

SKINNER AS SELF-MANAGER

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B. F. Skinner was a remarkably productive, creative, and happy individual, in large part because of his expertise in self-management, a set of self-change skills that derive to some extent from his own scientific and theoretical work. Skinner's ardent defense of determinism appears to conflict with his views on self-control; although determinism can be reconciled with these views, we would be best served by dispensing with the "ism" and focusing instead on relevant data and data-driven theories. Contemporary research on self-control has diverged from Skinner's formulation in a number of ways, especially in focusing on cognition and choice. The extraordinary success Skinner had in applying self-management principles to his life should inspire us to take a closer look at the potential value such principles may have for society.

DESCRIPTORS: B. F. Skinner, self-control, self-management

Give a man a fish and he won't be hungry.

Teach a man to fish and he will *never* be hungry.

The Talmud

Two decades ago, when I was 23, my mother announced to the members of her mah-jongg club that I was spending the summer working with B. F. Skinner. Trying to be gracious, one of her friends replied, "How nice! Isn't that a toothpaste company?"

It annoyed me to be reminded that not everyone knew who Skinner was. He had been my idol since I learned about his work in a college psychology course in 1971, and I had spent the next 5 years collecting and reading everything he had ever published. To me, he was the most outstanding scientist and thinker of our time, and behaviorism, the school of psychology he had helped to create, was the key to solving humanity's ills.

Not everyone shared my views. In fact,

Skinner was, and still is, controversial. His book, *Beyond Freedom and Dignity*, was a best-seller in 1971, but most of the reviews were caustic. Skinner was a fascist, some said. His views were Machiavellian. He would rob us of our freedom and our dignity and use the behavioral sciences to control our every move (consider Agnew, 1972; Chomsky, 1971; Claiborne, 1971; Marwell, 1972; Rubenstein, 1971; "Skinner's Utopia," 1971; cf. Carpenter, 1974; Catania & Harnad, 1988; Machan, 1974; Modgil & Modgil, 1987; Proctor & Weeks, 1990).

In 1968 Skinner was awarded the National Medal of Science by President Johnson; in 1971, he received the Gold Medal of the American Psychological Foundation; and in 1972, he was given the Humanist of the Year Award of the American Humanist Association. His early research with rats and pigeons had helped to lay a foundation for the disciplines variously called behavior therapy, behavior analysis, behavior modification, the experimental analysis of behavior, and behavioral medicine, which, between them, account for more than 20 academic journals (also see Bellack, Hersen, & Kazdin, 1990; Blechman & Brownell, 1988; Catania & Brigham, 1978; Eysenck & Martin, 1987;

I am grateful to Julie S. Vargas and the B. F. Skinner Foundation for providing access to Professor Skinner's study.

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Gentry, 1984; Melamed & Siegel, 1980; Rimm & Masters, 1979; Sjoden, Bates, & Dockens, 1979). Skinner's work also inspired improvements in child-rearing techniques (Becker, 1971; Patterson, 1975; Stewart & Vargas, 1990), training methods for developmentally disabled children (Hersen, van Hasselt, & Matson, 1983; Matson & McCartney, 1981; Thompson & Grabowski, 1977; Whitman, Scibak, & Reid, 1983), psychopharmacology and substance abuse treatment (Blackman & Sanger, 1978; Goldberg & Stolerman, 1986; Grabowski, Stitzer, & Henningfield, 1984; Iversen, Iversen, & Snyder, 1987; Krasnegor, 1979; McKim, 1986), management and productivity techniques in business and industry (Connellan, 1978; Daniels & Rosen, 1983; Rescigno, 1984), classroom management techniques (Axelrod, 1983; Fagen & Hill, 1977; Jones, 1990; Kaplan, 1991; McIntyre, 1989; O'Leary & O'Leary, 1977; Peterson & Tenenbaum, 1986; Sabatino, Sabatino, & Mann, 1983; Skinner, 1969; Wheldall, 1987), and computer-aided and programmed instruction (Atkinson & Wilson, 1969; Bullock, 1978; Holland & Skinner, 1961; Lumsdaine & Glaser, 1965; Mager, 1984; Ruskin, 1974; Skinner, 1968; Skinner & Krakower, 1968).

The controversies, the accomplishments, the honors, the weighty credentials—all made B. F. Skinner a formidable character indeed. It was with more than a small degree of fear that I wrote to Skinner at his Harvard address in 1976 and asked to meet with him. Because I was a graduate student working with one of his former students, he invited me to visit him at his home in Cambridge. Anxiously, I circled his neighborhood for 2 hours before the time of the scheduled visit, and, to my amazement, when the appointed moment finally arrived and Skinner swung open his front door, I did not throw up. In fact, we got along so well that within a few weeks, I found myself editing the second

volume of his autobiography, and the following year I was admitted to the doctoral program in psychology at Harvard, where he was Edgar Pierce Professor of Psychology Emeritus.

Each day of our collaboration brought new projects and new excitement, and, as I got to know Skinner better, my awe began to subside. He insisted, for one thing, that I call him "Fred," and it's hard to be in awe of someone named Fred (his full name is Burrhus Frederic Skinner). We worked together every day for 5 years at his home, at his office, and, ultimately, at the Columban Simulation Laboratory, a new laboratory we created roughly 20 years after he had abandoned his laboratory research career (Baxley, 1982; Epstein, 1981; Skinner, 1983b).

Fred's manner was casual and far from intimidating. He often leaned back in his chair as he spoke, and his eyes sparkled with the energy of a man in his 20s, even though he was past 70. He told jokes and recited limericks, and he loved to hear new ones. "There once was a family named Stein," he told me one day, "There was Gert, Ep, and Ein. Gert's poems were bunk, Ep's statues were junk, and no one could understand Ein!" Fred grinned ear to ear, and so did I, even though I wasn't sure at the time who two of those Steins were. (Some of Fred's jokes were, understandably, a little out of date.)

Gradually, I found myself relating to Fred Skinner as a person and even as a friend. The awe was gone, but not for long. You see, as I got to know Fred better, I began to admire him in a new way, one that never subsided, one that is still important for all of us: Fred was, quite simply, a brilliant "self-manager."

The Evolution of Skinner's Views on Self-Control and Self-Management

Self-management—the deliberate application of principles of self-change—was not just an academic topic for Fred. Nor was it

something he practiced occasionally. It was a *lifestyle*, especially in his later years. I can't overemphasize the importance of this distinction. Below I will summarize his published work on self-control and self-management and will subsequently offer examples of how he used self-management techniques. But a few examples and a brief analysis can't begin to capture how pervasive self-management was in his life. It was much more than a few gizmos and timers. It was what many would call an *attitude*. He managed his own behavior almost continuously. When I was in graduate school, a fellow student mentioned that Fred seemed to dispose of envelopes and junk mail in an especially efficient way. I had never noticed this before, but it was true. When he opened his mail in the morning, he usually positioned his chair and trash can so that the very slightest flick of his wrist did the job. This was no accident, and it was part of the reason he was able to reply to virtually every letter he ever received, even until the end (Vargas, 1990).

We manage our own behavior when we deliberately alter the variables of which that behavior is a function; that is, when we act in some way *in order to* change our subsequent behavior. Some people do this frequently and well, others do it rarely and poorly. Skinner appears to have had good self-management skills even as a boy. In his autobiography he recounts the invention of a Rube Goldberg-like device to remind him to hang up his pajamas in the morning. He had been failing to do so, and his mother was complaining.

The clothes closet in my room was near the door, and in it I fastened a hook on the end of a string which passed over a nail and along the wall to a nail above the center of the door. A sign reading "Hang up your pajamas" hung at the other end. When the pajamas

were in place, the sign was up out of the way, but when I took them off the hook at night, the sign dropped to the middle of the door where I would bump into it on my way out. (Skinner, 1976, pp. 121–122)

Presumably, prompted by the sign, he hung up his pajamas thereafter. One behavior (constructing the device) had changed the probability of another (hanging up pajamas), and the first occurred *in order to* affect the second.

One behavior often changes the probability of another accidentally, but this is not self-management. This phenomenon, called *automatic chaining* or simply *autochaining*, is commonplace, and it also plays an important role in creativity and problem solving (Epstein, 1990, 1991, 1996). You may turn your head for no apparent reason, see a magazine, and begin reading. Turning one's head changes the visual field, as does walking into another room or opening the refrigerator, and behavior changes as a result. It is the deliberateness that distinguishes self-management from autochaining.¹

¹ I have used the language of intentionality in this paper to communicate more readily with my readers, but a rigorous statement of Skinner's formulation of self-control does not require such language. If one behavior (say, setting an alarm clock) occurs because it changes the likelihood of another (say, getting out of bed), the first behavior is "controlling" and the second behavior is "controlled." As is true of all operants, any number of phenomena might have produced the first behavior originally: instructions, modeling, shaping, or generative processes (Epstein, 1990, 1996), for example. Its occurrence might have been verbally mediated by a self-generated rule ("I'll bet I'd get up earlier if I set an alarm clock"), and that rule, in turn, might have had any number of origins. Odysseus had his men tie him to his mast (controlling behavior) to lower the probability that he would steer toward the Sirens' song (controlled behavior). This is an elegant instance of self-control, but it was entirely instruction driven: Circe had told him to do it. The origins of self-controlling behavior are sometimes trivial and obvious and sometimes profound—sometimes driven by instructions or models and sometimes the result of "problem solving" (cf. Epstein, 1996).

It was an accidental sequence, not self-management, that apparently led Skinner to quit smoking. He had been an avid pipe smoker since graduating from college in 1926. In 1941, he quit, in part, he recalled, because of an article he had read in *Science* in 1938 suggesting that smoking led to early death and in part because of headaches he was experiencing from a new blend of tobacco. Wrote Skinner, "I had unintentionally arranged a kind of aversive therapy" (Skinner, 1979, p. 253). A third factor, also accidental, seems especially noteworthy given his later theoretical views:

I often listened to broadcasts of evangelical preaching, which I found fascinating simply as verbal behavior. I liked to listen to a preacher named Luke Rader, who specialized in distinguishing between controlled and controlling selves. One day he was denouncing the demon rum. Someone had complained that he could not control his drinking, and Rader said something like this: "What do you mean you can't control it? Isn't it your arm that raises the glass to your lips? Do you mean to tell me that you can't control your arm?" I found the theme helpful in self-management. (Skinner, 1979, p. 253)

Fred's first published statements on self-control and self-management appear in his 1948 novel, *Walden Two*, portions of which were inspired by monthly discussions he had been having with philosophers and literary critics at the University of Minnesota (Skinner, 1979). Chapter 14 of the novel is entirely about self-control. Professor Castle, a hostile visitor to *Walden Two*, questions Frazier, the radical founder of this behaviorally engineered utopian community, about child-rearing practices in the community. The community deliberately teaches "self-control" (the word is in quotation marks in Frazier's speeches) to its children in order to

make them more independent, but, says, Frazier, "don't be misled, the control always rests in the last analysis in the hands of society" (p. 105).²

Frazier explains that he and an assistant, Simmons,³ faced the challenge of translating various practices of self-control, some derived from organized religion, into specific training techniques. At the age of 3 or 4, children are taught to tolerate delayed gratification using lollipops in a special way:

"We give each child a lollipop which has been dipped in powdered sugar so that a single touch of the tongue can be detected. We tell him he may eat the lollipop later in the day, provided it hasn't already been licked." (p. 107)

The children are taught that one way they can accomplish this is to put the lollipop out of sight. "In a later experiment the children wear their lollipops like crucifixes for a few hours" (p. 108).

Castle, predictably, calls such practices "a display of sadistic tyranny" (p. 108), but another visitor says he wishes he had been taught such skills when young. Says Frazier, notably,

"Some of us learn control, more or less by accident. The rest of us go all our lives not even understanding how it is possible, and blaming our failure on being born the wrong way." (p. 108)

The community provides early "ethical training" in this way, says Frazier,

² The page numbers have only limited value here, I'm afraid, because there are at least five different numbering schemes for various editions of *Walden Two*. The numbers I give here are from the 1962 paperback edition, the one that sold most widely.

³ Simmons is the middle name of Fred S. Keller, Skinner's longtime friend and colleague, and, many years later, the developer of the personalized system of instruction or "Keller Plan," a teaching system for children of many ages (Keller, 1968, 1977; Keller & Sherman, 1974). Another example of life imitating art.

“A group of children arrive home after a long walk tired and hungry. They’re expecting supper; they find, instead, that it’s time for a lesson in self-control: they must stand for five minutes in front of steaming bowls of soup.

“The assignment is accepted like a problem in arithmetic. Any groaning or complaining is a wrong answer. Instead, the children begin at once to work upon themselves to avoid any unhappiness during the delay. One of them may make a joke of it. . . . [At a more advanced stage] the children count off—heads and tails. Then a coin is tossed and if it comes up heads, the ‘heads’ sit down and eat. The ‘tails’ remain standing for another five minutes.” (pp. 109–110)

Castle becomes increasingly upset with Frazier’s account and demands to know what the children gain through such abuse. Frazier rhapsodizes,

“What they get is escape from the petty emotions which eat the heart out of the unprepared. They get the satisfaction of pleasant and profitable social relations on a scale almost undreamed of in the world at large. They get immeasurably increased efficiency, because they can stick to a job without suffering the aches and pains which soon beset most of us. They get new horizons, for they are spared the emotions characteristic of frustration and failure. They get—” His eyes searched the branches of the trees. “Is that enough?” (p. 112)

The real world, Frazier argues, provides only haphazard training in self-control, but *Walden Two* strives to make “every man a brave man” (p. 114). “*What is the virtue of accident?*” he asks (p. 115, italics in original).

The community is also organized to encourage a variety of practices in adults, such

as the productive use of leisure time, which Skinner, years later, characterized as self-management skills, but they are not described as such in the novel. Toward the end, by which time the reader has learned that every adult in the community (except Frazier himself!) is fulfilled and happy, Frazier exclaims, “The happiness and equanimity of our people are *obviously* related to the self-control they have acquired” (p. 177, italics in original).

I dwell at length on this early and somewhat crude formulation to demonstrate the almost fanatical importance Frazier, very much Skinner’s surrogate, attaches to self-control skills and training. If Skinner ever had doubts about Frazier’s extreme views, they grew less as he got older (Skinner, 1983b). In some sense all of *Walden Two* is a treatise on self-control, both for the individual and for society; each becomes proficient in controlling itself for its ultimate good. As Segal (1987) puts it in an insightful essay about the novel, “Skinner envisioned a world where psychology is the preeminent science, and its chief task is to teach self-knowledge and self-control” (p. 150). Indeed, one finds statements about self-control in Skinner’s later writings that are as extreme as Frazier’s. For example, in notes he made for a debate with Carl Rogers in 1962, he called self-control “man’s only hope” (Skinner, 1983b, p. 223), and in casting about for themes for a second novel (which he never completed), he considered self-control:

Why not *self-control*—a new *Pilgrim’s Progress*—the hero gradually discovering how to control himself by controlling the world in which he lives, adapting techniques for controlling others to control oneself? That was close to the theme I had found most moving in literature. (Skinner, 1983b, p. 246)

Skinner’s developing views on self-control

and related topics were incorporated into Natural Sciences 114, the course he designed around his own scientific and theoretical work upon becoming a professor at Harvard in 1948. His views were expressed in detail in 1953 in *Science and Human Behavior*, the textbook that was based on the content of this course. The entire third section of the book, more than 60 pages long, is concerned with the functioning of the individual, and virtually all of this material is relevant to an understanding of self-control. The first of the four chapters in this section is entitled “Self-Control,” with that term, once again, in quotation marks.

The unsavory theme of *Science and Human Behavior* is that all human behavior is controlled, an assertion that sent so many of Skinner’s students to the Harvard health services with complaints of depression that the counselors there named a syndrome after his course (Skinner, 1983b). Lest the reader think he is straying from the theme, he begins the “self-control” chapter with a reminder: “Implicit in a functional analysis is the notion of control. When we discover an independent variable which can be controlled, we discover a means of controlling the behavior which is a function of it” (Skinner, 1953, p. 228). The fact that the individual might be able to do this on his or her own is, he argues, no threat to his assertion that all human behavior is determined by “external variables.” Note the number of words in quotation marks in the passage below:

We must consider the possibility that the individual may control his own behavior. A common objection to a picture of the behaving organism such as we have so far presented runs somewhat as follows. In emphasizing the controlling power of external variables, we have left the organism itself in a peculiarly helpless position. Its behavior

appears to be simply a “repertoire”—a vocabulary of action, each item of which becomes more or less probable as the environment changes. It is true that variables may be arranged in complex patterns; but this fact does not appreciably modify the picture, for the emphasis is still upon behavior, not upon the behavior. *Yet to a considerable extent an individual does appear to shape his own destiny.* He is often able to do something about the variables affecting him. Some degree of “self-determination” of conduct is usually recognized in the creative behavior of the artist and scientist, in the self-exploratory behavior of the writer, and in the self-discipline of the ascetic. Humbler versions of self-determination [no quotes this time] are more familiar. The individual “chooses” between alternative courses of action, “thinks through” a problem while isolated from the relevant environment, and guards his health or his position in society through the exercise of “self-control.”

Any comprehensive account of human behavior must, of course, embrace the facts referred to in statements of this sort. *But we can achieve this without abandoning our program.* When a man controls himself, chooses a course of action, thinks out the solution to a problem, or strives toward an increase in self-knowledge, he is *behaving*. He controls himself precisely as he would control the behavior of anyone else—through the manipulation of variables of which behavior is a function. His behavior in so doing is a proper object of analysis, and eventually it must be accounted for with variables lying outside the individual himself. (pp. 228–229, italics added)

People engage in self-control, says Skin-

ner, because some behaviors have “conflicting consequences,” or, more precisely, because some responses produce reinforcers that are correlated with delayed punishment (Epstein, 1984b; Goldfried & Merbaum, 1973b). Drinking alcoholic beverages may produce “unusual confidence” now but a hangover or “disastrous” consequences later. The delayed negative consequences may produce conditioned anxiety that we can escape from by engaging in behavior that keeps us from drinking: “Any behavior which succeeds in doing this will be automatically reinforced” (Skinner, 1953, p. 230).

The positive and negative consequences generate two responses which are related to each other in a special way: one response, the *controlling response*, affects variables in such a way as to change the probability of the other, the *controlled response*. The controlling response may manipulate any of the variables of which the controlled response is a function; hence there are a good many different forms of self-control. (p. 231)

So for Skinner, as for Luke Rader the preacher, self-control consists of a special relationship between two behavioral repertoires, the “controlling” and “controlled,” brought about by a special class of reinforcers, those that are correlated with delayed punishment. Such reinforcers are known in some quarters as “temptations.” Sweets, drugs, alcoholic beverages, unprotected sexual intercourse, and so on, are special reinforcers of this sort that give rise, or at least that *should* give rise, to controlling repertoires.

In the sections that follow, Skinner gives a remarkably comprehensive list of examples of controlling repertoires, sorted into categories of behavior-change techniques that we normally use in attempting to change the behavior of other people: (a) We use *physical restraint* when we clap our hands over our

mouths (the controlling response) to keep from coughing or cursing (the controlled response). We achieve a similar result when we move out of a situation in which we are likely to behave badly. (b) We *remove discriminative stimuli* to alter subsequent behavior when we close doors to eliminate distractions or when we put sweets out of sight to reduce the likelihood that we will eat them. We *arrange a discriminative stimulus* when we tie a string around a finger to remind ourselves of an appointment. (c) We use *deprivation* when we pass up an extra helping at lunch in order to save room for dessert, and we use *satiation* when we drink large amounts of water before going to a cocktail party in an attempt to cut down on our drinking at the party. (d) We *manipulate emotional states* when we remove sensitive stimuli from our sight or when we delay acting by counting to 10. (e) We arrange for certain behaviors to have *aversive consequences* when we set an alarm clock or when we make a resolution. (f) We induce changes in our behavior and emotional states when we take *drugs*. (g) We avoid engaging in one behavior sometimes simply by *doing something else*. For example, we “change the subject” in conversation, and we avoid “the ravages of hatred” by “loving our enemies.”

On the possibility of self-reinforcement, self-punishment, and self-administered extinction, Skinner is uncertain.

The place of operant reinforcement in self-control is not clear. . . . Self-reinforcement of operant behavior presupposes that the individual has it in his power to obtain reinforcement but does not do so until a particular response has been emitted. That might be the case if a man denied himself all social contacts until he had finished a particular job. Something of this sort unquestionably happens, but is it operant reinforcement? It is certainly roughly par-

allel to the procedure in conditioning the behavior of another person. But it must be remembered that the individual may at any moment drop the work in hand and obtain the reinforcement. We have to account for his not doing so. It may be that such indulgent behavior has been punished—say, with disapproval—except when a piece of work has just been completed. . . . The ultimate question is whether the consequence has any strengthening effect upon the behavior which precedes it. Is the individual more likely to do a similar piece of work in the future? (1953, pp. 238–239)

Surprisingly, Skinner does not answer these questions definitively in his text; nor did he at any point in his career. A. C. Catania, one of his students, offered such an analysis in 1975, showing that self-reinforcement, and, by implication, self-punishment, could not be shown to be instances of self-administered operant conditioning under any conditions. In other words, the way Skinner defined reinforcement and punishment, there is no such thing as self-reinforcement and self-punishment. The procedures that are often so labeled are sometimes effective, but they are best viewed as examples of self-monitoring or self-discrimination, not self-administered reinforcement or punishment (cf. Bandura, 1976; Catania, 1975, 1976; Goldiamond, 1976a, 1976b).⁴

Skinner ends the chapter with yet another reminder of his theme—in fact, a whole section, called “The Ultimate Source of Control.” Here, emphatically, he repeats his argument that self-controlling repertoires are produced by the environment, with some repertoires specifically taught by our culture.

⁴ In his commentary on Herrnstein’s (1977) article, “The Evolution of Behaviorism,” Skinner (1977a) attacked Herrnstein’s particular use of the term *self-reinforcement*, but the issues they were debating are not relevant to the present discussion.

If this is correct, little ultimate control remains with the individual. A man may spend a great deal of time designing his own life—he may choose the circumstances in which he is to live with great care, and he may manipulate his daily environment on an extensive scale. Such an activity appears to exemplify a high order of self-determination. But it is also behavior, and we account for it in terms of other variables in the environment and history of the individual. It is these variables which provide the ultimate control. (1953, p. 240)

A Freudian interpretation of Fred’s need to begin and end his account of “self-control” (in quotes) with these stern defenses of determinism is tempting indeed. Suffice it to say here that Skinner didn’t trust us to appreciate his views on “self-determination” (in quotes) without coming to question his views on determinism. I think his fears were justified, a matter to be discussed further below.

In the chapters that follow in this section of the book, Skinner extends his analysis to thinking, decision making, problem solving, and other higher order phenomena that involve behavior and internal states not accessible to others. The same basic principles apply. For example, we work on ourselves to “make a decision” by exposing ourselves to new sources of information. We help ourselves remember lost names by using “self-prompts” and “self-probes”—for example, by running through the alphabet.⁵ The “self,” argues Skinner, is an “organized system of responses” (1953, p. 286), and such systems can interact, as we saw in his account of controlling and controlled re-

⁵ Similar topics are dealt with in *Verbal Behavior*, Skinner’s book on language production, published in 1957.

sponses.⁶ “Self-knowledge” is behavior that describes other behavior or the variables of which other behavior is a function, and thus self-knowledge can play a role in the formation of controlling repertoires (cf. Segal, 1987).

A Self-Managed Lifestyle

Skinner’s later reflections on self-control and self-management (which is simply the practice of techniques of self-control) are wholly consistent with the theoretical formulation he presented in 1953 (e.g., see Skinner, 1968, pp. 191–193, 1974, pp. 194–199). But in his later writings we see more frequent accounts of his own self-management practices, and, ultimately, extensive advice on how to become a self-manager. I will summarize some of these writings below, but, before doing so, I will attempt to give the reader a sense of the self-managed lifestyle Fred led. As I indicated earlier, a list of examples doesn’t do justice to the topic, but at least it is a start.

To my knowledge, and all of the rumors notwithstanding, Fred did not rely on “behavior modification” techniques to “control” people. Quite the contrary. He was relaxed, natural, and gentle in most of his dealings with other people. His interpersonal style was made milder, if anything, by the scientific principles he helped to develop, because his research convinced him that punishment was a poor tool for changing behavior, so he avoided using it in his everyday life.

Fred avoided manipulating others, but he most certainly manipulated his own behavior, and he did so with great success. He brought all of his ingenuity and all of his scientific principles to bear each day on ev-

ery aspect of his own actions, large and small, and when he failed, he recalculated and tried again.

Sometimes the results were grand, and sometimes they were silly. Fred used to write in his study in the early mornings, and at one point I remember him being concerned about his fidgeting. He would write for a few minutes and then fidget in his chair and get up. What, he wondered, was causing him to stop writing? Could it be the seat of the chair? He slit open the sides of the cushion, pulled out some foam, and stuffed new foam in, shaping the cushion to conform to his posterior. Sure enough, the bottom line improved: He was able to write for far longer periods with the modified (but very shabby!) cushion. He had changed his environment in a very simple fashion in order to change his own behavior.

He knew that reinforcers are important in maintaining behavior—especially long, complicated performances—so he made his world as reinforcing as possible. We often worked in the shop in his basement, near the top-secret pigeon-guided missile nose cone he had invented for the army in the 1940s and the stack of old teaching machines he had invented in the 1950s. On one occasion we needed to create a device that would move a spot of light along a screen for what began as an experiment on autoshaping (see Epstein & Skinner, 1980), and Fred’s idea was to place a small lightbulb in the middle of a loop that had a hole punched in it. From the side, it would appear that a small dot of light was moving by. For the loop, Fred cut a strip from an old adding machine cover, and for spindles, Fred found some empty spools of thread. I installed a motor and began to wire in the bulb when Fred suggested that we plug the device in the wall. “Why?” I asked, “It’s not finished yet.” “Well, to see it go, of course,” Fred replied, his eyes illuminated. In other words, *let’s produce a reinforcer.*

⁶ Skinner (1989) modified his definition of self: “In a long chapter called ‘Self-Control’ in *Science and Human Behavior*, I used *self* very much as I would now use *person*. . . . [A] person, as a repertoire of behavior, can be observed by others; the self, as a set of accompanying internal states, is observed only through feeling or introspection” (p. 28).

Fred kept lists of things to do, because people who keep lists of things to do do more things. He made schedules for himself to keep himself on track. We all use daily and weekly schedules, but Fred made long-term schedules as well—even 10- and 20-year schedules (Skinner, 1979, 1983b).

He knew that the right stimulus worked as a prompt to strengthen weak behavior, so he developed ways to work on himself to remember names and numbers that he couldn't bring to mind. He would run through the alphabet or try different rhythmic patterns ("formal prompts") or he'd review and repeat related material ("thematic prompts"). He insisted that, given enough time, he could recall any fact about his past. Self-prompting works because we are better at recognizing than recalling. In his notebooks, Fred recorded dozens of instances. Consider the following:

Recalling an episode that occurred in 1946, I could not get the name of the tenor who did not appear because his plane was grounded in Chicago and he was driven by mistake to Bloomington, Illinois, rather than Bloomington, Indiana, and I went through the alphabet. At L, M, I almost got the name; it was clearly very close. I continued and went through again. Again, a strong but unformed response at L, M. A third time, after some miscellaneous recall of related material, I got it—Lauritz Melchior. *Both* L and M, and in that order! (Epstein, 1980, p. 208)

I heard an announcement on the radio that a radical piece of music by Prokofiev was to be played. The announcer mentioned Stravinsky, Diaghilev, and possibly one or two other people. The music was very strange. A few minutes later, as it was being played, I tried to recall *Prokofiev*. I kept getting *Petrouch-*

ka. I started through the alphabet. With great force, letters would suggest Russian composers. My research centered on *p . . . r . . . Respighi* invaded Russia momentarily, and *Raskolnikoff* became a composer. I kept thinking of an old book of Russian piano pieces, trying to visualize the pages of a polka by the man whose name I was looking for. (p. 50)

One may use a partially recalled verbal response to prompt a complete response in the listener. To the chauffeur from the Merck Company who was driving me from Philadelphia to West Point, I said I preferred going through a section called something like Mishocken. "Conshohocken," he said at once. I could have done the same thing by working on myself to get an eventually complete response. Since I recognized his response as correct, I could have recognized my own recollection as soon as the prompt worked. (p. 284)

Fred knew that unpleasant tasks become more pleasant if we arrange our environment appropriately. At one point he used to get himself to ride his exercise bike in the morning by positioning reading materials over the handlebar, and when we worked together he had a small television set there. He'd pedal while watching the morning news.

He knew that the best ideas are often fleeting, so he developed special ways to capture them. He kept a notebook or a tape recorder by his bed and by his pool, for example. He knew that writing was a delicate and easily disrupted activity, so he took pains to shelter it from disruptions. He built special shelves so that his dictionaries and other reference books were always at arm's reach (Figure 1). He used his writing desk for serious writing only; he answered letters and paid bills elsewhere. He made memo-

randa with whatever was at hand: If he planned to bring a book home from the office, he would toss it where he would be sure to see it on his way out.

He made himself more productive by using clocks and timers, and he used file folders and special indexing systems to help to organize his thoughts, especially as he became more concerned about the debilitating effects of aging. He never let deteriorating eyesight or hearing have its way with him. He compensated, often with gadgets of his own making. At one point he wore large plastic ear flaps, resembling Mickey Mouse ears, to amplify his hearing; they worked well, he said, but he stopped wearing them because they startled visitors. Although he suffered from glaucoma, with large magnifying glasses and good light he continued to read voraciously. When his wife expressed concern about the presence of a magnifying glass he had installed in their living room, he built a swing-away arm that kept it hidden under a coffee table.

He knew that leisure time promoted both creativity and good health, so he scheduled leisure hours every day. He watched football games and read mystery novels without guilt. He was Type SM—a self-manager—not Type A.

I am trying at this point simply to convey the flow, the style, of Fred's life. It was immensely positive, optimistic, fulfilling—often *joyous*—with self-management skills playing a central role. In his 1974 defense of behaviorism, he stated the possibility this way:

Not only has the most ardent behaviorist feelings like everyone else; on balance he has quite possibly more enjoyable ones, because there are states of the body—associated, for example, with failure, frustration, or loss—which are far from enjoyable or reinforcing, and they are less likely to

be experienced by those who practice scientific self-knowledge and self-management. (Skinner, 1974, p. 271)

I knew Fred in his 70s and 80s, by which time his ship had long since come in. It is clear that he was not as relaxed and fulfilled in earlier stages of his life, but, as I have shown, he had had a passionate interest in self-improvement through self-management since the 1940s or possibly even earlier. In the 1950s and 1960s, he was stressed and overworked, mainly because of the success of many of his projects. A former graduate student of his in the early 1960s once told me that he only saw Skinner “in between plane flights,” and others have complained about his failure to read theses and provide guidance during a period of years when he was immensely busy. There are many indications in his notebooks and autobiographical writings that he was striving during this difficult period to improve his situation through the deliberate manipulation of conditions. In one note, written around 1961, he exclaims “I need to relax!” (Skinner, 1983b, p. 214) and not long after begins the first of many notes on his attempts at “intellectual self-management,” his attempt to improve the quality and originality of his thinking and writing:

I begin to see myself more clearly in relation to the daily environment in which I live from hour to hour. . . . Am I now leading a more “rational” life? In the traditional sense, no. My behavior is still controlled by the same variables—mostly reinforcing consequences—acting through the same processes. *I am arranging these variables rather than allowing them to turn up at random or from irrelevant sources*, but that is not “reason.” . . . How am I to find the conditions under which I will make the contributions which

are most likely to be uniquely mine? (Skinner, 1983b, pp. 214–215, italics added)

As a way of launching himself in new directions, Skinner decided to disengage himself from research completely as of the summer of 1962 (his involvement had been minimal anyway since 1957), and he also decided to take early retirement at age 60 (in 1964). He wasn't simply escaping by such actions; he was "arranging variables." He took stock of his situation frequently, often in writing, and planned changes accordingly. For example, in a note in 1963 he pledged the following:

- 1) Further reduction of office and departmental work. No lecturing. Minimal correspondence.
- 2) Organizing, filing, clarifying materials, getting a better over-all view of what is to be done, being able to relate a current interest or idea to a project.

- 3) Minimal social stimulation. . . .
- 4) Unguilty relaxation. Light reading. TV. Music seems too disturbing. (Skinner, 1983a, p. 244)

In four publications during his last decade, Fred translated his own self-management practices into specific recommendations for others. Three (Skinner, 1981, 1983a, 1987b) are concerned with intellectual self-management per se, and the fourth (Skinner & Vaughan, 1983) covers somewhat more general issues of self-management in old age. In "How to Discover What You Have to Say," Skinner offers advice to students: (a) Keep yourself in good condition. You will think and write more clearly if your body is in good shape. (b) Write in the same place each day and do nothing else there. (c) Write at the same time each day. (d) Surround yourself with the best writing materials you can get. (e) Write *every* day. (f) Start small, and build up. (g) Schedule leisure time and use it

←

Figure 1. Skinner's basement study at his home in Cambridge, Massachusetts, about a year after his death. He both slept and worked here, and his family has kept it the way he left it. (a) He designed his desk top and the area around it to keep himself productive without effort. He built the cubbies himself, even the crude slide-out drawers (center top). Frequently handled books were all within easy reach (dictionaries, writer's manuals, copies of his own books, etc.), and they all had special places so he never had to search for them. At left is a card file containing behavioristic "translations" of hundreds of common terms, which he hoped would be the basis of a behavioral dictionary. He had trouble reading his handwriting because both his vision and handwriting were poor in later years; the bulky dictation machine (lower right) kept him going. The makeshift wooden box (extreme lower right) contained pill containers organized into sections, to help him take the right pill at the right time. (b) A small piece of cardboard covered the face of the clock near his desk. When writing, he would flip the cardboard down to keep from being distracted. (c) Wires and strings run everywhere in the study. Several here are attached to a large illuminated magnifying glass. They run to pulleys in the ceiling and from there to a nearby wall, where they terminate in counterweights that Fred cast of concrete. The arrangement allowed him to position the magnifying glass easily over his reading. In the background are, among other things, photographs of Pavlov, Fred S. Keller, the ping-pong playing pigeons, and one of his grandchildren. (d) Fred would read, watch television, or listen to classical music from a leather armchair. On the arm he glued a makeshift wooden tray to hold the remote control device for the television; the tray kept him from losing the remote. On the coffee table lay a string (not visible) that was connected to a mechanical finger about six feet away. By pulling the string, Fred could press the pause button on his tape recorder. "With a glue gun," Fred would say, "you can make anything," and so he did. (e) Fred slept in a module sent him as a token of esteem by a company in Japan. The company had briefly advertised the module in the United States, and Fred, prompted by an ad, suggested that the company create a version of the module for babies—a high-tech "air crib"; the company declined. (f) An enlargement of the note from above his desk, detailing his medication schedule from 6:00 a.m. to 9:00 p.m.

productively.⁷ (h) Capture new ideas as they occur. Carry a notebook, and put one by your bed. (i) Surround yourself with appropriate stimulation: the right audience, reading materials that stimulate your thinking, new situations. (j) Make outlines to organize your thoughts before you cast them into prose. Very large sheets of blank paper (without lines) are helpful for this purpose, so you can show relationships among ideas graphically.⁸ (k) Write first, without concern for style. Edit later.

In 1982 Fred gave a paper at a meeting of the American Psychological Association called "Intellectual Self-Management in Old Age," which was published the following year. Reaction to the talk was so positive that, with assistance from M. E. Vaughan, Fred expanded the paper into a short book called *Enjoy Old Age*. The paper and book make many practical recommendations that follow directly from Fred's own self-management practices, among them: (a) Supplement your failing senses with appropriate devices: glasses, bright lights, magnifying glasses, hearing aids, book recordings, headphones, strong fla-

vorings in food.⁹ (b) Supplement failing abilities and a lack of stimulation with new types of stimulation, such as spectator sports and pornography. (c) Learn new skills to improve recall: Make notes, act on something when you think of it, review written materials, prompt yourself, and so on. When all else fails and you are in an embarrassing situation, improvise. For example, if you need to introduce your spouse to someone whose name you have forgotten, try this:

My wife and I use the following strategy: If there is any conceivable chance that she could have met the person, I simply say to her, "Of course, you remember . . . ?" and she grasps the outstretched hand and says, "Yes, of course. How are you?" The acquaintance may not remember meeting my wife, but is not sure of his or her memory, either. (Skinner, 1983a, p. 240)

(d) Leisure time should be truly relaxing. Give up demanding activities and competitions. (e) Get your rest!¹⁰ (f) Make it easy

⁷ The Greeks, said Skinner, call this *eutrapelia*. In addition to reading novels and watching sports on television, Fred often did nontaxing, work-related work: punching holes in paper, cutting and pasting, reading a classic that might bear on his work. I faulted him one day for spending so much time in leisure activities, and he replied that I had a "cruel superego."

⁸ Fred gave me many things over the years that I treasure, among them a two-volume first edition of William James's *Principles of Psychology*, signed by Fred, and a cumulative record Fred generated in 1932. My oddest treasure is a roll of large, somewhat yellowed sheets of paper. Fred told me that they were left over from a stack he had used to organize his thinking, design experiments, and so on, and he encouraged me to use them for the same purpose. Somehow, I just couldn't bring myself to deface them, knowing what they had been intended for. Will they end up in a museum someday? The label on the exhibit will read, "Sheets of paper once owned by eminent psychologist B. F. Skinner. He intended to write on them, but we don't know what."

⁹ Fred wore a hearing aid for the last 20 years of his life, but he still had trouble hearing in lecture halls in which the ambient noise level was high. He often could detect only sporadic words or phrases from the questions he was getting, but he chose to make do rather than to ask the questioner to repeat the question. Even so, he almost always answered the question correctly. He told me that he was able to do this because he generally received the same questions again and again; his answers, he said, were virtually "packaged." Only rarely would he answer a question that had not been asked. The answer, usually elegant, would produce many quizzical expressions in the audience, but no one ever seemed to suspect the extent of his hearing impairment or the method he was using to answer questions.

¹⁰ Skinner (1983b) refers to a memorandum describing a standing order in Hitler's army. When officers were observed to suffer any of 18 different signs of mental fatigue, they were obligated to take an immediate vacation. (Skinner adds, "Fortunately for the world, [Hitler] did not apply the order to himself," p. 241.) He suggested that we review the actual memo one day, and we found that I was suffering from 17 of the 18 signs of fatigue. Notably, Fred wasn't suffering from a single one.

to behave. Have appropriate materials within easy reach. (g) Use files or other aids to help organize your thinking. Skinner (1987a) described two “three-dimensional outlines” he had recently invented to help him in this way and claimed they “they worked so well that I wish I had had them when I was younger” (p. 379).

Fred’s use of self-management techniques was easy and natural for him. In no way did it smack of the “tyranny” of the self-control training of Walden Two. It was like a game that he played, a puzzle to be solved, and he enjoyed the process as much as the results. He also took pride in self-management, because it seemed to show a powerful, practical side to his science that was lacking in other branches of psychology or psychiatry. Consider the following entries from his notebooks, each written in the 1960s:

Freud was unable to stop smoking cigars, up to 25 a day, though smoking must have been obviously related to the heavy “catarrh” he suffered from most of his life, as well as to the protracted cancer of the jaw in his last years . . . an astonishing lack of self-understanding or self-control. Was he not bothered by it, or did much of his theory spring from the need to acknowledge that the habit was “bigger than he was”? (Epstein, 1980, p. 341)

I have, I think, made good use of my analysis of behavior in managing my own life, particularly my own verbal behavior. Can the psychoanalysts and the cognitive and humanistic psychologists say as much? Did Freud ever report the use of his theory to influence his own thinking? Are cognitive psychologists particularly knowledgeable about knowledge? Are humanistic psychologists more effective in helping

other people because of their theories? (p. 75)

Fred’s most important self-management practice is implied in his writings but is nowhere clearly stated. He always spent a few minutes each day, often scattered throughout the day, searching for and analyzing variables of which his behavior seemed to be a function. It is not enough to live your life, he told me; you also need to analyze it and make changes in it frequently and regularly.

Resolving the Tension Between Self-Control and Determinism

Skinner (1953) framed his seminal chapter on self-control with a defense of determinism, and he framed the term itself in quotation marks. In what sense is determinism compatible with his conception of self-control? If Skinner truly believed in determinism, did he truly believe in self-control? Is self-control a trivial epiphenomenon for Skinner, or does it overlap with the idea of *self-determination*?

Extreme philosophical determinism encompasses all events, by definition, so it certainly encompasses the “controlling” self. In that sense, Skinner is technically correct: The behaviors we label “self-managing” are fully “determined.” But remember that philosophical positions are, in effect, just fantasies. They are *interpretations* of data. Like pure logic or pure mathematics, they are not always good predictors of events in the world, and they have no trouble coexisting with very different interpretations of the same data (cf. Quine, 1969). The real question is whether the behavioral phenomena Skinner described in his characterization of self-control are trivial. If so, self-control disappears as a topic worthy of further consideration. If not, we must ask what self-control practices accomplish for the individual.

The best way to settle the issue, I believe,

is to examine two extreme cases. First, consider the individual who has no self-control skills. In Skinner's view, such a person falls prey to all immediate stimuli, even those that are linked to delayed punishment. Seeing a chocolate cake, she eats it. Handed a cigarette, she smokes. Given an opportunity to steal, she steals. She may make plans, but she has no ability to carry them out, because she is entirely at the mercy of proximal events. She is a sailboat blowing uncontrollably in a gale, like the characters in Frank Norris's classic, *McTeague*.

At the other extreme we have a skillful self-manager, like Fred Skinner. He, too, sets goals, but he has ample ability to meet them. He has the skills to cast dangerous reinforcers aside. He identifies conditions that affect his behavior and alters them to suit him. He takes temporally remote possibilities into account in setting his priorities. External factors still affect him, but he is looking through a very large window. The wind is blowing, but he sets the boat's destination and directs it there.

These two individuals are profoundly different. The first is being controlled in almost a linear fashion by her immediate environment. The second is, in a nontrivial sense, controlling his own life. They are different in their ability to function, to negotiate through life. In our culture, the first might conceivably smoke, drink, commit crimes, take drugs, squander money, and so on. The second, well practiced in foregoing immediate pleasure when long-term gain is at stake, and well equipped with the relevant self-management skills, would presumably have a "meaningful" life, the meaning being the realization of long-term goals.

In a very real sense, Skinner's concept of self-control is the equivalent of self-determination, because the practice of self-control has a profound impact on one's life (cf. Theophanous, 1975). Note that self-control, in spite of the quotation marks, was not one

of the many "by-products" or "collateral products" that Skinner talked about and dismissed. "Mind" was an epiphenomenon to Fred, a useless and even dangerous concept (consider Blanshard & Skinner, 1967; Skinner, 1963, 1974, 1977b, 1990). Feelings were real for him, as the passage I quoted above states clearly, but they played no causal role in behavior, so they were at best "collateral products" of environmental events and therefore unimportant in an analysis of behavior (Skinner, 1945, 1974, 1987a). And free will was, to Fred, simply an illusion (Rogers & Skinner, 1956; Skinner, 1955–1956, 1971). Self-management—the practice of self-control—fits none of the trivia categories. It encompasses a set of powerful skills and procedures that produce substantive change.

Our two cases differ in yet another respect, and here the ironies begin to percolate. The woman who lacks self-control skills *feels controlled*. She may believe in free will (in fact, in our culture, it's a safe bet that she does) but her own life is out of control. A belief in free will only exacerbates her frustration. She should be able to *will* herself out of any jam, but "willpower" proves to be highly unreliable.¹¹ In contrast, the self-manager feels that *he is in control*. Ironically, like Skinner, he may believe in determinism, but he not only feels that he is in control, he is in fact exercising considerably more control over his life than our impulsive subject.

Critics have often argued that Skinner's views on free will are depressing and debilitating. As Carpenter (1974) put it, "if a per-

¹¹ Willpower corresponds to the behavior of "doing something else," one variation of which is to "hold very still." I remember being so nervous once that to keep myself from shaking I "shook myself in the other direction" (or so I told people), the result being no shaking at all. So willpower as such is just the tip of the self-management iceberg; it is just one of many types of self-management, and other types are potentially more helpful for most people.

son's belief in autonomy could be extinguished, it is likely that he would become so passive that he would exhibit symptoms of psychosis" (p. 117). But Fred himself was a strict and ardent determinist. He believed sincerely that he was not an autonomous entity but merely a "locus" through which environmental and genetic forces acted (Skinner, 1983b). Yet he lacked passivity to such a degree as to be able to rouse Carpenter and many other critics to fits of passion (consider Agnew, 1972; Chomsky, 1971; cf. Epstein, 1987b). Many of the critics overlooked one of Fred's most important theses, namely that the causes of behavior can be located and manipulated, even by the individual himself or herself. Determinism is not necessarily equivalent to fatalism, and Skinner's particular version of determinism is the very antithesis of fatalism.

As Skinner himself showed both by analysis and practice, self-control is both real and powerful. It would seem to be determinism that is the less substantive concept. Skinner's quotation marks around the self-control chapter (and around the term itself) add nothing to his analysis. He could have offered the same analysis and have rejected determinism, just as our impulsive subject could have embraced it.

As I have argued extensively elsewhere (e.g., Epstein, 1984a, 1985a, 1987a, 1987b), behaviorism began as a movement to reform psychology, and when it began to fail in its early years, it rapidly evolved into a school of philosophy. It became the theodicy of its devotees, a rationale for why its adherents should be allowed to appropriate psychology departments (Epstein, 1985b). If a science of behavior had been allowed to grow and flourish—perhaps as an independent field, the way Kuo (1937) and others proposed—behaviorism as such would have disappeared. When we separate the science from the philosophy, the scientist from the

philosopher, the tensions and ironies disappear completely.

One solution, then, to the determinism problem is to scrap determinism; the self-control literature stands well on its own. While we're at it, perhaps we should abandon a few other isms, as well, including behaviorism itself, as Fred Keller himself suggested from time to time (e.g., Keller, 1984). Isms are common in the early stages of science (consider Hopkins, 1934), but they are troublesome later on, as we have seen in Skinner's presentation of self-control. It will take the concerted and coordinated efforts of specialists in many disciplines to shed significant light on human behavior, by far the most complex subject matter science has ever tackled. It is time we went about this important business as colleagues, not ideologists.

Self-Control After Skinner

Skinner's early analysis of self-control helped to inspire educators and clinicians to develop and test many applications of self-control techniques with a variety of populations and a variety of problems. Some basic research on self-control, mainly with animals, is also an outgrowth of Skinner's work. Because Fred wrote little about self-control between 1953 and 1981, and because he never conducted research on the topic, it is understandable that research and application have diverged from his formulation (see Karoly, 1982, and Kazdin, 1978, for reviews of the different approaches). There are some exceptions. For example, in yet another case of life imitating art, Newman and Bloom (1981) reported success reducing cigarette smoking in undergraduates employing the delay-of-gratification procedure Skinner described in *Walden Two* (also see Hartig & Kanfer, 1973; Mischel, 1974). And Epstein (1984b) presented a simple model of self-control that is consistent with Skinner's (1953) formulation, along with supporting

data: Pigeons that are close in time to reinforcers correlated with delayed punishment (i.e., to “temptations”) behave as if the punishment doesn’t exist. When remote in time from such reinforcers, they behave more prudently.

Contemporary work has diverged from Skinner’s work in primarily three ways: First, some researchers and practitioners (e.g., Bandura, 1976; Mahoney & Thoresen, 1974; Watson & Tharp, 1972) take self-administered reinforcement and punishment procedures seriously, despite vigorous criticisms (e.g., Brigham, 1982; Catania, 1975, 1976; Goldiamond, 1976a, 1976b). The debate is usually not about whether the procedures work but why they work, the critics maintaining that technical definitions of reinforcement and punishment don’t allow us to test for “self-reinforcement” and “self-punishment” in any meaningful way. When procedures so labeled seem to be effective, the critics say other mechanisms are at work. The debate is unlikely to be resolved, because reinforcement and punishment are defined in different ways by different practitioners. Although it has been argued—convincingly, in my opinion—that Skinner’s own concepts of reinforcement and punishment make self-reinforcement and self-punishment meaningless, matters are complicated by the fact that Skinner himself has occasionally used self-reinforcement in a functional account of behavior (e.g., Skinner, 1957, pp. 438–446).

Second, with the infusion of cognitive theories into behavior therapy (see Kazdin, 1978), many now emphasize the importance of cognition in self-control (e.g., Cautela, 1971; Kanfer, 1970; Kanfer & Karoly, 1972; Kanfer & Phillips, 1970; Karoly & Kanfer, 1982; Mahoney & Thoresen, 1974; Meichenbaum, 1977; Stuart, 1977). Skinner offered accounts of private events during his career (e.g., Skinner, 1945, 1957, 1963), but he also objected to modern analyses of cog-

nition as he understood them (e.g., Skinner, 1977b, 1990).

Finally, most animal research on self-control has been conducted in the framework of a choice model of behavior, according to which self-control is said to be exhibited when an organism chooses a larger, more delayed reinforcer over a smaller, more immediate reinforcer (Ainslie, 1975; Logue, 1988; Mazur & Logue, 1978; Navarick & Fantino, 1976; Rachlin, 1974). But Skinner never saw any value in choice models, so defining self-control in that context had no meaning for him. His clearest statement of his position on research on choice appeared in 1986 (also see Skinner, 1950):

To return to choice and especially to regard a single response as a choice between responding and not responding are, I think, steps backward. Choice is something to be explained, not to be used in the analysis of basic processes. . . . It is true that if a man does not do one thing, he will do another or do nothing, and that if you want him to do A and not B, you have only to make the “expected utility” of A greater than that of B as by describing favorable consequences of reinforcing A more frequently. But you are changing only relative probabilities. Contingencies of reinforcement are much more powerful than the “expected utilities” that follow from instruction, and rate of responding is a more direct measure of probability than a choice between alternatives. (Skinner, 1986, p. 232)

Skinner’s original notion that self-control involves the practice of skills for avoiding reinforcers correlated with delayed punishment has certainly been incorporated into several contemporary views (e.g., Epstein, 1984b; Goldfried & Merbaum, 1973b; Thoresen & Mahoney, 1974), and many of the techniques of self-control he outlined

have been taught for millennia by organized religions and were even described in the writings of ancient Greek and Roman philosophers (consider Bolin & Goldberg, 1979; Schimmel, 1977, 1979).

Such techniques have been essential to human civilization because they allow individuals to avoid or escape dangerous, immediate reinforcers with minimal or no help from other people. Without self-control skills, we would need constant monitoring, as indeed young children do. Our parents and our clergy have been the main purveyors of such skills, but so many people lack these skills that it is clear that society is failing to teach them adequately. As a result, a great many people are blowing aimlessly in the wind, and society seems to be foundering. As Segal (1987) states,

Individuals cannot gain self-control without help. . . . If our intellectual and creative capacities are to be fully realized, if we are to acquire interpersonal skills and moral values consonant with the interests of the group and a repertoire of knowledge and skills for self-control and self-expression, it can only be as the result of learning experiences that the social milieu provides for us. . . . The wise society fosters research on behavior so that it can exploit the resultant technology for the purpose of rearing intelligent, creative, thoughtful, loving, moral, and self-controlling citizens. (p. 151)

Teaching self-control practices serves two important functions for society: It creates citizens who fulfill their potential and thus are in a position to make greater contributions to the group, and it gives society a mechanism for assuring that individuals will respect the long-term interests of the group. Some reinforcers are correlated with punishers so long delayed that only the individual's progeny will experience them (cf. Skinner,

1971, 1973). Abusing our natural resources is a prime example. When society teaches us to use self-control skills to save water, to recycle our trash, to turn down our thermostats, it creates a better world for our descendants.

By conveying what we know about self-control and self-management, behavioral scientists and practitioners can play a special role in helping society do its job. In a Sidhartha-style book I completed recently (Epstein, 1997), intended for a popular audience, I have provided a simple framework for teaching basic self-management skills. A young man whose life is in disarray (he smokes, drinks, overeats, loses things, procrastinates, and so on) seeks advice from his parents, teachers, and friends, but no one can help. Then he remembers his old Uncle Fred (modeled, shamelessly, after Fred Skinner), whose life always seemed to be in perfect harmony. In a series of visits, Uncle Fred reveals to him the three "secrets" of self-management, all Ms: *Modify your environment, monitor your behavior, and make commitments*. Fred also reveals and explains the "self-management principle": *Behavior changes behavior*. After each visit, the young man (who has no name) tries out a new technique, and his life is changed radically for the better. In one scene, he sees a classroom of remarkably creative and insightful children who have been trained in self-management techniques in a public school. It is fiction, of course, but the technology is well established and the possibilities are well within reach.

Dying with His Boots On

Fred had at least three close brushes with death before finally succumbing to complications arising from leukemia in August of 1990. In 1971 he began experiencing anginal pain, so severe that he wrapped up his affairs, expecting to die in short order. In the late 1970s, a tumor began to grow on the

side of his face; by the time it was removed, it was nearly the size of a golf ball. Because it involved the parietal gland, a colleague labeled it "Pavlov's revenge" (Fred was amused). The chief of surgery at Massachusetts General Hospital removed most of the tumor, but a portion remained, because the cancerous tissue enveloped facial nerves. The tumor was determined to be malignant, so Fred was subjected to radiation therapy for several months. The radiation killed most of the taste buds on his tongue and made it torturous for him to eat.

A few years before he died, Fred fell in his kitchen, causing blood vessels to rupture in his brain. Six large holes were drilled in his skull to relieve the pressure, and he was forced to lie perfectly still on his back for weeks in the hospital. And then, finally, in the fall of 1989, the leukemia. He was told he had 2 or 3 months to live.

Fred faced all of these difficulties with the same optimism and ingenuity he applied to every other aspect of his life. He searched for relevant variables and altered them to keep himself going as well as possible, and that was usually very well indeed. Faced with heart problems, Fred changed his diet, lost 16 pounds, modified his exercise routine, and cut back on commitments. When subjected to the radiation therapy, at one point he improvised a shield of lead foil to protect his tongue and admonished his physician for not having thought of such a device. He dealt with his glaucoma, his hearing loss, his failing memory with equal finesse.

I visited his bedside the day after his tumor was removed, not more than an hour after he was informed that it was malignant. He was lucid but showed no signs of distress, absolutely none. He told me about the reasonably good food and the great back rubs at the hospital. He said he had no regrets. "I've had a good life," he said.

The leukemia did not keep him from working, and just 8 days before his death,

the American Psychological Association awarded him its first Citation for Outstanding Lifetime Contribution to Psychology. Fred delivered a 15-minute speech extemporaneously to a packed audience in Boston in accepting the award, and, just hours before his death, he put the finishing touches on a manuscript based on that speech: "Can Psychology Be a Science of Mind?" (Skinner, 1990). He had always wanted to die "with his boots on," according to his daughter, and he came very close. "Near the end," she wrote, "his mouth was dry. Upon receiving a bit of water he said his last word, 'Marvelous'" (Vargas, 1990, p. 410).

Life, to Fred, was a series of joys to relish and challenges to overcome, and he did both extremely well. He never bothered with the four stages of the terminally ill, perhaps because they smacked too much of traditional psychology. He just lived!

Fred was the most creative, most productive, and happiest person I have ever known. I cannot prove that his exceptional self-management skills were the cause, but I have no doubt whatsoever that they were, and both Skinner and his alter-ego, Frazier, made similar claims.

In retrospect, I learned more from observing Fred behave than I did from his ministrations or his books.¹² Fred as a behaving

¹² The literature on self-control and self-management grew slowly during the 1960s (e.g., Ferster, Nurnberger, & Levitt, 1962; Goldiamond, 1965) and reached a crescendo of sorts in the early and mid-1970s, with at least eight books documenting the success of self-management techniques in a variety of settings (e.g., Foster, 1974; Goldfried & Merbaum, 1973a; Kanfer & Goldstein, 1975; Mahoney & Thoresen, 1974; Stuart, 1977; Thoresen & Mahoney, 1974; Watson & Tharp, 1972; Williams & Long, 1975). The flurry came at about the time I was finishing college (1974), and I was fascinated. Late in 1975 I helped to conduct a clinical study on self-control (Epstein & Goss, 1978) and decided then to enter graduate school in psychology to learn more about the topic. That trip I made to Fred Skinner's home in the fall of 1976 was for the same purpose, and I got far more than I bargained for.

organism was the paramount example of the science of behavior put to good effect on a daily basis, a microcosmic Walden Two fully actualized.

As a philosopher, Fred was and will remain controversial. As a scientist, he was exceptional, but we must not fall into the trap of learning science from his writings, just as we do not learn physics from Isaac Newton. As a person, as a behaving organism, Fred still has a great deal to teach us all.

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Received January 27, 1997

Initial editorial decision March 25, 1997

Final acceptance April 3, 1997

Action Editor, David P. Wacker