Some Considerations for Behavior Analysts Developing Social Change Interventions

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Abstract

The importance of a behavior analyst to the maintenance of established behavioral programs has long been recognized. A case example in the Experimental Living Project at the University of Kansas is discussed, providing an illustration of the degree of involvement that behavior analysts assume in such programs. We propose that the behavior analyst implemented critical but unspecified procedures necessary for maintaining the program. These results, together with similar findings reported by others, indicate that an ongoing program to train indigenous staff to perform specified critical procedures, and an awareness of critical design features of adoptable technology, could improve the maintainability of behavioral programs as the involvement of the behavior analyst is systematically reduced.

> We are more concerned with the discovery of knowledge than with its dissemination.
>
> — B.F. Skinner

This 1956 (p. 221) quote illustrates a change that has gradually occurred in behavior analysis. Today, dissemination of technological innovations is of increasing importance to our field, and a concern for the potential adopters of behavioral technology is becoming increasingly more evident (e.g., Fawcett, Seekins, & Braukmann, 1981; Mathews & Fawcett, 1979; Seekins & Fawcett, 1984; Stolz, 1981). Many of the programs designed by behavior analysts are meant to be operated by indigenous staff (e.g., Bassett, Blanchard, & Koshland, 1975; Panyan, Boozer, & Morris, 1970; Rollins, McCandless, Thompson, & Brassell, 1974). In these cases, behavior analysts are expected to select, introduce, and/or modify the behavioral technologies that constitute the program for a setting, while the actual management of the program continues to be exercised by the local staff. Hence, behavior analysts often serve as management consultants, continuously evaluating the effects of behavioral procedures, but not directly managing the program (Fraley, 1981, p. 40).

The literature illustrates how behavior analysts have developed practical solutions that can be used effectively by indigenous staff for a variety of problems (e.g., Kissel, Whitman, & Reid, 1983; Spangler & Marshall, 1983; Wolf, Braukmann, & Ramp, 1982). And most of these solutions have been directly replicated (cf. Parsonson & Baer, 1978, p. 113). Unfortunately, little information is available about whether indigenous staff can maintain behavioral programs — and their effects — after the departure of the behavior analyst. In one of the only empirical articles to directly address this issue, Bassett and Blanchard (1977) describe what happened when the behavior analyst left a token economy in the hands of a prison staff. During a four-and-one-half month period, the prison staff escalated the use of response cost (token fines) to control the prisoners' behavior. Concurrently, the rate at which prisoners quit the program increased 500%. Clearly the indigenous staff were not able to maintain the program effectively without the direct involvement of the behavior analyst.

The question remains whether this finding has generality to behavioral programs in other settings. In an uncontrolled case study relying on interview data, Hazel and Krantz (1979) report the disintegration of a behavioral program in a public school after the behavior analysts left the setting. The lore of the field holds many examples of successful and replicable programs being discontinued after the behavior analyst withdrew (cf. Fawcett, Mathews, & Fletcher, 1980; Fawcett et al., 1981; Liberman, 1980; Malott, 1974; Rollins, Persons, & Thompson, 1974; Seekins & Fawcett, 1984; Wolf et al., 1982). These reports support the concern that indigenous staff are often not able to maintain behavioral programs in the absence of the behavior analysts who develop them.

A case example

At the University of Kansas, approximately 30 students live in a behaviorally engineered cooperative called The Experimental Living Project. Students participate in a token-based worksharing program (Feallock & Miller, 1976; Lies & Miller, 1978) and subsequently pay less than typical rent for their accomodations. As Lies and Miller have stated (1978, p. 631), "The purpose of The Experimental Living Pro-

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ject has been to engineer behaviorally a positive, workable, group-living situation for single university students."

An important problem for cooperative settings is getting members to stay once they join (Kindade, 1972; Ledoux, 1985). To assess stay-over in the Experimental Living Project, the percentage of members who stayed in the cooperative from one semester to the next was calculated using archival records maintained by the cooperative and by the university records office. Members who were not free to stay (e.g., moving out-of-town) were not included in the calculations. An average of 25 members (range - 16 to 32) lived in the cooperative each semester. Stay-over is an example of an organizational outcome measure — a variable assessed by its effects on the organization (Ziarnik & Berstein, 1982).

Across a 10-year period, the Project employed two different behavior analysts for about 3 years each to serve as in-house manager of the behavioral program. During an intervening period of 5 years, the group of behavior analysts who designed the program remained available as consultants but did not serve as in-house managers. Decisions concerning the cooperative and the details of the cooperative program were made by the members throughout the 10-year period. In addition, the day-to-day operations were managed by the members.

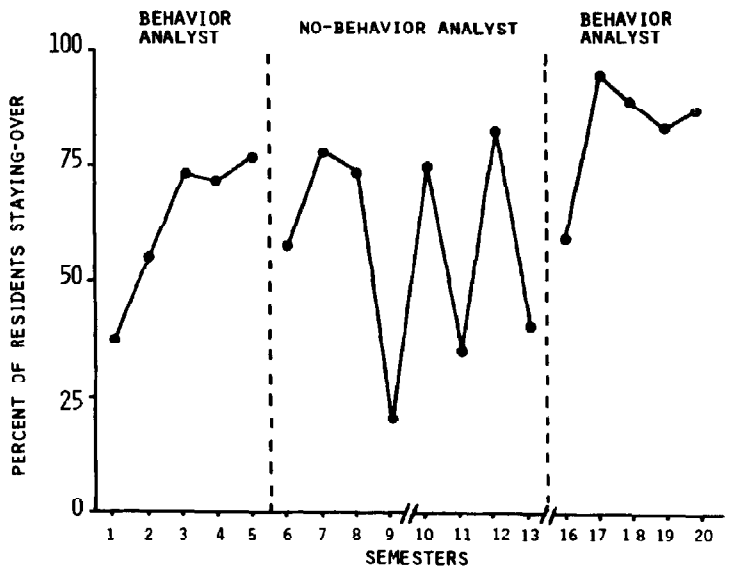
During the two 3-year periods, the behavioral managers provided advice and technical assistance concerning the behavioral program. They also adapted the technology to unforeseen circumstances; they provided social contingencies where formal ones were not sufficient; they provided rationales for why particular procedures were necessary or useful; and they recommended specific solutions when formal procedures failed. In short, the behavior analysts implemented informal procedures that bridged the gap between the formal procedures and the actual requirements of the setting. The changes in the role of the behavioral managers across the three periods paralleled the changes in Bassett's role in the prison token economy.

Although the analysis is not a highly controlled experiment, the archival data permit a comparison of resident stay-over for the ten years. The three conditions were as follows: For 6 semesters the cooperative was assisted by a behavior analyst; for the next 10 semesters the cooperative was not assisted by a behavior analyst; and for the last 4 semesters the cooperative was again assisted by a behavior analyst. This sequence of conditions allows for an ex-post-facto analysis (Campbell & Stanley, 1983) of the naturally occurring quasi-experimental design similar to a simple reversal (Kratochwill, 1978).

Figure 1 shows the percent of resident stay-over during the three periods. When the first behavior analyst was present, stay-over was initially only 37% but increased to an average of 73% during the last 2 semesters of this condition. When the cooperative operated for 10 semesters without a behavior analyst, stay-over averaged only 58%. In addition, stay-over fluctuated greatly with a high of 83% and a low of 20%. When the second behavior analyst was present, stay-over averaged more than 90%. Thus, the percent of stay-over was higher and more stable during the conditions when a behavior analyst was present.

Resident Stay-Over in the Experimental Living Project.

FIGURE 1.



The Project was closed for two months between semesters 9 and 10 and for one year between semesters 13 and.16 for remodelling and structural improvements.

In addition, interviews with residents who were members of the cooperative before and after the original behavior analyst left the setting suggested that the ambience of the cooperative rapidly disintegrated when he left. During the early years of the cooperative, new behavioral technology was met with no more or less resistance than would be expected from an idealistic group of college students. The behavior analyst spent time mollifying members, twarting possible coups by a few dissident residents, and making-up for gaps in the technology. Without the behavioral manager, a few members — who weren't necessarily concerned with the cooperative's long-term survival — began to push for their special interests, thus alienating many members.

The decay of morale is reflected in the extreme variability of the stay-over data during the no-behavior analyst condition. New residents would move into the cooperative at the beginning of an academic year and out when school ended in May. The exception to this trend, the second data point in the no-behavior analyst condition, is probably due to the fact that some residents who lived in the cooperative while the behavior analyst was present engaged in a variety of behaviors formerly performed by the behavior analyst (C.J. Conard, personal communication, Spring 1981). However, this filling-in for the behavioral manager did not last long.

Twice during the period without an in-house behavioral manager, the board of directors for the corporation that owned the property voted to close the house and begin anew. The operation of the program had deteriorated to a point where the survival of the entire organization was threatened. The members were not managing program effectively when there was no behavioral manager.

These results suggest that the problem of maintaining a behavioral program without a behavioral manager is not limited to prison token economies. The stay-over results reported here add support to the reports of others that have experienced similar problems in a variety of settings (Fawcett et al., 1980; Hazel & Krantz, 1977; Liberman, 1980; Malott, 1974; Rollins et al., 1974; Stolz, 1981; Wolf et al., 1982). The problem appears to be widespread.

One implication of this finding is that behavioral procedures are not completely technological if unrecognized inputs from behavior analysts are not identified, described, and made part of the formal procedures. Perhaps the rule-of-thumb criterion for technological specification suggested by Baer, Wolf, and Risley (1968) — that a typically trained reader can replicate the procedure — has resulted in procedures that can be replicated by other behavior analysts, but not by non-behavior analysts. If non-behavior analysts cannot replicate, or even maintain behavioral technologies, then those who wish to adopt behavioral technologies will remain dependent on behavioral experts to manage their programs.

One solution is to provide a behavior analyst who is capable of adapting and maintaining a new technology in the setting. This behavioral technologist (Fraley, 1981) might be a behavior analyst trained in the skills necessary to operate a program for a particular setting, or a professional from a particular setting trained in behavior analysis.

Two successful behavioral programs, Achievement Place and the Behavior Analysis model for Follow Through, have used such a strategy. Achievement Place is a program designed to help remediate the delinquent behavior of youths in a group home (Phillips, 1968), and has been replicated 200 times (Wolf et al., 1982). Behavior Analysis Follow Through, replicated in dozens of classrooms, trains teachers to work with at-risk elementary school children (Ramp & Rhine, 1981). Both programs share a common experience: "The innovators of the programs have continued to take responsibility for solving . . . problems. We have never been able to disassociate ourselves from any of our programs" (Wolf et al., 1982, p. 12). Indeed, attempts to do so have resulted in failure (e.g., Braukmann, Fixsen, Kirigin, Phillips, Phillips, & Wolf, 1975).

The experience of the designers of these programs highlights the need to take explicit steps to maintain behavioral programs after the initial research and development is completed. The Achievement Place model, for example, has implemented training programs and quality control systems for the users of their technology. Training, supervision, and annual reevaluation are conducted by regional support sites and the regional sites are, in turn, evaluated by the National Teaching Family Association (Wolf et al., 1982). Although the innovators have gradually reduced their involvement with the day-to-day management of the replication programs, plans to completely surrender the technology to adopters have been abandoned.

The needs and concerns of potential adopters has been addressed by experienced behavior analysts working in community settings. As Fawcett et al. (1980) point out, increasing the likelihood of adoption and ease of implementation of community technologies by indigenous persons depends on the behavior analyst specifying and programming particular design characteristics. Community technologies should be: (a) effective, (b) inexpensive, (c) flexible, (d) simple, (e) sustainable, (f) preferable, and (g) compatible (Fawcett et al., 1980; Fawcett et al., 1981).

In addition, a strategy for fading the degree of involvement by behavior analysts should be used. The specific behaviors necessary to maintain the program will become evident as problems arise. As these behaviors are identified and specified, adopters should be trained in the skills. This may allow the behavior analyst to gradually withdraw from the setting with assurance that the indigenous staff are acquiring the skills necessary to maintain the program on their own.

Programming adopter-friendly maintenance behavior is, in fact, the strategy being used at the Experimental Living

Project. As problems arise, they are examined for the critical behaviors necessary to solve them — or prevent them from recurring. The new behaviors are then specified and made part of the overall program (e.g., Johnson, 1984).

Also, a strategy for avoiding "reinvention of the wheel" is under development. A study by Altus (1984) evaluated the use of educational modules on various topics of the cooperative's history. For example, the reason a point-economy exists as part of the worksharing system is a topic of concern for many new residents. Instead of dismantling the point-economy and having all new residents directly experience the consequences of not using the technology, the curious residents can read through an education module describing the evolution of the technology and the experiences of previous cooperative members who modified the technology during previous years. Although the work by Altus and her colleagues is in a germinal stage, it may prove to be a successful method of avoiding problems such as those experienced by Bassett and Blanchard (1977) and others.

In conclusion, evidence has been presented to suggest that behavioral technology designed for use by non-behavior analysts too often does not maintain in the absence of close supervision from the program designers. One solution is to arrange continued supervision, including training and supervision for the local staff. Some of the more successfully disseminated behavioral programs have used exactly this approach. Another solution involves specifying the behaviors required of behavior analysts to maintain the programs they design and then teaching those behaviors to the program adopters. With the addition of rationales for why the programs are designed as they are, behavioral programs may eventually be maintainable by non-behavior analysts.

Someday the dependent relationship between innovators and adopters of behavioral technology might be significantly reduced, or even eliminated. Meanwhile, innovators would do best by continually supervising behavioral technology — while testing methods to fade their involvement — in order to allow non-behavior analysts the opportunity to maintain programs designed for their benefit.

References

Altus, D.E. (1984). Rule 5 — program "cultural" behavior: Talking about long-term consequences. In J.G. Holland (Chair) *Creating a self-maintaining token economy: experimental demonstration of some rules* Symposium conducted at the meeting of the Association for Behavior analysis, Nashville

Baer, D.M., Wolf, M.M., & Risley, T.R. (1968). Some current dimensions of applied behavior analysis *Journal of Applied Behavior Analysis, 1*, 1.

Bassett, J.E. & Blanchard, E.B. (1977). The effect of the absence of close supervision on the use of response cost in a prison token economy *Journal of Applied Behavior Analysis, 10*, 3.

Bassett, J.E., Blanchard, E.B., & Koshland, E. (1975). Applied behavior analysis in a penal setting: Targeting "free world" behaviors *Behavior Therapy, 6*, 639-348.

Braukmann, C J., Fixsen, D.L., Kirigin, K.A., Phillips, E.L., & Wolf, M.M (1975). Achievement Place: The training and certification of teaching-parents. In W.S. Wood (Ed.), *Issues in evaluating behavior modification*. Champaign, IL. Research Press.

Campbell, D.T. & Stanley, J.C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally

Fawcett, S.B., Mathews, R.M., & Fletcher, R.K (1980). Some promising dimensions for behavioral community technology. *Journal of Applied Behavior Analysis, 13*, 3.

Fawcett, S B., Seekins, T , & Braukmann, C J (1981). Developing and transferring behavioral technologies for children and youth *Children and Youth Services Review*, 3, 319-342

Feallock, R & Miller, L.K. (1976) The design and evaluation of a worksharing system for experimental group living. *Journal of Applied Behavior Analysis, 9*, 3.

Fraley, L F (1981) The spread of behavior analysis to the applied fields. *The Behavior Analyst*, 4, 1.

Hazel, M.M. & Krantz, D.L. (1979). *On reforming the reformer. A case history in applied behavior analysis*. Unpublished manuscript, University of Kansas.

Johnson, S.P. (1984). Rule 2 — program system-management behavior: Delivering the intervention. In J.G Holland (Chair) *Creating a self maintaining token economy. Experimental demonstration of some rules*. Symposium conducted at the meeting of the Association for Behavior Analysis, Nashville

Kinkade, K. (1972). *A walden two experiment: The first 5 years of Twin Oaks Community*. New York: Morrow.

Kissel, R C , Whitman, T , & Reid, D H. (1983). An institutional staff training and self-management program for developing multiple self-care skills in severely/profoundly retarded individuals. *Journal of Applied Behavior Analysis, 16*, 4.

Kratochwill, T R. (1978). *Single subject research: Strategies for evaluating change*. New York: Academic Press.

Ledoux, S (1985). Designing a new *Walden Two* inspired community *Communities, no. 66*, 28-32.

Liberman, R P. (1980). Review of: *Psychosocial treatment for chronic mental patients* by Gordon L. Paul and Robert J. Lentz *Journal of Applied Behavior Analysis, 13*, 2.

Lies, A. & Miller, L. (1978) A behaviorally engineered democratic community: The experimental living project In A.C. Catania & T A Brigham (Eds.), *Handbook of applied behavior analysis*. New York: Irvington Publishers

Malott. R W. (1974). Focus no. 4. *Journal of Applied Behavior Analysis, 7* (3), inside back cover

Mathews, R.M. & Fawcett, S.B. (1979). Assessing dissemination capability. An evaluation of an exportable training package *Behavior Modification, 3*, 1.

Panyan. M . Boozer. H . & Morris. N (1970) Feedback to attendants as a reinforcer for applying operant techniques. *Journal of Applied Behavior Analysis, 3*, 1.

Parsonson, B S. & Baer, D M. (1978) The analysis and presentation of graphic data. In T.R Kratochwill (Ed.) *Single subject research: Strategies for evaluating change*. New York: Academic Press.

Phillips, E.L (1968). Achievement Place: Token reinforcement procedures in a home-style rehabilitation setting for "predelinquent" boys *Journal of Applied Behavior Analysis, 1,* 3.

Ramp, E.A. & Rhine, W R (1981) Behavior analysis model In W R. Rhine (Ed.), *Making schools more effective. New directions for Follow Through.* New York: Academic Press.

Rollins, H A , Persons, W.S., & Thompson, M (1974). Project Success: A practical program for implementing behavior modification in urbal elementary schools. Paper presented at the meeting of the American Educational Research Association, Chicago

Rollins, H.A., McCandless, R.R , Thompson, M., & Brassell, W R. (1974). Project Success Environment An extended application of contingency management in inner-city schools *Journal of Educational Psychology, 66,* 167-178.

Seekins, T. & Fawcett, S B (1984) Planned diffusion of social technologies for community groups. In S.C Paine, G.T. Bellamy, & B Wilcox (Eds) *Human services that work From innovation to standard practice* Baltimore. Paul H. Brookes

Skinner, B.F (1956). A case history in scientific method *American Psychologist, 11,* 221-233.

Spangler, P F & Marshall, A M. (1983). The unit play manager as facilitator of purposeful activities among institutionalized profoundly and severely retarded boys. *Journal of Applied Behavior Analysis, 16,* 3.

Stolz, S.B. (1981). Adoption of innovations from applied behavioral research: "Does anybody care?" *Journal of Applied Behavior Analysis, 14,* 4.

Wolf, M.M., Braukmann, C.J., & Ramp, K K (1982) Program survival. A case study in the development and maintenance of a behavioral intervention program. In B Bolton & R. Roessler (Eds.), *Procedings of the applied research methods symposium* Fayetteville, AK: University of Arkansas Rehabilitation Research and Training Center.

Ziarnik, J P & Bernstein, G.S. (1982). A critical examination of the effect of inservice training on staff performance *Mental Retardation, 20,* 3