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ABOUT BEHAVIOROLOGY

BEHAVIOROLOGY IS AN INDEPENDENTLY ORGANIZED DISCIPLINE FEATURING THE NATURAL SCIENCE OF BEHAVIOR. BEHAVIOROLOGISTS STUDY THE FUNCTIONAL RELATIONS BETWEEN BEHAVIOR AND ITS INDEPENDENT VARIABLES IN THE BEHAVIOR-DETERMINING ENVIRONMENT. BEHAVIOROLOGICAL ACCOUNTS ARE BASED ON THE BEHAVIORAL CAPACITY OF THE SPECIES, THE PERSONAL HISTORY OF THE BEHAVING ORGANISM, AND THE CURRENT PHYSICAL AND SOCIAL ENVIRONMENT IN WHICH BEHAVIOR OCCURS. BEHAVIOROLOGISTS DISCOVER THE NATURAL LAWS GOVERNING BEHAVIOR. THEY THEN DEVELOP BENEFICIAL BEHAVIOR-ENGINEERING TECHNOLOGIES APPLICABLE TO BEHAVIOR RELATED CONCERNS IN ALL FIELDS INCLUDING CHILD REARING, EDUCATION, EMPLOYMENT, ENTERTAINMENT, GOVERNMENT, LAW, MARKETING, MEDICINE, AND SELF-MANAGEMENT.

BEHAVIOROLOGY FEATURES STRICTLY NATURAL ACCOUNTS FOR BEHAVIORAL EVENTS. IN THIS WAY BEHAVIOROLOGY DIFFERS FROM DISCIPLINES THAT ENTERTAIN FUNDAMENTALLY SUPERSTITIOUS ASSUMPTIONS ABOUT HUMANS AND THEIR BEHAVIOR. BEHAVIOROLOGY EXCLUDES THE MYSTICAL NOTION OF A RATHER SPONTANEOUS ORIGINATION OF BEHAVIOR BY THE WILLFUL ACTION OF ETHEREAL, BODY-DWELLING AGENTS CONNOTED BY SUCH TERMS AS *mind*, *psyche*, *self*, *muse*, OR EVEN PRONOUNS LIKE *I*, *me*, and *you*.

AMONG BEHAVIOR SCIENTISTS WHO RESPECT THE PHILOSOPHY OF NATURALISM, TWO MAJOR STRATEGIES HAVE EMERGED THROUGH WHICH THEIR RESPECTIVE PROPONENTS WOULD HAVE THE NATURAL SCIENCE OF BEHAVIOR CONTRIBUTE TO THE CULTURE. ONE STRATEGY IS TO WORK IN BASIC NON-NATURAL SCIENCE UNITS AND DEMONSTRATE TO THE OTHER MEMBERS THE KIND OF EFFECTIVE SCIENCE THAT NATURAL PHILOSOPHY CAN INFORM. IN CONTRAST, BEHAVIOROLOGISTS ARE ORGANIZING AN ENTIRELY INDEPENDENT DISCIPLINE FOR THE STUDY OF BEHAVIOR THAT CAN TAKE ITS PLACE AS ONE OF THE RECOGNIZED BASIC NATURAL SCIENCES.

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NOTE: This issue does not contain any TIBI online course syllabus. In some future issues, new syllabi or updates of previous syllabi will appear. (See the *Syllabus Directory* near the back of each issue.)—Ed.

Volume 14 Number 2 Contents Plan

Here are some of the featured items planned for the next issue (Fall 2011) of *Behaviorology Today*, although these plans may change:

✦ *A New Look at Attachment Theory and Adult "Attachment" Behavior*

(Barry J. Berghaus)

✦ *Second Five-Year Index: Volumes 10-14*

✦ An article or two from among those that may be in process from various guest authors. *When will YOUR article arrive?* (Staff writers can maintain the publication schedule with worthy contributions, but worthy articles from guest authors make even more valuable disciplinary literature contributions.)—Ed. ☺

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PROVIDE AT LEAST MINIMALLY PEER-REVIEWED ARTICLES AS WELL AS, ON OCCASION AND WITH EXPLICIT DESIGNATION, FULLY PEER-REVIEWED ARTICLES. THEY WRITE ON THE FULL RANGE OF DISCIPLINARY TOPICS INCLUDING HISTORICAL, PHILOSOPHICAL, CONCEPTUAL, EDUCATIONAL, EXPERIMENTAL, AND TECHNOLOGICAL (APPLIED) CONSIDERATIONS. PLEASE JOIN US—IF YOU HAVE NOT ALREADY DONE SO—AND SUPPORT BRINGING THE BENEFITS OF BEHAVIOROLOGY TO HUMANITY. (CONTRIBUTIONS TO TIBI OR TIBIA ARE TAX-DEDUCTIBLE.) ☺

Successful Smoking Control as an Example of a Comprehensive Behaviorological Therapy

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[Based on the research of others and the author, this paper originated as lecture and discussion material (a) detailing how therapies can and should focus *comprehensively* on the problems, such as smoking, presented for therapeutic intervention, and (b) describing how explicitly *analyzing and addressing* the variables directly responsible for those problems appears to be substantially responsible for the success of some therapies.—Ed.]

Different therapies and interventions address different concerns. Those based on behaviorological science aim at analyzing and directly controlling the variables that are in explicit functional relations with the presenting problems. But other therapies try to deal with their concerns while ignoring the analysis and direct control of such variables. Instead these therapies focus on other variables that may relate, if at all, only indirectly to the relevant functional variables (although sometimes with a measure of adventitious success; see Fraley & Ledoux, 1997, Ch. 3). The benefits of the behaviorological approach include a greater likelihood of clinical success. Through a detailed examination of the reasons for the success of a particular therapy example, this paper suggests how success can be improved in other areas. The successful therapy used to exemplify these benefits is an early therapy that took a behaviorological approach in addressing the problem of smoking cigarettes.

A Comprehensive Therapy

Professionals engaging in therapies that address cigarette-smoking problems can be sorted according to a particular criterion: They essentially guess what steps to have their clients take to try to stop smoking while also *adding new variables to control smoking behavior* (which usually takes the form of adding “The Record” of time since the last cigarette). Or they emphasize analyzing the variables explicitly responsible for the smoking behavior and take

steps to counter-control those variables directly. At the April 1973 convention of the Western Psychological Association, Joseph Morrow, Susan Gmiender, Lewis Sachs, and Helene Burgess (Morrow *et al.*, 1973) reported their design and evaluation of a therapy (a) that addressed (i.e., counter-controlled) the variables that explicitly generated and maintained smoking behavior, and (b) that showed a far higher success rate than other smoking-control therapies available at that time. They continued to use this therapy successfully in what amounts to an on-going replication. These authors attributed this success to several factors including, implicitly, what today would be called the general approach of behaviorologically analyzing and addressing variables with explicit functional control over the behaviors to be increased or decreased. For smoking control this involved designing, implementing, and evaluating techniques that directly counter variables that contribute to smoking behavior.

With that attention to the details of functionally relevant variables, therapies that take this behaviorological approach tend to address their target behaviors more comprehensively than therapies lacking this approach, and also tend to succeed. Hence this paper focuses (a) on the Morrow *et al.* therapy as an example of this successful kind of comprehensive therapy, and (b) on how the general behaviorological approach can benefit clients—in this example by reducing smoking behaviors. Through extension, this same approach will likely benefit people with other kinds of concerns, large or small.

Today, over twenty years later, therapists using more recently developed smoking-control therapies often incorporate one or more of the techniques that Morrow *et al.* used directly to address functionally controlling variables (which amounts to another type of replication of the techniques Morrow *et al.* used). However, some therapists do so not because a natural science (e.g., behaviorological science), informing their practices, has led them to do so, but because they have heard or recognized how effective these techniques are. These therapies are seldom founded on a scientific approach from which practitioners can derive effective techniques. The original Morrow *et al.* therapy—as old as it may be—is featured here because it was the earliest *comprehensive* smoking intervention that was founded on a scientific approach, the approach of behaviorological science, from which practitioners can and do derive effective techniques.

Other more recent “behavior analytic” smoking interventions also use the techniques that directly address functionally controlling variables because they share the behaviorological science that gave rise to these techniques. Over the years these interventions have had a substantial impact on US health policy (see Henningfield & Higgins, 1989, for the impact of these interventions on the Surgeon General’s report on some health consequences of smok-

ing). However, the development of these interventions goes beyond the scope of this paper; the point of this paper is not to encourage a particular approach to controlling smoking as much as it is to examine the substantial success rate of one early smoking control therapy to learn something that seems to be fundamental about what might be done in general to enhance the success of most efforts to improve the human condition.

The therapy described by Morrow *et al.* differs from most non-behavioral smoking-control therapies by treating smoking “as a learned behavior, not as a pathological symptom” (p. 7 [stand-alone page numbers in this paper are from Morrow *et al.*, 1973]). Morrow *et al.* instructed clients:

to look for environmental or situational “cues” for their urges to smoke, and, by recognizing these stimuli, manipulate their environment to ease “desires to smoke.” (p. 7)

The therapy by Morrow *et al.* also differs in three other fundamental ways from most smoking-control therapies, both behavioral and non-behavioral, with which it co-existed. Each such difference will receive attention: (a) This therapy demonstrates a higher clinical success rate than those therapies. (b) This therapy provides an extension in time, with a concomitant reduction in intensity, for formal therapeutic intervention. And (c) this therapy focuses on counter-controlling the explicitly analyzed functional variables of smoking while avoiding use of the added variable of the client’s “record” of time off cigarettes (on which many other smoking therapies tend ultimately to rely to control smoking). Some of these differences are also present with one or another more recent non-behavioral smoking therapy.

The overall strategy of Morrow *et al.* was to weaken the contingencies that produce smoking, while a more common overall strategy in other therapies has been to “add another variable” to treat smoking. The usual implementation of the latter strategy is to arrange a supplementary contingency to counter smoking such as a marked calendar that increasingly functions as a sort of reinforcer for the behaviors that are connoted by phrases like “not smoking” or “avoiding/resisting smoking.”

(a) Therapy Success Rate

Perusal of the smoking-control literature reveals that the phrase “smoking-control therapy” covers many different interventions. All attempt to help clients stop smoking through a variety of separate or intermingled strategies.

Most of these therapies invoke aversive techniques, singly or in some combination, as the main method to bring the client’s cigarette smoking down to a low daily rate, even to zero. Such aversive techniques, which di-

rectly address only one or two of the variables functionally related to smoking, include using nausea-inducing drugs, electric shocks, horror stories and discussions of the diseases to which smokers are more susceptible than non-smokers, frightening films of surgeries needed because of smoking, gory slide-show or *in vivo* comparisons of tissues from smokers with tissues from non-smokers (e.g., healthy and diseased lung tissues in jars), depressing pictures depicting negative social stereotypes of smokers, ash trays shaped like open lungs, or emotional appeals about children wanting to imitate smoking parents and about children and others suffering from inhaling secondary smoke.

These therapies typically schedule the aversive techniques for the first week or two, or several weeks at most (which may be the full extent of the therapy). During this intervention period some therapists interact with their clients individually while others do so in groups. Some therapists meet with their client or clients once each day during this period while others meet only once or twice each week.

Regardless of all that variety, nearly all of these therapies are initially successful. By the scheduled end of the aversive technique period, nearly all clients have dropped their daily smoking rate to zero or nearly zero.

At the end of the scheduled therapy intervention, after the initial success, clients are on their own. But too many of them are inadequately prepared for developments still to come, even though they know what to expect. Morrow *et al.* described the problem:

All [subjects] reported that they had previously stopped smoking for some period of time, but began smoking again after allowing themselves what they believed to be “just one cigarette.” Apparently, this first cigarette, in response to strong [discriminative stimuli] in a particular environment, has a potent reinforcement effect which results in the [subject] returning to his previous smoking level in a relatively short period of time. (Morrow *et al.*, 1973, Appendix A, item viii)

To prepare clients to stay off cigarettes after their initial success, most therapies leave clients with only one fundamental controlling variable. This variable, which does *not directly* address the majority of variables functionally related to smoking, takes the form of their “Record” of how long they have gone without smoking a cigarette. But a single post-quitting cigarette breaks the record, and the smoking problem resumes.

Some therapists thus see the record of smoke-free days as a powerful but fragile variable. “How long have I gone without smoking? Six days!” Later: “Six weeks!” Later still (maybe): “Six months!” And even later (rarely):

“Six years!” The longer one goes without smoking, the more power the variable seems to exert. The problem with this variable is its fragility. Sooner or later, for most clients, too many stressors pile up on a particular day (e.g., a spouse gets upset over undone household chores, and the boss threatens to terminate and increases the work, and a broken pipe floods the basement, or the family’s teenager crashes the car). The result is that the otherwise successful quitter smokes a single cigarette. And then, usually, more cigarettes. “How long since my last cigarette? Just six minutes? My record [of weeks or months or years] is wrecked. I might as well have another cigarette!” The unbroken record, so powerful while unbroken, is erased.

After engaging in therapies that leave control over smoking to that record, clients end up acting as though they can never, indeed must never, have another cigarette. This is not true. In terms of health, any single cigarette probably causes less damage than taking a long walk on a summer afternoon in a smog-polluted city. A single cigarette after—perhaps long after—quitting, may be a powerful inducement to return to smoking, but that return *is* avoidable (see Morrow *et al.*, 1973). The erasing of the record, however, which a single post-quitting cigarette accomplishes, can be a powerful inducement to return to smoking. Since that cigarette is nearly inevitable whether or not a client is relying on such a record, its very use as a controlling variable may be seen as undercutting continued success.

As a result of the fragility of the record variable, nearly all therapies that rely on it show a low, long-term clinical success rate:

Within a few weeks the majority of quitters are back at original rate and within a year there is scant evidence that the few remaining abstainers differ in number from “spontaneous” quitters. (p. 1)

That low success rate produces adverse effects. Clients’ self-esteem aside, not only have they returned to smoking but also their efforts to quit have ultimately gone unrewarded making quitting yet again even more difficult to attempt. The joke that “it’s easy to quit smoking; I’ve done it hundreds of times” is not funny to smokers who have tried, and failed, to quit.

In contrast, the behaviorological smoking-control therapy featured in the Morrow *et al.* study shows a high, long term clinical success rate. Their study involved 55 clients, 25 women and 30 men. Ages ranged from 28 to 65 years. Initial smoking age ranged from 13 to 28 years. The number of years that these clients had smoked ranged from 9 to 45 years. The daily rate of cigarette smoking at the start of the study ranged from 15 to 60 (three-quarters of a pack per day to three packs per day). As with clients in other smoking-control therapies, these clients all

ceased smoking, as scheduled, by the end of the initial week of therapy. Overall, of the 55 clients starting the program, 34 (or 62%) were not smoking one year later. However, the therapy consisted of two sequential components, one individual-based (that first week) and the other group-based (three months of weekly meetings). So Morrow *et al.* tracked long-term success rates separately (a) for those who did not complete both components and (b) for those who did complete both components. Their results show that 35 clients (64% of the 55 starting clients) completed only the first therapy component; of these, only 16 clients (46%) were still not smoking one year later (a recidivism rate of 54%). Their results also show that 20 clients (36% of the 55 starting clients) completed *both* therapy components; of these, 18 clients (90%) were still not smoking one year later (a recidivism rate of only 10%).

That is a clinical success rate which therapies seldom achieve (regardless of the presenting problems they face). To what might the success rate of this therapy be due? As the choice of names for the techniques they used will show, Morrow *et al.* implicitly suggested, and this paper explicitly suggests, that the success is due to the comprehensive, designed connection, based on a behaviorological analysis, between the therapy techniques and the variables functionally related to smoking. This paper makes that connection through an elaboration of the analysis by detailing the behaviorological process and procedures of this therapy, including how to get more clients to complete both therapy components and so increase their chances for long-term success.

(b) Therapy Process

The process of this therapy contains two sequential components. The first involves daily individual sessions and the second involves weekly (and later, monthly) group sessions. (Descriptions of all the self-control techniques, which are mentioned only by name in this section, are included in the “Therapy Procedures” section. Some techniques, such as satiation smoking, may at first seem like they would make smoking cravings worse, but on closer inspection they would not, and do not, have this effect.)

Individual daily sessions. In the therapy Morrow *et al.* describe, the first component is individual based. The client and therapist meet Monday through Friday for five daily sessions, each one hour long. These sessions have some activities in common, including these which occur each day: (a) The therapist collects the record of the number of cigarettes the client smoked in the previous 24 hours and praises drops in smoking rate (a part of valuable rapport establishment; in several different ways, more successful clients reported good rapport with their therapist—see Morrow *et al.*, 1973). (b) The therapist su-

pervises while the client engages in the technique called *satiation smoking* (a maximum of three “satiation cigarettes” per session). (c) The therapist and client discuss the previously introduced techniques and any difficulties the client may have experienced using them. (d) The therapist teaches the client any self-control techniques that are scheduled for introduction and together they work out and record the details of the client’s application of the techniques, taking the client’s particular circumstances into account. (e) The therapist provides any instructions relevant to the client’s efforts between then and the next session (e.g., any restrictions on smoking between sessions, and the need to continue to keep an accurate record of how many cigarettes get smoked between sessions). And (f) to a client’s doubts about his or her ability to succeed in quitting, the therapist responds with empathy for the difficulty the client is experiencing, expresses confidence, draws comparisons with similar clients who have quit smoking, and engages in other helpful verbal exchanges.

Each of the five individual daily sessions has some different activities also. These focus especially on the introduction of additional self-control techniques. (For details of therapist/client interactions regarding the common and different activities listed in this paper, see the “Therapist Manual” that accompanies Morrow *et al.*, 1973).

On Monday the therapist first stresses the importance of client cooperation if the client is to reach zero smoking by the end of the first week; the therapist’s role is to aid the client in reducing smoking so that non-smoking is possible between the Thursday and Friday sessions. Then the therapist teaches the client the technique called *satiation smoking*. The client smokes three satiation cigarettes during the session, using the client’s normal brand of cigarettes. The client intersperses these satiation cigarettes with learning the three self-control techniques called *pure activity*, *anti-social chair*, and *difficult to obtain*. The therapist also explains the purpose of these and later-introduced techniques in ultimately eliminating smoking. Clients may smoke normally as much as they wish between the Monday and Tuesday sessions, provided that they engage in all relevant self-control techniques which their therapist has introduced.

On Tuesday the client again smokes three satiation cigarettes, the first two of the client’s normal brand. The third is an unfiltered Camel provided by the therapist (if the client normally smokes Camels, the therapist provides an even stronger tasting brand imported from Asia). Between these satiation cigarettes, the therapist reviews previously introduced techniques, and introduces more self-control techniques. These include the techniques called *alternative behaviors*, *review emotional responses*, the filter-related part of *change cigarettes* (a two-step technique; the therapist will introduce the second step, the

brand-related part, at the next session), and *damage cigarettes*. Between the Tuesday and Wednesday sessions, clients may again smoke normally as much as desired provided that they engage in all relevant, introduced self-control techniques.

On Wednesday the client again smokes three satiation cigarettes. Only one is of the client’s normal brand; the other two are unfiltered Camels. Between these, the therapist reviews previously introduced self-control techniques, and introduces several more. The first two are for immediate use. These include the technique called *rehearsal of difficult times*, and the second, brand-related part of the two-step *change cigarettes* technique. The therapist also introduces the technique called the *quitter’s procedure* for later use. The therapist stresses the importance of getting the smoking rate down to the lowest possible level between this session and the next so that the client can more easily reach the zero rate between the Thursday and Friday sessions. To help reduce the rate to the lowest possible level, the client is to postpone smoking as long as possible. When the client does smoke, he or she is to engage all introduced self-control techniques while smoking that cigarette as a satiation cigarette (inhaling every six seconds using the seconds indicator on his or her clock or watch). Finally, the client is to destroy or give away all of his or her cigarettes just before the Thursday session.

On Thursday the client smokes only two satiation cigarettes, both Camels. For most of this session, the therapist emphasizes to the client the importance of going without cigarettes for the next 24 hours, and again reviews all the self-control techniques. As part of that review, the therapist advises the client on managing any problems experienced in the application of those techniques. As an aid to abstaining, the client can look forward to smoking only one satiation cigarette at the Friday session. And from now on the client is to use the technique called the *quitter’s procedure* for any cigarette he or she smokes.

On Friday, the last individual session, the therapist allows the client to smoke one satiation cigarette (a Camel). Having abstained for 24 hours already, most clients experience great discomfort over this cigarette; should they so chose, they need not complete it. The client and therapist review what the client has been through and discuss what the client might experience in the adjustment to non-smoking. In the rest of this session, the therapist describes to the client the scheduling, purposes, and benefits of the upcoming weekly (and later, monthly) group sessions.

Virtually all clients achieve zero smoking between the Thursday and Friday individual sessions. Something akin to a shaping process usually occurs as they extend this one-day success to three days by abstaining from the Fri-

day individual session to the first group session scheduled for the following Monday, and then from this first group session to the next one a week later, and so on.

Group sessions. The second therapy component is group based. The therapy Morrow *et al.* describe continues with eleven weekly group meetings spread over three months. Each group meeting is of two hours duration, and is usually held on Monday evenings. The group is comprised of clients who have completed the individual-therapy sessions. At any particular meeting some clients may be attending for the first time, others for the last time, and most somewhere between these points.

At each group meeting similar activities take place. In an informal atmosphere of healthy beverages and snacks (No smoking!) clients introduce themselves, state how long ago they quit smoking, and describe any problems they are encountering or what topics they would like to see the group discuss. Together they discuss events in their lives related to smoking, the difficult situations they described facing, and how to handle these. Thus each client can benefit from the experience of the others. When they exhaust smoking-related subjects, they are free to discuss any other topics of mutual interest. In these ways they bond together into a mutual support group of non-smoking friends (the first and often the only such friends some clients have) who have had similar quit-smoking experiences. For some clients these friendships and social contacts endure on their own after the end of formally scheduled meetings (a variable whose contribution to client success is difficult to assess).

The therapist keeps the group focused and provides verbal reinforcement when applicable. Should a client need additional help, the therapist works out an appropriate individual program with that client.

(c) Therapy Procedures

The therapy Morrow *et al.* describe employs a particular set of procedures for the client to use. Most of these are self-control techniques that can be found, in general and specific ways, in the literature (e.g., Skinner, 1953; Stuart & Davis, 1972). The differentiation among these techniques derives in part from the relation between each technique and a particular variable functionally related to smoking, and in part from the convenience thereby afforded in simplifying the presentation of the techniques to clients. Also, based on the author's work with clients, this paper further subdivides the techniques, so some names differ from those used by Morrow *et al.*

Morrow *et al.* specifically designed each technique to counter one or another of the variables, or variable components, explicitly controlling smoking. These variables fall under four headings, each of which will receive attention: (a) *antecedent stimulus variables* involving respondent aversive and other emotional considerations as well

as discriminative stimulus considerations, (b) *response considerations*, (c) *postcedent stimulus variables* involving conditioned and unconditioned reinforcement, and (d) *the combination of variables* when clients are "on their own" during and after the second, group-based component of the therapy.

Antecedent stimulus variables. Four techniques address antecedent stimulus variables. One addresses aversive respondent variables. One addresses other emotional respondent variables. And two address two different types of discriminative stimuli.

The therapy technique called *satiation smoking* is the aversive respondent technique in this therapy. In this technique, the client inhales on a cigarette every six seconds. As the rate of smoking outside the sessions decreases, satiation smoking becomes increasingly uncomfortable. While the aversive effects are temporary, clients may extinguish a satiation cigarette if they find it too uncomfortable.

The therapy technique called *review emotional responses* addresses respondent emotional variables. In this technique clients list (on a card that they carry with them) all their reasons for quitting smoking and for not smoking. As time passes clients remove from the list any reason that fails to elicit the appropriate, strong emotional reaction. Examples could be feeling pleasure elicited by a positive reason for ending smoking (e.g., pleasure at being able to smell flowers again) or feeling fear elicited by a negative reason for ending smoking (e.g., fear that the client's toddler might play with the cigarette lighter). Clients also add to the list reasons newly discovered to elicit appropriate emotional reactions. They attempt to increase the anti-smoking effects of the reasons on the list by reading the list before engaging in reinforcing activities such as eating a meal. Therapists instruct their clients to review the list several times each day during the week of individual sessions. In reviewing the list they should focus on each reason until it elicits the relevant emotion. They also review the list as part of the quitter's procedure. This technique is needed to replace old emotional ties operating to support smoking with new emotional ties operating to support non-smoking.

Two other therapy techniques address discriminative stimuli. Even though both decrease in relevance as clients progress past the initial cessation of smoking, both play valuable roles in bringing about that initial cessation.

One discriminative-stimulus focused technique is called *difficult to obtain*. In this technique clients put their cigarettes and matches in places that are separated in space as much as reasonably possible. The locations should necessitate additional response effort, such as bending over, to retrieve an item. This makes satisfying an urge to smoke more difficult (see Ledoux, 1973, for research support of the response status of urges to smoke).

For example, at home the cigarettes might be kept in a chest in an upstairs bedroom (with the TV located in the downstairs living room) while the matches might be kept on a high shelf in the basement. Should an urge to smoke occur during a TV program, the increase in time and effort required to obtain the needed items is likely to preclude the actual occurrence of smoking at that time. The inconvenience is often simply too great to bother with; clients report saying to themselves such things as “Do I really want to bother going and getting those things [cigarettes and matches] right now? No. If I must smoke, I’ll just smoke later.” The difficult-to-obtain technique is needed because the normal proximity of cigarettes and matches, to the client as well as to each other, affords these items a detrimental level of evocative power, as discriminative stimuli, over smoking. Little, if any, more is needed to get a smoker to light up a cigarette. A smoker reaching into a shirt pocket for paper and pen to write down a telephone number advertised by a commercial on TV would, upon finding a pack of cigarettes also in that pocket, likely light up.

The other discriminative-stimulus focused technique is called *rehearsal of difficult times*. In this technique the client makes special arrangements with everyone from whom he or she might receive cigarettes. For one day (the day immediately after this technique is introduced) all these people are to offer cigarettes unexpectedly to the client. The client is never to accept an offered cigarette but instead is to practice saying “no” to the offers. Clients who experience an excessive urge to smoke are to get their own cigarettes under already introduced techniques. Morrow *et al.* sometimes made quite specific not only their analysis of the relation between a technique and a smoking-controlling variable but also the occasions for the use of the technique. Rehearsal of difficult times allows:

...the discriminative stimuli... to occur in certain situations, which previously had always resulted in the response, without allowing the response to occur. In the present study, this procedure was recommended to all subjects who had a spouse who smoked and from whom they had often accepted cigarettes, or who frequently had “bummed” cigarettes from others in the past. (Morrow *et al.*, 1973, Appendix A, item vii)

The rehearsal of difficult times technique is needed because most smokers find saying “no” when someone offers a cigarette to be very difficult, especially given the price of cigarettes. Some report *never* having said “no” under such circumstances. Under conditions of deprivation during and after stop-smoking therapy, saying “no” is likely to be all the more difficult. The rehearsal of difficult times techniques enables the client, under contrived but also

controlled conditions, to practice saying “no.” Having said “no” at least in the past under relevant stimulus circumstances, clients find saying “no” easier when they are later faced with a real need to say “no.”

Response considerations. The therapy technique called *alternative behaviors* addresses the problems associated with the response status of smoking. In this technique the therapist helps the client construct a list of alternative behaviors in which the client is increasingly to engage as smoking decreases. For this list many clients emphasize past activities, such as hobbies or skills, in which they no longer engage but to which they would like to return. (The cessation of smoking may even make some preferred activities affordable.) Morrow *et al.* provided these details:

They are asked to include at least three activities in each of three categories: physical activities (such as jogging, bike riding, gardening, walking, etc.); quiet activities (i.e., crossword or jigsaw puzzles, sewing, arts and crafts, carpentry, reading, etc.); and oral activities (such as sucking, chewing or biting on lemon drops, life-savers, gum, celery, fruits, various non-toxic objects, etc.). (Morrow *et al.*, 1973, Appendix A, item iv)

The alternative behaviors technique is needed because behavior does not occur in a vacuum; it occurs in time. For smokers, smoking behavior fills part of each day. As smoking drops through therapy, more of each day becomes behaviorally empty. If no plans are made to fill this time by design with beneficial activities, then troublesome activities may fill it by accident. Extra eating is a common, undesirable replacement. Many people who have quit smoking have reported an increase in eating, and consequently weight. The origin of such problems may reside in the normal behavioral process of response generalization, in this case from one consumption response class to another. The alternative behaviors technique fills this time by design.

Postcedent stimulus variables. Four therapy techniques address the reinforcing capacity of cigarettes and smoking. All work to weaken that capacity. The first two focus on counter-controlling *conditioned* reinforcing capacity. The other two focus on counter-controlling *unconditioned* reinforcing capacity. These four techniques are needed to help counter any continued generation and maintenance of smoking due to its reinforcement value, for this value probably constitutes the most powerful of the variables responsible for the behavior of smoking. (The unconditioned reinforcing capacity of nicotine may be more powerful for most smokers than any conditioned reinforcing capacity of cigarettes or smoking. However, since the therapist usually cannot be sure if a client trying to quit

is more affected by unconditioned reinforcers or by conditioned reinforcers, both deserve therapeutic attention.)

One of two techniques focused on *conditioned*–reinforcement is called *pure activity*. Normally a smoker engages in other activities while smoking. This pairs the *physical* (and social) stimulus components of these activities with cigarettes and smoking, which establishes some of the conditioned reinforcing capacity of cigarettes and smoking. The pure activity technique counter–controls much of this normal, automatic pairing of physical reinforcers with smoking, for a pure activity is one that lacks connection with any previously associated physical reinforcers. In this technique, when clients smoke, that is *all* that they do; they engage in no other activities while they smoke. That means, for instance, no television viewing, no stereo listening, no drinking, no eating, no window gazing, no reading, no driving, no studying, no dancing, and no socializing. This technique thus reduces some of the conditioned reinforcement value of smoking, because it stops the pairing of smoking and most other physical reinforcers.

The other technique focused on conditioned–reinforcement is called *anti–social chair* (sometimes called “smoking spot”). Engaging simultaneously in smoking and social activities, a common occurrence, also pairs the *social* stimulus components of those activities with smoking. This again increases and maintains some of the conditioned reinforcement value of smoking. The anti–social chair technique extends the pure activity technique by counter–controlling much of this normal, automatic pairing of social reinforcers with smoking. In this technique the therapist and client discuss locations, suitably isolated from the normal social environments, that the client can use as smoking spots where he or she will be *alone* when smoking. Consistent with the pure activity technique, these are locations where the client can keep a chair to be used exclusively for smoking. (The overlap of the pure activity technique and anti–social chair techniques is not an issue.) The client selects one spot for use at home and one spot for use at work. The client is not to smoke anywhere else; when away from these places, a public toilet is a suitable, anti–social smoking spot. Spots that some clients have chosen include spare rooms, bathrooms, stairwells, basements, attics, and garages. This technique thus further reduces the conditioned reinforcement value of smoking because it stops the pairing of smoking and most social reinforcers.

Morrow *et al.* kept the two techniques that are focused on the *unconditioned* reinforcement value together. They referred to the combination as *reduction of reinforcement value* because both shared in reducing this reinforcement value. Here these two techniques are described separately.

One of the two techniques focused on reducing unconditioned–reinforcement is called *change cigarettes*. In

this technique clients change their cigarettes in two steps. The first step is filter–related. At the scheduled session, clients who smoke filtered cigarettes remove the filters, making the cigarettes aversive (or “distasteful,” as clients describe them). Clients who smoke unfiltered cigarettes change to a filtered brand. The second step is brand–related. At the next session all clients change to a strong unfiltered brand, making the cigarettes even more distasteful. Thus the clients’ actions changing the cigarettes offset some of the unconditioned reinforcement value of smoking by making smoking increasingly aversive.

The other technique focused on reducing unconditioned–reinforcement is called *damage cigarettes*. In this technique clients damage their cigarettes by poking pin holes in them (a minimum of five pin holes) or by water–logging them, or both. Damaging the cigarettes in any of these ways before smoking them makes them distasteful. Thus the clients’ action of damaging the cigarettes also offsets some of the unconditioned reinforcement value of smoking by also increasing the aversiveness of smoking.

(Used alone, these techniques might condition clients to tolerate stronger cigarettes. But clients, working on many smoking–control techniques concurrently, are observed by therapists to reduce smoking, not to tolerate smoking stronger cigarettes.)

The combination of variables. The therapy technique called the *quitter’s procedure* addresses the combination of variables *after* the client has completed the one–week, individual–based therapy component. During this period some previously introduced techniques stand alone (e.g., the alternative behaviors technique that continues whether or not other techniques are in use) while others are no longer relevant to the client’s efforts (e.g., the difficult–to–obtain technique since the client no longer owns cigarettes). The quitter’s procedure combines all remaining, relevant techniques in a way that avoids clients having to rely on an “it’s been x amount of time since the last cigarette” record that verbally implies falsely to them that they can never again have another cigarette. Instead the quitter’s procedure allows future cigarettes but only under specific, rate–reducing controls.

Morrow *et al.* designed the quitter’s procedure so that successful clients need not fear falling for the temptation to have a post–quitting cigarette.

This technique was developed in response to the expressed fear of (subjects) that they would again return to smoking if and when they ever had a cigarette after they quit, and their expressed inability to stop smoking if that meant they never, under any circumstances, could have another cigarette. (Subjects) were told that they could have a cigarette, after a period of zero smoking, which would satisfy

their urge to smoke while at the same time making the smoking response so aversive that the probability of emitting the smoking response would not be increased... (Morrow *et al.*, 1973, Appendix A, item viii)

Therapists describe the quitter's procedure to clients, in lay language, as a series of steps. These become successively more difficult so as to counter increasingly strong urges to smoke. In the quitter's procedure, when an urge to smoke occurs, clients face a series of what may conveniently be called choice, or decision, points.

Prompted by an urge to smoke, the first decision point occurs after clients initially observe and report to themselves (as a "public of one"; see Ledoux, 1973) their own momentary high probability of smoking. (For the level of discourse in this paper and with clients, this can be more simply, though less accurately, described by saying that clients verbally decide whether or not to smoke a cigarette.) Throughout therapy clients come to understand the fact that smoking has causes. After experiencing an urge to smoke, verbal responses regarding both the recollection of this fact and the realization that one or another cause is currently operating to make the client smoke are often adequate to prompt the further verbal, self-instructional response, and compliance behavior, of a decision not to smoke.

If the decision is to smoke, then the second decision point occurs after clients leave the immediate situation in which they decided to smoke. One stimulus or another has exerted enough control while they were in that environment to evoke the decision to smoke; the first step in weakening that control is to move away from that environment. Once in another setting they are to consider again whether or not to smoke. Simply changing environments is often adequate to prompt compliance with the verbal self-instruction not to smoke.

If the decision still is to smoke, then clients are to review their emotional responses list. The third decision point occurs after this is done when they again consider whether or not to smoke. Reviewing this list is often adequate to prompt compliance with the verbal self-instruction not to smoke.

If the decision to smoke continues, then other decision points occur both before and after clients walk, if possible, to a store where they might *buy* a pack of cigarettes, since they do not own or "bum" any. But before walking or buying, they review the final sequence of the quitter's procedure; they review what they must do *if* they let stand the decision to smoke: (a) They must buy an expensive pack of specified, strong tasting, unfiltered cigarettes. (b) They must trash 19 of the cigarettes from the pack right then at the store (because they had an urge to smoke only one cigarette, and keeping the other 19 would

only provide them with 19 more temptations). And (c) they must take the remaining cigarette to an agreed upon smoking spot where they must put pin holes into the cigarette and/or waterlog it before smoking that cigarette as a satiation cigarette! Having reviewed what they must do in the final sequence of the quitter's procedure, they again consider whether or not to smoke. Reviewing this final sequence, experiencing the aversive emotional reaction to it, is often adequate to prompt compliance with the further verbal self-instruction not to smoke.

If the decision to smoke stands, then the client buys a pack of the specified brand of cigarettes and continues through that final quitter's procedure sequence (why clients follow these rules is discussed later). By completing the quitter's procedure, the client has satisfied the urge to smoke but has not reinforced smoking. (See Morrow *et al.*, 1973, for more detail and the rationale on the parts of the quitter's procedure.)

One other factor bears on the continued successful application of the quitter's procedure. As part of the discussions on this procedure, therapists also repeatedly remind clients that smoking a post-quitting cigarette in any way other than through the use of this procedure (or using the quitter's procedure too often) carries a high probability of returning to smoking.

The quitter's procedure is needed because virtually everyone who has smoked and quit can expect to experience an occasional urge to smoke. Presumably one or another as yet unaddressed smoking-evoking variable has momentarily raised the probability of smoking. (Some of these variables are essentially unaddressable. For example, only a very rare client would have the authority to ban, say, cigarette vending machines from all of the places he or she ever encounters. Yet such a measure would be required if a person were to minimize the smoking-evoking stimulus control effects of these machines. Nevertheless, such measures are simply beyond normal reach.) Under these circumstances the quitter's procedure seems vital to continued success in non-smoking because it provides the client a way to "satisfy" urges to smoke while minimizing the reinforcers from smoking.

The quitter's procedure also increases the understanding of those who have never smoked regarding the extent of the problems faced by smokers who want to quit. The rigorous rate-reducing controls of the quitter's procedure surprise many of these non-smokers who see such controls as extreme. They ask "How could anyone ever follow that procedure? How could they throw the money tied up in 19 cigarettes away, or take those other steps? Why would they put themselves through all that?" Smokers who quit through using the quitter's procedure provide the answer: They experience, in various ways, that the quitter's procedure works, so they follow it, finding this procedure to be an invaluable aid to successfully quitting

smoking. Most smokers find the prospect of never again having another cigarette to be a virtually impassible barrier to successful quitting. Yet those who have used the quitter's procedure to stop smoking have shown, through their compliance with it, that using this procedure is easier than never ever again having another cigarette.

A summary table. Table 1 summarizes the self-control technique information. The name of each technique appears in relation to the type of variables it addresses and the session at which it is introduced.

A Partial, Small Scale Replication and Extension

After using the Morrow *et al.* therapy with a group of clients in Australia in the late 1970s, the author had occasion to work with a small number of American clients (about half a dozen) who hoped to quit smoking in the early 1980s. While the procedures for most of the author's clients were basically identical to those Morrow *et al.* used with their clients, the process differed.

One difference in process concerned the number of meetings after the daily sessions. Interested in reducing the recidivism rate found in their study, Morrow *et al.*

recommended that clients continue attendance at group meetings on a monthly basis for nine more months. This schedule would extend therapy duration to a full year, while increasing the interval between meetings through an additional step (daily to weekly to *monthly*). Such a schedule more gradually reduces—compared to the original Morrow *et al.* study—the therapist's part in the contingencies generating and maintaining clients' efforts to quit smoking. This gradual reduction in reliance on the therapist (akin to a fading procedure) seemed to contribute to clients' success when the therapy was completed and they proceeded independently. Based on preliminary evidence of benefits to clients, this practice seemed to contribute to reducing recidivism.

The author implemented this recommendation. But his clients were not numerous enough at any one time to meet as a group. However, they did meet individually with the therapist about 20 more times over a full year. The first eleven meetings occurred once each week over about three months, and the remaining nine meetings occurred once each month. To the extent possible these meetings covered the same ground, and served the same purposes, as the group meetings in the Morrow *et al.* study.

Another difference between the process for the author's clients and the process for clients in the Morrow

Session	Variables		
	Antecedent	Response	Postcedent
Monday	<ul style="list-style-type: none"> ✦ Satiation smoking ✦ Difficult to obtain 		<ul style="list-style-type: none"> ✦ Pure activity ✦ Anti-social chair
Tuesday	<ul style="list-style-type: none"> ✦ Review emotional responses 	<ul style="list-style-type: none"> ✦ Alternative behaviors 	<ul style="list-style-type: none"> ✦ Change cigarettes (filter part) ✦ Damage cigarettes
Wednesday	<ul style="list-style-type: none"> ✦ Rehearsal of difficult times 		<ul style="list-style-type: none"> ✦ Change cigarettes (brand part) ✦ Quitter's procedure (only introduced)
Thursday			<ul style="list-style-type: none"> ✦ (Quitter's procedure—begin use)

Table 1. Names of self-control techniques by the type of variables addressed and the session at which introduced.

et al. study concerned special fees. These were fees that also related to the recurring concern about recidivism. To reduce recidivism in their smoking-control therapy, Morrow *et al.* suggested another strategy besides extending meetings from weekly to monthly intervals. Based on their preliminary data, they also suggested that recidivism would likely decrease if therapists required each client to pay a special fee that would be refunded if, and only if, the client had attended nearly all therapy meetings regardless of whether or not the client had quit smoking. They suggested that making the refund contingent on attendance rather than on success might reduce the chance of clients quitting therapy; this should increase the likelihood of their quitting smoking. Given the money that quitting smoking saves (even after paying the therapist's regular fees) this special fee strategy was easy to institute. In addition, some clients saw the refund as a nice bonus for their successful efforts. The author implemented this recommendation also.

Compared with the Morrow *et al.* results, do longer therapy duration, or more gradually increasing the interval between meetings, or instituting special fees, work well for individuals or for groups? These are questions for further research as the limited data available at present are insufficient to provide an answer for them.

Only one of the author's clients can serve here as an example, since over the last ten years he has been able to keep in touch with only one of them. Even this has usually been through the accidental and occasional contact (e.g., spotting her in a grocery store about once each year). Even this type of contact was possible only because this client has remained in the "local" rural area, although residing about 20 miles from the author's residence. She has granted permission for her data to be reported here. (Clients had originally been told that their data was being collected solely for therapeutic purposes. No others could be reached regarding permission to use their data. So, except to point out that her success is typical of the other clients, nothing more will be said about their data.)

The one client whose data can be used was one of those who paid a special fee of \$50 that she did earn back solely by meeting the therapy contact requirements. She also quit smoking. Her characteristics showed her to be similar to the clients in the Morrow *et al.* study. Smoking just under one pack per day, she began smoking-control therapy at age 41, having begun to smoke 22 years earlier at age 19. She had twice previously tried to quit. After seven years of smoking, she tried "Bantron" for one week (although she is unsure, she recalls that this was a gum for controlling smoking). Five years later she tried special smoke-reducing filters for one month. Another ten years passed before she tried quitting again, this time with the therapy discussed here.

Her data show a pattern similar to that of the successful clients in the Morrow *et al.* study. Due to the 40-mile round trip required to meet with her therapist (and the long winters along New York State's border with Canada where that driving took place) her "daily" sessions had to be spaced two to four days apart. Nevertheless, she achieved zero smoking by the fifth therapy session in early March 1985. Due again to that driving distance, she continued in contact with her therapist by telephone once or twice each week for 15 weeks. In June 1985 the phone contacts became monthly until formal contacts stopped a year later in July 1986. At that time she had not resumed smoking. A formal follow-up in June of 1987, one-year after therapy ended (and over two years after therapy had started) found that she had still not resumed smoking. In early 1990, nearly three years after the formal follow-up and while preparing to be away for a year (teaching abroad), the author checked again and found that no return to smoking had occurred. At this point she had not smoked for over four years.

Two developments in this client's experience may be of interest to therapists and others. One development concerned the client's bowling once each week. From the time she achieved zero smoking to the end of the bowling season that year (in September), she found that the only occasion that was difficult for her to handle was bowling night. The situation presented great pressure to be sociable and to smoke. Sometimes she resisted successfully and other times she required a slightly modified quitter's procedure cigarette: no anti-social chair was available (she had to be present to take her turn). In spite of these difficulties, she did not return to smoking.

The other development that may be of interest concerns the circumstances around which she *did* once return to smoking. In July of 1996, while recomposing lecture materials to form this paper, the author had checked with this client for permission to use her data and found that some problems had occurred, and been resolved, in the years after he left for the year abroad. (As could happen, no contact had occurred in the years between his return and her resolution of the problem).

In mid-1990 the client experienced an overload of stressors. Her mother-in-law suffered a stroke, and died a couple of months later. She began smoking again when the stroke occurred. By the time of the death, she was back to a pack per day. This rate maintained until December 1993 when she became ill with pneumonia. Upon recuperation she found herself reinstituting many of the self-control techniques from her previous experience with the therapy. This action reduced her smoking rate again to zero in a matter of weeks. She has not smoked since then. [At a further followup in February 2007, she reported that she was still not smoking.—Ed.]

These data, from only one client, while enticing for what one might hope they say about the therapy as conducted by the author, are clearly insufficient to answer any questions about the particular changes, from the Morrow *et al.* processes, upon which the data are based. On the other hand these data do not contradict the data reported by Morrow *et al.* In their own limited way, these data provide a small measure of support for the conclusions of both Morrow *et al.* and this author.

Conclusion

The smoking-control therapy used by Morrow *et al.* and the author *provides an example* of a therapy that addresses its concerns comprehensively, is successful, and is theory based in that it derives its practices from established behaviorological principles. Its substantial clinical success rate shows this therapy to be a valuable example of how the general approach of behaviorologically analyzing *and addressing* explicit functionally controlling variables can benefit clients, in this case clients with smoking problems. Extension of these characteristics to many other kinds of concerns, large or small, will likely enable people with those concerns to attain similar success rates. ☺

Endnotes

This paper achieved final form both for presentation at the ninth annual convention of The International Behaviorology Association in Plymouth, MA, March 1997, and for inclusion in *Origins and Components of Behaviorology* ((Ledoux, [1997/2002])).

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Using Parenting Prescriptions in Real Life

Glenn I. Latham

Utah State University Logan

[This is the fourth (and last) article in the first issue (Volume 1, Number 1) of Glenn Latham's *Parenting Prescriptions* magazine, and it is written as a success-story meta-report, referring to the author as a resource. As one of the four Founders of TIBI and a *Behaviorology Today* staff writer, Dr. Latham's work has appeared in the pages of this journal before. We are thankful to have received permission to occasionally reprint one of his helpful, science-based practical articles, like this one, for parents and other child caregivers. (Readers can obtain all four issues of *Parenting Prescriptions* magazine through the "Products" section of www.parentrx.com which is the web site that Glenn established as an information resource.)—Ed.]

Dr. Glenn Latham's parenting techniques, or prescriptions, are not just theories. Based on scientific research, these parenting prescriptions have been tested by thousands of parents with real-life problems. The results are astounding. For example, we recently spoke to Elaine Adler, who explained that parenting prescriptions have not only made her a better mother but also a better grandmother.

Elaine and her husband, Doug, recently volunteered to tend their daughter's three children—a ten-year-old girl, a seven-year-old boy, and a three-year-old boy—for two weeks. Although appreciative, their daughter worried how her mother and father would handle the three children: The children fought constantly, and the three-year-old was especially difficult to manage. He typically had two or three tantrums a day.

To further complicate things, Elaine and Doug were taking the children to a cabin near Bear Lake, a beautiful lake shared by Utah and Idaho. Although Bear Lake offers fishing, swimming, and waterskiing, it is a quiet resort with few shops or entertainment centers. There are no video arcades, movie theaters, or televisions. How could Elaine and Doug keep the children occupied and prevent them from fighting?

Knowing the problems they might face in taking care of the children, Elaine and Doug determined that they would use Dr. Latham's parenting prescriptions during the entire two weeks they were with the children. Two hours after picking up the children, this resolve was put to the test: Not surprisingly, the three-year-old began to have a tantrum.

Elaine explains that she carefully followed Dr. Latham's parenting prescriptions. First, she remained calm and gently took the child to the timeout chair. She quietly explained that his behavior was not acceptable at Grandma and Grandpa's cabin. Furthermore, Elaine told the child how she expected him to act. The child quit crying, and the incident was over.

The three-year-old had only one more tantrum during the two weeks they were at Bear Lake. Once again, Elaine took the child to the timeout chair and quietly explained that this behavior was not acceptable at Grandma and Grandpa's cabin. She reiterated how she expected the child to behave. That was it. For the rest of the two weeks, the three-year-old was a delight to be with.

Elaine and Doug also had to deal with the children's fighting. After being at Bear Lake several days, Elaine, Doug, and the children had a long talk. They talked about siblings, and Elaine explained how she felt when they fought. She also explained that fighting was not acceptable at Grandma and Grandpa's cabin, and she told the siblings how she expected siblings to behave. Throughout the discussion, Elaine never raised her voice and remained completely calm.

That talk was a turning point for the children. From then on, they began to get along and enjoy their time together. Elaine and Doug read the children stories and told them stories about their mother and their uncles and aunts. Elaine says the children especially liked to hear stories about their mother.

Thanks to Dr. Latham's parenting prescriptions, Elaine and her husband had a wonderful time with the children and can't wait to spend time together again.

A week after leaving the children with their parents and returning home, Elaine and Doug received a call from their daughter. "What have you done with these children?" she asked. "They are so nice to each other. I've just spent the best week with them." Their daughter also explained that the family was soon going on vacation, and she couldn't wait to go because her children were suddenly so "compatible."

Parenting prescriptions work, whether you are a parent, grandparent, aunt, uncle, or teacher. Try them. You'll be amazed by the results. [For further information, see Latham, 1999, video program, and CD program.—Ed.]✦

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Social Implications of the Variable Ratio Schedule

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[This is an excerpt from “Schedules of Reinforcement,” Chapter 17 of the author’s book, *General Behaviorology: The Natural Science of Human Behavior* (Fraley, 2008, Canton, NY, ABCs). This part extends the technical details of that chapter to improvements in ongoing cultural concerns.—Ed.]

Games and sports events are often described as being intensely interesting to people, but questions arise about how contrived contests with trivial outcomes could command such attention. Why, it has often been asked, would a contest to toss a ball through a hoop, or to advance a ball to a certain line drawn on the ground, matter that much to people? Why would anyone care? Or, why would a person work for long periods of time to solve trivial puzzles when the outcomes are so inconsequential?

The answer to such riddles is based on schedule effects. It is not the trivial outcome that accounts for the strong control of behavior, but rather the schedule of acquiring those conditioned reinforcers through whatever behavior produces that kind of unimportant outcome. Two points (of the kind scored in a basketball game), considered apart from the game, are worthless, but in relation to the game, they seem important.

We can ask two analytical questions: Why is it fun to win the game, and why is it fun to play the game? Many kinds of reinforcers may be attached to winning the game, so regardless of how points may be earned, it becomes important to earn more points than the opponents. Even if a task is aversive to perform, we may strive to excel in doing it if a worthwhile cache of reinforcers is delivered contingent on posting the best performance.

However, that consideration pertains to the reinforcers that are contingent on winning. Whether or not one finds the game itself interesting to play is another matter, and that is determined by the schedule of reinforcement according to which progress in the game is measured (perhaps by the awarding of points).

If it is arranged that those points are acquired only according to a related set of variable ratio schedules of reinforcement (which is exactly what is accomplished by playing according to the rules for a game such as basketball), then behaving so as to acquire two points will seem important. Like those who actually play the game, the

thousands of fanatical sports fans who jam a sports arena exhibit an intensity of spectator behavior that is generated, not by the trivial outcome of scoring points but rather by the *schedule* according to which those conditioned reinforcers are being encountered.

Under a ratio schedule (FR or VR) the reinforcer is encountered sooner if the responses occur in more rapid succession, so that is what tends to occur. The variable ratio schedule insures that those responses are more evenly distributed than under a fixed ratio schedule. That is why any game that is designed to provide reinforcers on a variable ratio schedule (or a related set of variable ratio schedules)¹ will tend to produce a high rate of behavior, seemingly important and often exhibited with emotionally intensified behavioral characteristics.

The circumstantial characteristics of such games are typically constructed to include as many previously conditioned reinforcers as possible. That is done to strengthen the person’s involvement and especially to evoke the player’s initial participation. Those familiar kinds of reinforcers are used to develop the theme of the game and to determine its topographical features. However, the holding power of the game inheres in its management (through the rules of the game) of the variable ratio schedules of reinforcement by which success in playing the game is defined and attained.

To better appreciate the importance of the variable ratio schedule in producing intense activity (by both players and spectators), imagine a change in the rules of the game that insured a schedule of continuous reinforcement (CR). Suppose, for example, in basketball, a player would be awarded a score merely for shooting the ball, regardless of whether it passed through the hoop. Merely tossing the ball upward would be to score, so every shot would result in a score (a continuous reinforcement schedule). If the other team was given control of the ball after each score and the ball could be shot every time a player got the ball in hand, teams would score an enormous number of points.

Such a game would seem dull and boring if points were thus obtained on a CR schedule. Play would lose its intensity, and few people would watch such games. Clearly, the important aspect in controlling behavior resides with the particular schedule of reinforcement by which the points are acquired, and certainly not with the intrinsic qualities of points per se.

¹ The phrase *related set of variable ratio schedules* alludes to the fact that most games involve a wide variety of behaviors, each of which occurs under its own variable ratio schedule of reinforcement. The occasionally successful outcomes of those constituent behaviors enable the final kind of behavior that is said to “count” in the sense that it scores points or results in other increments of recorded progress in the game.

Lotteries also operate successfully, because winning occurs according to a variable ratio schedule (VR) that applies to the behavior of buying a lottery ticket. Like all forms of gambling, lotteries generate long and persistent playing behavior because of their intrinsic VR schedules. Governments can raise large amounts of revenue from ticket sales, because the powerful schedule effect of the VR schedule produces far more ticket buying behavior than could be sustained by the reinforcing capacity of the money actually won. After all, most lottery ticket buyers win little or nothing, and people who play regularly over long periods of time necessarily tend to lose more than they win, because the odds favor the sponsoring agency, usually quite strongly.

By further reducing the chances of an individual winning, the state can afford to pay the winner a conspicuously large amount, which draws attention to the lottery and promotes play. People who otherwise would not have purchased a ticket, do so in response to such advertising.

In terms of previously introduced forms of notation, with respect to those people on whom that ploy succeeds, we could describe the public notice of such a large prize as a function-altering stimulus (S^{FA}) that changes a lottery ticket from a neutral stimulus to an S^D for one's ticket-buying behavior. For newcomers to the lottery, the initially neutral stimulus (ticket for sale) would be classed as an S^N , while for old customers who had previously quit playing under the weight of their losses, the initially neutral stimulus (ticket for sale) would be classed as an S^A . However, whether an S^A or a general S^N , the notice of the inordinately huge prize would convert it to an S^{Ev} (or S^D) for a ticket-buying response.

The VR schedule is behaviorally addictive in the sense that it produces more (often *much* more) behavior than the reinforcer could sustain under other circumstances by which it may be contacted. Lotteries have been criticized as taxes on ignorance through which a shrewd elite class contrives to have the unsophisticated masses pay a disproportionate share of the expenses of government programs and operations. However, excessive schedule-induced gambling behavior (often attributed to an *addiction* to gambling) equally affects persons of differing intelligence² and accumulated wealth.

The exhibited pattern of excessive behavior has often been treated as a symptom of disease, but it rarely has anything to do with pathogens or physiological malfunctions. The excessive gambling is of behavioral, not bio-

logical origin, although normal physiological differences among individuals leave them differentially susceptible to the effect. The fundamental source of an arguably incorrectly termed gambling addiction resides with those who have arranged to put peoples' behavior under those particular varieties of the variable ratio schedule. (Whether to call a behaviorally induced pattern of intense and high-rate behavior an *addiction* continues to be debated, often in the absence of technical detail about schedules of reinforcement and VR schedules in particular.)

Importantly, understanding the appeal of gambling as a schedule effect does not render one immune to it. Nevertheless, a technical understanding of what is occurring does support the construction of some countercontrols.

Governments publicly justify lotteries in part by emphasizing the benefits realized from the money that they generate, but in deflecting criticisms, governments also seize upon the false but widespread assumptions about human behavior that prevail among the populace. For example, the myth of free will is typically promoted as part of the deception. That is, although the variable ratio schedule of reinforcement controls behavior in a very powerful way (recall, for example, how it is responsible for making people behave as though the trivial behaviors in sports are important), people are assured that they gamble only because they "want to gamble" or "choose to gamble." In general, people are quick to explain their gambling behavior in terms of such fictional causes (i.e., wants, decisions, preferences, desires, choices, etc.).

The traditional social science disciplines, in tolerating and often promoting concepts of free will, have helped prepare the general population to be exploited in that manner. The fallacy is promoted or at least implicitly accepted that within a person a responsible agent called "self" exercises its personal autonomy by *choosing* the behavior to be exhibited by the body, including gambling. The special control of behavior that is exerted by reinforcers that are contacted on a VR schedule is downplayed, or more typically, is simply ignored. Instead, appealing to a fictional construct, it may be proclaimed that people play "because of their *desire* to play." Or, appealing to the mythical body-driving agent, it is said that they only play if they rationally "*decide* to play." That implicit self-agent can then be held responsible, as they say, which justifies punishment of the resulting behavior should it be deemed injurious.

The pure power of the schedule, apart even from any private verbal behavior (thinking) about it, has long been demonstrated. For instance, these schedules work equally well in controlling the behavior of laboratory animals that have little or *no* capacity for verbal behavior and cannot exhibit the kind of verbal behavior that people call *deciding*. Schedules of reinforcement describe, and in a sense account for, many behavior patterns that tradi-

² Intelligence has been defined behaviorologically as a relatively greater susceptibility to operant conditioning (a.k.a. a greater capacity for rapid learning). That is, a person whose behavior changes more quickly under an operant conditioning procedure (or its natural equivalent) is described as being more intelligent than persons whose comparable behavior change occurs more slowly under similar circumstances.

tionally have been ascribed either to an errant self-agent or to a responsible one.

Those who rely heavily on such a mystical *self* to explain exhibited behavior have been slow to pay attention to the science of schedules of reinforcement and to the implications of such schedules, because the scientific principles of schedules of reinforcement render redundant another large chunk of the putative autonomous will—a mystical capacity (of an equally mystical agent) that can seem important for reasons having nothing to do with science.

An important kind of countercontrol available to an individual at the personal level is through one's verbal behavior about gambling. That is, one's capacity for countercontrol depends on one's own descriptions of (a) the chances of winning, (b) schedule effects, and (c) the social and economic implications of gambling for self and others. Note again, however, that describing to oneself the schedules that are in operation does not render one immune to their effects. Schedule effects, like the effects of contingencies of reinforcement, do not have to be understood by the person in whose behavior they manifest. Nor is immunity to be gained merely through enlightenment (i.e., a football game can be just as compelling to a person who knows all about schedules of reinforcement). However, to put it agentially, at least the person who thinks about the relevant factors may be better postured to arrange some effective countercontrols insofar as that person can logically assess the lasting worth of the experience in relation to its felt worth.³ After all, the quality of any given class of reinforcers inheres in the implications of whatever kind of behavior that it strengthens.

As a first step in arranging some countercontrols, one can describe in a technical sense what is happening to oneself under such a schedule. The subsequently designed countercontrols may take such forms as prevention or preclusion, perhaps through arranging that some incompatible behavior be evoked. While this can occur intuitively, a more educated person (a more comprehensively conditioned body) may be better prepared to engage in the necessary analyses and to construct the most effective self-management practices—especially persons who have some training in schedules of reinforcement.

The lottery, with its VR schedule, will produce high rates of play by both rich and poor people indiscriminately. Many

poor people, who cannot afford to play, do so anyhow, often to an extreme. When such cases are revealed, governments can be embarrassed, and attempts are made to conceal the facts, to change the story, or to prevent revelations about what is really controlling the behavior.

For example, advertisements for lotteries must necessarily expose the public to the behavior-controlling capacity of the VR schedule insofar as that advertising is intended to promote ticket buying. Such advertisements will commonly include admonitions to “play responsibly”—an appeal to the nonexistent self-agent for the exercise of good judgment in deciding the fraction of one's resources that are to be expended on gambling. However, it is the VR schedule, not a fictitious willful self, that actually fosters the excess play that often characterizes gambling behavior. In spite of included admonitions to exercise appropriate self-control, the composition of those advertisements insures the display of strongly evocative and saliently presented stimuli, cloaked in a package of appealing features, that tend to evoke whatever behavior will bring a viewer under control of the VR schedule of the advertised game.

Governments, desperate for revenue and confronted with resistance to tax increases, often turn to the easy exploitation of addicts of both the physiological and behavioral kinds. It may be argued that the citizens, in general, are too ignorant and unsophisticated to tax themselves sufficiently to support the kind of abstract social infrastructure that a complex culture requires for the provision of expected services to its members. In the absence of an authoritarian government that can forcefully impose the necessary level of taxation, a democratic government is often left to devices of seduction.

People may be encouraged to become addicts who are then relatively helpless to resist exploitation. A familiar example is the widespread addiction to nicotine nearly all aspects of which are kept legal. Once a person is addicted to nicotine, governments can successfully raise taxes on tobacco products to extremes that would not be possible for taxes on other commodities, while the myth of personal responsibility by self-agents allows the pathetic victim to be held responsible and treated with contempt that distracts attention from a more astute analysis.

Another important example features the behaviorally induced addiction of people to the effects of the VR schedule in the form of lotteries. It has the intrinsic advantage of appearing not to be a tax, which remains a problem with taxes on tobacco products, because nicotine addicts in democratic cultures can still vote. With a government sponsored lottery, a government can exploit behaviorally addicted people who fall victim to the VR schedule thereby making up the shortfall from publicly supported schemes of outright taxation. Members of the exploited class, indoctrinated with the myth of free will, are taught

³ Regardless of the implications of this common way of writing, the verbal behavior to which this sentence alludes does not really represent the proactive behavior of an internal behavior-managing agent whose specialty is cognition. That verbal behavior, like all other behavior, is evoked by environmental events. Once it occurs, it too thereby becomes a real environmental event that can share in the antecedent control of the individual's further behaviors, and that is how verbal behavior has its most important kind of effect (see Chapter 26).

to accept personal responsibility for any adverse consequences of their gambling losses. (See the following newspaper article.)✦

FROM: The Daily Athenaeum—West Virginia University,
Friday, Oct. 17, 1986, Vol. 99, No. 38, p. 1.

Disabled Miner Strikes it Rich

CHARLESTON (AP) – A disabled coal miner who didn't even have a bank account captured the West Virginia Lottery's biggest payday by winning \$5.6 million yesterday in the weekly jackpot contest.

Glen Stanley, 51 of Point Pleasant, was the last of eight contestants to spin the jackpot wheel yesterday morning. He is the first jackpot winner since May and the biggest winner since the lottery started 11 months ago.

Stanley worked for Southern Ohio Coal Co. until three years ago, when he hurt his back. The Mason County man said he has been supporting his family with \$1,400 a month in disability checks.

"About all my life I've worked hard labor," he said. "The first thing I'm going to do is take care of my family. Then I'd like to set up some sort of fund to feed the hungry children." Stanley is married and has six children ranging from 28 to 11.

He also said he would buy a new house—"I don't like where I live now"—and eventually would like to open a family business, although he said he did not know what it would be.

"I haven't made me no plans," he told reporters at a news conference following the jackpot spin. "I think I'll just rest a while."

Lottery Director Ralph Peters said Stanley will receive a \$224,000 check from the state every year for 20 years. The federal government is withholding 20 percent of Stanley's winnings for taxes.

Eight jackpot contestants each week earn a chance to spin a wheel for prizes from \$2,500 and up by being chosen in a weekly drawing of winners in the instant lottery game.

After spinning the wheel yesterday, Stanley was taken aside by Peters, who advised him to take his check to the bank immediately. When Stanley said he didn't have a bank account, Peters said. "I'm sure any bank would be glad to help you."

At the news conference, Stanley said he went from buying a few of the lottery tickets a month to "about three tickets a day, lately." He said the \$1-a-shot gambling chances ate into his limited budget, "but I just thought I might hit something someday."

Lottery show hostess Nancy Hill—also standing at the podium—interrupted Stanley to say that surely he didn't buy "that many" tickets.

"Overall, you only bought a few tickets a month, isn't that right?" she said. "We find that most people who can't afford the tickets don't buy them."

"Oh, we never bought them when we couldn't afford them," said Stanley's wife, Helen. "We had bills to pay first."

State lottery officials maintain that the game doesn't entice the poor to use their limited budgets on lottery tickets.✦

Quoted

Lawrence E. Fraley

Professor of Behaviorology (retired)

[This quote originated as the third footnote, and its source paragraph, from p. 593 in Chapter 18 ("Adjunctive Behavior") of the author's 30-chapter book, *General Behaviorology: The Natural Science of Human Behavior*, (2008), Canton, NY: ABCs. This quote relates a consideration that has applications in contexts far wider than just the topic of its source chapter; for this reason the footnote and its source paragraph are presented here.—Ed.]

... *D*uring analyses of operant behavior, the conceptual scheme afforded by the sciences of probability and chaos serve as conceptual devices for managing our ignorance about some of the controlling relations that share in determining the observed behavior. Contrary to fashionable rhetoric, those sciences do not impugn the basic assumption of determinism. They are simply ways of generating the somewhat imprecise descriptive statements that the limited available data will support when no means are available to contact data that would lend more specificity to those statements.³ ...

³ The bases of recourse to the mathematics of uncertainty are inadequacies in the analyses of the behavior-controlling functional relations between the thematic environmental phenomena and the body of the organism that is reacting to them. Note that a descriptive deficiency in the control that a natural phenomenon can exert over the behavior of an organism is not an occasion to declare that natural events occur spontaneously. Put another way, the laws of physics that govern a set of events are not contingent on those laws and events being understood by some observer. Another expression of this idea posits that the functional events that define a natural phenomenon are independent of any neural behavioral reactions of organisms to those events.✦

Syllabus Directory

Each issue of *Behaviorology Today* contains three lists. These lists show where to find only the most up-to-date versions (in title and content) of TIBI's course syllabi. The first list shows syllabi located in the current issue or past issues. The second list shows the schedule (which may change) of syllabi to appear in some future issues. The third list repeats the syllabi locations (actual or planned) but by course number rather than by issue.

Up-To-Date Syllabi in Current or Past Issues

- Volume 7, Number 2 (Fall 2004): BEHG 101:
*Introduction to Behaviorology I.**
- Volume 7, Number 2 (Fall 2004): BEHG 102:
*Introduction to Behaviorology II.**
- Volume 7, Number 2 (Fall 2004): BEHG 201:
*Non-Coercive Child Rearing Principles and Practices.**
- Volume 7, Number 2 (Fall 2004): BEHG 355:
*Verbal Behavior I.**
- Volume 8, Number 1 (Spring 2005): BEHG 400:
Behaviorological Rehabilitation.
- Volume 8, Number 1 (Spring 2005): BEHG 415:
*Basic Autism Intervention Methods.**
- Volume 8, Number 1 (Spring 2005): BEHG 420:
*Performance Management and Preventing Workplace Violence.**
- Volume 8, Number 1 (Spring 2005): BEHG 425:
*Non-Coercive Classroom Management and Preventing School Violence.**
- Volume 8, Number 1 (Spring 2005): BEHG 475:
*Verbal Behavior II.**
- Volume 8, Number 2 (Fall 2005): BEHG 410:
Behaviorological Thanatology and Dignified Dying.
- Volume 9, Number 1 (Spring 2006): BEHG 365:
Advanced Behaviorology I.
- Volume 9, Number 2 (Fall 2006): BEHG 470:
Advanced Behaviorology II.
- Volume 10, Number 1 (Spring 2007): BEHG 120:
Non-Coercive Companion Animal Behavior Training.

Syllabi Planned for Future Issues

- Volume ?, Number ? (Spring/Fall 20??): BEHG 250:
Educational Behaviorology for Education Consumers.
- Volume ?, Number ? (Spring/Fall 20??): BEHG 340:
Educational Behaviorology for Education Providers.
- Volume ?, Number ? (Spring/Fall 20??): BEHG 405:
Introduction to Instructional Practices in Educational Behaviorology.

- Volume ?, Number ? (Spring/Fall 20??): BEHG 455:
Advanced Instructional Practices in Educational Behaviorology.
- Volume ?, Number ? (Spring/Fall 20??): BEHG 445:
Advanced Experimental Behaviorology.

Syllabi Locations Listed by Course Number

- BEHG 101: *Introduction to Behaviorology I:*
Volume 7, Number 2 (Fall 2004).
- BEHG 102: *Introduction to Behaviorology II:*
Volume 7, Number 2 (Fall 2004).
- BEHG 120: *Non-Coercive Companion Animal Behavior Training:*
Volume 10, Number 1 (Spring 2007).
- BEHG 201: *Non-Coercive Child Rearing Principles and Practices:*
Volume 7, Number 2 (Fall 2004).
- BEHG 250: *Educational Behaviorology for Education Consumers:*
Volume ?, Number ? (Spring/Fall 20??)
- BEHG 340: *Educational Behaviorology for Education Providers:*
Volume ?, Number ? (Spring/Fall 20??)
- BEHG 355: *Verbal Behavior I:*
Volume 7, Number 2 (Fall 2004).
- BEHG 365: *Advanced Behaviorology I:*
Volume 9, Number 1 (Spring 2006).
- BEHG 400: *Behaviorological Rehabilitation:*
Volume 8, Number 1 (Spring 2005).
- BEHG 405: *Introduction to Instructional Practices in Educational Behaviorology:*
Volume ?, Number ? (Spring/Fall 20??)
- BEHG 410: *Behaviorological Thanatology and Dignified Dying:*
Volume 8, Number 2 (Fall 2005).
- BEHG 415: *Basic Autism Intervention Methods:*
Volume 8, Number 1 (Spring 2005).
- BEHG 420: *Performance Management and Preventing Workplace Violence:*
Volume 8, Number 1 (Spring 2005).
- BEHG 425: *Non-Coercive Classroom Management and Preventing School Violence:*
Volume 8, Number 1 (Spring 2005).
- BEHG 445: *Advanced Experimental Behaviorology:*
Volume ?, Number ? (Spring/Fall 20??)
- BEHG 455: *Advanced Instructional Practices in Educational Behaviorology:*
Volume ?, Number ? (Spring/Fall 20??)
- BEHG 470: *Advanced Behaviorology II:*
Volume 9, Number 2 (Fall 2006).
- BEHG 475: *Verbal Behavior II:*
Volume 8, Number 1 (Spring 2005).☺

*An older version appeared in an earlier issue.

Always More at behaviorology.org

Visit TIBI's web site (www.behaviorology.org) regularly. We are always adding and updating material.

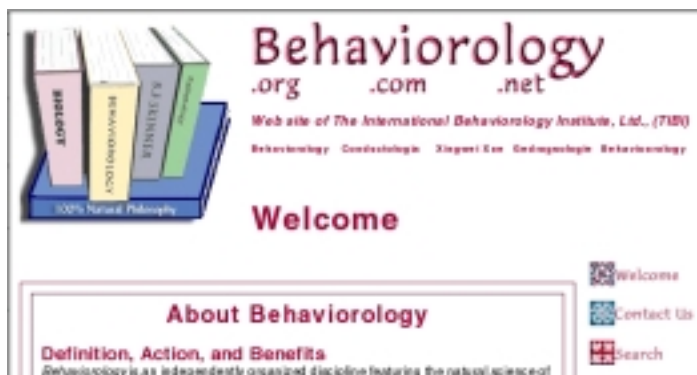
From the *Welcome* screen, you can select the *Sample* page of our *Behaviorology Community Resources* (designed especially for first-time visitors). This page provides a wide selection of useful articles, many from *Behaviorology Today*, in Adobe PDF format (with a button to click for a free download of Adobe's Acrobat Reader software, although most computers already have it). The articles are organized on several topical category pages (e.g., contributions to parenting and education, book reviews, and behaviorology around the world). Other selections on the *Sample Community Resources* page feature descriptions of TIBI's certificate programs and course syllabi, and links to some very helpful related web sites.

From the *Welcome* screen or the *Sample Community Resources* page, you can also select the main page of the web site, the *Complete Behaviorology Community Resources* page. This page contains a more complete set of materials, including (a) more articles under the same selection categories as on the *Sample* page, (b) additional article selection categories (e.g., contributions to autism, natural science, outreach, and verbal behavior) each with its own range of pages and PDF materials, (c) many more links to related behavior science web sites, and (d) several new types of selections (e.g., books and magazines pages and PDFs, and upcoming activities).

Visit the web site regularly. After each new issue of *Behaviorology Today*, we link the issue's articles to the relevant selections and categories on the web site.

Explore what interests you. And tell us about your site-visit experience. Your input is welcome, and will help us make further improvements.

As with any category of regular membership or Donor level, a paid online membership (US\$5) earns and supports access to the greater amount of online material included on the *Complete Behaviorology Community Resources* page. (See *TIBIA Memberships & Benefits* in this issue.)



Subscriptions & Back Issues

People can receive copies of *Behaviorology Today* in ways other than as a member. People can subscribe without membership for US\$20, and people can obtain back issues for US\$10 each. Photocopy, fill out, and send in the "membership" form on a later page. As applicable, check the "subscription" box, and/or list which back issues you are ordering. *Donations/Contributions* are also welcome, and are tax-deductible as TIBI is non-profit (under 501-C-3).

While supplies last, new subscriptions—with or without a regular membership—will include a copy of each past issue of *Behaviorology Today*, beginning with Volume 5, Number 1, (Spring 2002).

TIBIA Memberships & Benefits

The levels of TIBIA membership include increasing amounts of basic benefits. Here are all the membership levels and their associated, basic benefits:

Free-online membership. Online visitors (who may or may not elect to register online as a free member) receive benefits that include these: (a) access to selected, general interest *Behaviorology Today* articles and links, (b) access to Institute information regarding TIBI Certificates and course syllabi, and (c) access to previews of the benefits of other membership levels.

\$5 (to \$19) Basic-online membership. Online visitors who pay the \$5 online dues earn benefits that include these: *All* the benefits from the previous membership level plus (a) access to all *Behaviorology Today* articles and links online, (b) access to TIBIA member contact information online, and (c) access to special organizational activities (e.g., invitations to attend TIBI conferences, conventions, workshops, etc.).

\$20 (to \$39) Subscription membership. Those who mail in (by regular post) the \$20 subscription fee and form receive benefits that include these: *All* the benefits from the previous levels plus a subscription to the paper-printed issues of *Behaviorology Today* (ISSN 1536-6669).

Contribution amounts beyond these first three levels are *Donor* levels, which are described in *TIBI Donors & Levels* in this issue. All memberships are per year. The next four membership levels (Student, Affiliate, Associate, and Advocate) were the Institute's original membership categories, and so are sometimes designated the "regular" membership levels. Here are these regular membership levels and their basic benefits:

\$20 Behaviorology Student membership (requires paper membership application co-signed by advisor or department

chair, and dues payment—see *TIBIA Membership Criteria & Costs* in this issue). Benefits include *all* those from the previous levels plus these: Access to all organizational activities (e.g., invitations to attend and *participate* in meetings conferences, conventions, workshops, etc.).

\$40 *Affiliate membership* (requires paper membership application, and dues payment—see *TIBIA Membership Criteria & Costs* in this issue). Benefits include *all* those from the previous levels plus these: Access to advanced levels for those acquiring the additional qualifications that come from pursuing a professional behaviorology track.

\$60 *Associate membership* (requires paper membership application, and dues payment, and is only available to qualifying individuals—see *TIBIA Membership Criteria & Costs* in this issue). Benefits include *all* those from the previous levels plus these: TIBIA voting rights.

\$80 *Advocate membership* (requires paper membership application, and dues payment, and is only available to qualifying individuals—see *TIBIA Membership Criteria & Costs* in this issue). Benefits include *all* those from the previous levels plus these: May be elected to hold TIBIA or TIBI office.

Other Benefits

Beyond the intrinsic value that TIBIA membership bestows by virtue of making the member a contributing part of an organization helping to extend and disseminate the findings and applications of the natural science of behavior for the benefit of humanity, and beyond the benefit of receiving the organization's publications, TIBIA membership benefits include the following:

- ❧ Members will have opportunities to present papers, posters, and demonstrations, etc., at the organization's meetings;
- ❧ Members paying regular dues in the last third of the calendar year will be considered as members through the end of the following calendar year;
- ❧ Members paying regular dues in the middle third of the calendar year will be allowed to pay one-half the regular dues for the following calendar year;
- ❧ A TIBIA member may request the Institute to evaluate his or her credentials to ascertain which TIBI certificate level most accurately reflects the work (and so, by implication, the repertoire) behind those credentials. The Institute will then grant that certificate to the member; as part of this evaluation, the Institute will also describe what work needs to be accomplished to reach the next certificate level. The normal processing fee for this service (US\$20) will be waived for members. For the processing fee of US\$20, a non-member may also request this evaluation and, should she or he

ever join TIBIA, the US\$20 already paid will be applied to the initial membership dues owed. (Faculty teaching behaviorology courses can encourage their students to request this evaluation.)

TIBIA continuously considers additional membership benefits. Future iterations of this column will report all new benefits upon their approval.❧

TIBIA Membership Criteria & Costs

TIBIA has four categories of regular membership, of which two are non-voting and two are voting. The two non-voting categories are Student and Affiliate. The two voting categories are Associate and Advocate. All new members are admitted provisionally to TIBIA at the appropriate membership level. Advocate members consider each provisional member and then vote on whether to elect each provisional member to the full status of her or his membership level or to accept the provisional member at a different membership level.

Admission to TIBIA in the Student membership category shall remain open to all persons who are undergraduate or graduate students who have not yet attained a doctoral level degree in behaviorology or in an acceptably appropriate area.

Admission to TIBIA in the Affiliate membership category shall remain open to all persons who wish to maintain contact with the organization, receive its publications, and go to its meetings, but who are not students and who may not have attained any graduate degree in behaviorology or in an acceptably appropriate area. On the basis of having earned TIBI Certificates, Affiliate members may nominate themselves, or may be invited by the TIBI Board of Directors or Faculty, to apply for an Associate membership.

Admission to TIBIA in the Associate membership category shall remain open to all persons who are not students, who document a behaviorological repertoire at or above the masters level or who have attained at least a masters level degree in behaviorology or in an acceptably appropriate area, and who maintain the good record—typical of “early-career” professionals—of professional accomplishments of a behaviorological nature that support the integrity of the organized, independent discipline of behaviorology including its organizational manifestations such as TIBI and TIBIA. On the basis either of documenting a behaviorological repertoire at the doctoral level or of completing a doctoral level degree in behaviorology or in an acceptably appropriate area, an Associate member may apply for membership as an Advocate.

Admission to TIBIA in the Advocate membership category shall remain open to all persons who are not stu-

dents, who document a behaviorological repertoire at the doctoral level or who have attained a doctoral level degree in behaviorology or in an acceptably appropriate area, who maintain a good record of professional accomplishments of a behaviorological nature, and who demonstrate a significant history—typical of experienced professionals—of work supporting the integrity of the organized, independent discipline of behaviorology including its organizational manifestations such as TIBI and TIBIA.

For all regular membership levels, prospective members need to complete the membership application form and pay the appropriate annual dues.

Establishing the annual dues structure for the different membership categories takes partially into account, by means of percentages of annual income, the differences in income levels and currency values among the world's various countries. Thus, the annual dues for each membership (or other) category are:

<u>Category</u>	<u>Dues (in US dollars)*</u>
Board of Directors member	The lesser of 0.6% of annual income, or \$120.00
Faculty member	The lesser of 0.5% of annual income, or \$100.00
Advocate member	The lesser of 0.4% of annual income, or \$80.00
Associate member	The lesser of 0.3% of annual income, or \$60.00
Affiliate member	The lesser of 0.2% of annual income, or \$40.00
Student member	The lesser of 0.1% of annual income, or \$20.00

*Minimums: \$20 director or faculty; \$10 others

TIBIA MEMBERSHIP APPLICATION FORM

(SEE THE NEXT PAGE FOR THE TIBI / TIBIA PURPOSES.)

Copy and complete this form (please type or print)—for membership or contributions or subscriptions or back issues—then send it with your check (made payable to TIBIA) to the TIBIA treasurer at this address:

Dr. Stephen Ledoux
TIBIA Treasurer
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Check if applies:

- Contribution:
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- ✻ Vol. ____, # __
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Name: _____

Member Category: _____

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Amount enclosed: us\$ _____

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Office Phone #: _____

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CHECK PREFERRED MAILING ADDRESS:

E-mail: _____

Office: Home:

Degree/Institution:** _____

Sign & Date: _____

*Subscriptions: us\$20/year; back issues: us\$10 each.

**For Student Membership:

I verify that the above person is enrolled as a student at: _____

Name & Signature of Advisor or Dept. Chair: _____

TIBI / TIBIA Purposes*

TIBI, as a non-profit educational corporation, is dedicated to many concerns. TIBI is dedicated to teaching behaviorology, especially to those who do not have university behaviorology departments or programs available to them; TIBI is a professional organization also dedicated to expanding the behaviorological literature at least through the magazine/newsletter *Behaviorology Today* (originally called *TIBI News Time*) and the *Behaviorology and Radical Behaviorism* journal;** TIBI is a professional organization also dedicated to organizing behaviorological scientists and practitioners into an association (The International Behaviorology Institute Association—TIBIA) so they can engage in coordinated activities that carry out their shared purposes. These activities include (a) encouraging and assisting members to host visiting scholars who are studying behaviorology; (b) enabling TIBI faculty to arrange or provide training for behaviorology students; and (c) providing TIBI certificates to students who successfully complete specified behaviorology curriculum requirements. And TIBI is a professional organization dedicated to representing and developing the philosophical, conceptual, analytical, experimental, and technological components of the separate, independent discipline of behaviorology, the comprehensive natural science discipline of the functional relations between behavior and independent variables including determinants from the environment, both socio-cultural and physical, as well as determinants from the biological history of the species. Therefore, recognizing that behaviorology's principles and contributions are generally relevant to all cultures and species, the purposes of TIBI are:

- A. to foster the philosophy of science known as radical behaviorism;
- B. to nurture experimental and applied research analyzing the effects of physical, biological, behavioral, and cultural variables on the behavior of organisms, with selection by consequences being an important causal mode relating these variables at the different levels of organization in the life sciences;
- C. to extend technological application of behaviorological research results to areas of human concern;
- D. to interpret, consistent with scientific foundations, complex behavioral relations;

- E. to support methodologies relevant to the scientific analysis, interpretation, and change of both behavior and its relations with other events;
- F. to sustain scientific study in diverse specialized areas of behaviorological phenomena;
- G. to integrate the concepts, data, and technologies of the discipline's various sub-fields;
- H. to develop a verbal community of behaviorologists;
- I. to assist programs and departments of behaviorology to teach the philosophical foundations, scientific analyses and methodologies, and technological extensions of the discipline;
- J. to promote a scientific "Behavior Literacy" graduation requirement of appropriate content and depth at all levels of educational institutions from kindergarten through university;
- K. to encourage the full use of behaviorology as the essential scientific foundation for behavior related work within all fields of human affairs;
- L. to cooperate on mutually important concerns with other humanistic and scientific disciplines and technological fields where their members pursue interests overlapping those of behaviorologists; and
- M. to communicate to the general public the importance of the behaviorological perspective for the development, well-being, and survival of humankind.☺

Periodical Information

Behaviorology Today [known as *TIBI News Time* for the first 4 volumes / 8 issues], is the magazine of *The International Behaviorology Institute* (a non-profit educational corporation) and is published in the spring and fall each year.

Behaviorology Today and TIBI can be contacted through the Editor at these addresses and web site:

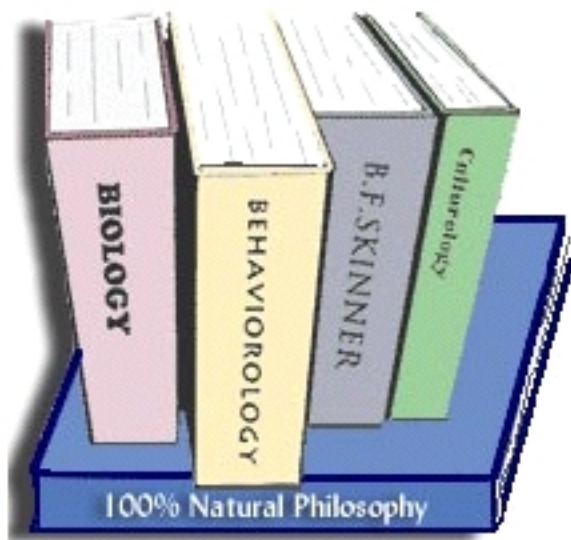
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