Self-Control Revisited: Or Why Doesn't Anyone Actually Read Skinner (1953)

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Abstract

Self-control continues to develop as a major source of explanatory concepts within cognitive behavior therapy. The recent history of self-control is reviewed, and three related areas of disagreement between radical behaviorists and cognitive behaviorists are discussed. The logical status of self-reinforcement, reciprocity, and private events is examined and evaluated. This review suggests that a radical behavioral approach continues to offer psychology the most effective program for the analysis of behavior.

The thesis of this paper is quite simple: the term self-control is inherently misleading and should be replaced with some other less value-laden term (perhaps self-management). But it is likely that the conditions leading to the emergence of self-control as a major concept in psychology will serve to maintain its vogue. As a consequence, until these contingencies are changed, a careful reading of Skinner's original chapter on self-control should be prerequisite behavior for anyone wishing to work in the area.

During the seventies, research and speculation in the area of self-control increased both in frequency and prominence within psychology. Activities related to self-control covered the full spectrum including the founding of journals and research units devoted to the study of self-control, convening conferences focused on self-control and the development of self-control therapies. Because individuals labeled behaviorists conducted the majority of these activities, it should follow that self-control is now one of the behavior analysts' most important theoretical concepts. Unfortunately that is not the case, and much of the self-control literature constitutes a major threat to the future development of behavior analysis. Behavior analysis grew and contributed to psychological theory and practice by experimentally examining and explicating environment/behavior

relations. Recent research and theorizing on self-control, however, focuses on characteristics of the individual especially cognitions to the detriment of environment/behavior relations. In retrospect, such a shift in focus is not surprising because of the nature of the language employed in the area. The term self-control implies existence of a special entity called the self. After hypothesizing the self, the question, "What does the self control?" follows. Again by implication, the self controls the individual's behavior. This interpretation of the term logically leads investigators to pursue an internal search for the self and its parts.

A related difficulty is that by focusing on the self, well-documented behavioral processes become transformed from observable environmental events to inferred cognitive events. Similarly, behavioral principles change from accounts of these observable events to speculations about hypothesized cognitive processes. The following illustration of self-reinforcement appears in a well-known text on self-control after a careful and well-done presentation of positive reinforcement.

"A professor we know reported that he had developed the bad habit of bluntly telling others when he thought they were not acting very intelligently. 'What do you think reinforces this behavior?', he was asked. 'I guess it's the feeling that I have that I am smart. By showing others when they do something dumb, it shows them that I am smart. The trouble is, of course, that it makes them angry.' We suggested that he could gain the same reinforcer (feeling intelligent) by intelligently choosing a positive statement instead of making some

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deprecating remark (Watson and Tharp, 1972, pp. 102-104)."

In this example, apparently without notice the definition of a reinforcer has changed from the observation of an environmental event to the identification of a feeling about behavior. Similarly, the basis for identifying a reinforcer has changed from a functional demonstration of an increase in the frequency of a behavior to an introspective analysis.

Clearly this manner of defining and identifying reinforcers alters the basis of explanation from behavior/environment interactions to the functioning of the internal self. Self-reinforcement is controlled not by environmental events but by self-determined standards of performance, and those standards are inside, mediating the influence of environmental variables on behavior (Bandura, 1977). Whether the standard is inside the self is unclear at this time, but the opportunity to develop a new set of ids, egos, and super-egos certainly exists here. Also apparently inside are self-instructions, discriminations, and other intervening variables. And what are these things? Thoughts, cognitions, cognitive states, and/or cognitive structures are some of the major candidates for the status of explanatory concepts (Meichenbaum, 1977). As cognitive events become the target of therapeutic interventions, an interest in behavioral self-control is transformed to one in cognitive behavior therapy. Once again psychology is being lead away from the study of behavior-environment interactions in pursuit of another internal will-o'-the-wisp.¹

How did this transformation occur? The recent history of the behavioral study of self-control began with Skinner's chapter in *Science and Human Behavior*

entitled "Self-Control". In that chapter he speculated about some ways a person might be able to influence his/her own behavior. He suggested a two-part analysis based on controlling and controlled responses with controlling responses being emitted to effect the controlled responses. Skinner, however, made it quite clear that the variables responsible for the controlling responses were to be found in the environment (See Skinner, 1953, p. 240).

Next came two pioneering papers, one by Ferster and his associates (Ferster, Nurenberger, & Levitt, 1962) and the other by Goldiamond (1965). Both of these papers dealt mainly with stimulus control and the possibilities of teaching individuals how to change problem behavior by modifying antecedent stimuli. These papers led in turn to others, but in the late sixties and early seventies there was a great increase in self-control research and theorizing apparently related to factors outside the immediate research area.²

First, behaviorists came under heavy attack from both within psychology and outside. The behavior modifier became the arch villain of many scenarios where behavior modification programs brought the populace under the control of a tyrannical government. (If this argument sounds overdramatic, simply recall such events as the movie *Clockwork Orange*, the reaction to Skinner's *Beyond Freedom and Dignity*, or the Irwin Committee Report.) The behavior modifier was then placed in an untenable position. Either the procedures really were not as effective as they had been depicted so there was no need to curtail their use, or alternatively, the procedures were truly effective but they would only be put to good purpose.

¹Both psychoanalysis and structural psychology began as an effort to account for certain human behaviors under particular environmental conditions (social and laboratory). They soon, however, focused on internal variables and processes. Although both pursued internal causes with great vigor and inventiveness, in the long term little of value was gained for a general theory of human behavior.

²The following reconstruction of the recent history of self-control work is completely speculative based on personal recollection and the correlation of certain events. The function of this section is not to prove this particular interpretation, but to suggest the possibility that self-control developed as an important area for reasons other than scientific merit.

At this point numerous books on self-control were published and the topic emerged as a major area in behavior modification. The rationale of self-control made it possible to argue that behavior therapists were not modifying people against their wills but rather teaching them how to control themselves. For example, Mahoney and Thorensen (1974) subtitled their book on self-control, "Power to the Person". Simply put, the emergence of self-control as an important theoretical concept and therapeutic approach took some political and intellectual heat off the practice of behavior modification by relabeling it.

The second factor contributing to the popularity of self-control analyses was the rapid expansion of behavior modification, behavior therapy, and behavior analysis. That is, because some effective programs and procedures had been developed for use with fairly limited populations in fairly structured settings, it was expected that the same procedures could be used to analyze the full range of clinical and applied problems.³ One only has to read the books on behavior modification and behavior therapy published in the late sixties and early seventies to get a flavor of this optimistic enthusiasm for the ability of behavioral psychology to solve the world's problems. For instance, Neuringer and Michael were inspired to make the following comments about the achievement of behavior modification in clinical psychology in the preface of to their 1970 volume, "There can be little doubt as to the success of these techniques in clinical practice. By focusing on modification of specific

behavior, the behavior modifier has been able to teach the retarded to care for themselves, to extinguish maladaptive neurotic behavior, to develop verbal tools for the seemingly mute, etc. The papers in this volume reflect the width and depth of the behavior modifier's involvement with the areas of concern for clinical psychology" (Neuringer and Michael, 1970, p. v.). Unfortunately, the analysis of complex cases was not complete and there were failures. Within psychology these failures were often interpreted not as indicating that there were inadequate data and/or technological bases for the projects, but as meaning something was basically wrong with the theory. A relatively mild example of such criticisms can be found in the conclusion of Repucci and Saunders (1974), "The issue inheres in the fact that the principles of behavior modification are insufficient and often inappropriate for understanding natural settings—their structures, goals, traditions, and intersetting linkages. The great social debate generated by the publication of *Beyond Freedom and Dignity* in 1971 typically neglects the type of problems discussed in this article. Yet the implications are clear. We are nowhere near a technological capacity or sophistication for Skinner's utopian notions, and Skinner's theory as currently elaborated is demonstrated insufficiently to provide for that technology."

Such interpretations lead psychology to retreat from operant theory. In the face of a problem and apparently lacking the information to solve it, there is a strong tendency in psychology to fall back on inner causes for explanations. Because the history of psychology, however, indicates that the pursuit of inner causes is not particularly profitable in terms of theory or practice, going directly to a strictly internal set of explanatory principles was not possible. On the other hand, speculation about cognitive-behavioral self-control mechanisms was available as an intermediate position between strict en-

³This is not to suggest that behavior analysis is incapable of dealing with complex problems, but rather that these efforts were based on a limited empirical and/or procedural foundation. Since then, more extensive analyses of major social problems have been completed; for example the Achievement Place program developed by Wolf and his associates (Fixsen, Phillips, and Wolf, 1978) or the Direct Instruction Model for primary education of Becker and Engelmann (Becker and Engelmann, 1978).

vironmental behavior-analytic explanations and internally focused dynamically oriented explanations. In this approach, self-control, interpreted as the individual's thoughts, perceptions, and standards, mediates between the environmental contingencies and the individual's behavior.

In an effort to illustrate the differences in approach both in theory and practice between the cognitive behavior therapists and behavior analysts, three areas of dispute will be examined: self-reinforcement, reciprocity, and the role of private conscious events.

Self-reinforcement

Where does Skinner's 1953 chapter on self-control fit into the evolution and investiture of current cognitive self-control theories as the new hope of psychology? Although a number of powerful variables have influenced the development of the rhetoric of cognitive self-control, there are very few data to support the key assumptions concerning the role of cognitive behavior in mediating person-environment interaction. Rachlin (1977) makes this point in his review of Mahoney's *Cognition and Behavior Modification*,

"So much for the first two models. (Covert conditioning and information-processing. ed.) One is illogical and unsupported, despite many attempted therapeutic applications; the other is logical but completely unapplied. But we are only halfway through the book at this point. What about the models to come? Unfortunately, there are no more models. The rest of the book (the last 150 pages) is spent describing several techniques that could be analyzed with more or less cognitive language—attention, thought, belief, etc. Since no model is presented, these descriptions are just vague references to vaguely defined behavioral patterns (Rachlin, 1977)."

Given weak logic and the absence of empirical support, arguments are often built on reference to authority. Obviously, B. F. Skinner is the most important and authoritative behavioral theorist. It is therefore not surprising to find Skinner cited as a source for various interpretations of self-control. A fairly common attribution to Skinner is found in the

following passage, "Skinner (1953) suggests that one of the ways in which individuals control their own behavior is by the administration of rewards to themselves without environmental restrictions and contingent upon certain behaviors" (Rehm & Martson, 1968). The most straightforward interpretation of this passage is that Skinner advocates self-reinforcement as a method of changing behavior. Skinner's actual verbal behavior was somewhat less positive. After describing a possible example of self-reinforcement, Skinner goes on to analyze the example, (Skinner, 1953, Chapter XV, p. 238).

... Something of this sort unquestionably happens, but is it operant reinforcement? It is certainly roughly parallel 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 indulgent behavior will therefore generate strong aversive stimulation except at such a time. The individual finishes the work in order to indulge himself free of guilt (Chapter XII). 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? It would not be surprising if he were not, although we must agree that he has arranged a sequence of events in which certain behavior has been followed by a reinforcing event.

It is difficult to interpret this passage from Skinner as a suggestion that self-reward or self-reinforcement is likely to be an effective procedure for modifying one's own behavior. It is clear, however, that a quote from Skinner will not end the debate over self-reinforcement (see for instance, the exchanges between Bandura and Catania or those between Goldiamond and Mahoney).

Leaving aside the theoretical arguments concerning self-reinforcement procedures, there seems to be developing a general consensus in the field that they are effective behavior change techniques. O'Leary and Dubey (1979) writing in the *Journal of Applied Behavior Analysis* concluded that, "Self-reinforcement is

clearly one of the most powerful self-control procedures—effective when used alone, incremental when added to other procedures, and equal to or better than external reinforcement.” Certainly this is a ringing and definitive endorsement of self-reinforcement. However, the evidence they muster in support of this conclusion does not appear to warrant such a positive assessment. In all, 10 studies are cited to support the thesis. Of these, only two were conducted in applied settings (see Baer, 1978 on the importance of applied research for testing principles) and neither of these met the Bandura and Mahoney (1974) criterion of self-reinforcement, that the reinforcer be freely and continuously available to the subject whether the response is emitted or not. Most of the other studies are only tangentially related to the author’s conclusions. For instance, the authors cite a study by Kanfer, Karoly, and Newman (1975) as demonstrating that the statement, “I am a brave boy (girl). I can take care of myself in the dark,” was a self-reinforcer which increased the time children spent in the dark. Kanfer et al., however, referred to the “I am a brave boy (girl)” statement as a verbal controlling response. The statement was not voluntarily emitted by the subjects contingent on any behavior, but rather was elicited by the experimenters on cue in the treatment condition. In fact, Kanfer et al., report that the statement was never verbalized by the subjects in the subsequent test sessions. They speculate that the children have covertly emitted the response, but they indicate there was no evidence to suggest that the students actually did so. A careful reading of the study’s procedures indicates that the statement was never used as a contingent stimulus, and, as Kanfer et al., notes, more likely functioned as some form of antecedent instruction to set a high criterion for staying in the dark. It is likely that O’Leary and Dubey inferred that the statement was a reinforcer because of

its content, and not by how it actually functioned in the study. To date, unequivocal empirical evidence to support the notion of self-reinforcement as an effective applied procedure is almost nonexistent and certainly does not justify the major role it is given in most treatments of self-control.

Reciprocity

Another notion that has created a certain amount of controversy between radical behaviorists and cognitive behavior therapists is the concept of reciprocity. Simply stated, reciprocity refers to the mutual effects of two variables on each other; A may be viewed as the cause of B, while from a different perspective, B may be analyzed as the cause of A. In psychology, the cognitive behavior therapists have suggested that the analysis of behavior as a function of environmental events is arbitrary and that changes in the environment may be analyzed in terms of changes in the organism’s behavior (Bandura, 1971; Mahoney, 1974). Reciprocity, in and of itself, is not a concept antithetical to an operant analysis of behavior. Skinner’s basic definition of the operant consists of the effects a response has on the environment and how those changes in turn influence the frequency of that particular response. The fact that psychologists generally concern themselves with manipulating the environment to produce behavior change does not rule out the possibility of other relations holding. For example, the environment of an older non-language child is considerably different from that of a child possessing functional language. If the non-language child acquires functional language, that alters his/her environment in that what was noise is now the discriminative stimulus or reinforcement for words. Although the applied behavior analysts may be more interested in the environmental changes that produced the language acquisition, it may be equally important to examine the environmental

changes produced by the new language responses. In the second case it is appropriate to plot the environmental changes as a function of behavior change. By doing so, it might be discovered that some classes of language responses produce greater environmental change than others. Such a finding, in turn, could be important for designing language acquisition programs. (See Brigham, 1978, for a more extensive discussion of this point of view.)

As a consequence, the concept of reciprocity or the desirability of sometimes analyzing environmental change as a function of behavior change is not in question between the radical behaviorists and the cognitive behavior therapists. Rather, how the cognitive behavior therapists utilize the concept is in dispute. Mahoney (1974) correctly argues that the notion of reciprocity need not result in the mental way stations so eloquently opposed by Skinner. Unfortunately, though, the cognitive behavior therapy concept of reciprocity centers not on the behavior/environment interactions but rather on the role of the individual's conscious cognitions in these interactions. For instance, the locus of control literature often utilizes reciprocity as an explanatory concept, but here the individual's actual abilities to affect the environment is not of major importance, rather it is the individual's perceptions. Mahoney (1974) illustrates the importance of personal belief with the following example,

"A child's poor school performance, for example, may be partly affected by his personally inferred incompetence. By systematically altering that perception, academic performance may improve. The future direction taken by the belief-behavior cycle may then be a function of myriad influences—whether the child incorporates his new experiential feedback into a modified pattern of self-statements, whether success experiences are appropriately scheduled to induce and maintain a resistant and enduring 'internal' belief pattern, and so on."

In the past the behavior analysis of phenomena proceeded and succeeded at the level of responses and environmental

events. As the center of concern changes from easily identified events, the likelihood of producing functional relations decreases. Clearly within the theoretical perspective espoused by Mahoney, the concern shifts from individual skills to vaguely identified individual beliefs and in turn the possibility of developing useful relations between variables diminishes. Thus reciprocity, a reasonable and possibly valuable concept, becomes a vague conception of the relations between conscious events and behavior/environment changes.

Conscious Private Events

The appropriate role of conscious events in the analysis of behavior is the final area of dispute between radical behaviorists and the cognitive behavior therapists. As Skinner has frequently noted, the individual's verbal report of private events may reveal to the community at large the external events of which the behavior in question is a function. Unfortunately, imprecise conditioning operations produce the verbal repertoire for describing private events. As a consequence both the individual and community frequently fail to understand communications about private events. Speaking colloquially, however, the individual's verbal behavior can be used as an indication of that individual's current understanding about how he/she interacts with the environment (that is, why they believe they act as they do), but do those reported beliefs cause them to act in that specific manner? The quasi-mediational position of the cognitive behaviorists implies that beliefs, ideas, feelings, and so on, do indeed cause one to act in a particular manner. But these private events themselves must be accounted for "... to say that a man strikes another because he feels angry still leaves the feeling of anger unexplained" (Skinner, 1953). Further, after the analysis of the antecedents of such behavior, one must, again ask, what role do they actually play? Rachlin (1977) has argued that conscious events do not

cause behavior, but instead tell about behavior/environment interactions. Similarly, Jaynes (1977), in an extensive analysis of consciousness, suggested that consciousness is not the same as thinking but rather metaphorically represents the individual's experience of a road map. Although road maps contain much useful information, often essential, the road map per se does not cause the driver to engage in any particular behavior; it simply provides information about the alternatives. Upon analysis, the metaphors chosen by the cognitive behavior therapists similarly lend themselves to a "road map" or informational function for consciousness rather than a causal one. For instance, Meichenbaum, in discussing the internal dialogue, an extremely important domain for his interpretation of human behavior, argues that it allows individuals to monitor their thoughts, wishes, feelings, and actions. This monitoring in turn causes them to behave in a particular manner. But to monitor means to observe or record the conditions of a particular system at a particular time. One does not say that a gauge measuring the changes of pressure in a system, causes those changes, even though an observer of the gauge may move to adjust some components of the system, thus changing the pressure. For another example, take the area of nuclear reactor safety. How a technician reads the dials in the control room affects his/her behavior and possibly our future. It is not, however, the dials that cause particular behavior by the technician, but rather the technician's prior experience and training with regard to those specific dial readings. Further, those dials must accurately reflect the condition of the system. The resultant difficulties in the recent reactor breakdowns were not caused by the technicians' "attributions", but by the fact that the dials did not accurately reflect the environment. Analyzing the problem from this perspective, while technicians must know how to react to

various dial readings, the major therapy for nuclear safety would focus on making sure the dials accurately reflect the conditions of the reactor. Similarly it is likely that many reports of private events do not accurately reflect environment/behavior interactions, and again the therapy would consist of teaching the appropriate discriminations to the individual. Because such an operation would involve the individual's verbal behavior, it might be interpreted as "cognitive". The individual's verbal behavior, however, changes not because of some independent private event but because of the changes in behavior/environment contingencies. Such an observation may seem obvious, yet in their enthusiasm for conscious cognitions as causal variables, the cognitive behavior therapists seem to be focusing on just these sorts of cognitive events and/or interpreting environmental procedures as cognitive operations.

The literature on cognitive self-instruction seems particularly susceptible to mislabeling behavior/environment interactions as cognitive ones. For instance, a recent study compared cognitive self-instructions with contingency awareness and found that the self-instructions produced greater change in the target behavior of aggressive delinquent adolescents (Snyder & White, 1979). Although conservative, the authors concluded that, "This suggests that treatment focusing on both external contingencies for desired behaviors and internal control of behavior by the use of private speech may be a potent behavior change strategy for aggressive delinquent, adolescents." The interpretation of these results as a function of cognitive variables or causes seems to be a misinterpretation of the procedures due to the verbal nature of the manipulations. The cognitive self-instructions group was trained to identify specific problem situations by emitting a verbal response chain and then behave in a manner consistent with the instructions. (The authors provide the following exam-

ple. Situation: A cottage counselor says, "Time to get up," Verbalization; "Already, damn. It feels good to stay in bed, but if I get up I'll get the points I need for cigarettes. OK, just open my eyes, sit up. Good I made it.") Subjects were also reinforced with tokens for appropriate behavior. In contrast, the contingency awareness group discussed the various contingencies in the token system. Thus, the cognitive self-instruction group learned to respond to immediate and specific stimuli within the problematic situations while the contingency awareness group lacked such rehearsed stimuli or responses. The difference does not appear to be one of behavioral variables versus cognitive ones but again, to use Jaynes' metaphor, one of the scale of the map. The self-instruction group had the equivalent of a city street map whereas the discussion group was given a correct but less specific road map for the state. It is easier to get around London with a street map of London than with a map of England that includes only the major streets of London. The verbal nature of the training operations and the label self-instructions, led the authors to label the causal variables as cognitive. To be valuable, private events must tacit or be discriminative for behavior/environment interactions. In summary, cognitive factors are undoubtedly involved in the observed changes in the adolescents' behavior. However, those factors developed as a function of behavior/environment relations and will continue to serve only so long as the relations hold. Focusing exclusively on the cognitive component can only obscure the analysis of behavior/environment variables and delay the development of more effective procedures.

Skinner's work has been the touch stone of this paper not because it is holy writ, but rather because of the viable program it continues to offer for the analysis of behavior. Compare and contrast the program presented psychology by the

cognitive behavior therapy of Mahoney with that of radical behaviorism as represented by Skinner:

Mahoney:

The development of cognitive behavior modification did not proceed quickly, and many an operant eyebrow was raised at the prospect of re-entering the mentalism-introspection arena. The hard fought struggle to be freed from the bonds of psychic tradition had left a legacy of mindless biases. Despite a relatively cool reception among their colleagues however, the pioneers in this area set about collecting data on the relevance and scientific utility of cognitive-symbolic variables. As perceptual processing factors began receiving attention from behavioral quarters, it soon became apparent that naive realism (or the doctrine of "immaculate perception") was functionally untenable in human behavior. An individual responds—not to some real environment—but to a perceived environment. The frightened airline passenger reacts not to a purely external stimulus (loud noises after take-off) but to his perception (i.e., labeling) of those stimuli (My God, we've lost an engine!). The compulsive hand-washer reacts not to any real environmental contingencies, but to a perceived (but equally powerful) set (e.g., "If I don't wash my hands, God will punish me."). Data from several different lines of research offered converging evidence on the critical role of cognitive factors in human behavior. (Mahoney, 1974.)

Skinner:

The heart of the behavioristic position on conscious experience may be summed up in this way: seeing does not imply something seen. We acquire the behavior of seeing under stimulation from actual objects, but it may occur in the absence of these objects under the control of other variables. (So far as the world within the skin is concerned, it always occurs in the absence of such objects.) We also acquire the behavior of seeing-that-we-are-seeing when we are seeing actual objects, but it may also occur in their absence.

To question the reality or the nature of the things seen in conscious experience is not to question the value of introspective psychology or its methods. Current problems in sensation are mainly concerned with the physiological function of receptors and associated neural mechanisms. Problems in perception are, at the moment, less intimately related to specific mechanisms, but the trend appears to be in the same direction. So far as behavior is concerned, both sensation and perception may be analyzed as forms of stimulus control. The subject need not be regarded as observing or evaluating conscious experiences. Apparent anomalies of stimulus control, which are now explained by appealing to a psychophysical relation or to the laws of perception, may be studied in their own right. It is, after all, no real solution to attribute them to the slippage, inherent in converting a physical stimulus into a subjective experience.

The experimental analysis of behavior has a little more to say on this subject. Its techniques have recently been extended to what might be called the psychophysics of lower organisms. Blough's adapta-

tion of the Bekesy technique—for example in determining the spectral sensitivity of pigeons and monkeys—yields sensory data comparable with the reports of a trained observer. Herrnstein and Van Sommers have recently developed a procedure in which pigeons “bisect sensory intervals”. It is tempting to describe these procedures by saying that investigators have found ways to get non-verbal organisms to describe their sensations. The fact is that a form of stimulus control has been investigated without using a repertory of self-observation or, rather by construing a special repertory the nature and origin of which are clearly understood. (Skinner, 1953.)

The Skinner passage, while difficult, points the way to the analysis of conscious events in terms of stimulus control and the individual's prior experience. The reader may decide which is the naive view and which program to pursue.

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