Nurturing Behavioral Repertoires Within a Nonsupportive Environment

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Recent articles have expressed concern over the increasing retreat to mentalism among behaviorists. The problem has been described elsewhere as a shift in verbal behavior resulting from the contingencies imposed by mentalistic verbal communities. Previous solutions have focused on strengthening our behavioral graduate programs to make the graduates' verbal repertoires more resistant to change. We suggest it is useful to analyze the problem in terms of inappropriate audience control and offer an approach by which behaviorists may assemble audiences to maintain their behavioral verbal repertoires within mentalistic verbal communities.

A problem of current concern among radical behaviorists has been characterized by Michael (1980) as the "flight from behavior analysis". He argues that the analyses of behavior (especially within Applied Behavior Analysis) are becoming increasingly sloppy, superficial, and mentalistic. Branch and Malagodi (1980) express a similar concern over a retreat to mentalism among behaviorists who are involved in basic research and working in academic settings. They cite numerous references to mentalistic explanatory concepts found in recent issues of some of our most prestigious behavioral journals (e.g., *JEAB*, *Behaviorism*), with a notable emphasis on the recent work of Schwartz *et al.* (1978).

Branch and Malagodi describe the problem as one involving a change in verbal behavior resulting from contingencies imposed by mentalistic verbal communities. Specifically, the verbal behavior of graduates of our behavioral programs seems to be much too susceptible to change when they enter eclectic academic environments. Michael suggests that similar changes may also occur when our graduates enter applied settings.

Both articles attribute the source of the problem to deficiencies in behavioral graduate training programs, and both recommend solutions which involve strengthening those programs by providing more laboratory experience

(Branch & Malagodi, 1980) or more courses covering basic scientific and theoretical issues (Michael, 1980). As a result, the graduate's repertoire would presumably be more resistant to change from contingencies encountered in mentalistic verbal communities.

We accept the general characterization of the problem offered by Michael (1980) and Branch and Malagodi (1980) as a shift in verbal behavior through the contingencies imposed by a mentalistic verbal community. We suggest, however, that in some eclectic academic environments the immediate contingencies may be sufficiently strong to alter the behaviorist's verbal repertoire regardless of the graduate history.

These contingencies may be described as those which impose audience control, a form of stimulus control, over verbal behavior (Skinner, 1957, ch. 7). Given situations where there are at least two verbal response alternatives, an audience may selectively reinforce only one of the alternatives. The subdivisions of a verbal repertoire called "languages" represent common examples of this form of control. For a person who speaks both German and English, a given object may occasion a German word in the presence of a German speaking audience and an English word in the presence of an English speaking audience. The audience controls a large number of responses to specific objects or situations (Skinner, 1957, p. 174).

Within the present context, the subdivisions of the verbal repertoire which are

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under audience control may be characterized as behavioral vs. mentalistic. A given situation may evoke either a behavioral or mentalistic response depending on the audience. For example, a description of the causal factors for a behavioral event may be stated in terms of the contingencies of reinforcement in the presence of a behavioral audience or in terms of emotional states or expectations in the presence of a mentalistic audience.

Audience control over a behavioral verbal repertoire is not, in itself, a problem and is perhaps desirable for communication and coexistence with nonbehavioral colleagues. It becomes a problem, however, when a mentalistic audience is the only effective audience for a prolonged time and other reinforcers for behavioral activity, verbal or otherwise, are lacking. Just as students studying in a foreign country may experience a deteriorating ability to converse in their native language with a prolonged absence of the audience which occasions it, so may a behaviorist observe a deteriorating behavioral verbal repertoire with an extended absence of a behavioral audience. Like Branch and Malagodi (1980), we contend that this is likely to be accompanied by a degree of uncritical acceptance of less rigorous, mentalistic, descriptions of behavior and its causes.

The immediate audience for a "token" behaviorist within an eclectic department is usually mentalistic. Such an audience does not maintain and eventually will not occasion a behavioral verbal repertoire. It may often constitute what Skinner refers to as a negative audience (Skinner, 1957, pp. 178-179) for such a repertoire; that is, one in which behavioral verbal behavior is punished or extinguished. Behavioral analyses of phenomena are often met with blank stares or long periods of silence from mentalistic colleagues. The verbal responses of which these analyses consist quickly decrease.

Behaviorists teaching within eclectic departments may have audiences other than their immediate mentalistic colleagues. Behavioral colleagues at other institutions and professional organizations such as *ABA* may constitute a behavioral

audience. Skinner characterizes this type of "audience at a distance" as weak and having little control over verbal behavior because of the deferred consequences (Skinner, 1957, pp. 177-178).

The student audience may also be ineffective. The isolated behaviorist may often be found within smaller, primarily undergraduate, teaching institutions. If students are to differentially reinforce appropriate verbal behavior, they must discriminate it from inappropriate forms. This requires more training than the eclectic undergraduate curriculum typically allows. A "token" behaviorist is often hired to teach the "token" behavioral course and introductory psychology.

It seems reasonable to expect that under these conditions, the strong contingencies imposed by the immediate mentalistic audience would readily alter the verbal repertoire of graduates of behavioral programs lacking in the kind of training suggested by Michael (1980) and Branch and Malagodi (1980). As Knapp (1982) has recently suggested, however, even with such training it is questionable whether the graduate's behavior would remain immune to the immediate contingencies forever. Personal observations suggest that while the repertoire may change more slowly, it will change nonetheless if steps are not taken to alter the nature of the audience control described above.

Skinner argues that one effective technique for self-strengthening verbal behavior is to change the audience to one which will maintain the appropriate verbal repertoire (Skinner, 1957, p. 408). We have taken steps to implement Skinner's suggestion in response to observed changes in the first author's verbal and analytic repertoire. The changes approximated those described by Michael (1980) and Branch and Malagodi (1980) as a flight from behavior analysis, and they seemed to be clearly a function of four years of working within an exclusively mentalistic verbal community.

The steps which we have taken involved the development of a program called the Behavior Science Research Group (BSRG). Its purpose was to establish within an undergraduate population a

sophisticated technical behavioral verbal repertoire, thereby making the population an effective and immediate behavioral audience. The BSRG was designed to accomplish this within an eclectic psychology department and within a predominantly undergraduate teaching institution with all of the constraints and contingencies mentioned earlier. The following is a description of the program and its effects on the behavior of the faculty and students.

THE BEHAVIOR SCIENCE RESEARCH GROUP

The BSRG has four objectives related to the strengthening of the behavioral repertoires of the faculty member and students. They are:

- 1) To provide students with a clear and undistorted view of Skinnerian behaviorism as a science and a philosophy.
- 2) To establish a verbal repertoire in students which is appropriate to radical behaviorism.
- 3) To establish student research skills in the applied and the experimental analyses of behavior.
- 4) To create a verbal community which will maintain appropriate audience control over the verbal repertoires of faculty member and students.

Two additional objectives may be seen to enhance the value of the Group for students and the university. They are:

- 5) To provide behavioral services to the university and community.
- 6) To document the students' skills and accomplishments in order to facilitate the placement of students in employment or graduate programs.

To accomplish these objectives we have implemented a sequence of activities within the three year, phased program described below. Students may enter the BSRG at any point in their academic program, but the benefit to the students will be greatest if they enter during or just after completing the freshman year. The recruitment of students has thus far been accomplished primarily through word-of-mouth and by announcements read in psychology classes or posted on bulletin boards. We are currently developing presentations which can be given by group members in all introductory psychology classes. The presentations outline the goals and activities of the Group and the

benefits of membership.

Phase 1a

It is often difficult to get more than one advanced behavioral course established within an eclectic undergraduate curriculum because of the demands on faculty time which must be allocated to the teaching of the more general required courses. Therefore, relatively few students have access to behavioral classes. Most students have their only contact with behavioral issues and techniques in non-behavioral classes where the treatment of the subject is often brief, over simplified, misleading, distorted, and sometimes completely false. As a result, the students are left with gross misconceptions about behaviorism and are often unjustifiably critical of it.

One of the first accomplishments of the BSRG is to correct the misconceptions which may have developed and to present a brief, simple, yet accurate description of behavioral philosophy and principles. The material in Nye (1979) seems ideally suited for this purpose. Phase 1 students are assigned proctors (BSRG members in Phase 2) who assist and monitor progress through each chapter. The proctors provide detailed objectives, establish a schedule of completion deadlines, and evaluate the students' written and oral performance according to criteria established by the Group Coordinators.

In this phase we also begin the process of establishing the technical verbal repertoire of radical behaviorism. Students work with their proctors to complete the programmed text by Holland and Skinner (1961). They are required to provide written responses to each frame on prepared answer sheets which are turned in according to a schedule for completion of sets and checked by the proctors. Tests consisting of randomly sampled frames are also given periodically.

Students normally complete this phase by the end of the first semester of membership. Additional evaluation of the effectiveness of the activities is accomplished through the use of pre- and post-tests covering the basic principles and terminology of behaviorism.

Phase 1b

In the second semester of membership, verbal repertoires are strengthened and generalized by having students participate in journal-article discussion groups. Approximately five students meet weekly with each proctor (a Phase 2 member) who assigns the article, provides written objectives, and monitors the discussion. The articles selected are those which describe basic issues or classic research in the applied and experimental analyses of behavior. Articles of the type reprinted in Catania (1968) and Ulrich, Stachnik, and Mabry (1966, 1970) are typical examples.

Phase 2

We begin to develop research skills and interests in the second year of membership. The journal-article discussion group format is continued. However, the articles selected typically cover more specific and current research problems in behavior analysis. The article selection, objectives, and monitoring are handled by Phase 3 members.

Phase 2 students are also introduced to the day-to-day conduct of behavioral research through an apprenticeship program. They work directly with a supervising Phase 3 student who is conducting a research project (either applied or basic). The Phase 3 student receives the benefit of increased personnel to run the study and is in turn responsible for directing learning activities related to the research problem, methodology, and instrumentation.

An additional responsibility of students in this phase is to serve as proctors for Phase 1 activities. They work with the BSRG Coordinators (three students responsible for the overall management of the Group) to evaluate and revise the activities and materials used in Phase 1.

Phase 3

The third year is designed to promote more advanced research and verbal skills. The discussion groups are continued and proctored by the BSRG Coordinators and Director (the "token" behavioral faculty member). The material selected deals with advanced research (e.g. from *JEAB* and

JABA), theoretical issues (e.g. from *Behaviorism*), and professional issues (e.g. from *The Behavior Analyst*). In addition, selected readings from the work of Skinner are included (e.g. Skinner, 1953; 1957; 1974; 1978).

Students also become involved in designing, implementing, evaluating, revising, and presenting the results of one or more major research projects. Facilities for both applied and basic research are available. A thematic approach to research (Johnston & Pennypacker, 1980) operates within each. General research programs continue from year to year. However, each year allows for new specific research projects to be initiated within the general program. This approach provides some structure to get students involved with little wasted time, yet also provides flexibility to allow for individual research.

Finding sites for applied research for undergraduates can sometimes be a problem. We have, therefore, developed a few general research programs which can be carried out on campus. These programs apply behavioral technology for energy conservation on campus, for weight control among college students, and for the evaluation and improvement of BSRG functioning. The first two programs provide a valuable service to the university and the last is one which we consider to be essential to the success of BSRG. Within this program students apply behavioral technology to study the effectiveness of the teaching materials and procedures used in all phases of the Group. They also apply a behavioral systems analysis approach (Brethower, 1972) to study and improve the overall effectiveness of the Group in accomplishing its goals.

Students may communicate the results of their research in a variety of forms. These include colloquia open to all students and faculty in the department and a journal (*The Behavior Science Research Group Quarterly*) managed and edited by members of the Group. Not only do these provide the students with experiences relevant to a professional career in behavior analysis, but they also serve

the function of informing nonbehavioral faculty and students about the activities of the BSRG as well as the relevance of behavior analysis. Students are also encouraged to present their work at conventions of professional organizations such as *The Association for Behavior Analysis*.

Most students in Phase 3 also serve as proctors for those in Phase 2. Three students, however, are selected to serve as BSRG Coordinators who are responsible for the overall management of the Group and the proctoring of Phase 3 students. A partial list of their responsibilities includes recruiting, funding, record keeping, documentation of student progress, public relations, maintaining correspondence with professional organizations, and evaluating and revising the Group's procedures. The Coordinators work closely with the Director and the BSRG members conducting systems analysis research on the Group's functions.

Contingencies

The BSRG has been in existence for one year. Formal analyses of the function of the Group and its components are just beginning. Through rather informal observations in our first year of operation, we have reached some preliminary conclusions concerning the contingencies operating within the Group and behavioral changes observed in faculty and students.

In the early phases of the BSRG, we have found it helpful to incorporate formal contingencies to compete with those imposed by the students' day-to-day class schedules. Students may earn directed or independent study course credits (usually included within eclectic curricula) by successfully completing some of the Group's activities. These include the work in Nye (1979), Holland and Skinner (1961), and some research activities.

A number of the contingencies operating in later phases of the Group are rather informal. They include social consequences for participation in discussion groups and various forms of recognition for research accomplishments. One form of recognition is obtained when students

present their research results to peers at local colloquia or to professionals at conventions, or publish their work in *The Behavior Science Research Group Quarterly*.

The skills learned and documented as a result of participating in BSRG activities can clearly increase the desirability of the students as candidates for employment and graduate programs. Our experience with placing graduates suggests that they have a distinct advantage over their classmates who do nothing more than attend classes for four years. Their letters of recommendation can be specific with respect to their skills in, and commitment to, behavior analysis. The results of their research projects are often documented in the form of paper presentations or publications. We have found that behavioral graduate programs regard these features of an applicant's file to be of primary importance for admission.

Since the responsibilities of the Coordinators require a great deal of effort, commitment, and skill in behavior analysis, it may be appropriate to provide monetary reinforcement if work-study funds are available. The value of being selected to those positions may then be enhanced and selection may be made contingent upon productivity in earlier phases.

For the Director, the reinforcers which were lost as a function of entering an exclusively mentalistic verbal community are reinstated with the establishment of a student behavioral verbal community. The Director maintains frequent contact with the Group's members through the research activities, informal conversation, classes, and the Phase 3 discussion groups. These contacts provide ample exposure to the controlling contingencies imposed by this immediate, and now effective, behavioral audience. The students' improved behavioral verbal repertoires allow them to discriminate verbal responses which comprise rigorous behavioral analyses from those comprising superficial or mentalistic ones. The likelihood that they will differentially reinforce the former, as well as critical analyses of the latter, is thereby increased.

With respect to the current issue, this source of reinforcement produces the critical behavioral result, that is, the maintenance of the Director's previously established behavioral verbal repertoire.

Some changes in the students' repertoires have also provided some indirect sources of reinforcement for the Director's involvement. In the first year of operation, 23 of our 280 psychology majors became active members of the BSRG. This occurred without any formal recruiting program. These students were placed in phases appropriate to their previously established behavioral skills (Phase 1, seven students; Phase 2, eleven students; Phase 3, five students) and, therefore, became active in research and journal-article discussion groups. Our best estimate of the number of students involved in such activities prior to the BSRG is less than six per year. Our student membership in the *Association for Behavior Analysis* has increased from an average of fewer than four per year to 19. Eighteen of them attended the last convention, and five presented papers. These changes in the degree of student involvement and accomplishment in scholarly endeavors have not escaped the attention of colleagues and university administrators. They are apparently viewed as positive changes, since they have evoked attention and support which has been most reinforcing. Items of correspondence ranging from informal notes from administrators to departmental performance reviews and salary recommendations have praised the accomplishments of the BSRG and its student members.

CONCLUDING COMMENTS

It may be argued that reinforcement obtained directly from the process of conducting behavioral research or application may be sufficient to maintain one's behavior as a behaviorist and that the formation of a behavioral verbal community may be a useless digression. Many undergraduate institutions, however, consider teaching to be their primary responsibility and have assigned course loads of perhaps four classes each semester. This greatly limits the time available for

research or clinical work, making this source of reinforcement infrequently available.

Behaviorism can, of course, be applied in the classroom and the results can be very reinforcing. The eclectic department can often impose strong competing contingencies, however. Behavioral practices in the classroom and the resulting high student performance often do not conform to the expectations of college instruction held by non-behavioral "educators" and may, therefore, evoke punishment (Johnston, 1975).

Under such conditions, we suggest that the establishment of an immediate audience capable of maintaining a behavioral repertoire is important in preserving one's commitment to the rigorous, empirical approach of behaviorism. Within the brief history of the BSRG, we have seen dramatic changes, not only with respect to the maintenance of a verbal repertoire, but in providing a source of reinforcement for behavioral educational practices. The program has also restored an overall density of reinforcement to a level more than sufficient to maintain productivity.

At this point in the development of the BSRG, we offer the activities and contingencies described as a preliminary suggestion and not a final product. If our analysis is correct, that the flight from behavior analysis is, at least in some cases, a result of inappropriate audience control, then the accomplishment of the objectives listed above should be useful in preventing such a flight. Given that set of objectives and the application of behavior analysis to their accomplishment, effective techniques and contingencies will follow. We expect that as our research programs in educational technology and systems analysis continue, our techniques will evolve and increase in effectiveness.

With respect to the curricular changes suggested by Michael (1980) and Branch and Malagodi (1980), it may be argued that the most efficient way to promote long term maintenance of any repertoire is to establish functional behaviors. These are behaviors which are functional in obtaining "natural" reinforcers in the en-

vironment in which you wish them to be maintained. We suggest that it may be useful for behavioral graduate programs to establish behaviors which will make graduates more successful in altering their future mentalistic environments to maintain their behavioral verbal repertoires. Skinner's (1957) analyses of verbal behavior, particularly those dealing with audience control and techniques for self-strengthening verbal behavior, seem to be important for determining the environmental conditions responsible for the flight from behavior analysis. They also suggest steps which should be effective in preventing such a flight. Since the steps which we have outlined require the establishment of a sophisticated verbal repertoire within a student audience, it may also be important for our graduates to be effective in the application of behavioral technology in higher education.

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