance improved; my chronic shouting-related sore throat disappeared and both the students and I very obviously began to enjoy school much more.

Meanwhile, in 1954, Ed and I entered a new phase in our lives. Just after the Korean War wound down, he was drafted into the United States Army. Following his basic training at Fort Dix, New Jersey, he, was trained to serve as a medical technician at Brooke Army Hospital, in San Antonio, Texas. I joined him there, securing a position for a semester as a first grade teacher in the San Antonio public schools. In February, Ed, was deployed to a hospital in Southern Japan and I returned to teach once again at P.S. 192.

The following summer, 1955, Ed suffered a strange skin condition which led to his transfer as a patient to Walter Reed Army Hospital, Washington, D.C. While there, he was assigned to work in the hospital's Department of Psychiatry. I then moved to D.C. to join him. Fortunately, that fall, I was offered a position as a third-grade teacher in a near-by school. In this case, most of the primarily African-American students' parents were government officials and/or employees who valued education highly. Department was not a challenge. So I was spared needing to turn to extrinsic rewards to motivate them. Rather, focusing positive attention and praise for good or improving performance generally was sufficient to keep them progressing.

Our Family Expands

Then, that spring, I became pregnant with our first child, David. We had to keep that a secret because expectant teachers were not permitted to continue to teach. Fortunately, I was able successfully to hide my condition until Ed was discharged from the army at the end of June. Ed then returned to complete graduate school and I stayed at home awaiting David, who was born in November of 1956. In 1958, after Ed completed his graduate work, he was offered and accepted employment as an assistant professor at the State of New York Upstate Medical School in Syracuse, New York. Soon afterward, in September, our son Richard was born.

Two years later, impressed by Ed's doctoral research (on the Minnesota Multiphasic Personality Inventory—MMPI), Professor Stark Hathaway, author of that assessment tool,

recruited Ed to join the Psychiatry Department of the University of Minnesota (U of M) School of Medicine. So our next move was to socially welcoming but frigid Minneapolis/St. Paul.

My Education Expands

Spending month after month ensconced at home due to the frosty Minnesota winters, I began to suffer from lack of adult companionship and intellectual stimulation, beyond what our very kind and supportive immediate neighbors and Ed could supply. So during that spring semester I enrolled in Robert Wirt's course in Child Clinical Psychology at the U of M. There I learned about childhood psycho-developmental issues and current measures for treating them. I must have demonstrated my fascination with the material, because at the end of the course, Dr. Wirt suggested I enroll as a full-time student in the University's doctoral program. I could earn support by serving as a teaching assistant (and later was provided with a federal grant which covered baby-sitter and other expenses). With Ed's and my family's encouragement, I followed through with that suggestion, despite the horror expressed by a number of acquaintances⁶ who insisted I would be neglecting my boys. Nonetheless, I hired a baby sitter for the hours during which I was to attend class, and carry out my duties as a teaching assistant.

Joining the Nascent Field of Behavior Analysis

The U of M. provided especially fertile territory in which to expand my knowledge and skills in the field of behavior analysis. B. F. Skinner had served on its faculty during the Second World War, before moving on to Indiana University. It was in Minneapolis that he had conducted his famous project "Pigeons in a Pelican" (1960), which involved training pigeons successfully to guide missiles that could potentially be armed with warheads. Skinner had influenced several of the faculty members to the extent that they became devotees of his experimental analytic approach to the study of behavior. For example, during my training, I profited from my experience as a teaching assistant to Kenneth McCorquodale, who taught a set of courses on the analysis of human behavior; and as a student in Harold Stevenson's course in child development and Robert Orlando's seminar on science-based treatment of students with autism and other developmental delays. While working at the time at the University of Washington, Jay Birnbrauer spent a summer at the U of M campus.

He informed us about his own collaboration with Sidney Bijou and Bijou's students: Donald Baer, Montrose Wolf and Todd Risley. Their experimental analytic applications were yielding impressive successes among both typically developing children, and, especially, children on the autism spectrum.

A requirement in another course, Educational Psychology, was to write a paper summarizing a relevant topic of our choice. I selected the subject of Teaching Machines and Programmed Instruction, which at the time was beginning to attract the attention of empirically-oriented educators. Soon afterward, Ed (who broadened and polished the paper) and

⁶Betty Friedan had not yet published her highly influential book, *The Feminine Mystique* (1963), in which she took exception to the narrow role contemporary American society imposed on American housewives. At that time, women were generally expected to stay home and nurture their children 24/7.

I were invited to submit the paper to a statewide journal, *Current Conclusions*, (Sulzer & Sulzer, 1962).

At the U of M, through Ed's and my own interactions with Travis Thompson, Kenneth McCorquodale, Robert Orlando and several other behaviorally-oriented faculty, our own interest in operant-learning-based instruction and treatment began to thrive. Eventually, in the mid-sixties, a group of interested parties organized a series of presentations on "Behavior Modification." Nathan Azrin, a recent star graduate student of B. F. Skinner now at Harvard, was among those who participated, presenting an electrifying talk in which he described a number of experimentally analyzed behavioral interventions recently conducted at the Anna, (Illinois) State Hospital. He described the operant-based token economy that Ted Ayllon and he had developed to motivate "mental patients" toward more adaptive behavior.

Relocating to Southern Illinois University, Carbondale

After the talk, Ed invited Nate to our home for dinner. They must have continued chatting throughout the night because by the next morning, Nate had convinced Ed, pending my concurrence, to come to Southern Illinois University (SIU) to coordinate the Behavior Modification Program (sic), about to be formed within the Rehabilitation Institute. By then, pregnant with our third child, Lenore, I had completed the data collection for my doctoral dissertation (on match-to-sample performance of retarded [sic] and typically-developing children, as a function of the nature of various reinforcing stimuli). I was in a position to analyze and write up the results anywhere, and agreed to the move to Carbondale, Illinois. So, we relocated that summer of 1965. Because both boys attended school, I now had the luxury of uninterrupted blocks of time until mid-November, when our daughter was born. Although the available time diminished, I was ultimately able to complete the project and earn the Ph.D.

My Higher-Education Teaching Career Begins

The following summer, the chair of the SIU Guidance and Educational Psychology Department, Tom Jordan, invited me to teach a three hour undergraduate course in Educational Psychology.⁷ I was delighted to be given carte blanche regarding learning objectives and instructional materials. Consequently, among other readings, I chose Holland & Skinner's programmed text, *The Analysis of Behavior* (1961). Course evaluations indicated that the students reacted positively to the experience. So did I! (Teaching motivated young adults contrasted positively in many—though not all—ways to attempting to educate young children.)

At any rate, Dr. Jordan, offered me an Instructorship⁸ in the Department. Afterward, having successfully defended my dissertation, I'd be promoted to full-time assistant pro-

⁷That was a few months following the completion of the draft of my dissertation, in which I'd compared various classes of reinforcers (e.g., snacks, numerical scores, pictorial images, etc.) on the rate and accuracy of match-to sample behavior of typically developing children and those with developmental delays. The only really striking difference between the two groups was latency of responding; with the latter group taking longer to make correct matches.)

⁸This sort of informal hiring was still ongoing, despite the Equal Opportunities legislation of 1962.

fessor. But, wanting to spend as much time as possible with my lovely little new daughter and her brothers, I demurred. “Well, a normal teaching load is three courses. Maybe you can join us half-time for a while; teach one course, supervise a graduate student and work with a client in the Child Development Clinic.” Ed, David (at that point, 10), Richard (8) and I discussed the possibility. I could schedule my course to meet for a three-hour block in the evening, when Ed would be home; and hire a baby-sitter for the clinic hours, during which time Lenore usually took her nap and the boys were at school. We agreed it seemed doable, and so my career as a regular part-time member of the S.I.U. School of Education faculty began.

We educators know that many of our own skills derive not only from books and lectures, but also from the verbal and non-verbal behavior of our students and colleagues. That certainly was my experience. As it turned out, the partnership between Ed’s Behavior Modification Program at S.I.U. and Nathan (Nate) Azrin’s team at Anna State Hospital produced an amazing synergy. Ed’s, and later my own students, too, participated in coursework and/or conducted research under the supervision of such notables in the field as Nate himself, Ted Ayllon, Donald Hake, Harris Rubin, Keith Miller, Robert Campbell, Richard Sanders, and Ron Hutchinson. Listening, reading about, and discussing the research they and their colleagues were conducting broadened my own education in basic and applied operant conditioning across an array of topical areas. These ranged from basic simple-to-complex schedules of reinforcement, and extinction and punishment as applied to numerous classes of the behavior of typically- and atypically-behaving humans and non-human animals. Our mutual education, though, extended well beyond the laboratory and the classroom. We would gather socially as a group that often included the “behavior modification” graduate students and, sometimes our own young children, for parties, picnics and other social events. Those frequently became occasions for animated discussions about the state of the field of Behavior Modification (later labeled Applied Behavior Analysis and/or Behavior Therapy).

What I recall especially vividly, though, were Ed and Nate’s late-night conversations. Nate would drop by after dinner and before long, he and Ed would become engaged in deep discussions of professional, scientific, theoretical, philosophical, ethical, pragmatic, methodological/heuristic, historical, and other facets related to the modification of human behavior. Often I would join the two of them for a while, always picking up some useful tidbits, before excusing myself to retire. Sometimes, hours later, I’d awaken to find Ed’s portion of the bed still unoccupied. Creeping down the stairs to check things out, I’d find the two of them still in deep discussion. Given Nate’s position as Editor of the *Journal of the Experimental Analysis of Behavior* (JEAB) at the time, they undoubtedly also talked about the nature, wisdom, and feasibility of forming a new applied journal in the field. At any rate, spearheaded by Nate and his JEAB colleagues, the *Journal of Applied Behavior Analysis* was launched in 1968.

Despite our too-brief time together, it was Ed Sulzer himself who exerted the greatest influence on the path of my subsequent research and scholarly activities. As implied earlier, we shared a world-view and a deep interest in human learning and behavior, though his specific focus tended to tilt in the clinical direction; mine in the area of regular and special education. During much of our available time together—in the car, at lunch, at home in the evening—we would discuss and problem-solve our teaching and research challenges. One example was our mutual conceptualization of a means of providing individual students in

my educational psychology class with rapid feedback on their performance on daily quizzes. In collaboration with a team from General Electric's Research and Development Division, Ed and I designed and tested a system in which a multiple-choice question would be flashed on a screen and each student was asked to select the preferred answer by pressing one of five buttons embedded within a device attached to his or her seat (Sulzer, 1968). Immediately after each quiz item had been presented, a computer analyzed the array of student responses for each item and displayed those on a set of dials mounted in the front of the room. This provided an excellent opportunity for us to discuss the material in depth and clarify any sources of confusion.⁹

Describing and Applying Behavior Analytic Principles and Methods

Henceforth I attempted to incorporate principles of behavior in essentially all of my teaching and mentoring. Examples included:

- Clearly notifying students in advance of grading contingencies via detailed course policies
- Assigning science-based readings, such as the Holland and Skinner's (1961) and the Reese' (1966) texts for undergraduate educational psychology
- Prompting minimally—only to the extent necessary—while mentoring, supervising, and grading
- Providing lots of merited positive social feedback
- Shaping the quality of individual student participation by reinforcing successively closer approximations to our objectives

Collegial Influences

It was during the later portion of 1980s that G. Roy Mayer and I established our subsequently life-long professional relationship. Initially, Roy and Jack Cody had prepared and submitted for publication a paper on the topic of managing behavioral problems in the classroom. Guy Renzaglia, who reviewed that paper for the *Rehabilitation Counseling Bulletin*, suggested that they might consider seeking some input from me while revising it; perhaps dividing the material into two separate documents. Jack and Roy took up his suggestion, with the net result that each of the two papers eventually were accepted for publication (Mayer, Sulzer & Cody, 1968) and Sulzer, Mayer & Cody, 1968).

Another set of set of circumstances influencing the direction of my career was that the Rehabilitation Institute, which housed the Behavior Modification Program (later changed to Behavior Analysis and Therapy) was not permitted to offer doctoral degrees at the time. By contrast, the Department of Guidance and Educational Psychology, my own affiliation, could. As a consequence, on completing their Masters degrees in Behavior Modification, several students applied to and were accepted into our Guidance and Educational Psychology Department. Early on, their research included such topics as the effect of various

⁹In 1968 I presented a paper based on this project at the Annual American Psychological Association Convention.

schedules of reinforcement on student studying, feedback, and quiz performance. Andrew Wheeler and I explored methods for teaching a youngster with autism to learn a particular spoken sentence form (the present participle) and transfer it to parallel sentences (Wheeler & Sulzer, 1970). With a main interest in training and supporting the work of teachers in the learning disabilities field, Beverly Holden and I examined the influence of feedback schedules on teachers' follow-through with prescriptive teaching programs (Holden & Sulzer-Azaroff, 1972). And there were numerous others.

Besides working independently, or as a member or chair of graduate committees, my own range of knowledge continued to expand. At the time, despite my not having requested to become a full-time faculty member, Tom Jordan approached with an offer I couldn't refuse. He noted that I actually had practically been fulfilling the role of a full-time faculty member, and that if I elected to present one more course of my own choosing, he would recommend that I be appointed to the department as a full-time Assistant Professor. Ed and I discussed the possibility and agreed that accepting would be feasible, because Lenore, now three years of age, was attending nursery school (directed by Victoria Azrin, Nate's wife) and I could schedule my teaching, clinic, and student advisement during those times, or when our baby sitter was there to supervise Lenore and the boys.



Figure 2 Beth Sulzer-Azaroff with Roy Mayer.

TREADING THE POSITIVE REINFORCEMENT PATH

Simultaneously, I became more than ever convinced by Nate Azrin's [e.g., Azrin & Holz (1966), Murray Sidman's (compiled later for a lay audience in 2001)], and their colleagues' findings, that accentuating positive reinforcement and minimizing punitive methods constituted the best way to enhance student performance. As a consequence, my collaborators' and my own concern focused on ways to apply positive, constructive approaches to classroom management and motivation of students (e.g., Dan Whitley, Leah Englehardt, Martin Pollack, Nancy Fjellstedt, Jerry Ulman, and others). When Bill Hopkins joined the Behavior Modification program during about its third year of operation, we discovered our mutual interest in those topics. As a team, he and I collaborated in offering a series of workshops on positive approaches to classroom management and motivation. In addition to Bill's input, the findings of Sidney Bijou and his "progeny"; Vance Hall, Donald Baer, Montrose Wolf, Todd Risley, Barbara Etzel and others, many of whom were affiliated at the time with the University of Kansas Department of Human Development, also shaped our path in that direction.

Not too long after visiting that program, Sharon Hunt, my doctoral advisee, and I, in collaboration with a regular classroom teacher and other research personnel, designed and implemented a token economy in a local, recently racially-integrated fourth-grade class in Carbondale (see Sulzer, Hunt, Ashby, Koniarski & Krams, 1971). Results demonstrated an overwhelming across-the-board improvement in the treated variables—reading and spelling—as well as in the untreated variable, classroom deportment.

Along with findings from a number of related studies, perhaps the most interesting aspect of the set was the fact that while monitoring both classes of behavior, we distributed reinforcers (tangible in some cases; social attention, in others), contingent on performance improvement, instead of on deportment. Yet, we did observe and record deportment and saw related improvement during the intervention phases. In so doing, I suspect we may have discovered Mr. Lomax's secret: That he'd made a point clearly to delineate, and probably model and attend to desired student behaviors and to recognize, in word or deed, those students who were performing well at the moment.

Yet, as implied earlier, Ed Sulzer probably was the individual who had the most powerful influence on the positive direction of my scholarly and professional paths. Incredibly bright as well as a wise, Ed was also kind, caring, generous, and dependable husband, father, friend, and colleague. He took the findings of our behavior-analytic colleagues to heart and rarely, if ever, emitted a punishing word or deed. I found that being able to discuss, troubleshoot, and to collaborate with such a kind and supportive person was hugely beneficial in promoting my own personal, professional, and scientific growth.

Tragedy Strikes

Unfortunately, in the summer of 1969, Ed was struck with some mysterious illness consisting of severe chest pain and loss of weight and strength. He suffered for months before it became apparent that he was afflicted with lung cancer, to which he ultimately succumbed in February, 1970. Following that calamity, I concentrated especially heavily on our three children, attempting to provide them with the attention they'd grown used to from both parents. My professional and scientific responsibilities constituted the other main area of concentration, fortunately providing sufficient financial support and diversion to help us carry on.

Chasing Sorrow through Intense Effort

At about the same time, quite pleased with the successful outcome of our initial collaborations, Roy Mayer and I decided to enlarge the scope of the two recently published papers into a textbook. Although as public school teachers, his former students were adolescents and mine younger, we discovered our strong overlapping interests and working styles, such as meeting our jointly agreed-upon goals in a timely way. Yet each of us has our own special focuses and talents. These were brought further to bear in our first collaborative text, *Behavior Modification for School Personnel* (Sulzer & Mayer, 1972). In the late sixties, Roy moved to California while I remained in Carbondale until 1972. Despite the distant geographical divide, Roy and I have been able fruitfully to combine our abilities and interests for purposes of research and scholarship (see various other Sulzer-Azaroff &

Mayer citations in the reference list for this volume as well as in Mayer, Sulzer-Azaroff & Wallace, 2012, 2015).

Meeting Leonid (Lee) Azaroff

Practically everyone we know us asks how Lee, who served at the time as Director of the Institute for Materials Science at the University of Connecticut, in Storrs, and I met. Here's the way it transpired: Jacqueline (Jackie) Oxford, who was employed in SIU's Learning Resources Department, and I had become buddies over time. During the summer following Ed's death, while a graduate student couple moved in to supervise the children, Jackie and I sought to explore the wider world, beginning with a bus tour of Western Europe. Despite still grieving, I was excited because after a life-time of yearning to see more of the world I found that happening at last. We began in Holland, a land of dykes, windmills, museums, and flowers; sailed down the castle-dotted Rhine, transferred to a bus, and visited major cities in Germany, Switzerland, France, and then, crossed the channel to England. As I'd hoped, the experience slightly diminished the deep sorrow I'd been experiencing.

During the following year (during which I was promoted to Associate Professor), I forced myself to engage in social events and eventually met and sometimes dated just about every one of the very few eligible men residing in Carbondale. In no case was a mutual spark evinced (nor did any meet the set of qualities I'd sketched out for myself: single, at least for a while, kind, likes children, bright, appealing, honest, gainfully employed, and some important mutual perspectives, values, and interests).

Giving our previous pleasant European holiday experience, the following year, Jackie and I discussed planning another trip; this time a ten-day cruise during the Christmas holidays. Joan and Barney Salzberg, graduate-student friends, offered to care for our brood during that vacation period. So off Jackie and I went to tour the Caribbean. The third day out, I was reading in the lounge when a man approached and asked me if I played bridge (I did), and if so, would I agree to be his partner for the duplicate bridge game assembling in the game room. Pleased at the invitation, I joined him.

After the game was over, we sat chatting for a while, when one of our former opponents stopped by and asked to join us. The two men talked about where they lived and their occupations—my partner owned race tracks and the stranger was a professor of solid state physics/materials science and Director of the Institute for Materials Science at the University of Connecticut. Now my ears perked up and I interrupted with something like “Guess what I do?”

Our Family Reassembles

Suffice it to say that within a week, while still on the cruise, Lee (divorced and childless) and I agreed to marry—pending his becoming acquainted with my children and the mutual agreement of all. On sabbatical that spring, Lee was able to visit Carbondale and he and the children met one another. I also flew out to Connecticut to meet his mother and visit the home in which we had agreed settle as a family. Things went fine. On his next visit to Illinois, he presented me with an engagement ring. We planned a very small wedding for

the beginning of March, after which he would stay with us during the remainder of the term. Having received reasonable course ratings, mentored a number of graduate students, received several grants and contracts and gathered a string of publications, including the in-press first text with Roy, *Behavior Modification Procedures for School Personnel* (Sulzer & Mayer, 1972), Lee assured me that obtaining a position at the University of Connecticut (UConn) would pose no problem at all.

I Search for a Job

How wrong Lee's assumption was—at least about the ease of my being hired at UConn. Three local UConn departments with openings interviewed me, and in each case, someone quietly took me aside to warn that my being a woman would work in my disfavor. Needless to say, no offers were proffered. Eager to secure research funding in pediatric dentistry, especially in the area of children's dental self-care, though, The Dental School did offer me an Associate Professorship; but the School's Personnel Committee was only willing to go so far as appointing me to an Assistant Professorship. This I declined, but did agree to spend a day a week that first year to help prepare a grant proposal (which paid off with a multi-year contract), while subsequently I participated by serving as an occasional consultant.

Fortunately, the Mansfield Training School, a local residential program serving the developmentally disabled, invited me to join their Psychology Department part time, under acceptable conditions, and I did so for that first year. That arrangement worked to our mutual advantage. At Mansfield, I helped develop personnel performance standards and instituted methods for enabling staff to achieve those. The part-time arrangement permitted me to help settle our family into its new circumstances—considerably more of a challenge than I'd naively anticipated. (Nonetheless, we did remain a reasonably smoothly functioning family for over 42 years, until Lee passed away in July of 2014.)

In the spring of 1973, I noted an announcement in *The Monitor on Psychology*, describing a position opening in the Educational Psychology Area of the Department of Psychology at the University of Massachusetts (UMass), Amherst. The announcement included the phrase "Minorities and women particularly encouraged to apply." That looked hopeful.

Lee, the children and I discussed the advisability of my following through. David, our oldest, was about to head off for college the following year, while Richard and Lenore would be remaining at home. We wondered how feasible it would be for me to commute to Amherst, 50 miles distant, over back, winding roads. Maybe I could arrange to be on campus fewer than five days a week. We decided to test the waters. So I wrote a letter of application, accompanied by my C.V., which by then included a couple of funded research projects, three books/monographs and a number of published articles and chapters.

A few days later, I received a telephone call from Richard Louttit, chair of that Psychology Department. He invited me to Amherst to meet with him and the faculty members of the Educational Psychology Area, to which I happily agreed. The rest is history: The following autumn, I began my affiliation as an Associate Professor within the department, was promoted to full professor soon thereafter and remained for nineteen years. Being able to stay overnight once or, occasionally, twice weekly at the Campus Center Hotel was a big advantage. On the days without classes, I worked at home, stopping when the children

returned from school. That schedule provided solid blocks of time for me to pursue my scholarly activities, as well as to engage with and enjoy the family.

My Functions at UMass

A few major features guided the direction of my activities at UMass: Departmental requirements and students', colleagues', and my own needs and interests. Training of teachers and other psycho-educational personnel was uppermost, so I designed and implemented courses in educational psychology. Along with other contemporary standard material in the field, we used our newly-published Behavior Modification Procedures for School Personnel (Sulzer & Mayer, 1972). With a background in applying Fred Keller's (1968) Personalized System of Instruction (PSI) at Georgetown University, Kent Johnson, my first doctoral student there, was fired up about implementing and conducting research involving PSI at UMass. So we designed our initial courses to incorporate PSI's main features

- Stress on the written word
- Required unit mastery
- Student self-pacing
- Use of proctors
- Lectures and demonstrations as motivational tools

Superior student and proctor performance and satisfaction with that initial course encouraged us to continue to organize our other pedagogical offerings according to those features, including undergraduate educational psychology, applied behavior analysis, organizational behavior management, within-subject experimental designs, various graduate level seminars and a specialized writing course for psychology majors at the undergraduate level. Practically all of our students repeatedly demonstrated mastery of the material at the A level (within the 90 to 100 percent range). Happily, a number of those students reported back to us that those experiences helped them to pass national teaching examinations, gain admission into their preferred graduate school programs (including our own Developmental Disabilities Training Program) or to succeed on-the-job.

Shortly, thanks to the inspiration of one of operant behavioral psychology's leading lights, my Mount Holyoke College colleague and friend, Ellen (Ellie) Reese, our team of curriculum designers recognized that mastery of only verbal-behavioral skills was insufficient training for future educators and scientists. So we decided to design, implement and evaluate the impact of adding a laboratory feature within our educational psychology (Sulzer-Azaroff, Brewer and Ford, 1982) and later, our Applied Behavior Analytic (ABA) curriculum (e.g., Sulzer-Azaroff & Reese, 1982.)

Colleagues and Students

To digress ever so slightly, I feel compelled to mention the broader influence that Ellen (Ellie) P. Reese had on my own and my students' careers. At S.I.U., prior to moving to Connecticut, I had been showing Ellie's vivid instructional films about behavior analysis



Figure 3 Beth Sulzer-Azaroff (left) and Ellen Reese

and assigning her compact monograph, *Human Operant Behavior Analysis and Application* (1978), to my educational psychology students. I felt that Ellie had elegantly distilled the methods and numerous findings of behavior analytic investigations in as compact, lucid, and appealing a way as anyone had to date. The students had been similarly enthused with the materials.

You can imagine, then, how delighted I was to encounter Ellie at a conference during the summer preceding my joining the UMass faculty. I had been made aware that UMass and Mount Holyoke had amalgamated into a consortium, permitting students at those two institutions, plus those at Amherst, Smith, and Hampshire Colleges, to register for a range of courses in any of the other four institutions. So I concluded that those five were in close proximity to one another. When I then introduced myself to Ellie during a social hour, told her of my pleasure in meeting her and that I'd be teaching in her neighborhood, she seemed delighted that at last she'd have another female colleague with overlapping interests in the region.

Indeed, we followed through by meeting for dinner regularly over the years, most often at the Lord Jeffery Inn on the Amherst town green; not just once, but generally bi-weekly while classes were in session. Additionally, we often attended the same Board, Committee, or Convention presentations. Frequently we enjoyed discussing the talks one or the other or both of us had heard. We informed one another of events of interest at meetings; discussed our own and our students' research and scholarly interests along with trends and concerns in the field of behavior analysis, including professional and scientific issues. Sometimes we'd share materials, exchange students for purposes of instruction and/or research, or serve on one another's graduate students' committees. Agreeing that student learning is best accom-

plished by actually designing, conducting, and experimentally analyzing behavior-change procedures, we collaborated in compiling the laboratory manual, *Applying Behavior Analysis* (1982), mentioned above. Our own UMass program that emphasized human applications of behavior analysis was counterbalanced by that of Ellie's and her own students' primary interest: the nature of the variables controlling behavior of non-human animals.

Simultaneously, Kent Johnson, other graduate students and I collaborated in petitioning for and obtaining space in the Campus Library, where we developed and operated a Personalized System of Instruction (PSI; Keller, 1968) Learning Center. We prepared curriculum materials (e.g., Johnson, Maass, & Sulzer-Azaroff, 1976; Sulzer-Azaroff, Brewer, & Ford, 1978; Sulzer-Azaroff & Mayer, 1986 and others). We also programmed, implemented, refined, experimentally analyzed, and published the outcomes of a series of investigations of the key features of PSI courses in teacher education, applied behavior analysis, single-case experimental design and in behavior management (e.g., Chase, Sulzer-Azaroff, & Well, 1983; Johnson, Sulzer-Azaroff, & Maass, 1976; Sulzer-Azaroff, Johnson, Dean, & Freyman, 1977; Johnson & Sulzer-Azaroff, 1978, plus others).

Training Leaders for the Field of Developmental Disabilities

During my first year at UMass, with our mutual interest in teaching/training psycho-educational personnel to serve the field of developmental disabilities (DD), my colleague, Gregory Olley and I decided to collaborate toward some common purposes. We jointly conducted a seminar on the topic, and, in conjunction with our colleagues in the special education department, submitted an application for a federal grant to support graduate students' preparation for educational leadership positions in the field of developmental disabilities. Later on, after Greg Olley moved elsewhere, Robert Feldman filled that role. To our and our discipline's good fortune, the program continued to be funded for the next 17 years. The vast majority of our trainees have become outstanding contributors to the field as researchers, trainers, and service-provider leaders.

Within a few years, a related program for post-doctoral students also was funded, permitting us to train a number of post-doctoral trainees to become proficient in applied behavior analytic research and development approaches toward educating service providers in the field. Many of the trainees funded under those two programs subsequently became major educators, researchers, and educational leaders in developmental disabilities and related fields (e.g., Attention Deficit Hyperactivity Disorder—ADHD).

DEMONSTRATING THE GENERALITY OF BEHAVIOR-ANALYTIC APPLICATION AND FOLLOW-UP IN OTHER MEANINGFUL AREAS

By the mid-nineteen seventies, applied behavior analysis had become well established as a powerful, by drawing my attention to a fascinating conundrum: technology for improving educational achievement across a breadth of populations, and target behaviors, including typically developing students, those with special needs as well as the performance of the personnel serving them. At about the time, many of us who were heavily involved in the

field began to ponder just how widely its principles and procedures extended. In my own particular case, the initial answer to this question presented itself serendipitously.

Behavioral Safety and Health

A few years into our marriage, Leonid returned home quite agitated. An explosion had occurred in one of the laboratories at his Institute (the Institute of Materials Science, or IMS), due to the technician's failure appropriately to vent volatile fumes. Fortunately, the technician was unscathed, but the laboratory itself suffered considerable damage. As might be anticipated, my reaction was "That is a behavioral problem. The technician ignored the preventative procedures he'd presumably been instructed to follow!"

"Oh," Lee challenged, "what would you do to prevent such mishaps in the future?" Undaunted, I rose to the challenge. "Initially, I'd see to it that

- all personnel and students demonstrated mastery of rules of proper safety practices
- ensure they'd mastered those rules
- institute a regular surveillance program *to assess*; and
- *reward compliance* with those rules."

Lee bought the notion: Laboratory guidelines and inspection protocols were prepared for the approximately 30 laboratories in operation, and a program of regular inspections, feedback, and reinforcement instituted (typically a pizza party to which personnel of laboratories repeatedly scored as being safe were invited). Results were compelling (see Sulzer-Azaroff, 1978) to all involved and the program continued at least until Leonid vacated the office of Director of the Institute in 1992. No further injuries of personnel and only one minor incident occurred during that entire time.

Compelled by these results, and taking a page from the work of Judy Komaki, (e.g., Komaki, Barwick, & Scott, 1978) and others who had been experimenting with the application of behavior analytic strategies toward solving safety challenges, my students and I spun off a whole series of safety and health improvement (e.g., deSantamaria & Sulzer-Azaroff, 1980; Sulzer-Azaroff, 1982; Alavosius & Sulzer-Azaroff, 1986; Sulzer-Azaroff, 1987, Brown & Sulzer-Azaroff, 1991, Babcock, Sulzer-Azaroff, Sanderson, & Scibak, 1992 and various others) and other job related research investigations. We followed the same logical path as many others in our field have; by specifying a set of behavioral objectives, that is, by setting behavioral goals and objectives, identifying and/or designing reliable and valid measures and using those to constitute a solidly representative baseline, presenting participants and managers with the results of those measures (feedback), arranging change (usually reinforcing) conditions, functionally analyzing the influence of those conditions; then, assuming their effectiveness has been established, reinstating and maintaining them, often according to a variable schedule.

Business Applications

Another opportunity to assuage my curiosity about the generality of ABA derived from the interests of my graduate students. A few of them were interested in the area of busi-

ness and had set their investigations within offices (see McCann & Sulzer-Azaroff, 1996) and commercial establishments (Brown & Sulzer-Azaroff, 1994). The former study was directed toward aiding computer operators to avoid carpal tunnel syndrome, a repetitive strain injury; the latter promoting service friendliness among bank tellers. Results, by now unsurprisingly, resembled those we had seen earlier. Frequent specific feedback encouraged computer operators to improve their habitual posture; bank tellers to increase their rates of service friendliness. (Following my retirement from academia, a number of related behavior-change opportunities presented themselves. See below.)

Service and Professional Activities

Recall that by the early 1970s, through the efforts of Betty Friedan, Gloria Steinem, Bella Abzug, and other committed female activists, women began to rise into positions of leadership in American society. My own first opportunity to serve in such a position was in 1980. Along with Martin Pollack and others, in 1979, we had founded the Berkshire Association for Behavior Analysis and Therapy. I served as Pollack's Vice President during its first year and as President, the second.

Despite operating for about a decade, the Association for Behavior Analysis (ABA), no women had yet been elected to the top positions of major elective offices in the organization. It was Elsie Pinkston, a professor of the University of Chicago who took up the cudgels in support of women's involvement within the ABA leadership. Elsie and her cohort nominated me for the position and I was elected President, serving from 1981–1982. Soon on the heels of that job and thanks to the urging as such luminaries as Kurt Salzinger and others, I served, in turn, as President of Division 25 (Experimental Analysis of Behavior) of the American Psychological Association (APA), as APA Division 25 Counsel Representative, and member, then chair of the APA Boards of Educational and of Scientific Affairs.

Considerably later, following my retirement from UMass, Ellie Reese and others encouraged my deeper involvement in the Cambridge Center for Behavioral Studies. There, a number of key people, including Executive Directors Howard Sloane, Betsy J. Constantine, Dwight Harshbarger, and my fellow board members fostered my skill set in designing and participating in educational programs directed to lay audiences.

ORGANIZATIONAL LEADERSHIP

Given the numerous studies our research teams had conducted within organizational settings, rapidly it became apparent that the actions of both the local and the broader organizational managerial leadership heavily influenced the degree of success of any behavior-change program. That stood to reason because (depending upon union contracts, civil service rankings and /or other powerful organizational arrangements) those leaders tended to be in control of a number of extremely powerful reinforcers. Among those was the promotion, retention, dismissal, or reassignment of personnel, setting salary and job performance standards, social approval or disapproval of job execution, and so forth. As a more specific example, we asked ourselves if perhaps the reason why the IMS intervention endured as effectively as it did was because Lee was the senior leader of the organization; that while State guidelines certainly dictated many of the contingencies in place (e.g., salaries, working hours, assign-

ment of space, allocation of materials, auxiliary personnel, letters of recommendation, and so forth), were, at least partially influenced from the office of the Director.

That realization set me to wondering about how one might best approach dealing with meta-(over-arching) contingencies of the kind just described. I had heard Aubrey Daniels discuss issues of that nature at a recent conference, and felt I stood to learn much of value from him on that subject. So, during my first sabbatical leave, I contacted Aubrey and asked to visit his organization (Aubrey Daniels and Associates). We hit it off from the start, and Aubrey invited me to attend, as a participant-observer, one of his two-week training seminars on organizational leadership. I would take notes and make observations during the meetings, while he would permit me to attend gratis. That experience supported my conclusions about leadership, but beyond that, I learned much more about the nature of organizational structure, function, challenges, and solutions. Afterward, I had the privilege of participating in a couple of the programs ADA was then operating, thereby expanding my own familiarity with health, communication, manufacturing and service groups. Beyond that I became aware of the fact that, by following OBM guidelines, private sector organizations could increase profits and worker and customer satisfaction.

From that time on, whenever any participant in our own research team expressed an interest in producing demonstrable behavioral improvement within an organization, one of our first considerations was to identify the various internal and external sources of control over its reinforcing and punishing contingencies. Then, we made certain to assure ourselves that those conditions were held steady, while a particular variable of interest (say, availability of material; behavior-change procedures and so on) were being manipulated.

Going just-about full circle back to the performance of students in the classroom, permit me briefly to describe Alex Gillat's (Gillat & Sulzer-Azaroff, 1994) investigation. Alex had served as a school principal and a military leader in the Israeli Army. His key interest was student performance improvement via involvement of school leaders. Alex arranged with a couple of principals of nearby school—one at the elementary and the other, later on, at a middle school level—to participate in a minimally time-consuming activity: In each of the two cases, the teacher agreed to post on the classroom bulletin board the progress of students who had been encountering particular difficulty, in the first case, mastering times tables, in the second, in reading improvement. He used that performance data to produce a baseline. Then we asked the building principals to arrange to stop by the classroom briefly on their way to or from lunch and upon noting instances of individual improvement to comment positively to the class. Lo and behold, all student-participants improved noticeably in the subject area of concern!

NATIONAL AND INTERNATIONAL OUTREACH

One of my own personal goals has been to demonstrate the generality of applied behavior analytic principles and the methods that derived from those. By following the research interests of our students, we were able to demonstrate the efficacy of ABA strategies across numerous populations (typically developing children and adults and those with special challenges, professional service personnel in educational, healthcare, commerce, industry,) in a range of settings (schools, homes, hospitals, institutions, industrial sites, community

settings, and so on). One happy consequence of this breadth of research was that I often was invited to join a range of committees and boards and to teach and present our work at a national and international level. I must confess that the opportunity to travel has always been a major reinforcer for me, so I gladly agreed to serve as a visiting professor in Perth, Australia, to teach behavioral safety in workshops in Finland and Sweden, to participate in communication training in England, and to lecture, teach and consult on a breadth of topics in other far-flown places such as Venezuela, Hungary, Italy, and Thailand. In some small way, those adventures may have served as a mechanism for apprising other behavior change agents our powerful methodology.

RETIREMENT FROM FULL-TIME ACADEMIA

In 1992, when Lee and I became eligible to retire from our respective university positions, we decided to spend the months, when New England was its coldest, in Florida. But neither of us was ready to give up our professional activities altogether. So, with a history of serving as a journal editor and successfully authoring a number of textbooks, Lee returned to writing¹⁰ on the physical sciences; I to applied behavior analysis. We both instructed adult education classes, and early on, at Jack Gewirtz's invitation, I taught a couple of courses in applied behavior analysis (ABA) and organizational behavior management at Florida International University, in Miami. Beyond that, I continued to consult with various educational, service and business organizations.

One especially fascinating opportunity presented itself when Dwight Harshbarger and I decided to become partners in a behavioral consulting organization, The Browns Group. Our first major contract was with a Reebok sports shoes manufacturer in Bangkok, Thailand. We were asked to address those of its financial losses, that were traceable to excessive numbers of products rejected due to defective workmanship. Taking a page from our other organizational work, we designed and implemented a quality-improvement program. Dwight, a talented wordsmith who had worked in industry for quite a while, took our basic behavior-analytic-model and rephrased it for our lay audience into everyday language in the form of "Four Good Job Questions." We then could make use of the answers by incorporating them within our suggested performance-improvement strategy:

1. "What is a good job?" (i.e., identifying valid descriptions of key behaviors involved in high quality performance.)
2. "How do I know if I'm doing a good job?" (i.e., creating and repeatedly applying reliable, valid measures of those behaviors, to constitute a baseline.)
3. "Am I doing a good job?" (i.e., then using the results of our observations as a basis for providing verbal and/or numerical performance feedback to line and supervisory personnel.)
4. "What happens when I do a good job?" (i.e., identifying and disseminating effective reinforcers contingent on measurable performance improvement.)

¹⁰As you might imagine, my personal favorite was: Azaroff, L.V., (1996). *Physics Over Easy: Breakfasts with Beth and Physics*. Singapore: World Scientific.

Based on the answers to those questions, we were able to fashion a training and behavior-support program for virtually all levels of management. We taught each manager and supervisor, including the owner (who having been educated in the United States, understood and spoke English and served as interpreter) to select relevant target behaviors, why and how to measure performance reliably and validly, to provide subordinates with accurate feedback, consisting of reliable numerical records of improvement, and especially, to positively recognize their line employees' successful efforts, and occasionally to provide special breaks with treats (cookies, soft drinks etc.) contingent on demonstrated improvement.

While prior to our intervention approximately 14 percent of the shoes had been rejected for failing to meet quality standards, month after month, following our intervention those defect rates diminished to and remained at about a 4.4 percent level over the ensuing year. As a consequence, the owner celebrated by providing the entire managerial staff and ourselves with a delightful evening cruising and partying down the Chao Phraya River. Soon after, he invited us to repeat our program in three other sport-shoe factories (see Sulzer-Azaroff & Harshbarger, 1995).

Eventually, though, finding the trips half-way around the world rather arduous and a challenge to my health, I decided to forgo that sort of long distance travel. Instead, I turned my attention back to the topic of occupational safety, writing a text and study guide on the subject (Sulzer-Azaroff, 1998). I also continued consulting, but primarily with stateside educational and business organizations. Examples include work in collaboration with Martin Pollack at Southbury Training School (see Sulzer-Azaroff, Pollack, Hamad, & Howley, 1998) effectively to improved care-giver skills, and on organizational tactics at Andy Bondy's and Lori Frost's Pyramid Educational Consultants. In the latter case, beyond collaborating with them in planning the structure and operation of the organization, Andy and I cooperated on preparing a text describing Pyramid's approach to educating youngsters with autism (Bondy & Sulzer-Azaroff, 2002).

Another especially auspicious opportunity presented itself in the early 2000's when Charles Hamad contacted me, requesting assistance in helping to design and field-test a newly funded distance-learning behavioral program for parents and teachers of children on the autism spectrum. I turned to my former student and present colleague, Richard Fleming, inviting him to take the lead in developing the curriculum. As a team, we designed, prepared and field-tested a four-semester curriculum, consisting of sets of assigned readings, tests for which students were required to demonstrate mastery by scoring in the A range (if not, they were to retake a different form of the test until they did reach that level) and satisfactorily completing a series of laboratory and field activities. For the latter, participants needed regularly to join in discussions with the instructor and their fellow students, and to implement a range of behavior-analytic skills.¹¹ That particular skill-set included:

- with parental permission, selecting a student (i.e., their own child or another youngster on the spectrum);
- assessing that youngster's capabilities;
- choosing, also with appropriate permissions, a challenging but promising educational objective for that student;

¹¹These assignments subsequently were compiled into a field manual entitled *Applying Behavior Analysis Across the Autism Spectrum, Second Edition*, by Sulzer-Azaroff, Dyer, Duont & Soucy, Sloan Publishing, 2012.

- video recording and in other ways demonstrating how they designed and implemented assessments;
- choosing instructional or behavioral goals and valid and reliable behavioral measures;
- implementing and experimentally analyzing the outcomes.

To reassure ourselves that the course sequence actually was operating as intended, we offered it for credit at the University of Massachusetts, Lowell (UML). We also used the same materials at Florida Gulf Coast University in a face-to-face format. Happily, results were demonstrably successful under both arrangements. Shortly after it started to be regularly disseminated at UML, the course package was awarded the *Sloan Autism Award for Innovative Online Programs*. Today, in somewhat modified form, it continues to support the learning of hundreds of students at UML.

IN SUMMARY, OPERATING ACCORDING TO MANTRA, “THE STUDENT IS ALWAYS RIGHT!”

Fred Skinner taught us that *the pigeon* (or in our case, the participant or subject) *is always right*. For me as an educator, that morphed into *the student is always right!* That is, *people behave as they do as a function of currently operating setting and other antecedent events and contingencies of reinforcement, as those interact with their own behavioral repertoires*



Figure 4 Son Richard, husband Leonid, Beth, daughter Lenore, daughter-in-law, Francesca, son David

and reinforcement histories. (Alas, sometimes we lack sufficient control over our own or others' most potent reinforcing contingencies. Familiar examples are setting events such as hunger or other bodily needs, or consequences like peer attention and so on.) Nonetheless, by carefully analyzing and, where possible, arranging or rearranging the network of contingencies currently operating and/or accessible within the client(s)' environment (e.g., peer, parental or teacher attention, tangible rewards etc.), determined applied behavior analysts can search for and/or arrange alternative sources of reinforcement.

Over the years, my own near and dear, my students, colleagues, friends, clients and supervisors generally have indicated their own reinforcers through their words or deeds. Many of those events and/or objects could ethically be harnessed to support productive behavior change. In so doing, my own parents, relatives, teachers, mates, children, students, co-professionals, clients, and supervisors have been my very best teachers. They made me what I have become today, and at age 85, I'm immensely grateful for that. Life is good!

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