SELF-INSTRUCTIONAL TRAINING: A COMMENTARY AND STATE-OF-THE-ART

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A BRIEF HISTORICAL OVERVIEW

Approximately 10 years ago, I was an enthusiastic young Assistant Professor at the University of Montana about to teach my first major graduate seminar in "Behavior Modification." I distinctly recall organizing a series of readings that would give students a flavor for the past, present, and future of behavior modification. At that time, the Meichenbaum and Goodman (1971) article seemed to hold the quintessential elements of tomorrow's research and application. That is, Meichenbaum and Goodman had demonstrated a concern with: (a) clinical efficacy, (b) cognition, (c) generalization, and (d) the timely topic of impulsive children. My only problem with the research was that I could hardly believe the findings. As a consequence, I decided to examine and extend the Meichenbaum and Goodman procedures in an effort to prove them wrong!

Using the self-instructional procedure and evaluating effects via a multiple baseline design across subjects, we (Bornstein & Quevillon, 1976) found immediate and dramatic increases in on-task behavior. Moreover, these behavioral improvements occurred in the nonexperimental situation (i.e., the classroom) and were maintained well after treatment termination. Quite honestly, we were amazed at the success of the technique. Furthermore, our astonishment was consensually validated when an independent *JABA* reviewer commented, "Our readership will not believe these results!" Thus, I welcome and am not entirely surprised by the findings of Billings and Wasik (1985).

Billings and Wasik are to be commended on their attempt to replicate our earlier findings. In fact, their efforts to reproduce our exact methods are perhaps above and beyond the "call of science." The scientific purpose of any replication series is to establish repeatability of previous findings

and determine generality of effects. Research that attempts to replicate earlier findings while varying behaviors, therapists, or settings is generally referred to as systematic replication. As such, the Billings and Wasik replication effort (as an example of systematic replication) serves a central role in our science of human behavior. Indeed, it is via the process of direct or systematic replication or both that we firmly establish and generalize our findings in applied behavior analysis.

DOES IT WORK OR NOT?

Self-instructional training has had a relatively short but arduous history. The original Meichenbaum and Goodman (1971) study used a multifaceted treatment program (composed of modeling, overt and covert rehearsal, prompts, feedback, and social reinforcement) to train hyperactive children to "think before they act." Although the empirical and clinical findings on self-instructional training have been reviewed in detail (Craighead, Craighead-Wilcoxon, & Meyers, 1978; Karoly, 1977; Kendall, 1977; Kendall & Finch, 1979; Meichenbaum, 1977), let us briefly examine just a sample of the data. The self-instructional paradigm has been demonstrated effective in establishing self-control over the disruptive behavior of hyperactive (Douglas, Parry, Marton, & Garson, 1976), aggressive (Camp, Blom, Hebert, & van Doorninck, 1977), retarded (Burgio, Whitman, & Johnson, 1980), and emotionally disturbed (Kendall & Finch, 1978) children. Further, it has been used to reduce cheating in kindergarten/first-grade children (Monahan & O'Leary, 1971), increase Porteus maze performance (Palles, Stewart, & Freedman, 1972), and affect the "conceptual tempo" of emotionally disturbed (Finch, Wilkinson, Nelson, & Montgomery, 1975) and normal

(Bender, 1976) youths. Certainly, however, the procedure is not without limitations. Specifically, Friedling and O'Leary (1979), using older clinically diagnosed hyperactive children, failed to replicate the earlier work of Bornstein and Quevillon (1976). Bryant and Budd (1982) were unable to increase on-task behavior in the regular preschool classroom, and Arnold and Forehand (1978) found no reflection-impulsivity differences between cognitive and placebo training conditions. In addition, I am aware of at least three unpublished self-instructional studies with less than compelling results (Heath, 1978; Higa, 1973; Weinrich, 1975). What, then, does all of this mean? *Quite simply, it appears that self-instructional programs can be effective, although obviously they are not always effective.*

WHERE DO WE GO FROM HERE?

Although self-instructional training has generated a considerable amount of research, the vast majority of investigations have used single-case or intrasubject replication designs. Certainly, such designs are laudable in that they allow for a clear demonstration of functional control. However, limited subject populations and scanty procedural information reveal little with regard to which children respond favorably and which do not. We must, then, continue in our efforts toward direct and systematic replication. More important, though, it is time to answer a different series of questions: What kinds of children are most responsive to self-instructional training? Does setting in any way influence the effectiveness of the procedure? How does subject pretraining experience affect program effectiveness? Do therapist variables account for the success/failure of the technique? In sum, what are the parameters of effective implementation?

In my previous communication with Billings and Wasik, I have placed emphasis on therapist variables. For the purpose of explication, however, and as an example of the previous questions, let me briefly examine some salient subject pretraining considerations for just a moment.

Age. Self-instructional training has been used with children ranging in age from preschool through adolescence. Interesting differences do exist, however. Namely, younger children with less pretraining experience appear to profit more from self-instructional training when the verbalizations are more structured, detailed, and specific (Denney, 1975; Miller, Weinstein, & Karniol, 1978). Older children seem capable of generating their own effective verbalization strategies.

Gender. At present, there is little empirical or theoretical support for differential efficacy of self-instructional training as a result of gender. In fact, where analyses have been conducted, no significant effects have been found. Copeland (1982) does note, though, that some complex and contradictory gender differences have been reported. As a consequence, she recommends that in our research programs we explore higher-order rather than two-way interactions or main effects. Unfortunately, we have no a priori way of accounting for such differences should they be found. The general modeling literature and gender similarity between therapist and child may give us some leads in this direction.

Intelligence. Although self-management programs have been implemented across a broad range of intellectual levels, there are some continuing questions in this area. Namely, do intellectually sophisticated children respond better to self-instructional training than those of lesser ability? For example, Barkley, Copeland, and Sivage (1980) found that lower mental-age boys experienced greater performance deterioration at the conclusion of a self-instructional program than did higher mental-age subjects. These findings are very limited, however. Yet, as implied earlier with younger children, those of lower intelligence and limited pretraining experience may simply need more structure, guidance, and direction if they are to use self-instructional programs effectively.

Race. Genshaft and Hart (1979) trained forty, 7-year-old impulsive children in the use of self-instructions. Half of the children were white and half were black. Experimental conditions allowed

each child to be trained by white peer, black peer, or no-peer model. Among the results obtained, Genshaft and Hart found: (a) children trained by white models increased MFF latency scores more than children trained by black or no models, and (b) on WISC Picture Arrangement subtests, performance only improved when children were trained by matched-race models. Furthermore, Monahan and O'Leary (1971) reported two studies using self-instructional training for rule-breaking behavior. Their results indicated successful application with white children and lack of success with black children. These studies not only have direct implications for the Billings and Wasik research, but appear to indicate that self-instructional treatment outcome may be heavily influenced by race-related pretraining factors.

History. Although Kendall (1977) has outlined efficacious pretraining experiences that influence the success of self-instructional procedures, research in this area has been limited. Certainly, however, one would expect that a history of repeated failure and poor quality adult relationships would have some impact on the likelihood of treatment success. Similarly, self-instruction is apt to be affected if it follows extensive attempts at external control. Perhaps this becomes most evident in the case of medicated versus unmedicated children. Interestingly, Bugental, Whalen, and Henker (1977) found that unmedicated hyperactive children improved more as a result of self-instructional training whereas their medicated peers were more responsive to an externally based reinforcement-type program.

Attributional and "cognitive style." In addition to examining pretraining experience, Bugental et al. (1977) were also interested in attributional style. Using a perceived personal causality measure to define "internality" versus "externality," these authors reported findings in the expected direction. That is, children with internal perceptions of control responded more favorably to self-instruction; those who perceived control external to themselves were more responsive to programs conducted by others. In a similar manner, one must also question the influence of "cognitive tempo"

(e.g., reflective-impulsive) on self-instructional treatment success. Unfortunately, our current measure methodology in this area leaves much to be desired.

CONCLUSION

We have once again reached the obvious conclusion: "Different strokes for different folks." That is, self-instructional training will probably be of great benefit to some, moderate benefit to others, and minimal or no benefit to yet a final grouping of individuals. Our job is to identify those variables that substantially affect the success of our treatment. To accomplish this, we must develop, refine, parametrically examine, and explicitly report our methodology and results. Until we do so, we will remain inconsistent and inconclusive in our findings.

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