

THE BEHAVIOR ANALYST TODAY

A Context for Science with a Commitment for Behavior Change

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Our Mission: Founded as the joint publication of the Clinical Behavior Analysis Special Interest Group (CBA-SIG) of the Association for Behavior Analysis, the Behavior Analysis SIG (BA-SIG) of the Association for the Advancement of Behavior Therapy, and the PA Behavior Analyst Credentialing Board, we have become, in our second year, a journal with a mission to present current research and applications of behavioral analysis in ways that can improve human behavior in all its contexts: across the developmental continuum in organizational, community, residential, clinical, and any other settings in which the fruits of behavior analysis can make a positive contribution. By showing the range of possible applications and extensions of behavioral theory, we hope to inspire visions of behavior analysis that go beyond the impoverished view that omissions and insinuations endemic in popular and psychological literatures often engender.

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MISSION: IMPOSSIBLE?

Beth Rosenwasser and Joe Cautilli, BAT Co-editors

In BAT's second year of publication, we present our characteristic diversity of topics to which behavior analytic theory speaks, beginning with two articles concerned with the growth and dissemination of our field. **Hayes**, in his provocative editorial, holds that behavior analysis [BA], despite its mission to provide a comprehensive experimental account of complex human behavior, is in danger of extinction, having become "a subfield of developmental disabilities... or of animal behavior or behavioral biology." In this spicy, yet thoughtful piece filled with illustrative teaching metaphors, Hayes gives examples of five dangerous traps for BA and ends with recommendations for the future development of the field. **Geller** begins his article on behavioral safety with a tone contrasting with Hayes', "... the research literature is replete with impressive demonstrations that this approach [i.e., behavior analysis] works, from improving learning and interpersonal care in educational and residential settings to increasing productivity and work quality in industrial environments..." And Geller's list continues, including community-based applications such as environmental preservation, transportation safety, alcohol abuse and alcohol-impaired driving, and childhood immunization in third-world countries. However, like Hayes, Geller is concerned that the BA's dream of solving societal problems remains afar. In response, Geller explores major stumbling blocks in dissemination including language and cultural barriers including "certain psychological states or expectancies" that influence motivation for caring about the welfare of others. Here Geller, a master trainer, shares his concept of "active caring" and seven key principles to teaching the application of behavior analysis for a wide range of organizational interventions designed to overcome these barriers and increasing its potential to make large-scale differences real people's lives.

Defying the claim that BA remains a narrow a sub-field of developmental disabilities, the next several articles in this issue cover a broad range of topics. In a data-based article, Nancy **Petry** uses behavior analytic contingency management to help people with addictions and HIV/AIDS infection to increase follow-through on their therapy goals;

contingency management is arguably the most effective known treatment that has been empirically-demonstrated of any theoretical orientation for addiction treatment. **Blume**, also focusing on addictions shows how maintenance of addiction is successfully analyzed as negative reinforcement phenomenon and how this conceptualization leads to a host of interventions.

In **Shaffer, Kotchick, Dorsey, and Forehand's** thorough review of the behavioral parent training literature for children and teen with disruptive disorders, we can see the precursor repertoires that Blume discusses among adults with substance abuse. Shaffer et al. recount the history of parent training, the impressive amount of data supporting the range of interventions falling under this rubric, and then go beyond by addressing seven clinical challenges when implementing these programs. Under this heading, topics frequently unaddressed in the written literature such as access to empirically validated treatment materials, cultural diversity and other cultural differences that can interfere with effective application of validated treatments in the real world, and dealing with resistance are raised and solutions are suggested.

McNeil, Filcheck, Greco, Ware, and Bernard take on a controversial sub-topic with the behavioral parent training literature in their article entitled, "Parent-Child Interaction Therapy: Can a Manualized Treatment Be Functional? Within the general theme of disseminating empirically validated treatments comes the issue: how can a general model be individualized or functionalized? We believe that PCIT, as in other behavior analytic treatments (such as contingency management for addiction), developmental models of problem behavior have been built inductively so that in treatments based on models of this sort, the function of antisocial or addictive behavior is determined by the general case model which has empirical validity. In this manner, much of the weight of a functional analysis is model-driven which is then tailored to the individual client. But you read the article, consider how its message resonates with other models in this issue and see what you think. We would love to hear from readers on

this topic which is likely to become more heated as behavioral interventions are manualized and disseminated more widely; children with most developmental disabilities have low base-rate syndromes so that schools and insurers are willing to pay for highly individualized treatments, but for high incidence problems such as ADHD, conduct problems, addiction, obesity, and anxiety, professionals look for model-driven conceptualizations which can then be individually adapted. The question is whether behavior analytic treatment can be implemented effectively in this way.

It continues to be important to celebrate and expand accomplishments in the area of developmental disabilities, an extremely successful area within ABA. Along this line, **Richman and Wacker** provide a conceptual model for the role of stimulus control in directives and the relationship between ineffective directives and the development of noncompliance in young children. They examine the rationale for the use of experimental analysis methodology to assess the effects of task directives further document the need to consider antecedent variables, as well as consequences, in a functional assessment of maladaptive behavior. **Bondy** discusses the use of the popular Picture Exchange Communication System (PECS) in the development of functional communication for children with autism and highlights the benefits and problems associated with the use of this system.

Continuing our inclusion of clinical behavior analysis within behavior analysis, **Anderson, Shapiro and Lundgren** describe the development of

a behavioral treatment model for obesity and discuss the efficacy and limitations of this approach. **Abramowitz and Kalsy** discuss developments in the cognitive-behavioral treatment of Obsessive-Compulsive Disorder (OCD) and identify variables that may be predictors of success in treatment response.

To conclude this issue, you will find four articles related to organizational behavior management and dissemination.. First **Shook**, gives us an update on behavior analyst credentialing around the nation, then **Rosenwasser** reports in on the success of Pennsylvania ABA's 1st annual conference, including contact information to take part in a new listserv, next **Weinberg et al.** examine the application of OBM principles to management practices as a way of improving behavioral health rehabilitation programs (BHRPs) for children (i.e., wrap-around services). The authors identify several common errors in management procedures and suggest alternatives based on behavioral principles, Last, **Cautilli and Rosenwasser** propose a new staffing and training format for therapeutic staff support positions which has the potential to save money and improve performance quality.

THE GREATEST DANGERS FACING BEHAVIOR ANALYSIS TODAY

Steven C. Hayes
University of Nevada

Behavior analysis is the underclass of psychology. It is under-funded, under-taught, and under-appreciated. A lot is happening that is positive, but just beneath the surface, there are grave dangers lurking that could significantly worsen our already poor status. I prefer to believe that most of these dangers are things we can control by our own behavior (itself a rather behavioral idea), and I offer this list of dangers in that spirit. As someone once said: if you always do what you always did, you'll always get what you always got. Behavior analysts need to appreciate the following six dangers and adapt to them.

LOSS OF MISSION

Behavior analysis was initially strategically committed to the field of animal learning, but from the beginning its ultimate purpose was an understanding of complex human behavior: "The importance of a science of behavior derives largely from the possibility of an eventual extension to human affairs" (Skinner, *Behavior of Organisms*, 1938, p. 441). In the early decades that was merely a promise, but the arrival of applied behavior analysis turned it into a program.

Over the years, however, both basic and applied behavior analysis have narrowed and that original vision is being lost. Applied behavior analysis is gradually becoming a subfield of developmental disabilities, as a glance at a recent issue of *JABA* will confirm. The depth of the risk this creates is covered over by methodological rigor and applied impact within that narrow domain. Basic behavior analysis clings largely to narrow and precise questions of self-stimulatory interest in the animal laboratory, even while animal laboratories are being closed one by one, and areas of research within behavior analysis are being opened up that require human research. The depth of the problem is covered over by the productivity of a few major behavioral laboratories and the emergence of a handful of international labs, where protection from political winds have allowed the old seeds to grow a few new sprouts.

In some ways, all of the other dangers I list can be traced back to the following core concern. Behavior analysis was always a carom shot. Instead of approaching human complexity directly, it tried to develop conceptual tools based on simple behaviors in simple contexts with small non-human animals, and then to apply these to an analysis of virtually every form of complex human behavior. It was a bold

and even slightly preposterous idea, and yet it was one that worked far beyond what anyone had a right to expect. Now, however, we seem to be on the verge of forgetting what the mission was in the first place. Many basic behavior analysts have begun to believe that basic behavior analysis is a subfield of animal learning or (perhaps worse) behavioral biology. Where are the experimental analyses of emotion, friendship, sexuality, health, reasoning, humor, intelligence, and so on? Interpretation is not enough – we need an experimental analysis of such behaviors. Without the basic account, applied behavior analysts either ignore these areas or build common sense approaches to them.

TOOL POLISHING

No field so enjoys "principles" as does behavior analysis. Principles of behavior are ways of speaking about the prediction and influence of the historically and currently situated actions of organisms that are precise, broadly applicable, and coherent in terms of the larger fabric of science. Principles are the intellectual tools of analysis. They are not, however, ends in themselves.

Sometimes behavior analysts are like the watchmakers who decided to make a set of extremely fine tools before actually making some complicated new watches. Forgetting what the tools were for, the talented watchmakers did not build the watches and display them in a glass cabinet, but instead put the *tools themselves* in that cabinet, taking them out only to polish them and to show how they work. Basic behavior analysts are especially prone to this error. Behavior analysis is a pragmatic discipline. Tools without proven utility are tools without known value. Ultimately, a set of behavioral principles that cannot unlock the complexity of human behavior is not one that we should be very excited about.

I CAN DESTROY THAT PREPARATION TOO: THE JOY OF PRECISE IRRELEVANCE

There is a variant of this problem. Periodically, preparations arise that offer an opportunity to deal with greater complexity and thus to bump the field forward (concurrent schedules, instructional control, equivalence). After the initial excitement, however, some behavior analysts lose their way. They forget why these preparations are important to begin with. Rule-governed behavior is a great example. A wave of exciting research on rule-governance moved through behavior analysis in the 1980's. Some odd findings drove the excitement, including the so-called insensitivity effect. From the very beginning, thoughtful behavior analysts pointed out that the insensitivity effect was a misnomer for the way competing sources of control work in various contexts. Instead of using evidence from competing sources of control as a *preparation* to get at something important (e.g., how verbal processes work), some behavior analysts focused instead on insensitivity *per se* and especially how to get rid of this effect. It was shown (of course) that insensitivity itself could be controlled, and the area was then pushed aside on the grounds that there was nothing new to be considered.

This is would be like a person coming upon an early telescope, and seeing that multiple lenses could magnify, showed that if they were scraped with rocks and melted in a hot fire, they no longer magnified anything and thus telescopes were not very important. This is no way to learn about the stars. In the end, research on rule-governed behavior petered out with a minimal increase in our understanding of human language precisely because the field began to mistake the preparation as the issue, rather than the phenomenon analyzed with that preparation.

We are about to make the same error with stimulus equivalence. In some researchers' hands it has gone from an *outcome* that orients the field to key process issues in the analysis of language, to an end in itself. Considered as an end in itself, equivalence will ultimately not excite anyone. It has already been studied for 25 years, and we could spend another 25 in extremely precise irrelevancy. Behavior analysis does not have that time to waste.

THE DANGER OF HERO WORSHIP

Behavior analysis carries the terrible burden of having been started by a great leader. While Skinner was alive, this was largely a benefit. Skinner was a brilliant man, and he was able to produce visibility for his views in a way that far exceeded others capacity to do so. Presently, it is not a benefit. Skinner's writings will never change, and his brilliance and close association with the field can and does lead to the idea that Skinner's views *are* behavior analysis. If so, the field is ultimately doomed to irrelevance, because it is thereby open only to minor elaboration (particularly by close disciples), rather than fundamental renewal.

I am unaware of any field that has survived as a vital intellectual area on the basis of minor elaboration. In other areas of intellectual achievement that are associated with a great leader, one of two things happen at this stage: the field becomes a kind of living memorial, or the great leader is set aside as an honored parent primarily of historical interest. I am not sure which way behavior analysis will turn. When ABA publishes and sells canonical texts, it fosters the former course. If Skinner's ideas are of sufficient current interest, others will develop and use them. In that case the ancient texts are not needed. If the books are needed because others are not expressing these ideas, or are not doing so in a way that maintains their integrity, vitality, or original meaning, then behavior analysis is a field in which old is better than new. That is the defining property of living memorials.

I shudder every time I see a course on "verbal behavior" using Skinner's book. The text is nearly half a century old. Something is seriously amiss when a scientific area can use a 50 year old text as if it is current. Enough already.

The alternative is for behavior analysis as a field to embrace a post-Skinnerian era. This does not mean that someone else will assume Skinner's place – the era of great leaders is forever over in behavioral science – but rather that we as a field must move Skinner into his rightful place as a historical antecedent of contemporary behavior analysis. The term "post-Skinnerian" is meant as a prophylactic for the sad outcome that could otherwise befall this grand intellectual tradition called behavior analysis. Behavior analysis as a living memorial would be a

pathetic conclusion to nearly 70 years of effort to achieve a vital approach to complex human behavior.

THE DANGER OF SELF-RIGHTEOUSNESS

A cultural of vigorous self-congratulation has grown up in behavior analysis. It is a positive thing in some ways, allowing hard work to be done without much in the way of rewards. But the attitude of “we few, we happy few” has a dark side. The rewards of science are heavily social. Most good scientists do not get rich – they get respected. When a culture is created in which scientific respect is linked to real achievement, all is well. But there are signs that the behavior analytic culture is beginning to reward sameness and rigidity over an increased ability to predict and influence important behavior with precision, scope, and depth. Like gang members talking trash on a street corner while the limousines drive by, we seem to be more satisfied with familiar behavioral raps than with making a difference in the larger body of science.

This problem is sometimes hard to detect, precisely because behavior analysis has been so successful. Direct contingency analysis has been shown to be important. Instead of this success providing a powerful foundation for major advances in all of the important areas of psychology, I fear that it is becoming a gold plated cage. My evidence: relatively narrow areas of interest are dominating the field, both applied and basic. We are not expanding, and a field not busy being born is a field that is busy dying.

A FAILURE TO REPLICATE

All of these dangers combine in this last area. Behavior analysis is a field that can barely produce enough Ph.D. behavior analysts to survive, precisely at a time in which the need for applied behavior analysts, especially at the master’s level, is exploding. In departments of psychology, there are only a handful of doctoral programs. Some of these are currently shrinking. Others are entering grave political waters after years of somnambulant self-satisfaction. Still other once productive and still-proud programs train only a handful of students, ignoring the growing danger and obvious signs of decay with soothing words about “quality.”

As a result, when new academic jobs are advertised in behavior analysis, only a few handfuls

of candidates may be available. When appropriate positions are available that are not explicitly behavior analytic but are in departments with a well-positioned behavior analyst or two, it is rare indeed that an application will arrive from a behavior analyst that can compete on objective grounds with those from other, more popular areas within psychology. The field is aging, and as behavior analysts leave they are not being replaced. The best and the brightest students are often going elsewhere.

CONCLUSION

Rising to this challenge requires honesty and courage. We have to:

- admit that there is a problem;
- pierce the veil of self-congratulation and be more skeptical of it, unless it is linked to achievement that is both broad and deep;
- keep a steady eye on our original, exciting mission, and get on about the business of understanding human complexity;
- refuse to accept interpretation when it is an experimental analysis that is needed;
- transition to a more reasonable balance between human and animal learning in the basic area;
- broaden our focus in the applied area;
- let go of a commitment to Skinnerian thinking when new behaviorally-sensible analyses or data suggest that it is time to do so, thus allowing behavior analysis to enter the post-Skinnerian era; and
- be open to new theories, preparations, concepts, and issues if they are sound and behaviorally coherent.

In short, we need to continuously revitalize behavior analysis and help it become what it was meant to be: a comprehensive experimental account of all of psychology. That was how we started. We must accept nothing less.

Footnote

This column deliberately avoided references in the interest of readability. The intellectual basis of most of these points can be found in more scholarly form in Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001) (Eds.), **Relational Frame Theory: A Post-Skinnerian account of human language and cognition**. New York: Plenum Press.

BEHAVIORAL SAFETY: MEETING THE CHALLENGE OF MAKING A LARGE-SCALE DIFFERENCE

E. Scott Geller

The challenge of applying behavior analysis on a large scale is addressed. Behavioral safety is reviewed as an exemplar, because numerous industries worldwide are now using this technology to prevent occupational injuries. The basic principles and procedures of behavioral safety are presented with language and teaching aids that increase the acceptability of this approach. However, the broad-based marketing and application of behavioral safety has led to substantial controversy and misunderstanding about behavioral technology, as well as various misinterpretations. These issues are explicated, along with a call for action to help set the record straight and give behavior analysis the credit it deserves, thereby increasing its potential to make large-scale differences in quality of life.

As Malott (in press) recently pointed out, “behavior analysis is blessed with many professionals devoting their lives to chasing the noble dream – the dream of saving the world with behavior analysis.” These “dream chasers” appreciate the value of an objective behavioral approach to problem solving, and realize the cost-effectiveness of using the basic three-term contingency (or Antecedent-Behavior-Consequence Model) to improve behavior on a large scale. Indeed, the research literature is replete with impressive demonstrations that this approach works, from improving learning and interpersonal care in educational and residential settings to increasing productivity and work quality in industrial environments (e.g., Goldstein & Krasner, 1987; Greene *et al.*, 1987; Kazdin, 1994). And there have been numerous community-based applications of behavior analysis. For example, the author has seen firsthand the success of behavior analysis in addressing the human dynamics of such wide-ranging issues as environmental preservation (e.g., Cone & Hayes, 1980; Dwyer, Leeming, Cohen, Porter, & Jackson, 1993; Geller, Winett, & Everett, 1982), transportation safety (Geller, 1998; Ludwig & Geller, 2000), alcohol abuse and alcohol-impaired driving (Geller & Lehman, 1988), and childhood immunization against disease in third-world countries (Lehman & Geller, 1987).

However, the potential for applied behavior analysis to solve societal problems has not been realized. The dream chasers’ visions

have not been reached. Beyond short-term demonstration projects, there have been very few large-scale implementations of behavior-change strategies for education, transportation safety, environmental protection, alcohol abuse, or public health.

WHY HAVE OUR DREAMS FALLEN SHORT?

There are a variety of possible reasons for the failure of applied behavior analysis to have far-reaching impact on critical society problems. The most obvious problem is the audience of these demonstration projects. The research is published in professional journals and books read almost exclusively by other psychologists, mostly behavior analysts. Here, the authors give convincing demonstrations of the efficacy of their behavior-change techniques to people who have little interest or influence in large-scale dissemination and application. In other words, the critical social marketing aspects of behavior-change technology have not been addressed (Geller, 1989).

Bailey (1991) comments on this dissemination problem as follows, “We have a great science (the experimental analysis of behavior) and a pretty good technology (applied behavior analysis) but no product development or marketing” (p. 39). He explains further that “we do not value marketing” and have “neglected to develop socially acceptable terminology for presenting our concepts to

consumers...we have, in our zest for science and technology, taken the human concerns out of behavior analysis” (p. 39).

In addition, long-term maintenance and institutionalization of behavior-change strategies have rarely been studied. Most applications of behavior analysis to address organizational, community, and societal problems have been short-term demonstration projects, conducted to show that a particular intervention procedure has a desired effect. Methods to sustain the beneficial impact of a behavior-change technique are not developed and evaluated.

Boyce and Geller (in press) recently addressed this challenge of maintenance by reviewing the research literature related to applying behavior analysis techniques to increase occupational safety. They found that very few studies included a lengthy evaluation period after an intervention process was withdrawn, and therefore could not evaluate behavioral maintenance. In addition, Boyce and Geller found no systematic study of variables related to successful institutionalization of an effective behavior-improvement program. However, they did identify some variables conducive to sustaining a successful behavior-change process, and these have been verified by behavioral safety practitioners (McSween & Mathews, in press). For example, the following factors contribute to the long-term impact of behavior-change intervention in industrial settings.

- Each level of an organization (from management to line workers) needs education and training to understand the rationale behind an intervention, and to realize their specific roles in making the process work (cf. DePasquale & Geller, 1999).
- Indigenous staff need to implement the intervention procedures and thus have substantial input into intervention design (Geller, 2001b; McSween, 1995).
- A formal accountability system is required, which is best handled by an employee-manned steering committee that monitors intervention results and

develops action plans for enhancing intervention impact (Geller, 1998b; McSween & Mathews, in press).

- A formal procedure for collecting, reviewing, and using behavioral results is needed to support the accountability system and enable continuous improvement.
- Group and individual rewards are needed to support ongoing participation in the process, as well as to recognize exemplary achievements (Geller, 1996a, 1997).

BEHAVIORAL SAFETY: AN EXEMPLAR

For almost a decade, behavior-based or behavioral safety has been flourishing in industrial settings nationwide, and more recently throughout the world. In fact, behavioral safety training and implementation has become a priority for most industries who want to improve their safety record. Consultants and consulting firms claiming to have expertise in behavioral safety have been steadily increasing, and insurance companies are adding special divisions or areas of expertise to teach their clients behavioral principles and help them implement behavior-change techniques for injury prevention.

In my more than 30 years of attempting to address large-scale quality-of-life problems with applied behavior analysis, I have never witnessed more extensive marketing, application, and long-term success than in behavioral safety. This paper defines behavioral safety and briefly describes its application, with hopes of revealing key features that have given this application domain so much far-reaching potential. Perhaps there are some lessons here for those applied behavior analysts targeting other problems who dream of broader and longer-lasting impact of their technology.

WHAT IS BEHAVIORAL SAFETY?

Over the past six years, several books have been published which detail the principles and procedures of behavioral safety. They provide solid evidence for the success of this

approach to injury prevention (e.g., Geller, 1996b, 1998c, 2001b; Krause, 1995; Krause, Hidley, & Hodson, 1996; McSween, 1995; Sulzer-Azaroff, 1998). Each of these books are consistent with regard to certain basic principles and methods, as well as the beneficial outcomes of this approach.

At my behavioral safety seminars and training sessions, I use seven key principles to teach the application of behavior analysis for injury reduction. The principles are broad enough to encompass a wide range of practical operations, but they are narrow enough to guide the development and evaluation of cost-effective prevention intervention. I review these principles briefly here, with the nonacademic language I believe helps to “sell” the approach and increase its acceptability.

Principle 1: Focus Intervention on Observable Behavior.

The behavior-based approach focuses on what people do, analyzes why they do it, and then applies a research-supported intervention strategy to improve what people do. Improvement results from *acting people into thinking differently* rather than targeting internal awareness or attitudes so as to *think people into acting differently*. In other words, the focus is on practicing new behavior rather than talking to people about behaving differently. This latter approach is used successfully by many clinical psychologists in professional therapy sessions, but is not cost-effective in a group or organizational setting. To be effective, attitude-focused intervention requires extensive one-on-one interaction between a client and a specially-trained intervention specialist. Even if time and facilities were available for intervention to focus on internal and nonobservable person factors, few safety professionals or consultants possess the educational background, training, and skills to implement such an approach.

Principle 2. Look for External Factors to Understand and Improve Behavior.

B. F. Skinner (1938, 1974) did not deny the existence of internal determinants of

behavior (such as personality characteristics, perceptions, attitudes, and values). Rather, he rejected such unobservable inferred constructs for *scientific study* as causes or outcomes of behavior. Certainly we do what we do because of factors in both our external and internal worlds. But given the difficulty in objectively defining internal factors, it's far more cost effective to identify environmental conditions that influence behavior and to change these factors (even system-wide) when behavior change is called for.

A behavior analysis of risky work practice can pinpoint many determinants of such behavior, including inadequate management systems or supervisor behaviors that promote or inadvertently encourage at-risk work. Without the upstream and objective problem-solving perspective fostered by behavior-based safety principles, these inadequacies may never be identified (or might be revealed only after a “near miss” or injury).

Principle 3. Direct with Activators¹ and Motivate with Consequences.

This principle enables understanding of why behavior occurs, and guides the manipulation of external factors (or interventions) to change behavior. It runs counter to common sense or “pop psychology.” When people ask us why we did something, we make statements like, “Because I wanted to do it,” “Because I needed to do it,” or “Because I was told to do it.” These explanations sound as if the cause of our behavior precedes it. This perspective is supported by a multitude of pop-psychology self-help books and audiotapes that purport we motivate ourselves with self-affirmations, positive thinking, optimistic expectations, or enthusiastic intentions.

The fact is, however, we do what we do because of what consequences we expect to get

¹ I use “activator” rather than “antecedent” because it's less academic and sounds more like its function.

for doing it. As Dale Carnegie put it in 1936 in his classic best seller (*How to Win Friends and Influence People*), “Every act you have ever performed since the day you were born was performed because you wanted something” (p.62). Incidentally, Carnegie referred to the research and scholarship of B. F. Skinner as the foundation of this motivation principle.

The important point here is that activators (or events antecedent to behavior) are only as powerful as the consequences supporting them. In other words, activators tell us what to do in order to receive a consequence, from the ringing of a telephone or doorbell to the instructions from a training seminar or one-on-one coaching session. But, we follow through with the particular behavior activated (from answering a telephone or door to following a trainer’s instructions) to the extent we expect doing so will result in a pleasant consequence or enable us to avoid an unpleasant consequence.

Principle 4. Focus on Positive Consequences to Motivate Behavior.

B. F. Skinner’s concern for people’s feelings and attitudes is reflected in his contempt for the use of punishment (or negative consequences) to motivate behavior. In his classic 1971 book, *Beyond Freedom and Dignity*, Skinner writes, “The problem is to free men, not from control, but from certain kinds of control” (p.41). He goes on to explain why the type of control to reduce in order to increase perceptions of personal freedom is control by aversive consequences. Think about it. When do you feel more free or empowered, when you are working to avoid an unpleasant consequence or working to achieve a pleasant consequence?

The important point of this principle is that we can often intervene to increase people’s perceptions that they are behaving to achieve success rather than behaving to avoid failure. Even our verbal behavior toward another person, perhaps a statement of genuine approval or appreciation for a task well done, can influence their motivation in ways that increase perceptions of personal freedom and empowerment. Of course, we can’t be sure our

intervention will have the effect we intended. Therefore, we need to measure objectively the impact of our intervention procedures, as implicated in the next basic premise of behavioral safety.

Principle 5. Apply the Scientific Method to Improve Intervention.

The occurrence of a specific behavior can be objectively observed and measured before and after an intervention process is implemented. This application of the scientific method provides critical feedback upon which improvement can build. For many years, I have used the acronym “DO IT” to teach this principle of behavioral safety to employees who are empowered to intervene on behalf of their coworkers’ safety and want to continuously improve their intervention skills (cf. Geller, 1996b, 2001b). The four steps of the **DO IT** process are reflected by each letter:

D = Define the target behavior to increase or decrease.

O = Observe the target behavior during a preintervention baseline period to understand natural environmental or interpersonal factors influencing the target behavior (see Principle 1), and to set behavior-improvement goals.

I = Intervene to change the target behavior in desired directions.

T = Test the impact of the intervention procedure by continuing to observe and record the target behavior during the intervention program.

After a DO IT process, an intervention can be objectively evaluated for unbiased decision making. Comparisons between observations taken during baseline and during the test phase might indicate a) the intervention should be continued, b) another intervention strategy should be used, or c) another behavior should be defined for the DO IT process. The systematic evaluation of a number of DO IT processes can lead to a body of knowledge worthy of integration into a theory. This is reflected in the next principle.

Principle 6. Use Theory to Integrate Information, Not to Limit Possibilities.

While most research is theory driven, Skinner (1950) was critical of designing research projects to test theory. Theory-driven research can narrow the perspective of the investigator and limit the extent of findings from the scientific method. In other words, applying the scientific method merely to test a theory can be like putting blinders on a horse. It can limit the amount of information gained from systematic observation.

This is an important perspective for safety professionals, especially when applying the DO IT process. It's often better to be open to many possibilities for preventing workplace injuries than to focus on supporting a particular intervention. Numerous improvement procedures are consistent with a behavioral approach, and an intervention that's effective in one situation will not necessarily work in another setting. So make your best guess at what intervention procedures to use at the start of a behavioral safety process, but be open to results from a DO IT process and refine your procedures accordingly.

After applying the DO IT process a number of times, you will see distinct consistencies. Certain intervention techniques will work better in some situations than others, by some individuals than others, or with some behaviors than others. You should summarize relationships between intervention impact and specific interpersonal or contextual characteristics. The outcome will be a research-based theory of what is most cost-effective under given circumstances. You are using theory to integrate information gained from systematic behavioral observation. Skinner approved of this use of theory, but cautioned that premature theory development can lead to premature theory testing and limited profound knowledge.

Principle 7. Design Interventions with Consideration of Internal Feelings and Attitudes.

Internal feelings or attitudes are influenced indirectly by the type of behavior-

based intervention procedure implemented, and such relationships require careful consideration by the developers and managers of a behavioral safety process. The rationale for using more positive than negative consequences to motivate behavior (Principle 4) is based on the different feeling states resulting from positive reinforcement versus punishment or negative reinforcement procedures. Likewise, the way an intervention process is introduced and administered can increase or decrease perceptions of empowerment, build or destroy interpersonal trust, and facilitate or inhibit a sense of interdependency or teamwork.

Thus, it's useful to assess feeling states or perceptions that occur concomitantly with an intervention process. This can be accomplished informally through one-on-one interviews or group discussions, or formally with a perception survey. Hence, decisions regarding which intervention to implement and how to refine existing intervention procedures should be based on both objective behavioral observations and subjective evaluations of perceptions or feeling states.

ACTIVELY CARING

For over a decade, I've been teaching behavioral safety within a context of actively caring. I emphasize that it's not enough to care about the possibility of a coworker getting injured. People need to act on that caring or "actively care." They need to become intervention agents and implement methods and tools that help keep people injury-free.

Actively Caring Coaching

The basic tools and methods of behavioral safety can be taught within the framework of coaching. More specifically, the coaches of winning athletic teams practice the basic observation and feedback processes necessary for effective safety management, and they follow most of the guidelines reviewed here. In other words, the best team coaches observe the behaviors of their players, record their observations in systematic fashion (e.g., on a team roster, behavioral checklist, or videotape), and then offer specific behavioral

feedback (both correcting and supporting) to the team members. Often this behavioral feedback is given both individually (in one-on-one communication) and in group sessions (e.g., by reviewing videotapes of the team competition); and the most effective coaches give this feedback so the team members learn from the exchange *and* are motivated to continuously improve. The five letters of the word **COACH** can be used as a mnemonic to remember the basic characteristics of the most effective coaches, whether coaching for a winning athletic team or for a work group seeking to improve their safety performance.

“C” for Care.

Safety coaches truly care about the health and safety of their coworkers, and they act on such caring. In other words, they actively care. When people realize by another person’s words and body language that they care, then they will listen to advice. When people know you care, they care what you know.

“O” for Observe.

Safety coaches observe the behavior of others objectively and systematically with an eye for supporting safe behavior and correcting at-risk behavior. Behavior that illustrates “going beyond the call of duty” for the safety of another person should be especially noted for supportive coaching. This is the sort of behavior that contributes significantly to safety achievement and can be increased through rewarding feedback.

Observing behavior for supportive or corrective feedback is easy if the coach knows exactly what behavior is desired and undesired (an obvious requirement for athletic coaching) and takes the time to observe occurrences of these behaviors in the work setting. It is beneficial to develop a checklist of safe and at-risk behaviors in the various work settings of an industrial complex and rank these in terms of risk. Self-management strategies should be encouraged as well; the workers themselves should develop their behavioral checklists. Risk rankings can be derived from a careful study of

injury records (from first-aid cases to lost-time injuries) and reports of “near misses.”

Promoting the reporting of “near misses” to learn ways of preventing injury is another important challenge for the effective safety coach.

“A” for Analyze.

Safety coaches appreciate the ABC contingency (for **A**ctivator, **B**ehavior, **C**onsequence) in interpreting their observations. Coaches realize, for example, that certain at-risk behaviors occur because they are directed by such activators as work demands, unsafe example-setting by peers, and inconsistent or mixed messages from management. And risky behaviors are often motivated by one or more consequences (e.g., comfort, convenience, work breaks, and management or peer approval). Of course, safety coaches also realize that their behavioral observation, analysis, and communication can activate the occurrence of safe behaviors (e.g., through instructions, reminders, individual and group discussions) and motivate their reoccurrence (e.g., through verbal feedback, recognition, and group celebrations). This brings us to the next letter of **COACH**.

“C” for Communicate.

Effective coaching requires basic communication skills, including strategies for proactive listening and persuasive speaking (Geller, 2001a; Krisco, 1997). Indeed, communication training sessions for employees which incorporate role-play exercises can be invaluable in developing individuals’ confidence and competence in sending and receiving behavioral feedback. Such training should illustrate the need to separate behavior (i.e., actions) from person factors (i.e., attitudes and feelings), thus enabling corrective feedback to occur at the behavioral level without “stepping on” feelings.

Whether supportive or corrective, feedback should be specific (with regard to a particular behavior) and timely (occurring soon after the target behavior); and it should be given

in a private, one-on-one situation to avoid potential interference or embarrassment from others. In addition, corrective feedback is most effective if the alternative safe behavior is specified and potential solutions for eliminating the at-risk behaviors are discussed. Whether giving supportive or corrective feedback, the communicator of feedback must actively listen with appropriate body language and verbal responses when the feedback recipient reacts to support or correction.

“H” for Help.

The word “help” summarizes the essential mission of a safety coach. In other words, the objective of safety coaching is to help an individual prevent an injury by supporting safe work practices and correcting at-risk work practices. It’s critical, of course, that a coach’s helping communication is accepted by the feedback recipient. The four letters of **HELP** offer a mnemonic for remembering four words which suggest ways to obtain acceptance of a coach’s advice, directions, or feedback.

“H” for humor.

Safety is certainly a serious matter, but sometimes a little humor can be inserted in our safety communications as a way of increasing interest and acceptance. In fact, some research has indicated that laughter can reduce stress and even benefit an individual’s immune system (National Safety News, 1985). Also, we know from personal experience that humor can enhance the constructive gains from a communication by increasing our attention and decreasing our resistance to an appeal for change.

“E” for esteem.

Esteem, or more specifically, “self-esteem” is the personal perception of self-worth (“I am valuable”), and is critical to increasing safe work practices. People who feel inadequate, unappreciated, or unimportant in a particular work setting are not as likely to go beyond the call of duty to benefit the safety of themselves or others as are people who feel

capable and valuable. Thus, the most effective coaches choose their words carefully (i.e., emphasizing the positive over the negative) in an attempt to build or avoid lessening another person’s self-esteem. In other words, effective coaches make many more deposits than withdrawals in people’s emotional bank accounts (Covey, 1989).

“L” for listen.

One of the most powerful and convenient ways to build self-esteem is to listen attentively to another person. This sends the signal that you care about the person and his or her situation. The person can in turn interpret this active listening as a reflection of self-worth (e.g., “I must be valuable to the organization because my opinion is considered and appreciated”). And, after a coach actively listens, his or her message is more likely to be heard and accepted.

“P” for praise.

Praising another person for specific accomplishments is another powerful way to build self-esteem and motivation; and if the praise targets a particular behavior, the probability of the behavior occurring again increases. This reflects the basic behavioral science principle of positive reinforcement, and motivates people to continue their safe work behaviors and to look out for the safety of their associates. In other words, behavior-focused praising is a powerful rewarding consequence which not only increases the behavior it follows, but also increases a person state (i.e., self-esteem) which in turn increases the individual’s willingness to act for the safety of others. This presumption is explained in the next section.

ACTIVELY CARING STATES

With nonhumans as experimental subjects, behaviorists have influenced marked changes in performance when altering certain physiological states of their subjects (e.g., through food, sleep, or activity deprivation). Similarly, behaviorists have demonstrated significant behavior change in both normal and

developmentally disabled children as a function of simple manipulations of the social context (e.g., Gewirtz & Baer, 1958a,b) or the temporal proximity of lunch and response-consequence contingencies (Vollmer & Iwata, 1991).

Although behaviorists typically refer to these manipulations of physiological (e.g., food deprivation) or psychological (e.g., social deprivation) conditions as “establishing operations” (Michael, 1982), these independent variables are certainly analogous to the person-based concepts of expectancies, personality states, and self-motivation. In other words, certain operations or environmental conditions (past or present) can influence (or establish) physiological or psychological states within individuals, which in turn can affect their behavior.

I have proposed that certain psychological states or expectancies affect the propensity for individuals to actively care for the safety or health of others; and furthermore, that certain conditions or establishing operations (including activators and consequences) can influence these psychological states (Geller, 1991, 1996b, 2001b). These states are illustrated in Figure 1, a model my associates and I have used for a decade to stimulate discussions among industry employees of specific situations, operations, or incidents that influence their willingness to participate actively in safety achievement efforts.

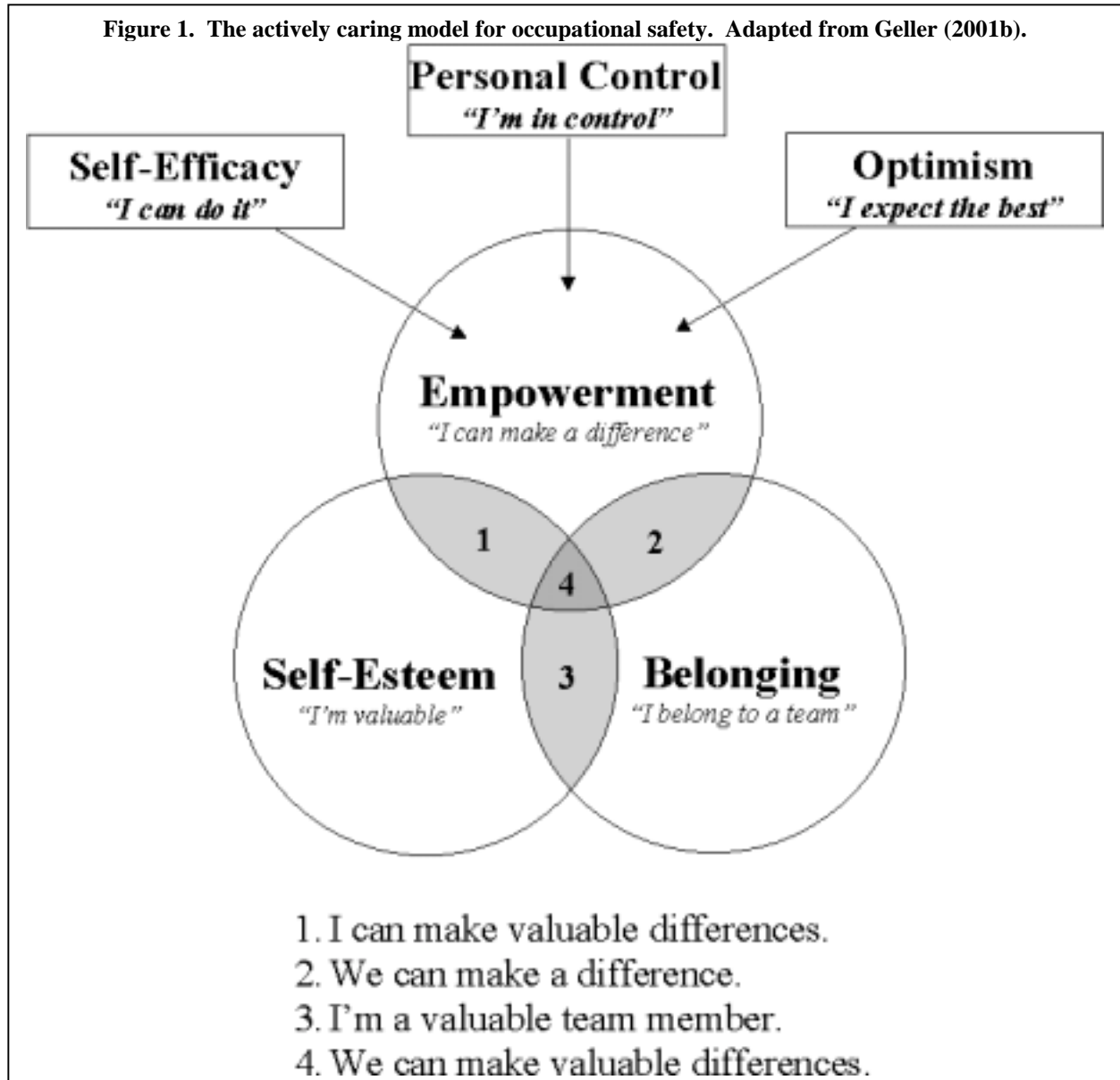
Factors consistently listed as determinants of self-esteem include communication strategies, reinforcement and punishment contingencies, and leadership styles. Participants have suggested a number of ways to build self-esteem, including: a) providing opportunities for personal learning and peer mentoring, b) increasing recognition for desirable behaviors and personal accomplishments, and c) soliciting and following-up a person’s suggestion.

Common proposals for increasing an atmosphere of belonging among employees have included decreasing the frequency of top-down directives and “quick fix” programs, and increasing team-building discussions, group

goal-setting and feedback, group celebrations for both process and outcome achievements, and the use of self-managed (or self-directed) work teams.

In the management literature, empowerment typically refers to delegating authority or responsibility, or sharing decision making (Conger & Kanungo, 1988). In contrast, a psychological perspective of empowerment focuses on the reaction of the recipient to increased power or responsibility. In other words, this view of empowerment requires the personal belief “I can make a difference,” and this belief is strengthened with perceptions of personal control (Rotter, 1966), self-efficacy (Bandura, 1997) and optimism (Scheier & Carver, 1985; Seligman, 1991). Such an empowerment state is presumed to increase motivation (or effort) to “make a difference” (e.g., to go beyond the call of duty), and there is empirical support for this intuitive hypothesis (e.g., Bandura, 1986; Barling & Beattie, 1983; Ozer & Bandura, 1990; Phares, 1976).

Employees at my behavioral safety training sessions have listed a number of ways to increase empowerment, including: a) setting short-term goals and tracking achievements; b) offering frequent rewarding and correcting feedback for process activities (e.g., behavior that reflects actively caring for health or safety) rather than only for outcomes (e.g., total recordable injury rate); c) providing opportunities to set personal goals, teach peers, and chart “small wins” (Weick, 1984); d) teaching employees basic behavior-change intervention strategies (e.g., response feedback and recognition procedures), and providing them time and resources to implement and evaluate intervention programs; e) showing employees how to graph daily records of baseline, intervention, and follow-up data; and f) posting response feedback graphs of group performance.



Research Support for the Actively Caring Model.

There are actually a number of empirical studies, mostly in the social psychology literature, that support the individual components of the Actively Caring model depicted in Figure 1. The bystander intervention paradigm (Darley & Latané, 1968) has been the most common (and rigorous) laboratory technique used to study variables related to actively caring. With this approach, one or more

of the person states presumed to affect caring behavior (i.e., self-esteem, empowerment, and belonging) were measured or manipulated among subjects, and subsequently these individuals were placed in a situation where they had an opportunity to help another individual who presumably encountered a personal crisis (e.g., falling off a ladder, dropping personal belongings, or feigning an illness or heart attack). The latency in attempting to help the other person was the primary dependent variable, studied as a function of a subject's social situation or personality state. Space restrictions preclude even a brief overview of this literature here, but comprehensive reviews

are available elsewhere (Geller, 1996b, 2001b, in press).

CONFUSION AND DISCORD

Despite the documented successes of behavioral safety interventions reviewed above, there appears to be substantial confusion and misunderstanding about this approach to occupational safety. Consider, for example, the following quotations from *Professional Safety*, which mistakenly imply that a behavioral approach to improving occupational safety and health is narrow or inappropriate in its focus, are not adequately documented as being effective, or that its effects are insignificant.

- “It’s fascinating to me that no convincing evidence of the efficacy of the behavioral approach has been produced by its proponents” (English, 1998, p. 42, 57).
- “I would like to read less about fuzzy ‘behavioral’ safety information and more about hard safety engineering facts and principles” (Beaver, 1998, p. 42).
- “...the focus is improving worker behavior rather than an organization’s culture or the work system” (Manuele, 1998, p. 33).
- “... ‘behavior-based’ concepts...in many settings, have little practical use in productivity, quality and other areas” (Petersen, 1998, p. 35).
- “...not enough attention is given to the reasons for the at-risk behavior...Behavior-based safety is but a small element of a successful initiative” (Zeller, 1998, p. 41).

More critical of behavioral safety, however, have been certain labor unions, in particular the United Automobile Workers and the Oil, Chemical and Atomic Workers International Union. Consider, for example, the following quotations from union documents. All of these are inaccurate, of course, but they reflect the severe misunderstanding of the behavioral approach to occupational safety and health.

From the UAW Health and Safety Department (1999):

- “Behavior-based safety is one of the oldest and most outdated approaches to health and safety” (p. 1).
- “Behavior-based safety programs will drive problems underground, inject fear into the workplace, and discourage workers from reporting injuries and illnesses” (p. 7).
- “Behavior-based safety programs sentence workers to a work life of exposure to serious health and safety hazards” (p. 7).

From the Assistant Director, UAW Health and Safety Department (Howe, 1998):

- “Behavior-based safety programs are just a retread of old outdated ideas and strategies that have never been proven effective” (p. 5).
- “Behavior-based safety advocates...blaming workers for almost all health and safety problems” (p. 9).
- “Many behavior-based safety proponents say that regulations and standards are not needed” (p. 12).

From a representative of the Oil, Chemical and Atomic Workers International Union (Hoyle, 1998):

- “Behavior modification programs are the least effective way to prevent accidents because they focus on the narrow issue of correcting worker mistakes” (p. 4).
- In all behavior modification programs the central thing that is looked for is the use of personal protective equipment” (p. 10).
- “Behavior modification safety programs are a perfect fit for management’s avoidance of responsibility for health, safety and accidents” (p. 15).

Moreover, the chairman of the Labor Division, U. S. Occupational Safety and Health Administration (Foster, 2000) urged the National Safety Council to develop an official policy statement for “Behavior Based Safety Training” which begins by echoing virtually all of the common misunderstandings noted in the

quotes above. These critiques are truly out of step with a behavioral approach, even looking only at the seven key principles outlined above. In addition, behavioral safety approaches are quite popular in many arenas. Clearly behavioral safety professionals need to improve the way they talk to organizations and the public about our values and practices. However, first let's explore the history and reasons for the confusion.

WHAT ARE THE PROBLEMS?

The confusion, disregard, and lack of appreciation for behavioral safety is reminiscent of critiques seen in other arenas over the years. Over 30 years ago, there was a nationwide controversy regarding the application of contingency management programs in prisons (Geller, Johnson, Hamlin, & Kennedy, 1977; Milan & McKee, 1974; Reppucci & Saunders, 1974). The basic issues are analogous. Then and now, the fact that a behavioral approach works is disturbing to some people.

In the 1970's, lawyers for the American Civil Liberties Union (ACLU) were concerned that program planners would use applied behavior analysis to benefit the prison administrators rather than individual inmates. Likewise, today certain union officials claim behavioral safety allows management to shirk their responsibilities and put inappropriate pressure on hourly workers to reduce injuries by changing their behaviors. Over 30 years ago, the ACLU lawyers were upset that prison inmates could feel coerced to participate because their deprived environment gave unfair influence to even small rewards. Today, certain union representatives fear that behavior-based safety forces employees to continue working in hazardous work settings. In other words, the concern is that a technology that is effective at improving behavior will be abused by management at the expense of workers.

An additional barrier to behavioral safety interventions is the meddling and interference by various consultants. The popularity of behavior safety has caused

numerous safety consultants to criticize and demean behavior analysis as a means to boost their own approach. For example, consultant Steve Simon promotes his culture change business by claiming "A reduction in unsafe behaviors is certainly well and good, but it doesn't produce a fundamental cultural shift" (Hans, 1996, p. 45). Likewise, Don Ostrander (Director of the National Safety Council's Consulting Division) reportedly "regards the behavior-based approach as a potentially useful tool but cautions that it is not a magic bullet...(and) the all-consuming focus on employee behaviors can mask management inadequacies that otherwise might come to light" (Hans, 1996, pp. 45-46). One can hear the echo of these professional critiques in the organizational misunderstandings listed earlier.

Another safety consultant, Thomas Smith (1995) claims that a focus on behavior "destroys creativity" (p. 40) and takes important attention away from system influences and management responsibility. Lessin (1997) supports Smith's perspective with statements like, "Behavioral safety programs are another non-solution...(they) ignore the system of work that underlies the 'choices' workers make on their jobs" (p. 42). Both Smith and Lessin view behavioral safety as victim blaming or holding employees responsible for aspects of safety only management can control.

Consultant Michael Topf advocates "changing attitudes first" (Manuele, 1998, p. 35), and applying a holistic approach to addressing the human dynamics of safety (Topf, 1997, 1998). While Topf and his associates assert behavioral safety is narrow and limiting, they use the same interpersonal observation and feedback methods developed and applied by behavior analysts. In other words, this successful consulting firm follows essentially the same intervention plan advocated by behavioral safety consultants, but uses nonbehavioral language to describe their procedures and rationale.

HERE ARE SOME SOLUTIONS

The confusion, controversy, and discord regarding behavioral safety is certainly disconcerting. Is there reason for alarm? Well, we can't sit back and let others demean our science and technology when we know from data and experience that behavioral safety is highly effective at preventing harm in the workplace, especially when the common critiques are truly inaccurate. We have learned some valuable lessons from earlier attempts to apply behavior analysis on a large scale.

First, language matters. For example, the term "behavior modification" is offensive and turns people off. As reviewed in this article, I have used language to describe the principles underlying behavioral safety that is much more acceptable.

There's no reason we can't entertain "warm fuzzies" like self-esteem, actively caring, empowerment, personal control, and belonging when we talk about the benefits of a behavior-focused approach. As reviewed here, the basic tools of behavioral safety, including goal setting, interpersonal observation, individual and group feedback, one-to-one recognition, and performance graphing, enhance each of the person states which are establishing conditions for actively caring.

Actively caring for safety means going beyond the call of duty to remove environmental hazards or improve safety-related behaviors. How do we improve safety-related behavior? We do this, of course, by applying behavior analysis techniques to support safe behavior and correct at-risk behavior. However, we must be careful not to imply we're targeting only a select group of individuals or behaviors in organizational settings. Obviously, the methods and tools of applied behavior analysis can be customized for all levels of an organization and for every position within a given level. We need to demonstrate this by our actions -- from teaching principles to planning interventions.

Realize also that the common retort, "Let the data speak for themselves" is not sufficient. Sure, our technology does produce the most cost-effective results. That's the reason for the remarkable popularity of behavioral safety. But others use the same procedures and outcome data to advocate their "special" nonbehavioral or culture-based approach. We need to continually teach people the basic behavior analysis principles behind their observations of performance improvement, and we need to do this with language they understand and appreciate. **Bottom line:** *We need to speak for our data by explaining the principles and procedures behind objective success. Then applied behavior analysis might get the credit it's due, and eventually reach its potential to help save the world.*

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CONTINGENT REINFORCEMENT FOR COMPLIANCE WITH GOAL-RELATED ACTIVITIES IN HIV-POSITIVE SUBSTANCE ABUSERS

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This paper describes the use of a contingency management intervention for increasing compliance with goal-related activities in HIV-positive substance abusers. In an HIV drop-in center, substance abuse treatment groups were held throughout a 35-week period. A reversal design was used, in which non-reinforcement and reinforcement conditions were alternated. In the reinforcement condition, the reinforcer was a chance to draw from a bowl and have the possibility of winning a prize. Reinforcers were provided for attending group and for completing steps related to treatment goals. Overall, the procedure increased attendance at groups, with an average of less than one client (range 0-4) per session in the initial baseline condition to an average of 7 clients (range 2-12) per session during the reinforcement conditions. The percentage of goal-related activities completed also rose from 25% during the initial baseline condition to over 70% during the reinforcement condition. It decreased back down to 50% during the return to baseline condition. These data suggest the feasibility of a contingency management intervention that offers reinforcers for compliance with goal-related activities. The process of activity selection and verification is outlined, and the specific activities in which clients engaged are described.

Contingency management interventions have data supporting their efficacy in treating substance abusers (see Petry, 2000, for a detailed review of the principles and procedures involved in contingency management programs). These treatments are based on general behavioral principles. In the basic procedure the target behavior is frequently monitored, and tangible reinforcers are provided when the target behavior occurs. When the target behavior does not occur, the reinforcer is withheld or removed.

Most contingency management treatments for substance abusers have reinforced drug abstinence. Urine samples are collected two to three times per week. Each sample that is negative for the target drug results in a reinforcer, such as a take-home dose of methadone or a voucher, that is exchangeable for retail goods and services. In a series of clinical trials with cocaine-dependent patients, Higgins et al. (1991, 1993, 1994, 2000)

demonstrated the efficacy of these procedures. For example, 75% of cocaine-dependent outpatients who received contingent vouchers remained in treatment for a 3-month period, and 55% of them were able to attain at least 2 months of continuous cocaine abstinence. In contrast, 40% of clients who received the same therapy but who were not provided the vouchers remained in treatment, and only 15% achieved 2 or more months of cocaine abstinence (Higgins et al., 1994). These procedures have also been effective in treating opioid (Bickel et al., 1997; Preston et al., 2000), marijuana (Budney et al., 2001), benzodiazepine (Stitzer et al., 1992), and alcohol (Miller, 1975; Petry et al., 2000) dependence, as well as polydrug abusing methadone clients (Silverman et al., 1996).

Thus, contingency management may be widely useful in reducing substance use (see Petry, 2000), but substance abusers also experience an array of psychosocial difficulties. These include unemployment, legal problems, psychiatric distress, and medical illnesses. Reinforcing drug abstinence alone rarely engenders improvements along these other domains, but contingency management approaches can be adapted to reinforce behavioral changes in these dimensions as well. In three studies (Bickel et al., 1997; Iguchi et al.,

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1997; Petry et al., 2000), clients decided upon discrete activities each week that were related to their long-term treatment goals. These may have included attending a medical appointment if the goal was to improve health, going to the library with their child if the goal was to improve parenting, or filling out a job application if the goal was to obtain employment. If clients accomplished these activities and provided objective verification of their completion via receipts, they received reinforcers. Activities were individually tailored to subjects' level of psychosocial functioning. Relatively simple activities were encouraged for lower functioning clients throughout treatment and to all subjects early in treatment, thereby increasing the likelihood of successful completion and reinforcement.

Such reinforcement procedures may be an ideal avenue to encourage participation in substance abuse treatment groups and improve psychosocial functioning of a particularly needy group-- HIV-positive substance abusers. In a study of 2,832 HIV-positive adults, Katz et al. (2000) found that a high proportion of them had unmet needs, with the need for substance abuse treatment being among the greatest. HIV drop-in centers originated in the late 1980's to serve the needs of HIV-positive individuals. Over 30,000 drop-in centers exist throughout the country; these programs are non-profit and are supported primarily by community donations. They provide a variety of services including medication management, case management, alternative medicine, food, transportation services, and substance abuse treatment groups.

The vast majority of clients attending HIV drop-in centers have an active substance use disorder, but few are engaged in substance abuse treatment programs. For example, at the Hartford drop-in center, over 95% of clients are substance abusers, but only 50% reported involvement in substance abuse treatment (Petry et al., under review). In every case, methadone maintenance was the only form of substance abuse treatment in which the clients participated. Moreover, many clients were actively using heroin as well as other drugs while maintained on methadone. Among the drop-in center

attendees with cocaine as their primary drug of abuse, *none* were currently receiving outpatient substance abuse treatment.

At the initiation of this project, the substance abuse treatment groups were the least utilized service at the center, and on many weeks the groups were not held because no clients attended. We implemented a contingency management program to reinforce attendance at group and enhance compliance with treatment goal-related activities (Petry et al., under review). This paper describes the specific activities selected, and the percentages that were completed, among clients at this HIV drop-in center. Because the costs of voucher reinforcement procedures may be prohibitive in community-based settings, a lower cost contingency management system was implemented, in which the *chance* to win a prize (Petry, et al., 2000) was the reinforcer (rather than always getting a voucher or other reinforcer).

METHODS

Subjects and setting.

This study was conducted at The Living Center, a publicly funded drop-in center for individuals with HIV and AIDS. The Center is located in inner city Hartford, CT. It provides a variety of services, including meals, recreational facilities, a library, a computer, acupuncture and massage, a peer mentoring program, medication compliance groups, and substance abuse treatment groups.

A contingency management program was created at the Center, and 43 individuals participated in this program over a 35-week period. Inclusion criteria into the program were drug dependence and membership at the center. There were no exclusion criteria. Membership at the Center was free and open to anyone HIV positive. The program is described fully in Petry et al. (under review) and outlined briefly below.

Substance abuse treatment groups were one hour in duration and held twice per week. The groups focused on developing weekly action plans to accomplish individually-

tailored goals (Petry et al., 2001). For example, if a goal was sobriety, the client may agree to attend an AA meeting in the upcoming week, find a sponsor at a meeting, or enroll in an off-site substance abuse treatment program. If a goal was to improve health, the client may attend a medical appointment or record the dates and times of medication consumed. Each week, clients selected 2-3 specific activities related to their treatment goals, and they reported back on their progress the subsequent week. Other clients and the counselor provided feedback on feasibility of selected activities and helped trouble shoot possible impediments to activity completion. The group members also praised one another for completing activities during the previous week.

Initial baseline condition.

The first 7 weeks served as a baseline period, during which compliance with activities were recorded, but no reinforcers were provided.

Contingency management.

In weeks 8-28, the contingency management (CM) procedures were instituted. The structure and content of the reinforcement and non-reinforcement groups were identical, with the exception that in the reinforcement groups, clients earned draws from a prize bowl for the number of consecutive weeks that they attended group, up to a maximum of 14 draws per week. They also earned drawings for completing up to two goal-related activities each week. If objective verification (e.g., receipts) of completion of an activity was brought to group, clients earned one drawing. If they successfully completed and verified both of their activities in a given week, they earned bonus draws that escalated with the number of weeks in a row that they completed at least two activities. A third activity could be set so that clients would not be penalized if they were unable to complete both of their two main activities. In other words, an activity may be to go to a local fair on Saturday, but if it rained all day Saturday, the activity could not reasonably be completed. Therefore, one extra activity could be set each week, and

clients who completed two of their three activities were eligible for bonus draws.

In weeks 22-28, the average number of drawings per client was decreased, because some clients were earning in excess of 20 draws per week. Therefore, each client earned only 1 draw from the prize bowl for attendance. For each activity they completed, their name went into a second urn. One person's name was drawn from that second urn at the end of the group session, and that individual received 10 drawings from the bowl described earlier.

The bowl contained 500 slips of paper, and half of them said, "Good job," but did not result in a prize. 219 said "small prize," 30 read "large prize," and 1 slip was a "jumbo prize." Slips were replaced after each drawing, such that probabilities remained constant. A lockable cabinet was kept onsite, in which a variety of small prizes (socks, lipstick, bus tokens, \$1 gift certificates to McDonalds, Dunkin Donuts, food items), large prizes (sweatshirts, walk mans, watches, gift certificates to book and record stores), and jumbo prizes (VCRs, TVs, and boom boxes) were kept. When a prize slip was drawn, clients could choose from available items.

Return to baseline (A) phase.

In weeks 29-35, a return to baseline conditions occurred, with no drawings or prizes available. The structure and content of the groups remained the same.

Data analysis.

Progress notes from clients attending the groups during the 35-week study period were reviewed. The number and specific types of activities selected each week and whether each activity was completed was coded. The percentages of activities completed across the study conditions are presented.

RESULTS

Subject characteristics.

Throughout the 35-week study, 43 clients attended one or more groups. 49% were female, and average age was 40 (± 6) years. The majority (53%) were African American, 28% were Hispanic, 14% were Caucasian, and 5% were of another ethnicity. Most of the clients (69%) listed cocaine to be their most problematic drug, 23% reported heroin, and 8%

reported alcohol. Forty-six percent reported a history of injection drug use, with 23% reporting current injection use. About half (53%) were enrolled in other substance abuse treatment, which was methadone maintenance in every case. The median duration of HIV infection was 5 years, but only 15% of clients reported taking HIV medication at initiation of the study.

Attendance.

During weeks 1-7, an average of 0.7 clients attended the sessions, with a range of 0 to

Table 1. Number of times specific activities were chosen and percentage of times the activity was completed across conditions.

Table 1 Number of times specific activities were chosen and percentage of times the activity was completed across conditions.										
Main goal	Specific goal	Activities	Verification	Baseline I		Contingent		Baseline II		
				Times assigned	% Completed	Times assigned	% Completed	Times assigned	% Completed	
Education	Further education	Get info about exams, courses, programs	Call from office, brochure	4	25%	3	100%	0		
		Go to GED apt/class	Note	2	50%	5	100%	0		
		Study, finish class	Homework, diploma	0		2	50%	0		
Employment	Get job	Get info, make lists, circle ads in newspaper	Call from office, lists, ads	1	0%	8	83%	2	0%	
		Work on resume, arrange for references	Resume, call from office	0		2	0%	0		
		Submit applications	Business card or application	0		21	87%	1	0%	
	Keep job	Go to job fair, employment services	Business card	0		3	87%	0		
		Start job, or go to work	Time cards, release to boss	0		5	80%	1	100%	
Volunteer	Volunteer work	Signed form	3	33%	5	100%	4	100%		
Family	Parenting	Straighten out legal problems (DCF appts.)	Letters, business cards	0		0		2	0%	
		Parenting books, groups	Book or card from group	0		3	87%	0		
		Homework with child	Homework	0		2	50%	0		
		Call for or get information about events	Call from office, brochure	0		3	0%	1	100%	
	Relationships with other relatives	Specific outings with child (ice cream, plays)	Receipts, programs	1	0%	3	87%	0		
		Counseling at Center	Verify at Center	1	0%	6	83%	3	33%	
		Counseling elsewhere	Business card, call	3	87%	1	100%	1	0%	
		Talk with family about HIV, arrange counseling	Call, apt set, brochures	0		13	85%	0		
Health	Medical	Send cards to relatives	Cards	0		1	100%	0		
		Nutrition etc	Make doctor, dentist, eye appointment	Call from office, get date	0		3	87%	7	29%
			Attend doctor, dentist, eye appointment	Bill, business card from Dr.	1	0%	34	74%	9	87%
			Get needed info from Dr. (refill prescription, results from tests, info about disease)	Call from office, receipt, info	0		5	80%	0	
			Attend alternative health program	Receipts	0		1	100%	1	100%
			Attend community edu class, caseworker appt	Brochures, cards	0		12	83%	2	50%
	Medication compliance		Record daily	0		4	75%	0		
	Psychiatric	Begin methadone detox	Release of info and call	0		1	100%	0		
		Misc (get refill, relaxation workbooks, meet for relaxation training)	Go to nutritionist or dietician, lunch at Center	Business card, information	0		7	71%	1	100%
			Exercise	Verify at Center	0		5	80%	1	0%
		Rest more	Self-report	0		2	50%	0		
		Get information, make appointment	Call from office, info	0		2	0%	0		
Attend psychiatric appointment		Release of info	1	0%	4	100%	9	56%		

4 clients. In weeks 8-28, an average of 7 clients came to each session (range 2-19). In the final 7 weeks of the study, when the tangible reinforcers were removed, an average of 5 clients (range 0-8) attended each session. These

Activity completion.

Throughout the 35 weeks, 573 activities were selected by the 43 clients. Table 1 provides detailed information on the activities and how they were verified, as well as the percent that were completed across the study

Table 1. Continued

Main goal	Specific goal	Activities	Verification	Times		%		Times		%	
				assigned	Completed	assigned	Completed	assigned	Completed		
Housing	Obtain new housing	Find out about programs	Call from office, pamphlets	1	0%	4	75%	1	0%		
		Meet with housing counselor, case manager	Forms, business cards	2	50%	13	62%	1	0%		
		Circle appropriate apartments in newspaper	Circled ads	0		2	100%	0			
		Look at apartments	List pros/cons and prices	0		14	71%	0			
		Call landlord, call lawyer, call health inspector	Paperwork, call from Center	0		9	67%	3	100%		
		Make repairs, pay utilities	Receipts	0		8	75%	2	50%		
		Put deposit down on new apartment, pay rent	Receipt	0		1	0%	1	0%		
Legal	Improve legal status	Find out info about legal problems, turn self in to police	Call from office, paperwork	0		2	100%	0			
		File legal paperwork, complaint against police	Paperwork	0		6	63%	0			
		Attend legal aid apt.	Business card	0		2	100%	0			
		Go to court, parole officer apt.	Paperwork, signed/dated business card	0		5	40%	1	100%		
Personal	Communication	Do not get in arguments with people at Center	One week with no arguments	0		9	78%	0			
		Communication counseling at Center	Attend session at Center	0		9	78%	7	57%		
		Talk to more people at Center, eat lunch with others	Verify at Center	0		3	100%	0			
		Lists, worksheets	Completed lists	0		14	88%	0			
	Grooming	Get haircut, shave, bathe	Receipt, by sight	0		5	100%	0			
	Financial	Complete budget sheets	Completed sheets	1	0%	2	50%	1	100%		
		SSI appointment	Paperwork, receipts	0		8	75%	0			
		Do not borrow from particular store	Call store weekly	0		3	100%	0			
File income taxes		Paperwork	0		1	100%	0				
Sobriety	12-Step involvement	Attend 1-5 meetings in upcoming week	Signed/dated pamphlet	3	0%	61	58%	18	50%		
		Chair a meeting	Other clients	0		2	50%	0			
		Read Big Book	Discuss	0		1	0%	0			
		Get a sponsor	Name, phone #	0		4	50%	1	0%		
	Additional	Find out info about other treatment programs	Brochure, call	0		2	50%	0			
		Go to another treatment center	Brochure, call	0		23	74%	8	88%		
		Mentor meetings at Center	Verify at Center	0		8	100%	4	25%		
		Individual counseling at Center	Verify at Center	0		7	57%	0			
	Misc (give \$ to sister so don't buy drugs, don't be seen in drug hangouts)	Call, other clients	0		8	25%	0				
Social/recreational	Church	Go to church, church meetings	Dated bulletin	0		24	71%	2	0%		
	Community events	Go to specific events (sport events, museums)	Receipts, brochures	0		2	100%	2	50%		
	Go out to eat	Go out to eat	Receipt	0		4	75%	0			
		Eat lunch with others at Center	Verify at Center	0		4	75%	0			
	Center events	Go on Center retreat	Verify at Center	0		5	80%	0			
Transportation	Personal car/bike	Get info about getting license, study for test	Info, practice tests	0		5	100%	2	0%		
		Get insurance, registration	Paperwork, receipt	0		2	0%	0			
		Get car fixed	Receipt	0		1	0%	0			
	Alternate transport	Get bus pass	Pass	0		3	33%	0			
		Arrange for medical transportation	Call from office	0		4	50%	0			

data are shown in Figure 1.

conditions. The most frequently selected activities were those related to health and

sobriety. Social, housing, employment and family activities were also popular.

Although activity completion rates did not vary dramatically across the different goal areas, higher proportions of activities were completed in the contingent compared to non-contingent conditions in virtually every case. Figure 2 shows the average percentages of completed activities across the study conditions.

DISCUSSION

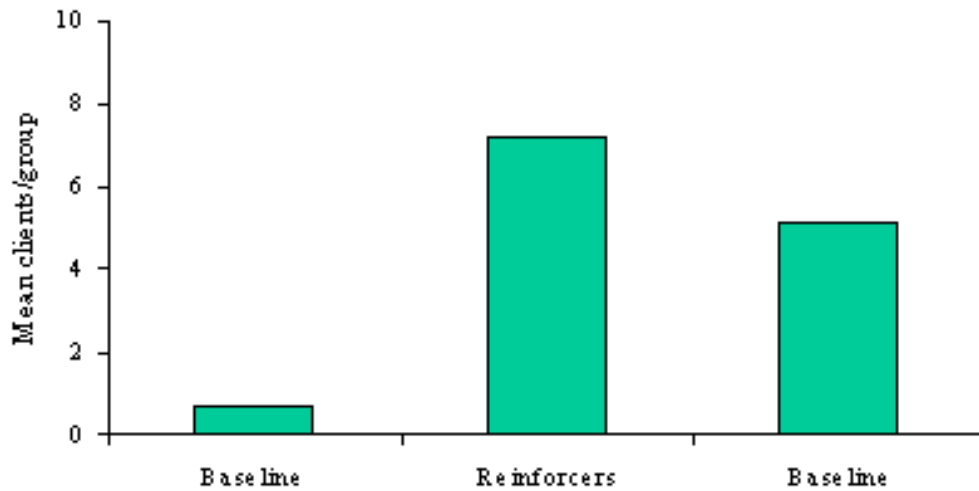
This study outlines the use of contingency management procedures to enhance compliance with goal-related activities in HIV-positive substance abusers. Compliance with activities increased substantially with the use of contingency management procedures. When the tangible reinforcement was removed in second baseline phase, completion rates decreased, but

and the potential use of these procedures in clinical settings are described.

First, the introduction of tangible reinforcers, in the form of a chance to win a prize, increased attendance at the substance abuse treatment groups. While less than one client on average attended group in the baseline condition, attendance increased to an average of 7 clients per group in the contingent phase. The removal of the tangible reinforcer was associated with a partial reduction in attendance, although group participation still remained higher than in the initial baseline condition.

Second, the implementation of reinforcers increased compliance with goal-related activities. The percentages of activities completed rose from 23% in the initial baseline

Figure 1. Average number of clients attending groups each week during the baseline, contingent, and return-to-baseline conditions.



they still remained above those of the initial baseline rate. The types of activities selected

condition to over 70% when reinforcers were available. Again, compliance rates decreased slightly when the reinforcers were removed in

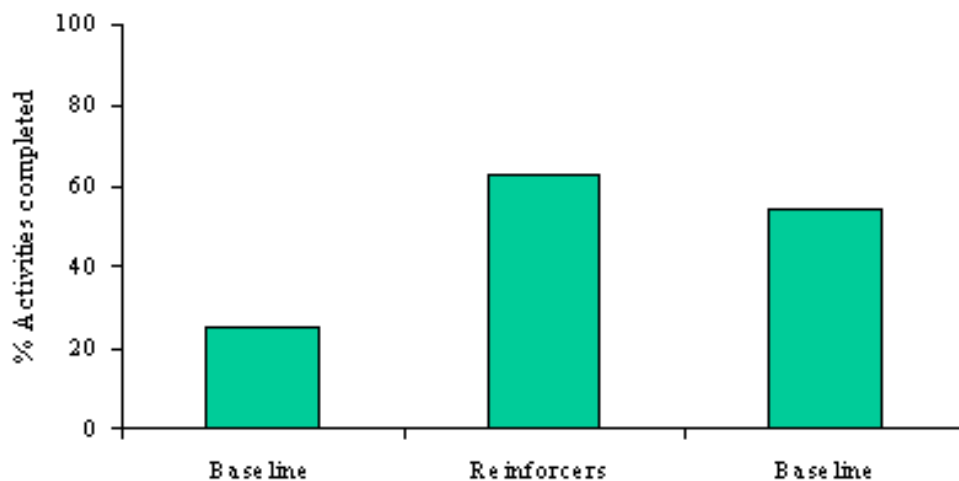
the second baseline condition, but they still remained higher compared to the initial baseline period.

Examination of the types of activities in which these clients engaged revealed that health-related activities were among the most popular activities selected. In fact, 81% of clients selected at least one health-related activity, and four clients initiated HIV medications during the study period. Attending 12-step meetings was another popular activity, with over 70% of clients becoming involved with this form of treatment during the study. The procedure also seemed to engage clients in a variety of other services, such as family and employment counseling. Of the 43 clients, five became employed during treatment, and four initiated formal educational programs.

In this initial study, we did not collect data systematically on psychosocial functioning, so we also do not know if the increases in activity completion improved psychosocial functioning or quality of life. This Center did not conduct urine testing, so whether these procedures actually reduced drug use cannot be determined. Anecdotally, clients reported less drug and alcohol use once they became active in these groups, and the staff at the Center reported fewer incidents of intoxicated clients at the Center.

The total cost of all the prizes won by the 43 clients over the 21-week reinforcement period was \$1120. This amount is roughly equivalent to the maximal costs of reinforcement provided to one client in a 12-week voucher incentive program (Higgins et al., 1994). Although the relative efficacy of the voucher and the prize reinforcement systems has not yet

Figure 2: Percentages of goal-related activities completed each week during the baseline, contingent, and return-to-baseline conditions.



Because a non-random assignment design was used, we cannot attribute the effects of the contingency management intervention directly to the increase in activity completion.

been tested, this prize reinforcement system may be a lower-cost alternative to the voucher system. In two other studies (Petry et al., 2000;

Petry & Martin, under review), we demonstrate the efficacy of this prize reinforcement system.

Future studies using random assignment designs may evaluate more systematically the efficacy of these contingency management interventions for improving psychosocial functioning and reducing drug use. Nevertheless, this study demonstrates the feasibility and acceptance of these contingent techniques among substance abusers attending HIV drop-in centers. Such techniques may be adapted to enhance engagement and increase compliance with goal-related activities in other special populations, including substance abusers in community-based treatment programs, substance abusing mothers, homeless individuals (Milby et al., 1996), and individuals participating in employment training programs (Silverman et al. 2001).

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NEGATIVE REINFORCEMENT AND SUBSTANCE ABUSE: USING A BEHAVIORAL CONCEPTUALIZATION TO ENHANCE TREATMENT

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Reinforcement history is a particularly potent predictor of future addictive behaviors. For the most part, researchers have studied the operant in order to understand and control positive reinforcement that maintains substance use behavior. However, negative reinforcement can be just as powerful in increasing the likelihood of substance use in the future, and some data suggest that negative (and not positive) reinforcement predicts increased difficulties associated with substance abuse over a person's lifetime. Negative reinforcement may be occurring if clients are avoiding withdrawal symptoms, escaping reality, self-medicating, or avoiding loss of using friends. In such cases, therapists may wish to use strategies such as response prevention, generating alternative activities, environmental interventions within the family and community, and emotion regulation and distress tolerance skills.

Examining the function of substance use behavior is the foundation of credible psychosocial research and clinical practice concerning the prevention and treatment of addictive behaviors. Reinforcement history is a particularly potent predictor of future addictive behaviors. For the most part, researchers have studied the operant in order to understand and control positive reinforcement that maintains substance use behavior. The most obvious example of positive reinforcement concerns physical euphoria associated with drug use. The rewarding effects can be immediate and quite powerful, making it likely that the behavior will be repeated in the future. Furthermore, if the euphoria is not always predictable and occurs intermittently, then reduction or cessation of the substance use becomes even more difficult since intermittent positive reinforcement schedules tend to maintain persistent behavior in the absence of consistent access.

However, negative reinforcement also can powerfully increase the likelihood of substance use in the future. Some research findings suggest that negative (and not positive) reinforcement may predict increased difficulties associated with substance abuse over a person's lifetime (e.g., Carey & Correia, 1997). People who abuse substances often make statements such as "using makes me feel normal," which provide clues to the function of the behavior. The language implies that without the substance use the person feels

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abnormal, and that substance use takes away the aversive abnormality (hence, negative reinforcement).

NEGATIVE REINFORCEMENT OF SUBSTANCE USE

Negative reinforcement is understood to increase the likelihood that a behavior will be repeated in the future. A negative reinforcer "strengthens" behavior that reduces an aversive outcome (e.g., Skinner, 1974). Negative reinforcement of substance use means that an aversive outcome is reduced by the use of the substance, making it more likely that substance use behavior will occur again in the future. Substance use is often negatively reinforced on an intermittent schedule, making extinction of the behavior more difficult. Indeed, extinction of substance use does appear to be a difficult proposition, perhaps owing to the power of the intermittent reinforcement schedule.

One function of problematic drug use may be to reduce aversive withdrawal symptoms. A coffee-drinking reader who has experienced the pain of a caffeine headache after a prolonged period without coffee may understand the function of drinking coffee to reduce the headache. For other more life threatening forms of addictive behaviors, one common question asked of people to determine the extent of a substance use problem is something like, "do you use substances to reduce a hangover or stop the shakes?" A positive response to such a question often suggests a greater constellation of consequences associated with problematic substance use (Buchsbaum, Buchanan, Centor, Schnoll, & Lawton, 1991; Dyson, et al., 1998). In the case of reduction of

aversive withdrawal symptoms, negative reinforcement via substance use can be extraordinarily powerful. The potential effects of substance use to reduce the “morning after” consequences are well known. Of course, if the substance use only works once in a while to reduce the withdrawal effects of substance use, it is intermittently reinforcing the behavior, making extinction more difficult.

An interesting phenomenon that I have seen over and over again is that fear of withdrawal symptoms may cue substance use to avoid the aversive consequences of withdrawal. This avoidance pattern is not unlike the fear of fear cycle that is most commonly associated with anxiety disorders, and may lead to a pattern of maintenance drinking or drug use throughout the day. A familiar example of this behavior involves people who smoke cigarettes. The smoking behavior often begins upon awakening (and continues regularly throughout the day) in order to minimize withdrawal effects. Indeed, many smokers find the first cigarette of the day the most difficult to give up.

Another type of avoidance behavior that serves as a negative reinforcer for substance use is often referred to as “escaping reality.” The discussion of escape is potentially salient for people who use drugs in the context of living in an aversive environment. There are a variety of aversive life circumstances for which substance use may provide escape. The first aversive environment is an environment of physical or sexual abuse. People often report using substances to escape the reality of abusive life situations, as well as to “self-medicate” the pain associated with those environments (see below). There are a wide variety of abusive situations described throughout trauma literature that I will not discuss here. However, I would add neglect by parent and parent surrogates to the category of abuse, since research suggests that lack of parental monitoring is a predictor of self-destructive behavior, including substance abuse, among adolescents (Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Jacobson & Crockett, 2000).

A second life circumstance in which people use substances to escape is an environment of oppression. Oppression may be economic in nature, may be derived from racial/cultural prejudices, or may be present in an invalidating environment (e.g., Linehan, 1993a) where a person fits poorly into their

surroundings, and may be punished for non-conformism. With consideration to behavioral principles, it is no coincidence that substance abuse may cluster and persist within neighborhoods and communities under stress. For some people, addictive behaviors may seem like the only short-term ticket out of the aversive environment, and negative reinforcement makes it more likely the ticket will be punched again.

The third life circumstance in which people use substances to escape is with regard to aversive psychological or physical symptoms such as serious emotional distress or chronic pain. Some researchers and clinicians have described this process as self-medication (e.g., Khantzian, 1985, 1990, 1997), which involves the reduction of aversive symptoms via use of substances. An argument has been made that self-medication is best understood behaviorally as negative reinforcement of substance abuse via the often intermittent reduction of aversive physical symptoms (Blume, Schmaling, & Marlatt, 2000).

Co-occurring behavioral disorders and/or medical conditions may be the norm rather than the exception among people with addictive disorders. Prevalence rates for co-occurring behavior disorders (not including co-morbid medical conditions) have been estimated to be one- to two-thirds of all people using addictive substances (Khantzian & Treece, 1985; Regier et al., 1990). People with behavior disorders often report using substances to reduce various aversive symptoms (e.g., depression or anxiety) and often believe the substances work more quickly and resolutely than prescribed pharmacotherapy options. Another example of negative reinforcement of substances via reduction of symptoms involves people with chronic pain. People with chronic pain frequently abuse substances in an effort to reduce the pain (Hoffman, Olofsson, Salen, & Wickstroem, 1995; Katon, Egan, & Miller, 1985; Jonasson, Jonasson, Wickstroem, Andersson, & Saldeen, 1998; Kouyanou, Pither, & Wessely, 1997), even when the substances are reportedly not working consistently to reduce the pain (intermittent negative reinforcement).

Finally, a fourth life circumstance in which people use substances is to avoid potential losses within social networks. Many substance users surround themselves with a circle of substance using peers. Such a social network normalizes personal behavior patterns of substance use and rewards the

participant with friendships that accept and reinforce substance use behavior. To radically alter substance use is to risk losing social support facilitated by substance use. Maintaining substance use avoids the loss of contact with the established circle of peers. Research shows that relapses often occur in the context of loneliness or boredom, leading to renewed contact with peers and places associated with abusing substances, frequently in the context of “apparently irrelevant decisions” (Marlatt & Gordon, 1985). The person may find that abstinence is aversive because of the consequences of losing contact with friends and recreational activities associated with substance using behavior, and renewed use of substances is negatively reinforced by renewed contacts with peers, familiar locales, and recreational activities associated with substance use.

BEHAVIOR CHANGE

Behaviorists can utilize several therapeutic strategies with clients whose substance use behavior is negatively reinforced. You will notice that the following strategies speak to the behavioral processes involved in a negative reinforcement conceptualization of substance abuse described above. As mentioned, avoidance of aversive consequences is one key aspect to continued substance use. One behavioral strategy is to block avoidance of these negative consequences via response prevention measures (Andersen & Bech, 1981; Laberg, 1990). The strategy of response prevention is often used in conjunction with cue exposure in session. Briefly, in this type of treatment, the clinician will arrange for the person to face the aversive consequences that s/he fears and typically avoids or escapes (the cue exposure), and then the therapist blocks avoidance or escape behavior (the response prevention), and may soothe and encourage.

A second behavioral strategy is to promote alternative activities that allow for the person to tap into natural reinforcers in his/her environment, independent of substance use. Alternative activities must serve a similar function to that served by the substance use in order to be effective. With this in mind, if a person has difficulties giving up substance use because s/he likes the social aspects of substance use, then an alternative activity should be structured in such a way to provide enjoyable socialization not involving drugs or alcohol; if excitement is the function, then the alternative activity better be exciting, too. Most importantly, alternative activities

should fill the void in a person’s routine that used to be filled with substance use behavior.

A third behavioral strategy is to change the person’s aversive environment to reduce the need for escape. This may be the most difficult aspect of behavior change, since the environment is influenced by many variables, many of which are not in the clinician’s control, or are hard to change even when they are. One model of therapy that has empirical support for doing so is the “community reinforcement approach” (e.g., Miller, Meyers, & Hiller-Sturmhofel, 1999), which attempts to shape a person’s substance use behavior by changing the social systems in which the person functions. With regard to negative reinforcement, one way in which the community reinforcement approach works is by assisting those people in the drug user’s social network to reduce their use of policies and practices that cue and reinforce escape through substance use. Some examples include helping household members to reduce nagging and criticism of social or emotional skill deficits which really need help. It also might involve teaching household members not to “rescue” the substance abuser from the natural consequences of not completing housework, paying bills, or showing up at work (typically referred to as enabling). The most ideal outcome within this approach is to change the social network so that the substance user’s environment becomes less oppressive and more validating.

Finally, a fourth behavioral strategy is to teach and rehearse emotion regulation and distress tolerance skills (e.g., Linehan, 1993b). Many clients have their substance use negatively reinforced by escape from aversive emotions. As mentioned previously, avoidance behavior takes on a life of its own, cued by fears of aversive consequences that may lead the person to feel as if there is no choice but to use alcohol or other substances. Emotion regulation skills allows clients to understand and cope with emotions rather than escape them via substance use. The experience of emotions can be normalized rather than feared. Distress tolerance skills should not be used when they might reinforce avoidance, but these skills are helpful when people have chronic medical conditions for which discomfort is the norm rather than the exception. It is also important with people who describe their behavior as “self-medicating.” Here, distress tolerance skills can be taught and then used to effectively cope with distress without use of substances.

SUMMARY: BEHAVIORAL MODEL OF ADDICTION

Positive reinforcement, which may be directly related in strength to the level of euphoria, certainly can lead to habitual use of substances after initial experimentation (e.g., Haertzen, Kocher, & Miyasota, 1983). However, the role of positive reinforcement may be supplanted over time by a powerful and persistent negative reinforcement schedule that perpetuates substance use and that may become part of the relapse cycle. Certainly evidence suggests that, although positive reinforcement may predict whether the person may use substances again after experimentation (Haertzen et al., 1983), negative reinforcement may be a better predictor of problems with substance abuse over a lifetime (e.g., Carey & Correia, 1997). This is referred to as the “bait and switch” model of substance-use reinforcement where baiting seems to occur by way of positive reinforcement, but then as positive reinforcement diminishes with increased usage, the behavior may be maintained by increased negative reinforcement (the switch). It will be helpful to have more research on the efficacy with which this model predicts substance use behavior. However, the “bait and switch” model may be less useful for conceptualizing substance abuse by people who have behavior or health disorders, and are using substances to feel “normal” rather than euphoric, before their behavior became habitual.

In summary, behavior therapists working with people who abuse substances will want to evaluate what negative reinforcers are maintaining the substance-use patterns. Negative reinforcement may be occurring if clients are attempting to avoid withdrawal symptoms, escape reality, self-medicate, or avoid loss of friends and fun. After determining that the substance use behavior is being negatively reinforced, behavior therapists can help clients with a range of change strategies such as response prevention, generating alternative activities, environmental interventions with family and social networks, and emotion regulation and distress tolerance skills. By understanding and addressing the role of negative reinforcement in substance abuse, behavior therapists may find new and creative directions to help clients under their care.

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Psychology Lecturer Position

The University of Maryland

The University of Maryland, Baltimore County (UMBC) Department of Psychology anticipates one full time Lecturer position beginning Fall Semester, 2001 for a psychologist in the broadly defined area of experimental psychology. This non-tenure track position is a one- year contract with the potential for renewal. The department is searching for a doctoral level psychologist with undergraduate teaching experience committed to teaching in the broad area of the interface between biology and psychology such as courses in behavior genetics, the psychology of learning, physiological psychology, sensation-perception and/or comparative psychology.

The position is likely to provide good opportunities for contact with the participants in our Master's program in Applied Behavior Analysis at the Kennedy Krieger Institute in Baltimore. In addition, the UMBC Department of Psychology is likely to be recruiting to fill one or more tenure-track lines in clinical psychology and/or other areas during the coming academic year (2001-2002). The department is particularly interested in individuals who may be able to bridge different specializations represented within our graduate program in Human Services Psychology, so behavior analysts whose training and primary research interests match those clinical and/or other areas to be specified may wish to give serious consideration to applying once the searches for those positions are formally announced

UMBC is a Research University located in the Baltimore-Washington corridor that provides rich opportunities for working with diverse populations. The Psychology Department has over 600 undergraduate majors and 100 graduate students in its Applied Developmental and Human Services Psychology graduate programs.

THE PAST, PRESENT, AND FUTURE OF BEHAVIORAL PARENT TRAINING: INTERVENTIONS FOR CHILD AND ADOLESCENT PROBLEM BEHAVIOR

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Behavioral parent training has emerged as one of the most successful and well-researched interventions to date in the treatment and prevention of child and adolescent problem behaviors, with extensive empirical support for its clinical utility having been obtained over the last several decades. At this point in time, it is useful to consider the development of behavioral parent training and to review the current status of research and practice in the field. We begin by giving a historical overview of behavioral parent training, followed by a review of the “core issues” of these parenting interventions. We then present the current state of the art in behavioral parent training, including challenges frequently faced by clinicians in accessing and implementing these parenting programs. Finally, we turn our attention to the future of parent training research.

Behavioral parent training has emerged as one of the most successful and well-researched interventions to date in the treatment and prevention of child and adolescent problem behaviors, with extensive empirical support for its clinical utility (e.g., Kazdin & Weisz, 1998; Lonigan, Elbert, & Bennet-Johnson, 1998; McMahon & Wells, 1998). As a recent meta-analysis of 26 controlled studies by Serketich and Dumas (1996) indicates, behavioral parent training is associated with improvements in child behavior and parent personal adjustment. However, parent training is not uniformly successful, and there remains much to learn about the myriad factors that affect the implementation of these interventions. At this point in time, it is useful to consider the development of behavioral parent training—where advances in the field have led us, and where the field is going.

In this article, we will begin by giving a historical overview of how parents came to be involved in the treatment of child problem behaviors, followed by a review of the “core issues” that are central to these parenting interventions, including a discussion of developmental and contextual variables. We then present the current state of the art in

behavioral parent training, including challenges frequently faced by clinicians in accessing and implementing these parenting programs. Finally, we turn our attention to the future of parent training research.

THE PAST: A HISTORICAL OVERVIEW OF PARENTING INTERVENTIONS

While parenting interventions for child problem behaviors are largely a product of the last 30 years, their guiding principles were established early in the 20th century. Behavior modification techniques were first developed in the 1920s (Graziano & Diamant, 1992). More importantly, researchers at that time began to recognize the integral role that a child’s environment plays in the development and maintenance of antisocial behaviors. In their detailed review of thousands of case studies, Healy and Bronner (1926) concluded that family environment, and parenting practices in particular, was perhaps the most important predictor of delinquent behaviors. Based on their findings, they conclude, “...where to direct a strong attack in treatment and prevention of delinquency stands out with striking clearness” (p.129)—in other words, parents should be a primary target for intervention with antisocial youth.

Given the current climate for treating child problem behaviors, the conclusions of researchers in 1926 seem surprisingly modern. However, these suggestions were not immediately implemented, in part because the psychological treatment of children was not widely practiced. Additionally, treatment of children through the 1950s typically occurred via less empirically-based psychodynamic approaches, employing a traditional one-on-one encounter between the therapist and child, and addressing more

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global, intrapsychic issues rather than specific behavior problems (e.g., Berman, 1959; Sternbach, 1947). In the early 1960s, however, a “paradigm shift” in child treatment occurred. Traditional psychodynamic approaches were not very successful in addressing the immediate issues of a child’s behavior problems; any changes that did occur in the “artificial” therapeutic situation did not generalize to settings outside the clinic (e.g., home, school); and perhaps most importantly, parents’ non-involvement in the child’s treatment meant that little change was effected in the home environment (see Berkowitz & Graziano, 1972; Graziano & Diamant, 1992 for further discussion).

In contrast, principles of behavior modification were beginning to find success in managing child behavior in multiple settings, such as classrooms, hospitals, and other institutions (Kazdin, 1978). Due to this confluence of factors, the idea of therapists training parents in techniques to modify their children’s behavior was met with much enthusiasm. This partnership between the parent and therapist was probably also possible because it was concurrent with a broader trend toward the “deprofessionalization” of psychotherapy (as evidenced by the increasing popularity of “self-help” books, etc.), which has served to increase the efficiency and accessibility of treatment among a larger pool of consumers (Kazdin, 1985).

Although basic behavior modification techniques were effective for managing less severe problem behaviors, therapists and researchers quickly realized that they were not sufficient for dealing with more extreme child behavior problems, such as chronic noncompliance or antisocial behavior. According to Kazdin (1985), in these situations, “it became evident that deviant behavior required more than simple alterations of a few consequences.... Sequences of interaction between parents and children in the home emerged as important” (p. 161). This led to the establishment of behavioral parent training, as it is widely known. Parent training, based on Tharp and Wetzel’s (1969) triadic model, employs the therapist as a consultant who works directly with the parent (mediator) to alleviate the problem behavior of the child (target). In the clinic, the basic parent training presentation consists primarily of instruction by the therapist in parenting techniques, with structured behavioral modeling, role plays, and practice sessions, as well as homework assignments for the parent to practice with the child. This format

was based on the assumption that parenting skills deficits are at least partly responsible for the development and/or maintenance of child problem behaviors, and thus provides parents with a repertoire of skills with which to manage, and eventually improve, the child’s behavior as well as broader parent-child interactional patterns (Forehand, 1993).

As noted elsewhere (e.g., McMahon & Forehand, 2001), the development of parent training as an empirically validated practice has occurred in three distinct stages. The first stage (from 1960 to 1975) involved the establishment of the parent training format, as discussed above, and tests of its efficacy as a treatment for child problem behaviors. Early studies, which included a large number of descriptive studies and single-case designs, found good support for the short-term efficacy of parent training in reducing negative child behaviors (e.g., noncompliance, aggression, destructiveness) and improving parenting practices. Based on these successes, further research was conducted in broader terms between 1975 to 1985, with the primary focus being to test for the generalization of parent training effects. Generalization has been shown to occur in at least four areas: setting (e.g., transfer of behavior changes from the clinic to home or school), temporal (e.g., maintenance for behavior change over time), sibling (e.g., application of new parenting skills with non-targeted children), and behavioral (e.g., concomitant improvements in non-targeted behaviors; see Forehand & Atkeson, 1977). The empirical demonstration of the generalization of treatment effects has served to enhance the perceived social validity of parent training (i.e., whether the treatment effects are considered to be “clinically or socially important” to the client (Kazdin, 1977, p. 429) as well as the clients’ satisfaction with the treatment.

While parent training is not universally effective in treating child problem behaviors, the research conducted between 1975 and 1985 greatly increased our understanding of the general mechanisms and outcomes of this treatment approach. Following this period, clinical researchers began to examine ways to expand the parent training curriculum. This line of research has considered a wider range of factors that can impact the implementation and outcomes of parent training. For example, the role of developmental variables has been emphasized in developing and tailoring behaviorally-oriented interventions (Eyberg, Schuhmann, & Rey, 1998; Forehand & Wierson, 1993). Other researchers

have considered the contextual factors that can affect parent training, such as parental and marital adjustment or socioeconomic factors (Griest & Wells, 1983). More recently, interventions have been designed to involve and coordinate multiple levels of the child's environment, including the home, school, clinic, community, or juvenile justice system (e.g., Henggeler, Schoenwald, Bordrun, Rowland, & Cunningham, 1998; Blechman, 1998).

THE PRESENT: CORE ISSUES IN TREATING ANTISOCIAL CHILDREN AND ADOLESCENTS

Central to the development and implementation of parent training programs for child antisocial behavior has been the study of how such behavior develops and is maintained. In order to effectively address child behavior problems, it is necessary to understand these issues, as they have direct application to all of the parenting interventions discussed in this article. Thus, in this section, we will briefly summarize from Forehand and Long (1996; 2002) how child characteristics and parenting interact to create family processes that can place a child on a trajectory from early noncompliance to severe antisocial behavior, and how these characteristics are addressed in parent training interventions.

The roots of antisocial behavior often are found in a child's temperament. Thomas and Chess (1977) identified some children as having "difficult" temperaments early in life. From their infancy, these children are usually restless, intense, distractible, and moody, tend to sleep irregularly, and to have problems adjusting to changes. Longitudinal research has shown that, without intervention, a difficult temperament is often a predecessor to later antisocial behavior (e.g., Moffitt, 1993). Fortunately, effective parenting can improve many of these negative behaviors. However, parenting a temperamentally difficult child is not an easy process and many parents unfortunately fall into unwise parenting practices, known as "traps." As Wierson and Forehand (1994) have delineated, there are two reinforcement "traps" that often disrupt parenting behavior. Both serve to exacerbate the child's problematic behavior, particularly noncompliance which has been viewed as a keystone behavior in the development of antisocial behavior of children (Loeber & Schmalting, 1985; Patterson, 1982).

The negative reinforcement trap, as described by Patterson (1982), occurs when a parent issues a direction to a noncompliant child (e.g., "Johnny, please pick up your toys."). The child is likely to respond by whining, protesting, or refusing to comply with the direction. A parent may "give in" or "give up" by withdrawing the direction, to stop the child's protesting or to complete the task more quickly. However, doing so unintentionally reinforces the very behavior that the parent is attempting to avoid. The child learns that loud protestation and defiance nullify undesirable parental directions (i.e., negative reinforcement). Thus, not only does noncompliance increase, but so do other behaviors that are precursors of antisocial behavior. Frustrated, the parent may then try to "get tougher" by yelling or even becoming physically aggressive with the child when he or she is noncompliant. In this case, the child stops protesting and complies out of fear, thereby negatively reinforcing the parent's "tough" behavior. Over time, both parent and child escalate their negative behavior via the negative reinforcement processes; this results in a coercive and destructive cycle within the parent-child relationship. The goal of a behavioral parent training program is to stop this coercive cycle by teaching the parent more adaptive responses to the child's noncompliant behaviors. The effectiveness of such a program, in part, lies in how well these new parenting behaviors are learned and implemented.

Another factor contributing to the development of problem behaviors of children is the positive reinforcement trap, described by Wahler (1976). In such cases, oppositional behavior is reinforced because a parent responds with attention most frequently when the child misbehaves (e.g., spending time with the child talking about why he or she is not complying). Although parental attention is a necessary feature of good parenting, using it in response to undesirable behavior creates problems rather than solves them. Even if given intermittently, parental attention to such behavior becomes a powerful reward for difficult children. As a result, the second goal of a parent training program is to help parents prevent the positive reinforcement trap by paying attention to positive, rather than negative, behaviors of their child. For example, attention is given to compliance instead of noncompliance and for cooperative play instead of fighting. Thus, effective behavioral parent training depends, in part, on how well parents can use positive reinforcement strategies to increase the frequency of appropriate child

behaviors; as desirable behavior increases, negative behavior is likely to decrease.

The effectiveness of behavioral parent training is also determined by its timing, as far as the child's development is concerned. Early intervention with difficult behavior, particularly noncompliance, is important because such behavior can set a child on a path to increasingly antisocial behavior. Certainly not all difficult children continue on this trajectory to its end; however, the longer that a child's misbehavior is addressed maladaptively, the more difficult it will become to modify both parenting and child behavior. In addition, research has shown that older children and adolescents who exhibit persistent antisocial behavior (as opposed to antisocial behavior which first begins in adolescence) tend to have behavior problems which are more severe and difficult to treat (Moffitt, 1993). When parenting programs intervene early and address the precursors to antisocial behavior, such as child noncompliance, increasingly serious problems can be prevented.

IMPLEMENTATION OF PARENTING PROGRAMS

Assessment.

A significant first step in implementing a parenting program for child antisocial behavior is conducting a thorough assessment of relevant child, parent, family, and community variables that may need to be addressed in the intervention. Systematic assessment is vital for the identification of intervention targets as well as the measurement of change resulting from intervention (ascertained by pre- and post-intervention assessments).

We will provide only a brief overview of the most critical aspects of assessment. Readers should refer to McMahon and Forehand (2001) and McMahon and Estes (1997) for more comprehensive discussions of assessment methods and available instruments.

The assessment of child or adolescent antisocial behavior must include the following elements. First, a detailed description of problematic behavior and the circumstances of its occurrence must be obtained. Specifically, information should be obtained regarding the nature of problem behavior, its frequency and severity, its history and development, and the contexts in which it tends to occur. Second, because the focus of parent training programs is on

the modification of parent behaviors that may contribute to the development or maintenance of child antisocial behavior, assessment of parenting attitudes, styles, and skills should be very thorough. In particular, an assessment of the antecedents and consequences of child antisocial behavior, with an emphasis on parental responses, should be conducted. Third, the content of the assessment should also include measures of potential internalizing difficulties (e.g., depressive symptoms, anxiety symptoms), as these often co-occur with antisocial behavior (McMahon & Wells, 1998). Fourth, specific areas of competence (e.g., sports, music), prosocial interactional skills (e.g., ability to form friendships, ability to relate to peers, teachers, & coaches), and academic performance should be assessed, as the goal in treatment is not simply to eliminate antisocial behavior but also to increase the prosocial functioning of these children. Lastly, other risk factors often associated with child antisocial behavior, such as parental depressive symptoms, parental excessive alcohol/drug use, marital conflict, divorce, and community factors (e.g., neighborhood crime, gangs; see Forehand & Long, 2002; Long & Forehand, 2002; McMahon & Forehand, 2001), should be assessed.

Assessment should also include the use of multiple reporters, meaning that parents, the child (when she or he is old enough to provide valid information), and, in some cases, others (e.g., grandparent, teacher) should serve as sources of data. Each person provides a unique perspective, and each perspective is important to consider in designing an intervention. Furthermore, data should be collected through multiple methods of assessment: (a) interviews; (b) questionnaires; and (c) behavioral observation by the therapist or another person in the clinic and/or home. One method is not necessarily better than another, as each has strengths and weaknesses. By employing multiple methods, the strengths of each are utilized while the weaknesses are minimized.

Intervention.

Parent training programs all share several common or core elements, summarized by various investigators, including Kazdin (1985), Dumas (1989), McMahon and Wells (1998), and McMahon and Forehand (2001). These core elements include: (1) focusing more on parents than the child; (2) moving from a preoccupation with antisocial behavior to an emphasis on prosocial behavior; (3) teaching

parents to identify, define, and record child behavior; (4) instructing parents in social learning principles (e.g., reinforcement of prosocial behavior, withdrawal of attention for misbehavior through the use of ignoring or time-out); (5) teaching new parenting skills via didactic instruction, modeling, role playing, practicing with the child in the clinic and home; (6) discussing ways to maximize generalization of skills from the clinic to the home; and when necessary, (7) addressing parental (e.g., depressive symptoms), family (e.g., marital conflict), and community (e.g., neighborhood violence) risks which may interfere with acquisition or maintenance of new parenting skills and *adaptive child behavior*.

Though the core elements are present in all parent training interventions, programs may differ in their emphasis on each component. For example, Patterson (1975a, 1975b) has stressed the importance of parents learning the language of social learning principles, as well as learning to define and count behavior. In both the first (Forehand & McMahon, 1981) and second (McMahon & Forehand, 2001) editions of the book delineating their program, McMahon and Forehand stress the importance of teaching procedures (didactic instruction, modeling, role-playing, practice with child in clinic and at home, programming generalization to the home). In contrast, Webster-Stratton (1996) emphasizes the demonstration of parenting skills through videotaped modeling of skills rather than therapist teaching. In addition, Sanders and colleagues have used print and televised media as an avenue for intervention (Sanders, Markie-Dadds, Tully & Bor, 2000). It is important to point out that the variations across programs are probably of less significance than their common elements. A clinician choosing among programs should look at the available empirical support for a program more than these relatively minor variations across programs.

One characteristic that does influence the type of intervention utilized is the age of the child. As a child increases in age, her or his cognitive abilities and source of reinforcement (e.g., parents, peers) change, which leads to changes in intervention strategies (see Forehand & Wierson, 1993, for more details). As McMahon and Wells (1998) report, several investigators have found that parent training is more effective with younger children and their families are less likely to drop out of treatment. With older children and particularly adolescents, parent training interventions may not only be less effective

but are more difficult to implement. As a result, alternative family-based treatments for adolescent antisocial behavior have been designed in recent years that incorporate individual, peer, and community level interventions into the parent training model. For example, Chamberlain has begun utilizing an alternative intensive intervention, Treatment Foster Care (TFC), for difficult-to-treat delinquent adolescents (Moore & Chamberlain, 1994). In this approach, adolescents are placed with community families who are experienced with teenagers, have good parenting skills (i.e., behavior management strategies) and are willing to work as part of a treatment team. In most cases, the goal is to have the adolescent return to live with his or her family, which receives substantial intervention during and after the adolescent is in treatment foster care. Of importance, even with innovative programs such as the one developed by Chamberlain, the basic model of parent training remains the centerpiece component.

Clinical Challenges in Behavioral Parent Training

Although behavioral parent training programs have been widely supported as efficacious interventions for preventing and treating child and adolescent problem behavior (Kazdin & Weisz, 1998; Lonigan, Elbert, & Bennet-Johnson, 1998), there remain many barriers to their effective implementation by clinical practitioners. This section will review some of the challenges commonly faced by practitioners who are working with noncompliant or antisocial youth and their families, and offer suggestions for overcoming these obstacles in order to deliver parent training interventions to those families who may benefit from them.

Challenge: Practitioners are faced with a multitude of programs claiming to be parenting interventions, but do not always have information regarding which ones have been empirically supported. As we have stated, parent training is the best empirically evaluated intervention for child and adolescent problem behavior (Brestan & Eyberg, 1998; Kazdin & Weisz, 1998). Unfortunately, treatment programs which have the best empirical support are often the ones that are most poorly disseminated among practitioners. Often, the “publicity” directed toward such programs is limited to the attention they receive in peer-reviewed scientific journals or professional conferences. What many practitioners have easy access to, however, are various parenting programs that are advertised by

mailings or brochures designed to catch the clinician's eye, but which have little or no data supporting their efficacy.

Fortunately, there are now several resources to help clinicians select an age appropriate, empirically validated program. First, Brestan and Eyberg (1998) identified programs which they classified as well established or probably efficacious, including those based on Patterson and Gullion's (1968) manual *Living with Children* (designed for parents of pre-adolescents), Webster-Stratton's (1996) *The Incredible Years* (designed for parents of 3-10 year olds), McMahon and Forehand's (2001) *Helping the Noncompliant Child* (designed for parents of 2-8 year olds), Eyberg, Boggs, and Algina's (1995) *Parent-Child Interaction Therapy* (designed for parents of 2-8 year olds), Tremblay and colleagues' (1995) *Delinquency Prevention Program* (designed for parents of preschoolers through adolescence), and Henggeler and colleagues' (1998) *Multisystemic Therapy* (designed for parents of adolescents).

Second, the Office of Juvenile Justice and Delinquency Prevention and the Center for Substance Abuse Prevention have produced *Strengthening America's Families: Model Family Programs for Substance Abuse and Delinquency Prevention* (Alvarado, Kendall, Beesley, Lee-Cavaness, 2000), which showcases research-based prevention programs that are family-focused and have demonstrated effectiveness. Seven programs have been assigned the highest rating (Exemplary I) because of use of an experimental design with a randomized sample, replication by an independent investigator, and multiple studies demonstrate clear evidence of program effectiveness. Among these are three programs which also were identified by Brestan and Eyberg (1998): McMahon and Forehand (2001), Webster-Stratton (1996), and Henggeler and colleagues (1998). *Strengthening America's Families* also describes a number of other programs with varying degrees of empirical support, and provides contact information for all programs. Readers interested in this excellent resource are directed to their website for further information [<http://www.strengtheningfamilies.org>].

Challenge: *The broader social context in which a family functions interferes with treatment or maintenance of treatment gains.* While parenting interventions may appear as though they were developed to be delivered in a vacuum, clinical

researchers and practitioners alike have long recognized that broader social and environmental factors influence parenting behavior and response to treatment. Perhaps the best example of this is the socioeconomic status of a family. Many researchers have noted that greater socioeconomic stress is associated with treatment dropout and poorer outcomes at the conclusion of parent training interventions (e.g., Henggeler, Melton, & Smith, 1992; Kazdin, 1990; Kazdin, Mazurick, & Bass, 1993; McMahon, Forehand, Griest, & Wells, 1981). Practitioners must recognize that families of lower SES face numerous stressors that may interfere with their ability to complete a parenting intervention and which may ultimately compromise any therapy gains. These stressors include poverty, substandard housing, residence in crowded and high crime neighborhoods, lower education, single parenthood, and lack of social support.

When working with lower SES families, practitioners should keep in mind the following suggestions. First, parenting programs that can offer on-site child care while parents are in session or assist with transportation needs have had greater success in keeping parents in treatment (e.g., Horne & Patterson, 1979). Similarly, interventions need to be delivered within the communities in which families reside, and must be offered at convenient times and locations. For example, use of community centers, churches, or schools located close to a family's home as places to deliver parent training interventions may greatly improve attendance and opportunities for success.

Second, due to the negative nature of most social service contacts that families of lower income status experience, parenting interventions may be most effective when delivered by individuals and agencies trusted by parents. When this is not possible, extra care in establishing rapport prior to conducting any formal assessment or treatment is a critical first step to successful intervention.

Third, parent trainers may need to directly address the broader needs of a family by either referring them to social service agencies or including a social work component in their treatment program. Enhancement of parents' social supports, particularly those that provide parenting support, may become a critical target of intervention. For some families, treatment for child problem behavior may end up looking more like case management at first. Parents cannot fully engage in parent training until their other

basic needs have been adequately addressed; thus, working with socially isolated or highly stressed families that present for assistance in managing their children's behavior may require much more than parent training in order to be successful.

Challenge: Most parenting interventions have been developed with Caucasian families and some principles or techniques may not generalize well to families of other ethnic backgrounds. Behavioral parent training, and the conceptual models upon which it is based, was developed with mostly intact, middle-class families of European American descent. Little consideration has been formally paid to how cultural factors, including ethnicity and social class, contribute to the development of parenting and the interventions designed to improve it. Indeed, parent training, as it has been described in this article and evaluated in the empirical literature, is based on the assumption that particular parenting behaviors (e.g., positive reinforcement, non-physical punishment) are associated with optimal child and adolescent development. However, little research has been directed to testing these assumptions in diverse ethnic groups. Culture and ethnicity do play critical roles in shaping child-rearing attitudes and practices, and to conduct parenting interventions without being sensitive to the cultural context of parenting leaves clinicians vulnerable to alienating the very families who seek their help (see Forehand & Kotchick, 1996, for a review).

Little is known about the effectiveness of parent training with particular ethnic groups, or what factors best predict success in parent training with ethnically diverse populations. Without such data to guide decisions about treatment for antisocial behavior, practitioners are left with having to evaluate the "fit" between parent training principles and techniques and a particular family's ethnic or cultural approach to parenting. Certainly, the parent training interventions described are left open to some modification based on a family's needs, and practitioners are encouraged to make such modifications if cultural beliefs about parenting clash with the theoretical and practical underpinnings of the parent training programs currently available. In this spirit, we offer the following suggestions based on available literature and our own experiences with implementing parenting interventions in the increasingly culturally diverse United States.

First and foremost, practitioners must have an awareness of the cultural attitudes and practices related to parenting that a family espouses before implementing parent training. Practitioners can learn from their clients by asking questions about parenting beliefs, expectations, and practices during assessment, or by consulting the work of colleagues in other social sciences, including anthropology, sociology, and political science, who have conducted research on parenting in diverse cultures.

Second, aspects of parent training may need to be modified to match parenting beliefs and expectations. For example, in our work with African American families, we encountered substantial resistance to the notion of reinforcing or rewarding children for compliance with parental demands. Many of the African American families with whom we interacted seemed to consider compliance to be an expected behavior, and rewarding such behavior was viewed as undermining a central family theme of respecting authority. We dealt with this issue by changing our language – instead of referring to reinforcement as rewarding, we referred to the practice of overtly showing appreciation for child compliance as "showing your child that you love her" and as a step to building stronger parent-child relationships. We also de-emphasized material, and to some extent, verbal rewards and stressed the importance of non-verbal and social reinforcement (e.g., giving hugs).

Challenge: Other family processes may interfere with the delivery of parenting interventions. In addition to contextual factors outside the family, such as social class or culture, the internal family context may also affect the ability of the practitioner to effectively implement parent training. Factors that may interfere with the delivery of parent training as it has been presented in this article may include intrapersonal functioning (i.e., parental psychopathology) and interpersonal functioning (i.e., marital conflict) within the family context. In terms of parental psychopathology, the best studied construct has been parental depression or depressive symptoms. Although fathers are receiving more attention in recent research, most of the available literature focuses on maternal depressive symptoms and its relation to parenting and parent training outcomes. Maternal depressive symptoms have been found to relate to a number of disrupted parenting practices, including inconsistent or overly harsh discipline, poor responsiveness to children, and

avoidance of conflict (for reviews, see Cummings & Davies, 1994; Goodman & Gotlib, 1999). Parental depression has also been found to negatively relate to parent training outcomes; most notably parental depressive symptoms are associated with premature dropout from treatment (McMahon et al., 1981).

Marital difficulties, particularly conflict between parents, have also been extensively studied in terms of its relationship to parenting (see Emery, 1999; Fincham, 1998) and parent training effectiveness (e.g., Dadds, Schwartz, & Sanders, 1987; Forehand, Griest, Wells, & McMahon, 1982). It has been proposed that conflict between parents may operate through disrupted parenting to negatively effect children's behavior. Parents engaging in high levels of conflict may be less responsive to children's needs, less likely to attend to children's behavior or to provide positive reinforcement, or less consistent in terms of discipline (McMahon & Forehand, 2001). Research concerning the impact of marital conflict on parent training appears to support a long-term, rather than short-term effect; specifically, conflict between parents and low marital satisfaction does not seem to affect immediate outcomes and the conflict may actually show improvement over the course of parent training (Forehand et al., 1982). However, higher levels of marital conflict at the start of parent training have been shown to interfere with maintenance of treatment gains over time (Dadds et al., 1987).

Parental depressive symptoms and marital conflict were included here as examples of the types of family processes that may contribute to child antisocial behavior and to difficulties in implementing parent training successfully. Indeed, there are many other family factors to consider before beginning parent training, including other forms of parental psychopathology (e.g., anxiety disorders), parental substance abuse, parental stress and anger coping skills, and relationships among other family members. To effectively treat problem behavior in children and adolescents, clinicians must first conduct a careful assessment of the family climate. After doing so, the practitioner may decide that parent training is the treatment of choice or, alternately, that it should be deferred until after other family problems are addressed. While there are no firm algorithms to match families with specific interventions, the available literature and our own clinical experience offer the following guidelines to assist practitioners in the treatment planning process.

First, if parental depressive symptoms or marital problems are not severe and/or appear to be related to child behavior or its management, parent training itself may be an effective treatment. Indeed, marital satisfaction scores have improved after parent training, as has parental depression (see McMahon & Forehand, 2001).

Second, parent training may be enhanced to address other family problems, such as parental depressive symptoms or marital distress. Parent Enhancement Therapy was developed by Griest et al. (1982) as an adjunct to Helping the Noncompliant Child (Forehand & McMahon, 1981; McMahon & Forehand, 2001). This program includes components to enhance communication between parents, problem-solving skills, and pleasant activities shared by spouses. These components were intended to target both marital conflict and parental depressive symptoms. Similarly, parent training programs may be modified to include components to address other family problems as well.

Third, if other family problems are severe enough to warrant more immediate or intensive attention, parent training could be conducted concurrently with treatment for the other problems of concern. It is recommended that such treatment be conducted with an independent therapist so that the clinician working on parent training may remain focused on the issues around child behavior and parenting practices.

Finally, if depressive symptoms, marital conflict, or other family problems are very severe (e.g., parent is suicidal; divorce is imminent), it may be better to delay parent training until those problems have received sufficient attention. Parent training is less likely to be effective until these issues are addressed in therapy.

Challenge: Parental expectations of child behavior, and of the therapy process, may interfere with their ability to adhere to the treatment regimen. Engaging families in parent training requires that parents view the intervention as an appropriate and potentially useful one for dealing with their concerns (McMahon & Forehand, 2001). Often parents of noncompliant or antisocial youth arrive at the therapist's door with biased, distorted, or unrealistic expectations or attributions about their child's problem behavior, its causes, their own parenting efficacy, or the therapy process (see Prinz & Miller,

1996). Sometimes, parents have unrealistic expectations about the developmental appropriateness (or inappropriateness) of their children's behavior, or they are so focused on the negative interactions with their child that they ignore or fail to recognize the child's good qualities. In addition, exasperated parents initially may not agree with the philosophy of parent training – here they are, bringing their child to clinician to be “fixed,” and they are told that they have to do all the work!

Assessing, validating, and, when necessary, correcting parents' perceptions of their children's behavior and their expectations of therapy become a critical part of the treatment process. There are several ways to accomplish this. First, ask parents to share their ideas on the nature of their child's behavior, as well as their expectations about what needs to be done to alter it. This assessment will provide important information about “where parents are coming from,” and how much ground they need to cover before skills training may be initiated. Second, parents who hold inappropriate expectations regarding child behavior (e.g., temper tantrums are unacceptable after age 2; young children should be able to follow multiple directions given at one time) should be educated about appropriate developmental expectations. Third, for parents who have become overly focused on the negative aspects of their child's behavior, model recognition and acknowledgement of the child's strengths and assist parents in identifying their child's positive qualities. Fourth, offer an explanation of social learning principles behind parent training techniques—parents who have some understanding of why they are being asked to do certain things and how parent training works may not be as frustrated by the demands placed on them or by setbacks in later sessions.

Challenge: Parents may not comply with the high demands placed on them in most parenting interventions. Success in parent training relies on parents' willingness to comply with homework assignments (e.g., completing behavioral observations at home, practicing skills in between sessions, reading materials that are often lengthy or complex) and regular attendance at sessions for up to several months. Some programs also require frequent telephone contacts with therapists between sessions. Relative to other therapies, behavioral parent training places high demands on parents. The cost paid by parents, though well worth it in the long run, may seem overwhelming at the outset.

Parents' failure to comply with parent training requirements has been the subject of study by Patterson, Chamberlain, and colleagues (e.g., Chamberlain, Patterson, Reid, Kavanagh & Forgatch, 1984; Patterson & Chamberlain, 1988, 1994). Parental resistance, as it has been termed, may occur both within-session (e.g., refusing to perform tasks in session, stated inability to perform) and out-of-session (e.g., failure to complete homework assignments). Contextual variables, such as social disadvantage and parental psychopathology, are associated with initial resistance, and continue to play a role in parental investment in therapy over the long run. According to Patterson and Chamberlain's (1994) “struggle hypothesis,” parental resistance is expected to increase in early sessions, but eventually decrease as parents begin to meet with success in implementing their new skills. However, initial resistance is dangerous; high levels of resistance in the first two sessions of parent training have been associated with subsequent dropout (Chamberlain et al., 1984).

The quality of the relationship between parents and the therapist has been identified as a critical factor in parental compliance or resistance. Research with a family-based intervention for adolescents with conduct problems indicate that relationship characteristics such as affect-behavior integration, warmth, and humor accounted for 45% of the variance in predicting treatment outcome (Alexander, Barton, Schiavo, & Parsons, 1976). In addition, a study by Patterson and Forgatch (1985) revealed that the directive behavior of parent trainers (e.g., teaching and confronting) actually increased parental resistance in session, whereas supportive and facilitative therapist behaviors had the opposite effect. Thus, it is clear that practitioners employing parent training must be able to successfully combine the directive, “teaching” skills intrinsic to behavioral parent training with relationship building skills, such as empathy, warmth, and humor.

Although establishing a collaborative, supportive therapeutic relationship will certainly go a long way in promoting parental investment in treatment, there still remain the practical costs of parent training, including the time demanded by treatment and the expense of attending sessions. Overcoming these barriers, particularly for families most likely to present for treatment (i.e., highly stressed, fewer available resources), can be difficult. However, being creative and flexible often generates potential solutions, such as the following: First, offer

incentives or rewards for progress and compliance in therapy. For example, returning portions of a refundable deposit, engaging in phone calls with clients, and actually conducting treatment sessions can be made contingent on completion of assigned tasks. Alternatively, paying parents a small “parenting salary” upon completion of assigned tasks may increase treatment compliance and reduce dropout, particularly for lower-income families (see Kazdin, 1985). Such a “salary” could involve a small reduction in the weekly therapy fees charged. Second, being flexible in terms of where and when sessions are conducted may increase parental cooperation. As stated earlier, holding sessions at a trusted, local community center or offering services such as transportation or child care may be particularly powerful incentives for parents at high risk for drop out due to the level of competing demands for their time. Finally, employing with parents some of the same techniques they are expected to use with their children (e.g., attending, positive reinforcement) not only models these skills for parents, but also may serve to increase compliance with treatment demands.

Challenge: Because severe antisocial child behavior is more common among families who face a variety of other stressors, therapists may feel incapable of effecting real and lasting change. Parent training has never been characterized as a particularly taxing form of therapy for those who practice it. Indeed, since most of the real effort is made by parents, parent training may even be considered by some to be an “easy” treatment to implement. However, for those who work with severely antisocial youth, burnout is a real issue. Often the odds are stacked against treatment success—families are overburdened or overstressed, or the child’s own behavior makes parenting interventions difficult to administer (i.e., severe antisocial/delinquent behavior). In addition, true treatment success is often dependent upon the presence and strength of family and community supports, forces which are often beyond the control of the therapist.

To counter feelings of powerlessness and exhaustion, practitioners working with severely antisocial youth are encouraged to follow the lead of Linehan and her colleagues, who identified therapist support systems as being critical to success in her dialectical behavior therapy for adults with borderline personality disorder (Linehan & Kehrer, 1993). Additionally, parent trainers can work toward

building a network within the community to implement multi-level interventions. For example, Prosocial Family Therapy, developed by Blechman and colleagues, specifies a close working relationship and treatment involvement among all adults who serve caretaking roles in the target child’s life (e.g., at school, in the juvenile justice system, etc.; see Blechman, 1998).

THE FUTURE: DIRECTIONS IN BEHAVIORAL PARENT TRAINING

This section will serve as a forum for discussing the future directions of parent training research and dissemination. This discussion is directed toward those working in research arenas, and is based in part on the current status of behavioral parent training research and practice. With parent training emerging as one of the best studied child and family treatment approaches (Kazdin & Weisz, 1998; Lonigan, Elbert, & Bennet-Johnson, 1998), researchers now find themselves in a somewhat unique situation—an opportunity to move research objectives beyond establishing efficaciousness in clinical trials. This extension is somewhat uncommon in social and behavioral sciences; however, in other fields, establishing efficaciousness in clinical trials is only one of several steps involved in fully examining a treatment (Duan & Rotheram-Borus, 1999). In the biomedical field, for example, testing for efficaciousness comes after first establishing that programs do no harm (Phase I) and second, might have beneficial effects (Phase II). Then, efficaciousness is established in Phase III trials, after which dissemination trials (Phase IV) begin. Phase IV trials involve implementing treatment under less controlled conditions and exploring how effectively treatment can be integrated into actual treatment settings with a range of providers and with more heterogeneous populations (Duan & Rotheram-Borus, 1999). This step is crucial, as every intervention that has been supported in research has not always been supported in practice (Hughes, 2000; Kratochwill & Stoiber, 2000).

Parent training programs for treating child externalizing behavior are clearly “ready” for Phase IV trials, and in some cases, Phase IV trials are being conducted (e.g., Calzada, Caldwell, & Miller, 2000). In moving beyond clinical trials, it appears that parent training researchers should now focus on three areas: (1) identifying alternative methods of packaging or

delivering parent training programs to diverse families; (2) developing effective methods for training clinicians in established intervention programs; and (3) disseminating programs so that they will reach the necessary audiences.

Packaging and Delivering Interventions

A longstanding concern of both researchers and clinicians has been how to best “package” programs so that they are accessible to families who do not traditionally present for treatment in clinics and mental health centers. In research studies, treatment is typically administered either by individuals with graduate degrees in clinical psychology or by individuals who are highly trained in treatment delivery. Research is needed to determine how treatment might be implemented in settings (e.g., schools, social service agencies, housing authorities) where parents are already involved and which are administered by individuals with whom the parents are already familiar. As an example of the type of research needed, Laurie Miller and her colleagues (Calzada, Caldwell, & Miller, 2000) are currently evaluating ParentCorps, which is a parent training program administered by individuals from the communities in which the participating parents reside. Training for facilitators is time-consuming and intensive, as they have varying levels of experience in working with families and acting in leadership roles. However, these facilitators will likely have the best chance of success in engaging parents and quickly establishing rapport. The outcomes from projects such as this one will begin to provide some answers to questions about community implementation of parenting programs.

In addition, it is likely that treatment in community settings will progress quite differently from the standard 12 weekly one-hour sessions that occur in clinics. In our experience, attempting to adhere to 12 one-hour sessions can be a challenge even when working with middle-class families in the structured environment of the clinic. Research is needed to determine how both the treatment pace and didactic skill delivery may need to differ from that of the clinic when implemented in community settings. It is often unreasonable to expect that low-income families can commit to three months of weekly sessions at the same time each week due to irregularity of times when they may be working and previously mentioned challenges such as difficulty obtaining childcare and transportation. With highly-

stressed families, it may be necessary to distill the information taught in a parenting program and focus only on a few “effective ingredients.” While we recognize these challenges to treatment, as scientist-practitioners we also recognize the need for systematic research that will identify those crucial skills or pieces of knowledge that parents must know to adequately modify their children’s behavior.

Other potential options for the delivery of interventions include utilization of the less intensive treatment methods mentioned previously, including group interventions (e.g., Long & Forehand, 2000), books (e.g., Forehand & Long, 2002), videos (e.g., Forehand, Armistead, Neighbors, & Klein, 1994; Webster-Stratton, 1996), and computer-based programs (e.g., Kacir & Gordon, 1999), and these options are in need of further empirical validation. While traditional therapist-client interventions are quite successful, the costs of one-on-one treatment are relatively high. Alternatives deserve consideration, as they offer several benefits that may make them worthwhile if one-on-one treatment is not realistic or otherwise possible. For example, while parents in a group setting may not receive as much individual therapist attention, they may benefit significantly from interacting with other parents experiencing similar difficulties with their children. Books, as noted earlier, can be used either independently or as a supplement to traditional interventions. Computer-based programs are a more recent innovation; however, at least one such program has met with empirical support and successful outcomes. *Parenting Wisely* (<http://www.familyworksinc.com>), developed by Donald Gordon, is an interactive and self-administered CD-ROM program that requires no outside intervention in order to be implemented (Kacir & Gordon, 1999). Clearly, more research attention is needed to evaluate programs such as these, both as stand-alone interventions and as a way to augment more traditional parenting interventions.

Training Clinicians.

In order for programs to be implemented smoothly by practitioners, they need to be packaged in a way that allows for thorough assimilation of the skills by the therapist. However, determining the most thorough method of instruction must also be balanced by considerations regarding monetary costs and the time required to learn the programs. Treatment manuals, which most programs provide, are quite thorough and low-cost but may involve

time-intensive self-study and do not provide opportunities to have questions answered or to obtain supervision and feedback on implementation. Workshops, which some programs offer, provide intensive training on the material covered in the treatment manuals and typically offer opportunities to role play skills and even obtain feedback on skill use, but are usually costly and may require travel. One option that complements the training manuals involves videos of therapists conducting each of the parent training sessions with a family (e.g., Forehand et al., 1996). These videos are useful both for clinicians and for parents as both can see how treatment will likely progress. Further efforts could be made toward developing more interactive strategies for training clinicians in behavioral parent training programs.

Disseminating Programs.

As in most fields, becoming highly skilled in treatment outcome research requires a high level of devotion and commitment to that one area. Unfortunately, the skill set for conducting research does not translate well into the field of marketing: those who do an excellent job of developing and testing treatments typically do a poor job of promoting them outside of the traditional academic outlets. In fact, the skills required for effective marketing can almost be considered contradictory to the skill set typically held by researchers. Research findings about empirically supported programs need to be translated into succinct, easily readable, and engaging summaries that do not resemble results sections of research papers. Programs need recognizable logos, descriptive names, and attractive brochures and handouts. Furthermore, either the researcher, or someone knowledgeable about the program, needs to focus on attending conferences for practitioners and obtaining interviews on talk shows and in magazines that will reach the target audience of program consumers (e.g., practitioners, parents).

For empirically supported programs to be implemented by practitioners, they have to be readily available and accessible. Even when a particular program's efficaciousness is presented in a scientific journal, information is rarely included regarding how the program manual might be obtained. Including this information would be a relatively easy step for researchers. In addition, more efforts need to be made to use web resources, practitioner-focused

conferences, mailings, and state and local psychology associations to disseminate programs.

In addition to the need for clinical researchers to better promote and disseminate their programs, there clearly is a need for a more open avenue through which clinicians implementing parent training programs in the "real world" can communicate with researchers any difficulties they encounter. As the individuals most familiar with the treatment, they can then partner with researchers in developing solutions similar to those presented in the challenges section of this chapter. However, it would also be beneficial for clinicians to be more involved in the research process so that these parent training programs can be better fitted to real-world practice. One potential path for this involvement is for clinicians using empirically supported parent training programs to submit case studies of treatment implementation in journals that specialize in issues related to clinical treatment, such as Cognitive and Behavioral Practice or Clinical Case Studies.

As this discussion suggests, much is left to be done in the field of parent training research. If empirically validated programs are going to be implemented in "real world" practice, researchers must find ways to accomplish the goals of improved dissemination and marketing of their products. One potential avenue involves researchers themselves developing skills in dissemination and marketing. However, this investment may be prohibitive, both in terms of financial cost and time. A second avenue involves partnering with a company or organization that specializes in marketing and dissemination, or hiring a consultant who is more expert in marketing.

CONCLUDING COMMENTS

Clearly, parent training has a long history which establishes it as one of the best studied and most effective interventions for childhood and adolescent problem behavior (Alvarado et al., 2000; Brestan & Eyberg, 1998; Kazdin & Weisz, 1998). The basic model of parent training provides a format for intervening with mild to severe behavior problems, and has proven to be flexible and adaptable in a wide range of clinical settings (e.g., Calzada, Caldwell, & Miller, 2000; Griest et al., 1982) and to a wide variety of child difficulties beyond acting-out behaviors (see Wells, 2001, for a review). While its core principles and methods have been supported as both efficacious and modifiable, several challenges

remain to be conquered. As we have discussed, clinicians and researchers face important tasks in furthering the development of parent training. Specifically, clinicians and researchers must find avenues through which they may collaborate more easily to remedy and refine aspects of implementation beyond laboratory walls. Researchers are charged with identifying viable and efficacious alternatives for delivery, including the exploration of the potential offered by the internet and other computer-based intervention modalities. Further research is sorely needed to identify the best options for dissemination, marketing, and training of practitioners so that empirically validated parent training approaches are utilized with those families who need them. Parent training may be in the enviable position of being a well-established and widely utilized program, but, in the ever-evolving social and political climate of modern society, there is always more work to be done.

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PARENT-CHILD INTERACTION THERAPY: CAN A MANUALIZED TREATMENT BE FUNCTIONAL?

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Parent-Child Interaction Therapy (PCIT) is a manualized treatment that contains two separate phases with certain skills (e.g., praise) that are taught to all clients. PCIT has been criticized in the behavior analytic literature for being an approach that is not individualized for each client, that does not use functional assessment, and that does not provide functional alternatives for behaviors. This paper will address each of these criticisms and provide evidence that a manualized treatment can be functional. Specifically, PCIT is an individualized treatment that is consistent with applied behavior analytical principles. For example, PCIT includes informal functional assessment, uses data to guide treatment, teaches functionally equivalent behaviors, and addresses generalization. Moreover, PCIT addresses each of these areas with the parent as well as the child.

Parent-Child Interaction Therapy (PCIT; Eyberg & Boggs, 1989; Hembree-Kigin & McNeil, 1995) is a manualized treatment that is based on behavioral principles (Greco, Sorrell, & McNeil, in press). However, because PCIT is manualized, it has been criticized as being a “packaged approach” that does not allow for individualization using applied behavior analytic techniques (e.g., functional assessment) (James & Scotti, 2000). This paper will address these criticisms using the following structure. First, the therapeutic skills used in PCIT will be discussed. Next, criticisms of PCIT will be examined. Finally, the behavioral strategies and applied behavior analytic features that are included in PCIT will be presented.

Parent Child Interaction Therapy

PCIT (Eyberg, 1988; Eyberg & Boggs, 1989; Hembree-Kigin & McNeil, 1995) is designed for children ages 2 to 7 and is modeled after the Hanf (1969) two-stage operant model for behavior modification of young, noncompliant children. PCIT does not differ greatly from the Hanf model in terms of general structure. For example, both the parent and child participate in treatment, which takes place in the context of behavioral play therapy. During sessions, the therapist observes parent-child interactions from behind a one-way mirror while the parent wears a

bug-in-the-ear device, a small ear phone worn by the parent trainee that allows the therapist to communicate discretely via microphone with the parent throughout the session. The therapist is thus able to give the parent immediate feedback on the use of parenting skills. In the absence of bug-in-the-ear technology, sessions also may be conducted with the therapist in the room. When using this method, the therapist is present in the room and does not interact with the child. The therapist provides feedback to the parent, just as would be done when coaching from behind the mirror.

PCIT begins with an intake session in which the therapist obtains important information by conducting a behavioral assessment. The information obtained includes: (a) parent reports of child behavior (e.g., Eyberg Child Behavior Inventory [ECBI; Eyberg & Ross, 1978], Child Behavior Checklist-Parent Report Form [CBCL; Achenbach, 1991]), (b) parent self report of parenting stress (i.e., Parenting Stress Index [PSI; Abidin, 1990]), (c) teacher report of child behavior (e.g., Sutter-Eyberg Student Behavior Inventory [SESBI; Eyberg & Pincus, 1999], Child Behavior Checklist- Teacher Report Form [TRF; Achenbach, 1991]), and (d) behavioral observations of interactions using the Dyadic Parent-Child Interaction Coding System (DPICS; Robinson & Eyberg, 1981). Data continue to be collected throughout treatment. Specifically, observational data are collected during each session to monitor treatment progress. This information is shared with the parents as a means of providing feedback on their acquisition of the skills. If the data suggest that the parents are having difficulty with particular skills, the therapist can then choose to focus on those skills during the coaching session. This also provides an opportunity

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for the therapist to present the parents with positive feedback for improvement in targeted skills.

The first stage of PCIT, Child Directed Interaction (CDI), is introduced to the parents during a didactic session without the child present. Subsequent CDI sessions consist of practicing and coaching the CDI skills for approximately 4-7 weeks, depending on the rate of skill acquisition. During the CDI didactic, the parents are taught to use differential reinforcement to modify child behavior by providing positive attention for appropriate behavior (e.g., playing gently with the toys) and withdrawing attention for inappropriate behavior (e.g., throwing toys across the room). In PCIT, these skills are referred to as strategic attention and selective ignoring. Ignoring involves having the parent terminate eye contact and verbal attention, while physically turning away from the child and maintaining a neutral facial expression. The parent is instructed to let the child lead the play in order to increase the likelihood that they will exhibit appropriate behavior and provide an opportunity for the parent to reinforce that behavior. In order to permit the child to lead the play and set a positive tone for the interaction, parents are educated on how to avoid using questions, criticisms, and commands. In addition, parents are taught to use behavioral play therapy skills as a means to provide positive attention and improve the parent-child relationship. These skills comprise the acronym, *PRIDE* (i.e., praise, reflection, imitation, description, and enthusiasm) and are used to increase the amount of positive behavior in the parent-child interaction and to provide the child with positive reinforcement for behaving appropriately.

Throughout the CDI phase, parents are given the homework of playing with their child for five minutes a day while practicing their play therapy skills. Parents are also given a homework sheet to monitor their practice and any problems. In order to move on to the next phase, parents must reach “mastery criteria” with the use of their skills. To achieve “mastery criteria” a parent must use 15 praises, 25 descriptions and reflections, and almost no questions, commands, or criticisms during a 5-minute interaction with their child. The “mastery criteria” are important for getting parents to over-practice these skills, leading to new parenting habits that are maintained across time through behavioral momentum and contact with natural contingencies. See Table 1 for an example of a typical CDI coaching

session in which the parent uses strategic attention and selective ignoring to manage disruptive behavior.

After the parents have attained “mastery” of the CDI skills, the Parent Directed Interaction (PDI) phase begins. Similar to CDI, PDI is introduced during a didactic session without the child present. The PDI didactic then is followed by approximately 6-8 weeks (depending on skill acquisition) of practicing and coaching the PDI skills. PDI targets child compliance more directly than CDI, providing a time-out consequence for noncompliance to parental instructions. During PDI, the parent is directed to lead the play and is taught three basic skills to manage misbehavior: (a) giving effective commands, (b) rewarding the child for exhibiting compliant behavior (e.g., specific praise, playtime), and (c) punishing the child for exhibiting noncompliant behavior. Parents are taught a specific and predictable time-out sequence to use as a consequence for noncompliance with parental commands and house rules.

The first component of PDI is teaching parents how to provide effective instructions. Specifically, effective instructions are defined as having the following characteristics: direct, positively stated, simple, specific, given in a neutral tone of voice, polite, developmentally appropriate, and used only when necessary. Once the parents have obtained this skill, they learn to distinguish between compliance and noncompliance and to respond accordingly. For example, if the child engages in compliant behavior, parents are taught to reinforce that behavior by providing a labeled praise (e.g., “Thank you for listening.”) and continuing with behavioral play therapy. If the child engages in noncompliant behavior, the parent holds up two fingers as a visual signal and gives two choices: comply with the original instruction or receive a punishment in the form of time out. If the child exhibits compliant behavior at this point, the parent responds with enthusiastic labeled praise. If the child does not exhibit compliant behavior, the child goes to time out.

Typically, time out takes place in a chair and lasts for 3 minutes. There should be no attention or stimulation involved in the time-out procedure. The parent is instructed to not engage the child (i.e., verbally or physically) during time out and the time out is conducted out of reach, and often out of view, of stimulation (e.g., toys, television). After 3 minutes in the chair, the parent waits for 5 seconds of silence

before asking the child if he or she is ready to comply with the original command. When the child indicates a willingness to comply, the child comes back to the table and the parent waits for the child to comply. If the child complies, the parent acknowledges the child's behavior by saying, "Okay." The parent does not praise the child at this point in order to avoid reinforcing the child's choice to go to time out. The child is then given a second command in order to over-practice compliance. Time out is not terminated

minutes. If after 20 minutes the child still is not choosing to comply with the original command, the parent is instructed to physically guide the child to comply with the command. If the child will not sit in the time-out chair, a back-up consequence is used. For example, a back-up room (e.g., a clinic room without any toys or furniture) can be used. After a child escapes from time out the first time, a warning is given: "If you get off the chair again before I tell you to, you will go to the back-up room." The time-out

Table 1

A Clinical Example of Strategic Attention and Selective Ignoring	
DIALOGUE	EXPLANATION
Parent: I really like how you're cutting those circles out of the play dough. I think I'm going to try that, too. (Parent reaches toward child to take some play dough)	Parent labeled praise followed by imitation
James: (grabs the play dough and pushes it off of the table)	Child engaged in inappropriate behavior
Coach: Okay, we're going to ignore that. Go ahead and turn around with your back to James.	Coaching the parent to ignore inappropriate behavior
Parent: (turns around with back facing child) Coach: That's it, great job ignoring. Okay, James is settled down. Turn back around and give James a praise for playing nicely with the toys and keeping them on the table.	Parent is ignoring the child Coaching the parent to return attention when child is behaving appropriately
Parent: Thank you for playing so gently with the toys and keeping them on the table, James.	Parent labeled praise for appropriate behavior
Coach: Great labeled praise.	Parent is praised for praising child
Parent: You are making a really neat flower. I'd like to make one just like you. (Parent reaches toward child to take some play dough).	Parent labeled praise followed by imitation
James: (continues playing with play dough)	Child allows parent to take some play dough
Coach: Tell James, "Thanks a lot for sharing, James. I really like it when you share your toys with me."	Coaching the parent to provide a labeled praise for sharing
Parent: Thanks for sharing, James. I really like it when you share your toys with me.	Parent labeled praise for sharing
Coach: That was a great praise.	Parent praised for praising child

until the child exhibits compliant behavior with the original instruction. However, the total amount of time spent in time out should not be longer than 20

minutes. The procedure is role-played in advance with both the parent and child to ensure that they understand the rules and expectations.

During PDI, parents are asked to continue the CDI homework and to add in homework related to use of the PDI skills. First, the parents start with “minding exercises” during which they issue commands to the child during 10 minutes of play therapy. These should be easy commands that the child is likely to comply with. Once the child is consistently complying with these “play” commands, the parents return to doing 5 minutes of play therapy per day with no commands and begin to practice using 3 to 5 “real-life” commands during other parts of the day (e.g., “Please bring me your coat”). Once the parent and child are successful, the parent begins using the commands and associated time-out consequence throughout the day. PCIT typically continues until the child’s presenting problems improve to within normal limits (according to standardized measures and behavioral observation).

PCIT and Applied Behavior Analysis

Despite the apparent push from professionals and reimbursement agencies to develop and widely disseminate time-limited therapies with proven efficacy (see Task Force on Promotion and Dissemination of Psychological Procedures, 1995), manual-based interventions, like PCIT, often are evaluated critically and referred to as “cookbook” approaches in which all clients receive the same assessment and treatment (e.g., Garfield, 1996; Kendall, 2001; Strupp & Anderson, 1997). PCIT specifically has been criticized for (a) being “parent-focused” (b) relying heavily on eliminative (e.g., time out) rather than educative (e.g., skills training) techniques (e.g., Lutzker, 1994), (c) being devoid of functional assessment methodologies, (d) being insensitive to the ideographic needs of targeted clientele, and (e) relying heavily on parent-report measures, normative comparisons, and between-subject comparisons to determine treatment efficacy (James & Scotti, 2000). Yet, therapists and researchers who conduct PCIT view the treatment very differently. For example, Greco et al. (in press) illustrate the behavioral foundations of PCIT, suggesting that “PCIT cannot be regarded as a ‘standardized’ treatment unless it is viewed incorrectly (i.e., structurally) as a ‘collection of techniques’ devoid of a coherent theoretical basis” (p. 15).

In this paper, features of PCIT that are consistent with the principles of applied behavior analysis are highlighted. In particular, the following

four hallmarks of applied behavior analysis will be discussed: (a) conducting functional assessment, (b) using data (e.g., behavior rates, graphs) to guide treatment, (c) addressing functional equivalence to avoid symptom substitution, and (d) promoting generalization (e.g., Baer, Wolf, & Risley, 1968; Carr & Durand, 1985; Chance, 1998; Cooper, Heron, & Heward, 1987). Although it may not be readily evident, each of these characteristics is a part of PCIT. And, PCIT is somewhat unusual in that it addresses each of these areas with both children and parents.

Functional Assessment

Some authors (e.g., James & Scotti, 2000) have suggested that manualized treatments, such as PCIT, do not contain functional assessments. These authors are accurate in that PCIT does not contain a traditional functional assessment component. However, a nontraditional form of functional assessment commonly is completed before treatment begins, and assessment continues consistently throughout treatment, guiding the therapeutic activities of each session and affording the therapist feedback on whether the results of their informal functional assessment is valid. At pre-treatment, the clients’ (i.e., parent and child) behaviors are observed and evaluated during three conditions: child-directed interaction, parent-directed interaction, and clean up. During these situations, the therapist defines the target behaviors (e.g., whining, noncompliance) and obtains information regarding possible functions of these behaviors using the DPICS (Robinson & Eyberg, 1981). Specifically, antecedents (e.g., commands) and consequences (e.g., physical, criticism, ignoring) of the target behaviors are coded using the DPICS. Target behaviors and functional relations also are identified by unstructured interviews with the parents and teachers, and behavioral observations in the classroom using the Revised Edition of the School Observation Coding System (REDSOCS; Jacobs et al., 2000).

Informal functional assessments also are conducted during treatment sessions. Specifically, for the first 5 minutes of every session, behavioral observations of the targeted behaviors are done using DPICS. This is considered an informal functional assessment because the therapist has an opportunity to observe the targeted behaviors in a semi-natural context to develop hypotheses about antecedents and consequences that may be maintaining the behaviors.

One disadvantage of using the DPICS is that clinical coding involves only frequency counts of various behaviors (e.g., # of praises), rather than a time-series account of the relationship between a particular child behavior and an associated parent behavior (e.g., child shares toy, parent praises, child shares toy again). In other words, the current clinical use of DPICS does not allow for the direct assessment of relationships between antecedents, behaviors, consequences, and setting events. Recognizing this limitation of the coding system, current attempts are being made in PCIT research to use sequential analyses to determine the relation between parent behavior and child responses (e.g., Borrego & Urquiza, 2000).

In addition to using DPICS, PCIT therapists actively explore functional relationships among behaviors by systematically manipulating antecedents and consequences during coaching sessions. For example, if a child whines, the therapist may instruct the parent to turn and ignore the child's behavior, which may be the opposite of the parent's typical response (e.g., yelling). Following this manipulation, the therapist observes the child's behavior to determine if social reinforcement is playing a role in maintaining the whining. Another example of an informal functional assessment would be manipulating a child's access to a tangible reward. If a child was screaming at a parent to "Give me that crayon, now!" the therapist might coach the parent to actively withhold the crayon using the following prompt: "When you say ask nicely, then I will hand you the crayon." By coaching the parent to give a different consequence than is customary, the therapist is exploring the hypothesis that bossy behavior is maintained at least in part by receiving the desired tangible reward. The therapist would then observe the child response to determine whether bossiness decreases and asking nicely increases with this particular set of contingencies. Brief, informal functional assessments like these are conducted continuously throughout each PCIT coaching session. These manipulations provide information about the antecedents and consequences that best promote targeted behavioral change in parents and children.

Although the therapist informally tests functional relations by coaching the parent to exhibit certain behaviors and observing the child's associated response, formal functional analyses (e.g., McCue & Pramuka, 1998) are not included in PCIT, primarily because of time constraints. Children referred to PCIT display approximately 23 separate behavior problems

as measured by the ECBI (e.g., McNeil, Capage, Bahl, & Blanc, 1999; McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991). To conduct 23 functional analyses before beginning treatment for behaviors like whining, screaming, tattling, running away, using profanity, and spitting would require months of intensive work.

In PCIT, this type of extended assessment to establish function is viewed as less important than beginning the change process. After all, most of the problem behaviors exhibited by children with disruptive behavior disorders serve two primary functions: attention and task avoidance (Luiselli, 1991; Hembree-Kigin & McNeil, 1995). The CDI and PDI phases of PCIT are designed to address each of these functions respectively. For example, during the CDI phase, behaviors that function to receive attention for the child are targeted in treatment (e.g., parents are instructed to ignore attention-seeking behavior), and during the PDI phase, behaviors that function to avoid tasks for the child are targeted in treatment (e.g., children must comply with parental commands and cannot avoid tasks). Occasionally, it is determined that the function of the child's behavior is not attention or task avoidance (e.g., to get a tangible reward), and in these situations, the treatment is modified for the individual child in order to address the problem behavior. For example, if a child has a problem with stealing, then a supplemental program to treat stealing behavior would be added to the traditional PCIT program. Thus, the two stages of PCIT (CDI and PDI) work on behaviors that function to obtain attention or avoid tasks. The informal functional manipulations conducted during coaching sessions provide information about behaviors that are not responding to ignoring and compliance training. These behaviors, which appear to serve functions other than attention-seeking, or task avoidance are assessed individually in a more formal way at the end of treatment and addressed with individualized treatment components. In addition to stealing, examples of behaviors that may need additional assessment and treatment after the CDI and PDI phases are completed include encopresis/enuresis, sleep difficulties, separation problems, and social skills deficits.

Using Data to Guide Treatment

As discussed earlier, behavioral observations are conducted during the first 5 minutes of every treatment session using the DPICS. The resulting data

are used to determine which behaviors are targeted and manipulated during coaching. For example, suppose a child engages in frequent out-of-seat behavior that results in negative attention from the parent. The therapist may want to prevent the problem behavior with an antecedent manipulation, instructing the parent to keep the child's chair pushed under the table. In addition, if the parent provides negative attention to inappropriate behavior (e.g., child noncompliance results in parental yelling), the therapist may attempt to induce noncompliance by instructing the parent to provide challenging commands to the child. If the child engages in noncompliant behavior, the therapist then would attempt to modify the typical consequence by instructing the parent to behave in a calm and neutral manner and follow-through with a structured time-out procedure.

As stated previously, PCIT is modified to address target behaviors that do not function as attention-seeking or task-avoidant behaviors. This information, then, is used to guide treatment. For example, suppose that a child repeatedly leaves the table full of toys in order to run in circles until she becomes dizzy and falls down. If the parent has been coached to systematically provide attention for sitting at the table and systematically ignore running in circles, the therapist might conclude that the function of the running around in circles behavior is to obtain high levels of stimulation, not to obtain attention. In this case, the therapist might modify treatment to have shorter sessions, or to provide new, highly stimulating toys to the child every few minutes to increase the stimulating value of the session. Alternatively, the therapist could prevent the behavior by coaching in a smaller room. Thus, it is evident that PCIT therapists individualize treatment for clients by using the data that are gathered throughout treatment.

A hallmark of PCIT is using data obtained throughout treatment to determine when to move on to the next phase of treatment (Bahl, Spaulding, & McNeil, 1999). For example, when the parent reaches the pre-established "mastery criteria" and the child has a positive response to the CDI skills (Hembree-Kigin & McNeil, 1995), the family moves on to the PDI phase of treatment. Sometimes the therapist modifies the criteria for a particular family because of individual circumstances (e.g., parental mental retardation, need to shorten the treatment because of insurance requirements). In such cases, within subject comparisons of skill acquisition are used to determine

when the family should move to the next phase. To facilitate knowledge and acquisition of certain target behaviors (e.g., praise), the beginning of each session is characterized by presentation of graphs displaying skill acquisition during previous sessions. These graphs are used to provide feedback to the parent and to determine which behaviors should be targeted during the current session. For example, if the parent only engaged in infrequent praise of the child's appropriate behavior, and often engaged in criticism of the child's inappropriate behavior, then the therapist would suggest that increasing praise and decreasing criticisms should be targeted in the current session.

Data also are used to determine when therapy should be concluded. Termination typically does not occur until the intensity of the disruptive behavior exhibited by the child is within normal limits according to a standardized measure like the ECBI (Eyberg & Ross, 1978). Using normative comparisons to make treatment decisions has been criticized by some applied behavior analysts (e.g., James & Scotti, 2000). Yet, PCIT's inclusion of both individualized assessments (e.g., weekly observational coding) and normative comparisons could be viewed as a strength of this approach. An increasing trend in outcome research calls for the consideration and documentation of socially valid outcomes. This often involves demonstrating that the client exhibits behavior considered to fall within a "normal" or subclinical range of functioning (see Jacobson & Truax, 1991). Utilization of psychometrically sound measures to make normative comparisons is one method of documenting socially valid outcomes (Kazdin, 1988). A strength of PCIT is that decisions about progressing through treatment and terminating therapy are based on objective data, not just personal opinions.

Functional Equivalence

Another criticism of PCIT has been that functional equivalence is not incorporated into this manualized treatment (James & Scotti, 2000). Specifically, it has been suggested that PCIT is primarily eliminative in its nature (e.g., eliminating parental criticism and child noncompliance) and that functionally equivalent behaviors are not taught (James & Scotti, 2000). It has been argued that PCIT's lack of an educative focus increases the chances that symptom substitution will occur (i.e.,

another functionally equivalent behavior problem will arise; e.g., Chance, 1998).

However, an integral part of PCIT is teaching functionally equivalent behaviors (McNeil, Clemens-Mowrer, Gurwitsch, & Funderburk, 1994). For example, parents are instructed to provide attention to appropriate behavior and to ignore inappropriate behavior exhibited by the child. Thus, parents teach the child that the consequence of targeted appropriate behaviors (e.g., playing gently with toys) is attention, and the consequence of targeted inappropriate behaviors (e.g., throwing toys) is the absence of attention. In other words, children are provided with a new behavior that will serve the same function (i.e., attention). In addition, PCIT therapists instruct parents to engage in labeled praise and modeling to increase appropriate behaviors. For example, if a child is engaging in aggressive play (e.g., sheep are biting each other), the therapist would instruct the parent to remove attention for rough play while modeling appropriate gentle play (e.g., The father ignores the child while playing with his own sheep: "This is a nice sheep. He is throwing the ball to his friend. The sheep are having fun playing together"). This manipulation typically results in the child engaging in gentle play. Then, the parent would be instructed to turn back to the child and provide positive attention, in the form of labeled praise, as a consequence for prosocial behavior (e.g., "Great job playing gently with the toys.").

Children also are encouraged to engage in positive, functionally-equivalent, behaviors through the use of demonstrations and explanations of rules. Specifically, before the beginning of each session, the parent is instructed to remind the child of the rules of the session (i.e., which behaviors will be reinforced and punished). The parent also demonstrates the consequences associated with the child exhibiting these behaviors. At the beginning of a coaching session, the parent might be coached to say the following to the child: "Now we are going to have special playtime. You can play with any of the toys on this table. When you stay in your chair and play gently with the toys, I will play with you. But, if you get up and run around or play roughly with the toys, I will turn around like this (parent demonstrates) and play all by myself. Great job of sitting in your chair and playing nicely with the toys. Now, I get to play with you!" Through this type of rule explanation and obtaining attention for alternative behaviors, children are taught which functionally equivalent behaviors

will obtain attention (e.g., sharing, asking nicely, being patient, working hard on a puzzle, using an inside voice).

Functionally equivalent behaviors also are taught to parents. For example, suppose the therapist wants to reduce parental use of questions because it is preventing the child from leading the conversation (e.g., "Did you draw a house?"). Yet, the parent's use of questions is serving the function of giving attention to the child. The therapist could coach the parent to use one of the PRIDE skills as a functionally equivalent alternative. In this example, parents can be instructed to *praise* (e.g., "Wow! You drew a wonderful red house!"), or *describe* (e.g., "You are drawing a red house") child behavior instead of asking questions.

Whereas children are taught many alternative behaviors for receiving attention during the CDI phase of treatment, functionally equivalent behaviors for task avoidance are not taught during PDI. One of the main concerns of parents with children with disruptive behavior problems is that they engage in noncompliant behavior to avoid, delay, or escape from an aversive task. Thus, functional alternatives for escape and avoidant behaviors are not taught or reinforced in PCIT. Instead, parents are instructed to provide very immediate and consistent consequences for task avoidance to teach children that they will not be able to avoid tasks. For example, parents are taught to use an effective time-out procedure to increase compliant behavior and decrease task-avoidant behavior. Opponents of time out have suggested that time out is inappropriate for behaviors that serve the function of task avoidance because it allows children to choose time out as a way of escaping an aversive task (e.g., Lutzker, 1994). However, in PCIT, the opportunity for the child to avoid the task is removed because time out does not end until the child completes the original task. Therefore, the time-out procedure used in PCIT is not functionally equivalent to task avoidance.

Although the time-out procedure is very structured, the procedure is individualized for particular clients (Greco, Filcheck, Herschell, & McNeil, 2000). For example, the time that the child is required to sit in the time-out chair (i.e., 3 minutes) may be modified. Greco et al. (2000) provided suggestions for shaping sitting behavior in the time-out chair. Specifically, children who cannot sit for the entire 3-minute period may begin with a shorter time

out that is gradually increased when appropriate sitting behavior is exhibited consistently. Additionally, each time out is observed and instructed by the therapist who makes modifications during the procedure in response to the exhibited behaviors.

Generalization

Several authors (e.g., Baer et al., 1968; Cooper et al., 1987) discuss generalization as an important characteristic of applied behavior analysis. PCIT includes many generalization components to ensure the continuation of treatment effects in the natural environment after treatment is withdrawn. One way in which PCIT therapists attempt to ensure generalization is to include several of the child's caregivers in treatment. For example, PCIT allows for the inclusion of parents, grandparents, baby-sitters, and preschool teachers in treatment to strengthen generalization. Another way in which generalization is obtained in PCIT is through homework (i.e., positive practice) that is assigned to the clients at the end of each session. PCIT includes positive practice in natural settings, such as the home and other public settings (e.g., grocery store, mall, friend's house). In addition, toward the end of treatment, coaching sessions are conducted in natural settings to provide the parents with feedback concerning the use of targeted parenting skills in the natural environment.

Throughout PCIT, the targeted behaviors (e.g., praise, compliance) exhibited by the parent and child are over-trained through positive practice to ensure that these skills become "habits." For example, parents are taught to describe 25 appropriate behaviors exhibited by the child during a 5-minute interval, and children engage in compliance exercises until they exhibit compliance as a response to every parental command (physical guidance may be used if necessary). The over-training that occurs as a result of positive practice aids in generalization.

Generalization also occurs as a result of fading the amount of directive coaching that is used. Specifically, at the beginning of treatment, the therapist provides very direct, frequent, and consistent feedback to the parent concerning his or her behavior. However, as treatment progresses, the therapist's feedback is faded out, such that the amount of directive coaching is diminished and only intermittent feedback is provided toward the end of therapy. This fading procedure aids in generalization because the parent becomes less dependent on therapist feedback

and learns to engage in the targeted behaviors without assistance. Several studies have found that the improvements from PCIT generalize to the home (e.g., Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998) and school (Funderburk, Eyberg, Newcomb, McNeil, Hembree-Kigin, & Capage, 1998; McNeil, et al., 1991) settings. Treatment effects also have been found to generalize to untreated siblings (Brestan, Eyberg, Boggs, & Algina, 1997; Eyberg & Robinson, 1982) and to maintain over time (e.g., Eyberg, Funderburk, Hembree-Kigin, McNeil, Querido, & Hood, in press).

Summary

In conclusion, PCIT is a manualized treatment that contains two phases, CDI and PDI, which every client receives. In these phases, each client learns the same skills (e.g., praise, description), and the therapist coaches the client in the use of these skills. Because of this "packaged approach," some authors (e.g., James & Scotti, 2000) have criticized parent training programs such as PCIT for not including some of the best practices that have come from the field of applied behavior analysis. However, PCIT is a treatment that contains many characteristics of applied behavior analytic treatments (McNeil, 1996). Therapists using PCIT conduct informal functional assessments, use data to guide treatment, attend to functional equivalence, and promote generalization. Additionally, PCIT is individualized to each client, and particular attention is paid to understanding the function of behavior and systematically coaching parents and children through behavioral manipulations in which new replacement behaviors are practiced and tested. Therefore, even though PCIT is a manualized treatment, it also has a strong behavioral foundation, including many of the core components of applied behavior analysis.

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THE ROLE OF INEFFECTIVE DIRECTIVES IN THE
DEVELOPMENT OF EARLY CHILDHOOD “NONCOMPLIANCE”

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We provide a conceptual model for understanding the role of stimulus control within directives and a rationale for the use of experimental analysis methodology to assess the effects of task directives on the accuracy of task completion and the early development of noncompliance in young children. An overview of the interaction between organism variables (e.g., skill deficits such as language disorders), idiosyncratic histories of reinforcement during demand situations, and the specific type of directive used during demand situations will be discussed along with a brief review of relevant studies. Some directions for future research on early childhood noncompliance and related behaviors are discussed.

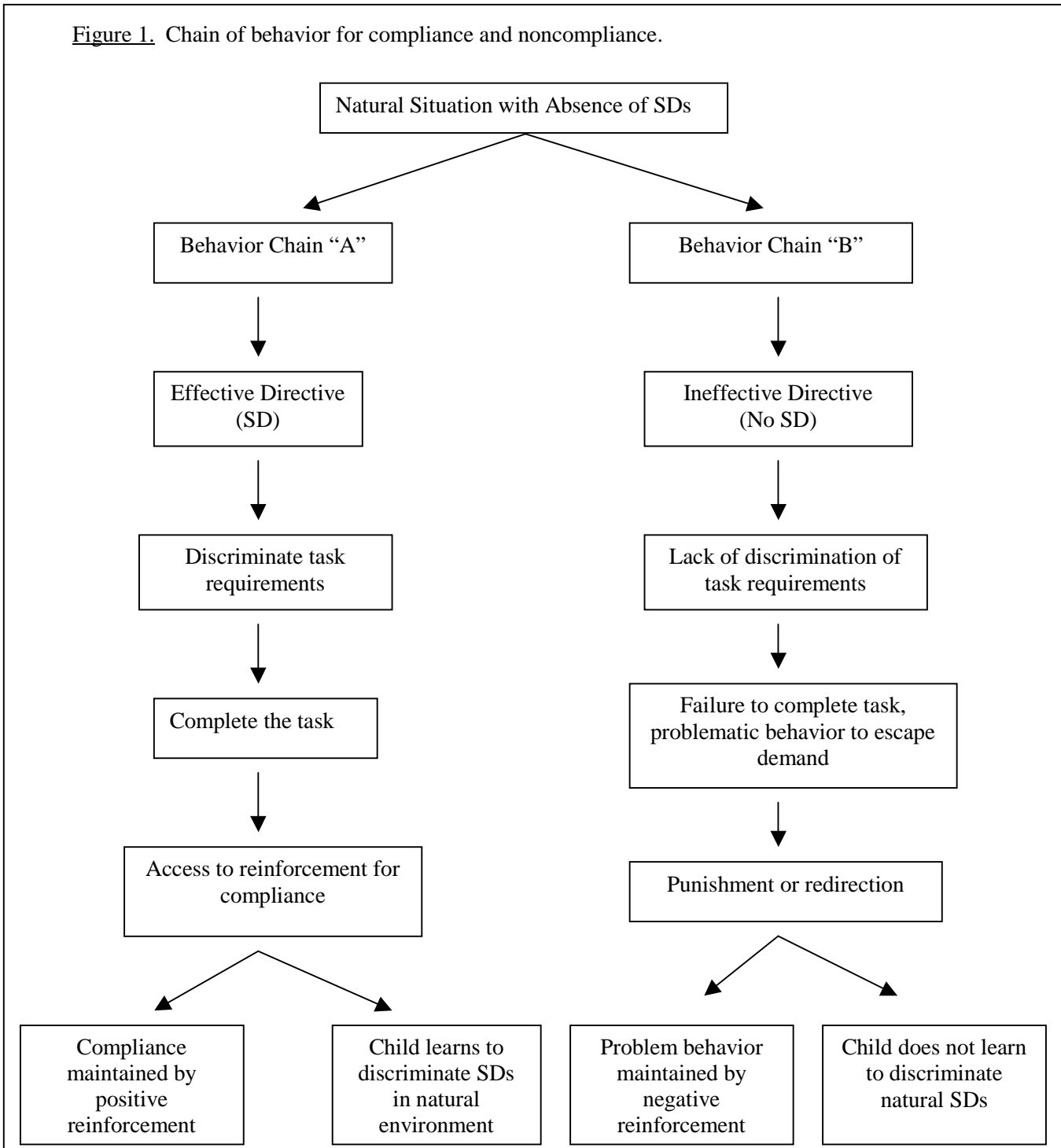
Catania (1994) defined stimulus control as an antecedent stimulus event that sets the occasion for a specific response. Therefore, when a specific response occurs following the presentation of a specific stimulus (e.g., instructional prompt), but not in the presence of another stimulus, then the response is considered to be under stimulus control. For example, when a room becomes cluttered and disorganized, this stimulus may serve as a discriminative stimulus (SD) for the individual to clean the room. In this case, the cluttered room is a cue to the individual to clean it up, if cleaning up has historically been associated with reinforcement (e.g., parental praise). For some children, however, the natural situation (a cluttered room) does not function as an SD, and additional prompting (e.g., instructions from the parents) is required to set the occasion for the desired behavior to be emitted.

The type of additional cue or instructional prompt provided to the child may have a substantial effect on the behavior or chain of behavior that follows the instructional prompt (see Figure 1). If the child is provided with an effective instructional prompt that has historically been associated with reinforcement, this type of instructional prompt will set the occasion for a chain of behavior that begins with the child discriminating the task requirements, completing the task accurately, and then receiving reinforcement through a variety of operant mechanisms such as parental praise and access to preferred activities. In this case, we can say that the child has complied. However, if the child has a history of being provided with ineffective stimulus prompts that do not guide the child in discriminating the task requirements, these types of prompts may produce a different chain of behavior that is perceived by caregivers as noncompliance. If the child is not able to discriminate the task requirements, the parent may assume that the child is displaying noncompliant behavior, and the parent then provides various forms of redirection or punishment (e.g., reprimands, removal of preferred activities, physical punishment). Over time, the presentation of prompts is repeatedly paired with extinction or punishment, leading to avoidance or escape-maintained problem behavior. In this case, the child is repeatedly exposed to ineffective directives and then punished for perceived noncompliance. Thus, care providers may inadvertently shape a chain of problematic behaviors that are maintained by negative reinforcement (e.g., the child may display disruptive behavior to escape completing the demand).

Author Note

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Figure 1. Chain of behavior for compliance and noncompliance.



In this conceptual model, compliance can be defined as consisting of two distinct behaviors: (a) discriminating the components presented in the instructional prompt and (b) performing the specific acts requested (Richman et al., in review). Two distinctly different sets of outcomes for each chain of behavior are shown in the bottom of Figure 1. For compliant behavior (behavior chain A), ongoing compliance is maintained by positive reinforcement. Of equal importance, the pairing of positive

reinforcement with task directives assists the child to discriminate the SDs present in the natural situation, which may reduce the future need for task directives delivered by the care provider. However, for behavior chain B, the outcomes are problematic behavior maintained by negative reinforcement and a failure to discriminate natural SDs. Therefore, the presentation of both effective (SDs) and ineffective instructional prompts have effects on the child's history of reinforcement or punishment when task

demands are presented and also influence ongoing learning via the presentation or absence of differential reinforcement.

Potential Factors Contributing to Ineffective Directives

Compliance can be considered as resulting from the interaction of two sets of variables: (a) discrimination and (b) reinforcement. The child must be able to discriminate either the SDs inherent in the natural situation or the task directive to comply. Simultaneously, the consequences for compliance must be reinforcing to the child and the response-reinforcer relationship must be discriminated by the child. The interaction between discrimination and reinforcement is continuously changing, as it involves both the historic and current presentation of SDs and reinforcers. At the most basic level, three broad factors contribute to compliant responding in any situation: (a) organism variables that involve discrimination skills, (b) the specific stimulus characteristics of the stimulus prompt, and (c) the consequences provided for behavior. These factors are shown in Figure 2, and a brief description of each factor is provided in subsequent sections.

Organism Variables

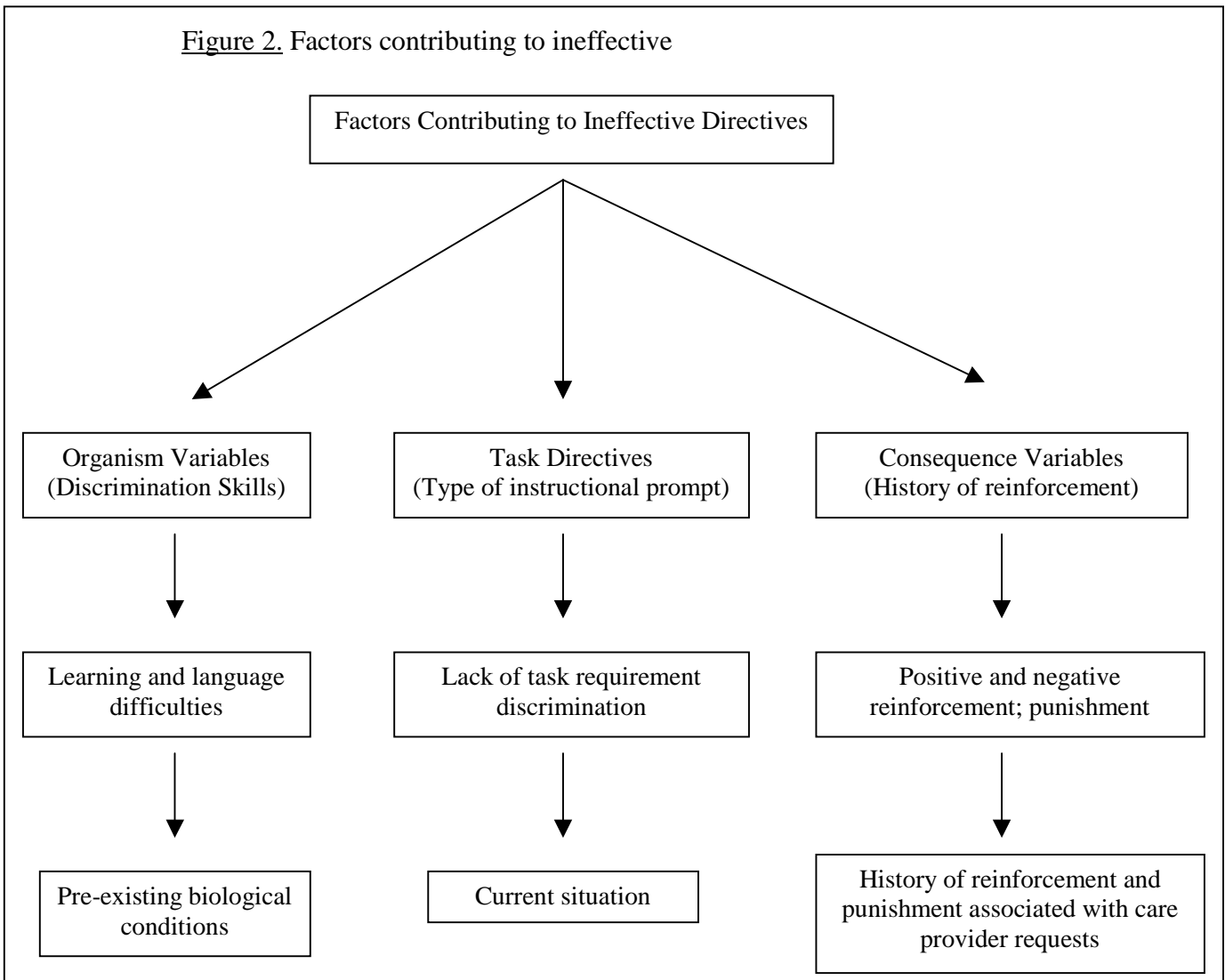
Organism variables can be referred to as individual strengths and weaknesses that affect a child's ability to emit a certain response. These variables are frequently the focus of neuropsychological assessments that attempt to identify organism strengths and weaknesses that affect how well stimuli are discriminated and how well responses are emitted. Richman and Eliason (1983) provided a neuropsychological model for understanding specific language variables and their relationship to ongoing academic and behavioral difficulties. Richman and Eliason reviewed several potential etiologies of childhood language disorders that included (a) genetic factors (Ludlow & Cooper, 1983), (b) atypical cerebral lateralization of language functions (Greschwind & Galaburda, 1987), and (c) impairment of left hemisphere functions (Wood & Felton, 1983). Although the exact etiology of language disorders for each child is rarely documented, Richman and colleagues developed a methodology for identifying subtypes of language disorders that include expressive language deficits, memory deficits, and associative language deficits. They also reported that when differential strengths and weaknesses are identified for a child, it may be

beneficial to use the child's language strengths to select differential instructional strategies that emphasize the child's strengths and that de-emphasize his or her weaknesses during instructional situations (Richman & Eliason). In relation to the topic of stimulus control within task directives, it appears that within-organism variables such as receptive language abilities may affect the range of stimuli that function as SDs for any given child, and a specific assessment methodology for identifying the type of stimuli that function as SDs within directives for individual children is warranted. This approach appears to be particularly needed given studies that have noted a correlation between language and behavior disorders.

Cantwell and Baker (1985) conducted a large scale (N = 600) study of psychiatric disorders in speech- and language-impaired children (the children ranged in age from 1.7 to 15.9 years; M = 5.6 years) who were referred for an outpatient evaluation at a large community speech and hearing clinic in the Los Angeles, California, area between March 1977 and February 1980. Speech disorders were defined as difficulties with articulation, fluency, speech rate, and voicing. Language disorders included difficulties with vocabulary comprehension, expression, language usage, and language processing. Speech and language diagnoses were distinguished through a variety of standardized speech and language measures (e.g., Goldman-Fristoe Test of Articulation, Denver Articulation Screening Test, Receptive-Expressive-Emerging Language Scale, Illinois Test of Psycholinguistic Abilities), and psychiatric measures included semi-structured interviews with the parents and the child using a modified version of the Diagnostic Interview for Children and Adolescents, and parent and teacher rating scales such as the Conners Parent Symptom Questionnaire, Rutter Parent Questionnaire-Scale A2, Conners Teacher Rating Scale, and Rutter B-2 Scale. Using information from all of the above instruments, a final determination was made regarding the presence or absence of a psychiatric disorder in the child. Diagnosis of specific types of psychiatric disorders were made using the Diagnostic and Statistical Manual-III (American Psychiatric Association, 1980), and disorders for this study were separated into three categories: behavior disorder, emotional disorder, and relationship disorder.

Results indicated that overt behavior disorders (i.e., Oppositional Disorder, Conduct Disorder, and Attention Deficit Disorder with and

Figure 2. Factors contributing to ineffective



without Hyperactivity) were the most common types of psychiatric disorder found in speech- and language-impaired children. Over one-third of the children diagnosed with a psychiatric disorder were diagnosed with a behavior disorder. Approximately one-half of all the children referred to the speech and language clinic were found to have a clinical psychiatric syndrome, and this rate was considerably higher than the estimate of psychiatric disorders in the general population (10% to 15%) of children in this age range (The President's Commission on Mental Health of Children, 1980). The data from this study indicated that children with speech and language disorders may have a rate of psychiatric disorders that is three to five times greater than that of the general population (Cantwell & Baker, 1985). Based on these results, Cantwell and Baker suggested that children with speech and language disorders be considered "at risk" for psychiatric and developmental disorders.

The correlation between speech and language disorders and psychiatric disorders has been noted by numerous research teams and with a variety of methodological techniques (Benasich, Curtis, & Tallal, 1993; Glassberg, Hooper, Mattison, 1999; Griffiths, 1969; Hogan & Quay, 1984; Piancentini, 1987). These cumulative findings provide a rationale for the provision of early intervention services to children with speech and language problems in an attempt to decrease the probability of their developing behavioral difficulties. It also makes intuitive sense to assist young children with language difficulties to learn how to respond appropriately to parental requests and to assist the parents of these children how to deliver requests effectively.

Type of Instructional Prompt and History of Reinforcement

Whereas organism variables can effect a child's ability to comply with instructional prompts given a presumed difficulty with accurately discriminating directive requirements, the child's history of reinforcement for compliance will also affect the probability that compliance will occur as conceptualized in Figure 1. Throughout a child's life, idiosyncratic histories of reinforcement for compliance with care provider requests are constantly changing. If the child is provided with effective directives that assist the child with discriminating task requirements, this may increase the probability that compliance will occur and result in positive reinforcement. However, if a child is frequently provided with ineffective directives or is frequently punished for attempting to comply, this may increase the probability of further noncompliance by establishing negative reinforcement as the primary source of reinforcement. Lack of clear directives set the occasion for the child to attempt to escape the demand situation because he or she does not discriminate the task requirements or the requirements for reinforcement. Over time, children develop idiosyncratic histories of reinforcement when demands are presented to them, and both the type of directive and consequence provided for compliance interact to effect the probability of related future behavior.

Relative to compliance, ineffective directives (absence of SDs) promote noncompliance and interfere with the child's ability to learn to discriminate naturally available SDs. From a historical standpoint, the absence of positive reinforcement for compliance and the presence of punishment for perceived noncompliance combine to increase the probability of escape-maintained problematic behavior (right panel of Figure 1). The end result for some children may be generalized noncompliance, meaning that the child begins to resist even those directives that are discriminated because of the child's history of negative reinforcement associated with demand situations. Unless completing a task is intrinsically reinforcing (i.e., the child "enjoys" completing the task), compliance at home often occurs because of its historic association with positive reinforcement (e.g., parental praise). If

the child's history of reinforcement is more associated with negative reinforcement (escaping task demands) than positive reinforcement, it would be expected that the first response by the child when presented with demands would be those responses associated with avoiding or escaping demands. In operant terms, the response strength (Catania, 1994) of noncompliant behavior is greater than for compliant behavior, and the end result is an increased probability of noncompliant behavior.

Mace and Roberts (1993) proposed that adaptive and aberrant behavior form a two-choice situation and that an individual's response allocation (adaptive or aberrant) is affected by four major factors: rate of reinforcement, quality of reinforcement, response effort, and immediacy of reinforcement. Thus, when given a directive, a child will attempt to comply or not given his or her history of reinforcement. If escape-maintained behavior has a stronger history of reinforcement than compliant behavior, then we would expect that the child would display noncompliant behavior even if the child discriminates the task requirements.

In summary, the variables influencing compliance to a task directive involve a complex interaction of discrimination skill and history of reinforcement. However, compliance often begins with discriminating task requirements. If the child fails to discriminate task requirements, the probability of compliance is low and is based on chance probabilities. This increases the probability of punishment and of negatively reinforced non-compliant behavior. If discrimination occurs, then shaping of compliance becomes more probable given adequate schedules of positive reinforcement. Although this situation becomes more complex with skill deficits present within the organism, previous studies have shown that the addition of effective stimulus prompts can improve compliance (accurate task performance) substantially. A brief selective review of this literature follows.

Use of Prompts in the Developmental Disability Literature

Research conducted with persons with developmental disabilities has demonstrated that individuals with a wide range of intellectual abilities (i.e., mild to severe mental retardation) can be taught to perform complex vocational and self-help tasks if they are provided with effective instructional prompts (e.g., picture prompts). These investigations (Connis,

1979; Johnson & Cuvo, 1981; Thinesen & Bryan, 1981; Wacker & Berg, 1983) have shown that if an effective instructional prompt is provided to the student, task compliance improves and problematic behavior is reduced. These findings support the hypothesis that compliance may be related to a lack of stimulus control within directives rather than to a lack of motivation to comply.

In addition to picture prompts, several other stimulus prompt procedures have been shown to be equally effective for assisting students with developmental disabilities to complete complex tasks. Wacker et al. (1988) conducted a study that demonstrated the utility of a self-labeling (label-then-do) procedure in assisting 5 students with moderate mental retardation to enter characters into a computer, calculator, and checkbook within a multiple-baseline design. The self-labeling procedure proved to be an effective strategy that allowed the students to generalize the character-entering response across tasks and settings. Steege, Wacker, and McMahon (1987) compared the effectiveness and efficiency of two prompting procedures while teaching community living skills to students with severe to profound mental retardation. Utilizing a task analysis of four tasks, the two types of prompting procedures--least-to-most restrictive, and prescriptive prompting that utilized ongoing assessment data to identify discriminative stimuli-- were directly compared within a multiple baseline and probe design. Results of the investigation indicated that both prompting procedures were equally effective with regard to increasing independent task completion for the students on all tasks, but the prescriptive prompting procedure was more efficient.

Given the findings in the literature with individuals who have developmental disabilities, it appears plausible that differences in accuracy of task completion for children with more mild disabilities (e.g., behavioral and learning difficulties) may be sensitive to changes in the type of instructional prompts provided by care providers. If so, then a technology for promoting compliance based on antecedent manipulation to augment reinforcement may be available. However, the identification of SDs will be needed and will warrant some type of assessment methodology, as it is doubtful that the same type of instructional prompt will serve as an SD for all children or for all subgroups of children.

Thus far, we have suggested that compliance may be, at least in part, related to discrimination skills and that some young children with behavior problems may have language difficulties. The language difficulties experienced by some children may affect their ability to discriminate components of task requests and reduce the probability of compliance. Therefore, the need is to identify effective stimulus prompts, as this approach has proven to be successful with other groups of individuals who display behavioral and learning difficulties.

In the following section, a rationale is provided for the use of experimental analysis methodology to assess whether task directives function as SDs for accurate task completion by young children. Historically, the applied behavior analysis literature has focused primarily on consequence-based assessment and treatment procedures to reduce the occurrence of problematic behavior. Experimental analysis procedures can be extended to evaluate antecedent variables that function as SDs for compliance. The clinical purpose for conducting this type of analysis is to increase the probability that effective antecedents (instructions) are used to both promote compliance and to disrupt any stimulus-response relationship that exists between instructions and problematic behavior.

Experimental Analysis Methodology

The primary advantage associated with antecedent-based treatments is the possibility that problematic behavior may be avoided altogether (Touchette, MacDonald, & Langer, 1985). The development of modifications for the way directives are provided to young children may be valuable for preventing or altering avoidance behavior occasioned by the presentation of a demand. Changes in the antecedent stimuli inherent within the directive may reduce the probability of problematic behavior when demands are presented to the child if those changes make the directive more discriminable and if these modified directions are paired with positive reinforcement.

Experimental Analysis of Antecedents

Carr and colleagues (Carr & Durand, 1985; Durand & Carr, 1987) developed one of the earliest experimental analyses of antecedent variables that affect problem behavior (Carr & Durand, see Axelrod, 1987, for a review). Antecedent stimuli

were manipulated within a multielement design to identify the relationship between specific antecedent stimuli (level of demand and level of attention) and problem behavior. For example, Carr and Durand conducted analog conditions that varied the amount of social attention (high/low) and degree of task difficulty (high/low) while simultaneously holding consequences/reinforcement for aberrant behavior constant (i.e., aberrant behavior was ignored). Consistent within-subject patterns of performance occurred, but substantial variability across subjects also occurred, showing that these antecedent influences were unique across subjects. Thus, Carr and Durand provided a demonstration that problem behavior could vary substantially based on manipulation of antecedent variables.

Experimental Analysis of Discriminative Stimuli (Stimulus Control)

The antecedent experimental analysis methodology developed by Carr and Durand (1985) is most useful for identifying broad classes of SDs that set the occasion for behavior to occur (e.g., task demands set the occasion for aberrant behavior that presumably is maintained by negative reinforcement). The correlational aspect of these analyses can be problematic in that the specific aspect of the task or demand that functions as the SD for negatively reinforced aberrant behavior is unknown. Thus, the child can be taught to request assistance when challenging demands are presented, but the mechanisms that will allow an experimenter to replace SDs for problematic behavior with alternative SDs for compliant behavior are unknown. In addition, because the child's aberrant behavior is placed on extinction during antecedent assessments, the large variability in behavior associated with extinction bursts can make precise inspection of specific stimulus-response relations very difficult.

Halle and Holt (1991) developed an experimental analysis methodology for identifying specific antecedent stimuli that had acquired stimulus control of desired (rather than aberrant) responding. Antecedent stimuli affecting the probability of participants displaying a mand (i.e., "please") when making requests for tangible items were investigated. Four participants with moderate mental retardation were taught to request an item using a mand while four stimulus parameters were held constant: item, setting, requester, and receiver. Following training on the use of the mand, probe trials were conducted with

only one stimulus condition remaining the same as in the training sessions while the other three parameters were changed. Idiosyncratic responding occurred across participants, with each student responding to different discriminative stimulus conditions. However, stable patterns of responding occurred within subjects. These results showed that even under tightly controlled stimulus conditions and with a known history of reinforcement for the target behavior, the specific stimuli that functioned as SDs were idiosyncratic across children.

Halle and Holt (1991) provided one of the earliest examples of an antecedent assessment methodology for evaluating antecedent stimuli that have acquired stimulus control for adaptive behavior. The results of this investigation also suggested that adaptive behavior is responsive to idiosyncratic features of the stimulus context. Thus, compliant behavior may or may not occur even in a tightly controlled training context when apparently minor or subtle changes occur in the antecedents that are present during any given session.

Analysis of Stimulus Generalization

The results of Halle and Holt (1991) can be further conceptualized as an analysis of stimulus generalization in that the occurrence of behavior was shown to vary according to the antecedent stimuli in any given session. Numerous procedures are available to promote stimulus generalization, with most of these procedures being based on the conceptual analysis of Stokes and Baer (1977). Stokes and Baer conceptualized stimulus generalization as being related to stimulus control and reinforcement histories, and provided examples of seven procedures for programming for generalization. Of specific relevance to stimulus control, Stokes and Baer demonstrated via a critical review of the applied behavior analysis literature that a primary way to produce generalization of treatment effects is to ensure that the antecedent stimuli included in training are available in generalization conditions. Unfortunately, as shown by Halle and Holt, these stimuli that function as SDs can be difficult to identify without an assessment being conducted.

In summary, several researchers have shown that antecedent variables can control both aberrant and adaptive responding. The findings from this literature review suggest that changes in antecedent stimuli can have a substantial, immediate, and

generalized effect on behavior. These findings are important relative to compliance because they suggest that changes in the way task directives are presented, even if subtle, may have an immediate effect on compliant behavior.

In the literature reviewed thus far, the results were achieved exclusively with persons with developmental disabilities and the assessments were extended over several days or weeks. In the following section, we review the application of these procedures to children of normal intelligence during brief (e.g., 90-min) outpatient clinic evaluations.

Brief Antecedent Analyses

Until 1990, the applicability of experimental analysis procedures to normally developing children with behavior problems was unknown. Cooper, Wacker, Sasso, Reimers, and Donn (1990) adapted Carr and Durand's (1985) experimental analysis procedure for use with children of normal intelligence with conduct-type behavior disorders in an outpatient clinic. Eight children with normal intelligence between the ages of 4 and 9 years were evaluated during a 90-min outpatient evaluation. All children were regularly scheduled outpatients, and the children's parents conducted all assessment conditions with coaching from therapists. The assessment conditions varied the level of task demands (easy and difficult) and parental attention (attention and no attention) within a brief multi-element design. The target behavior was appropriate child behavior and consisted of compliance to task directives delivered by the parents. The purpose of this assessment was to determine if appropriate child behavior varied according to manipulated antecedent variables (high/low parental attention or high/low demands). If changes in behavior occurred across conditions, the conditions producing the least and most appropriate behavior were repeated to replicate the findings. Results indicated that appropriate behavior varied across assessment conditions and occurred at higher frequencies within one condition than within any other for 7 out of 8 participants. This study extended the experimental analysis literature by focusing specifically on compliant behavior displayed by children of average intellectual abilities. Of interest is that the findings were similar to those of Carr and Durand: Behavior was often immediately responsive to changes in antecedent conditions.

In a follow-up investigation, Cooper et al. (1992) conducted a similar analysis with young children who functioned within at least the mild range of mental retardation and who displayed behavior problems. In Experiment 1, the brief antecedent experimental analysis was used to evaluate the effects of task preference as well as task demands and adult attention on appropriate child behavior within an outpatient clinic. Experiment 1 replicated the results of Cooper et al. (1990) and showed that task preference, in addition to demands and attention, influenced compliant behavior. In Experiment 2, a similar assessment was conducted in a classroom setting with 2 children with oppositional and learning disorders and was compared to an extended (6-month) assessment. The same variables affecting appropriate behavior for both children evaluated were identified with both procedures (brief and extended antecedent experimental analysis), with the only difference being the specificity of the treatment for producing compliance. For example, for 1 child, preference was the active variable, but the extended analysis was needed to show how preference could be used most effectively during treatment.

Reimers et al. (1993) extended the results of Cooper et al. (1990, 1992) by evaluating the functional properties (consequences) of noncompliant behavior displayed by normally developing young children in an outpatient setting. The functional properties of noncompliant behavior displayed by 6 young children (4-0 to 5-9; $M = 5.1$) were evaluated within the time constraints of an outpatient evaluation (90 min) via an abbreviated multielement design. The children's parents conducted the assessment conditions, and the assessment conditions varied the consequences for problematic behavior displayed by the child. During the control condition (free play), the parents played with the child and provided praise for appropriate toy play. During the attention condition, the parents asked the child to comply with a request (e.g., pick up toys) every 30 s but provided attention (discussing the request) only if the child did not comply with the request. High rates of noncompliant behavior during this condition indicated that the child's noncompliant behavior was functioning to gain access to parental attention. The final condition, escape, involved the parents providing the child with a directive to pick up toys, and noncompliance resulted in the parents allowing the child to briefly escape the task. Increased rates of noncompliant behavior during this condition indicated that the child's noncompliant behavior functioned to

escape the task (negative reinforcement). Results indicated that although all children displayed a similar topography of problematic behavior (i.e., noncompliance), the functional reason for the children's noncompliance varied across children but was stable within each child.

The results of Cooper et al. (1990, 1992) and Reimers et al. (1993) demonstrated that brief experimental analysis procedures have utility for identifying both antecedent and consequence variables that influence compliance. Other research teams have now replicated these findings across multiple topographies of problematic behavior and participant characteristics (Arndorfer, Miltenberger, Woster, Rortvedt, & Gaffaney, 1994; Taylor & Romanczyk, 1994). However, the usefulness of the procedures for identifying specific treatments was also limited, as demonstrated in the second experiment of Cooper et al. (1992). Although broad categories of antecedent variables were identified, the development of specific treatments continued to be limited by the scope of the assessment. This limitation led to the development of a very specific assessment procedure by Harding, Wacker, Cooper, Millard, & Jensen-Kovalan (1994).

Hierarchical Assessments of Antecedent and Consequence Variables

Harding et al. (1994) used the brief experimental analysis methodology of Cooper et al. (1992) to evaluate a prescribed hierarchy of antecedent and consequence variables in an outpatient setting. Seven children (age range, 4 to 6 years) with intellectual functioning within the mild range of mental retardation or above participated in this investigation. The brief experimental analysis was conducted within a multi-element design that consisted of a series of rapidly changing assessment conditions. After an initial control condition was conducted (i.e., free play), the parents provided a nonspecific instruction for the child to comply with a nonpreferred task while the child was ignored. This second condition involved the presentation of a demanding, nonpreferred task with an ambiguous directive under extinction conditions. If appropriate behavior occurred during free play (Condition 1) but not during Condition 2, then one or more of the variables associated with preference, demands, or attention was the likely reason for problematic behavior. The subsequent conditions in the analysis then identified the specific role of those variables by

systematically replacing them in a hierarchical fashion.

The hierarchy was based on the presumed ease of implementation of the various treatment components for parents and continued until compliant behavior occurred. Experimental control was demonstrated by means of a reversal; the first successful condition was followed by a previously unsuccessful condition, and the successful condition was then repeated to form a reversal design. For 6 of the 7 participants, improved behavior occurred, indicating that a change in one or more variables led directly to compliant behavior. In addition, 3 out of 6 participants who displayed improved behavior, this improvement occurred when specific directives replaced ambiguous directives. Thus, for 3 of the children, noncompliant and problematic behavior occurred when they were provided with ambiguous directives, but compliant behavior occurred when they were provided with specific directives. Given that the only change in the task was in the specificity of the directive, it seems probable that lack of compliance was due to the way the directives were provided and not to the task itself or to general oppositional behavior by the child. One reason for this finding may have been the children's inability to discriminate the requirements of the task, although this hypothesis was not directly tested by Harding, et al.

Application of Brief Experimental Analyses to Improved Academic Performance

The initial findings by Cooper et al. (1990) also led to subsequent studies that focused on identifying specific antecedents that influenced the accuracy of academic performance. Given the hypothesis that improved behavior in previous studies (Cooper et al., 1990; Cooper et al., 1992; Harding et al., 1994) occurred because of stimulus control, it appeared possible that at least some academic problems also occurred because of stimulus control.

McComas, Wacker, and Cooper (1996) evaluated the effects of specific instructional strategies on accuracy of academic performance for children and adolescents who experienced learning difficulties. In this investigation, extended antecedent experimental analyses were conducted within a multielement design in two classrooms to identify effective instructional strategies for adolescents with diagnosed learning disorders. This was accomplished

by having the teachers implement one of two instructional strategies (e.g., advanced organizer vs. paraphrasing) across days during reading instruction. The effects of the strategies on reading comprehension were then assessed during weekly quizzes. Differential effects on academic performance were observed. Reading comprehension, as assessed by weekly quizzes, was consistently at 75% or greater accuracy when using the most effective instructional strategy and was substantially less accurate when using the other strategy. Of interest was that the level of demand (i.e., reading level) resulted in differential effectiveness of the instructional strategies. When the participants were required to read passages that were at or below their individual instructional level, the participants' accurate academic performance did not vary reliably with manipulation of instructional strategies. However, when the participants were required to read material that was above their current reading levels, differential findings across strategies occurred. This finding makes intuitive sense in that more difficult tasks set the occasion for the need for additional instructional strategies, whereas less demanding tasks did not warrant these same strategies. McComas, Wacker, and Cooper (1996) demonstrated that antecedent experimental analyses can be used to identify effective instructional strategies and improved academic responding can occur when effective instructional prompts are incorporated into the child's curriculum.

In a second study, McComas, Wacker, Cooper, Asmus, et al. (1996) modified this approach by developing brief antecedent experimental analyses of instructional strategies in an outpatient setting. The participants were young children (7 to 10 years old) who were referred to an outpatient clinic for evaluation of poor academic performance. The participants functioned within the average range of intelligence, were enrolled in regular education classes, and had previously been diagnosed with various learning disorders. The results of neuropsychological assessments and various descriptive data were used to identify antecedent instructional strategies that "matched" each participant's cognitive strengths and weaknesses. For example, if the child experienced difficulties with remembering information presented in reading passages, the child was instructed to use a memory strategy such as verbal rehearsal. Effective instructional strategies, identified via the brief antecedent experimental analysis, resulted in

improvement on a variety of academic tests (e.g., reading comprehension, spelling accuracy) for all children within the time constraints of an outpatient evaluation.

Conclusions

The majority of experimental analysis studies conducted to date have focused on response-reinforcer relationships to identify the functions of problematic behavior. More recent studies, which have adapted this methodology, have shown that both compliant and academic behaviors are responsive to specific antecedent variables. Given that children with behavior problems often experience co-existing learning and language disabilities (Benasich et al., 1993; Glassberg et al., 1999; Hogan & Quay, 1984; Piantentini, 1987), it is possible that at least some behavior problems, especially in young children, are at least partially due to learning/language difficulties. Specifically, lack of compliance may be due as much to difficulties in stimulus control (i.e., perceiving the requirements of the directive) as to reinforcement or motivation to comply. Additionally, lack of stimulus control within directives may also act as an establishing operation (Michael, 1982) by increasing the child's motivation to avoid or escape demand situations.

Several investigations have described the relationship between increased levels of demands and problematic behavior (Carr & Durand, 1985; Cooper et al., 1990, Cooper et al., 1992). These investigations have primarily focused on providing children with alternative ways (e.g., mands) of accessing help or brief breaks from demands or on increasing the children's motivation to comply with the demand by manipulating reinforcement contingencies. Few studies have evaluated specific antecedent variables that may affect the occurrence of accurate, compliant behavior. Preliminary results (McComas, Wacker, & Cooper, 1996; McComas, Wacker, Cooper, Asmus, et al., 1996; Richman et al., in review) have shown that improved compliance and academic performance is also possible given changes in the stimulus properties of directives. Given these results, and the overall emergence of a methodology for studying antecedent influences on childhood problem behavior, further research is warranted.

Currently, the applied behavior analysis literature has provided several options for assessing and modifying child motivational problems, but

relatively little information is available regarding how to assess potential skill deficits (e.g., inability to discriminate requirements within directives) that may contribute to disruptive and noncompliant behavior. If children are not provided with effective stimulus prompts to guide accurate responding, they may react by displaying disruptive behavior that is maintained by negative reinforcement during demand situations. It is our hope that the current discussion will stimulate future research in the area of systematically assessing issues related to the effects of various types of instructional prompts on accurate task completion and occurrences of disruptive behavior.

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PECS: POTENTIAL BENEFITS AND RISKS

Andy Bondy, PhD

The Picture Exchange Communication System (PECS) is an augmentative /alternative communication strategy for those who display little or no speech. The rationale for PECS and its training sequence is described. Each phase of training is associated with specific behavior analytic teaching strategies. Skinner's analysis of Verbal Behavior forms the basis for teaching particular skills at specific points in the training sequence and also provide guidelines for how best to design the teaching strategies. Common problems and potential solutions are offered for various levels of training. The relationship between PECS and the co-development of speech, as well as its impact upon other behaviors (e.g., behavior management concerns, social orientation, etc.) is briefly reviewed.

The Picture Exchange Communication System (PECS: Bondy & Frost, 1994; Frost & Bondy, 1994) has become a popular communication strategy for children with autism and other communication disorders (see Siegal, 2000; Yarnall, 2000). As with any system that rapidly expands in use, there are pitfalls associated with its application (and misapplication). I will briefly describe PECS and its potential benefits as well as review several important concerns associated with its use.

Functional communication involves behavior (defined in form by the community) directed to another person who in turn provides related direct or social rewards.

Just as the consequences of verbal behavior help to define the function so, too, do the antecedent conditions. "Pure" tacts are under the stimulus control of some aspect of the environment, rather than the verbal behavior of someone else. That is, by asking, "What do you see?" while holding a pen up to a child, we enhance the probability of the child saying "pen" but we have introduced additional stimulus control issues. Thus, responding to questions is not the same verbal operant as spontaneously manding or tacting. This observation is important given the common practice in many communication-training programs of beginning with imitation and/or responding to questions to begin training. The potential problem with such strategies is that if the questions are not rapidly and carefully removed, some children are reported to be 'prompt dependent.' This observation is not a recent one. In fact, early descriptions of vocal imitation-based training often contained remarks in the discussion sections such as, "While Billy acquired 50 words via imitation, he failed to generalize to spontaneous communication." That is, without stimuli such as, "Say..." or "What is...?" or "What do you...?" many children remained essentially silent. Various strategies, including incidental teaching were developed precisely to overcome these types of limitations of communication acquisition.

What is functional communication?

To best understand the sequence of training steps in PECS, it is helpful to review the key aspects of functional communication as well as common difficulties sometimes encountered with other modalities of communication. The cornerstone to an analysis of communication from a behavioral perspective rests with Skinner's *Verbal Behavior* (1957). (This brief review does not permit detailed definitions of the key verbal operants, i.e., mands, tacts, intraverbals, echoics, autoclitics, etc. but the reader is advised to read the original source as well as recent comments and suggestions within the journal *The Analysis of Verbal Behavior*.) Skinner's primary points about this topic include that the verbal behavior of the 'speaker' (quotation mark used to avoid overemphasis of the vocal modality) was under the stimulus control of the 'listener.' Furthermore, the role of the listener is to mediate reinforcement of the speaker- either in terms of consequences specified by the speaker (as in the mand function) or social reinforcement (including 'educational' reinforcers – see page 84). A succinct paraphrase defining functional communication is suggested:

Why was PECS developed?

Lori Frost and I observed many children with autism having difficulty acquiring spontaneous communication skills via speech or sign language.

Picture-based systems, initially developed within the field of augmentative/alternative communication (AAC), were recommended to address this by teaching children to point to particular pictures on a communication board (generally via matching-to-sample strategies- see Carrier and Peak, 1975). This strategy had proved successful with many children (and adults) who displayed 'communicative intent' but often had significant motor (or identified neurological) problems associated with speech production. However, while some children with autism learned appropriate picture-point skills, many of these children did not show significant progress. Our initial observations suggested that some young children (3 and under) had difficulty with neatly pointing to single pictures. Of greater concern was our observation that the children were being taught a response that directed their attention to the pictures and not to a communicative partner. That is, their behavior was not under the stimulus control of someone else- someone to communicate with.

Given these concerns about the high probability of prompt dependency, the problems with requiring an imitative repertoire as a prerequisite condition, and the absence of the acquisition of functional communication skills, strategies were developed that led to the sequence outlined with the PECS protocol. The first goal was to develop a rapidly acquired response that met the definition of spontaneous functional communication. To do this, the first step is to conduct an adequate reinforcer assessment. That is, in order to teach requesting, teachers must know what a child immediately wants. To assure that the child learns to communicate about a broad array of wants and needs, it is up to the teacher to assure that many different types of reinforcers are assessed. Limiting the reinforcers to snacks and drinks will only limit the ultimate use of any communication system. Along with the identification of potential reinforcers, teachers also should look into arranging the environment so as to manipulate various establishing operations (EOs) to effectively capture and contrive various reinforcers (see Michael, 1982, for examples).

Once potent reinforcers have been introduced the PECS protocol aims to teach the child to exchange a picture of a desired item with someone offering that item. It is important to notice that it is not necessary for the child to have learned 'the meaning' of the picture (via matching-to-sample or other strategies) prior to learning the first phase. In typical language

development, children learn to communicate (i.e., engage in verbal behavior) before they learn to say specific words. So, too, in PECS will children learn first to initiate communication and subsequently to discriminate between pictures (i.e., loosely, to select messages).

PECS training sequence

In teaching to a child to pick up and exchange a picture for a desired item, an effective prompt strategy must be selected. First, since the goal is to have the child rapidly acquire a self-initiated response a verbal-prompt-free strategy is used. That is, teachers do not say, "What do you want?" or "Give me the picture" as these can rapidly acquire discriminative control over requesting (thus undermining initiation). Furthermore, if the enticing communicative partner provided the physical prompts, children are often observed to simply wait for that prompt. Instead, a second trainer (positioned behind the child to minimize social orientation to that person) provides the physical assistance to pick up, reach, and exchange the picture utilizing a backward-chaining strategy.

While most children with autism rapidly learn this first step, it must be recognized that the context is relatively artificial (even with an emphasis on teaching within functional contexts from the start). That is, the communicative partner is right in front of the child, the desired item is usually in sight, the single picture is immediately available and nearby, etc. Therefore, the next phase of training involves building persistence (i.e., resistance to extinction), increasing distance (to the partner and to the picture), increasing the number of communicative partners (including siblings and peers), increasing the range of reinforcers, and eliminating subtle prompts that may have accidentally come to serve as prompts to communicate (i.e., the subtle look of the teacher, sitting in a particular chair in a particular room, etc.).

By reviewing this long list, it should be apparent that this phase of training essentially never ends. That is, other phases of PECS are introduced even while we continue to expand various aspects of generalization. When a child has demonstrated use of approximately 6 to 12 pictures (still individually presented) discrimination training is introduced.

A common tendency at this point in training is to present the child with a group of desired items

and a corresponding set of pictures. However, as the differential valence of the reinforcers offered (i.e., all the snack items) may be small, the child is likely to find that giving a picture always leads to the receipt of something he or she likes. If this scenario is the case, the child may learn that since all pictures are ‘good’ (i.e., they all lead to relatively equally desired reinforcers) there is no particular need to attend to selecting specific pictures. A more effective strategy is to begin by offering the child a choice between something highly preferred and something either relatively neutral or even negatively valued. An advantage of this arrangement will become apparent shortly.

Central to effective teaching is the use of reinforcers virtually immediately after the target behavior. In the first phase of training, the goal was to teach the child to give a picture- thus, the reinforcer came immediately upon placing the picture in the communicative partner’s hand. In discrimination training, the goal is no longer ‘give the picture’ but ‘choose the correct picture.’ Therefore, some reinforcement must be provided as soon as a choice has been demonstrated. By arranging a high vs. low preferred choice, a teacher essentially ‘knows’ which is the correct picture and can provide immediately conditioned reinforcement when the child’s hand touches one picture. Of course, the actual receipt of the item follows the exchange of the picture but some reinforcement is thus provided in a more timely fashion.

If the child gives the picture of the preferred item, the communicative partner provides that item. If the child gives the picture of the non-preferred item (i.e., sock), the partner provides that item and then watches the child’s reaction. Most often, the child demonstrates some type of rejection – which is why the item was first identified as ‘non-preferred.’ The partner then implements an error correction procedure to enhance discrimination of the correct picture.

Of course, this strategy is not effective for every child. Other teaching strategies may involve variations in the pictures themselves- altering size, color or other visual properties, relative location, etc. For each strategy, once an effective prompt is determined, plans to remove/fade the prompt must immediately be implemented.

Once discrimination of high/low paired comparisons is demonstrated, selection of pictures in

larger arrays as well as between increasingly similar value must be taught. In order to assess a child’s ability to discriminate between preferred items, a correspondence-check is used. For example, if the child is offered a potato chip versus a cracker (and assuming these are equally desired items), when the child hands over a picture, the partner simply says “Go ahead, take it” or some such similar general statement. The partner does not give the child the corresponding item because it is not possible to know which of the two the child actually wants. And the teacher does not name the item (as in “Take the cracker”) because subsequent acts could reflect compliance with the auditory statement rather than understanding the picture. If the child takes the item that corresponds to the picture provided, reinforcement is immediate. On the other hand, if the child reaches for the other item, an error correction strategy is implemented.

Introducing simple sentence-structure

The next step in the training sequence is to begin to teach children to sequence pictures into a simple sentence. One reason this step is taken here is to provide a way for the child to let the listener know how (i.e., which function) pictures are being used. That is, a single picture can imply a request for or a comment about something. Children acquiring speech in a typical developmental sequence reach a point where they can only say single words- however, intonation, inflection and other behaviors indicate how the single word is used. These modifiers function as autoclitics. Within PECS, certain ‘sentence-starters’ are used, such as “I want,” “I see”, “I hear,” “It’s a,” etc. to serve similar functions.

To teach simple sentence construction as this point, a backward-chaining strategy is used by placing the “I want” icon on a sentence-strip and teaching the child to put the referent on the sentence-strip (rather than hand it directly to us). Once this step is mastered, the “I want” icon is moved to a communication book (introduced during the second phase) and the child is taught to place it on the sentence-strip before placing the referent picture. Note that the function, requesting, has not changed nor have any verbal or other prompts been introduced.

Once the child has mastered this sequence, another teaching strategy is used to encourage, but not force, vocalizations. A fixed-time delay prompt (Touchette & Howard, 1984) is used between reading

back “I want” and the subsequent referent picture (i.e., “I want. . . cookie!”). If the child vocalizes, the teacher takes advantage of differential reinforcement by not only providing the reinforcer more quickly but by adding other reinforcers (i.e., social, larger amounts of the requested reinforcer, etc.). However, by using a fixed delay, the child does not fail if no speech is produced. That is, since the child did communicate in a competent fashion by using PECS, the request will be honored.

The training protocol diverges after this fourth phase into two branches. One avenue moves toward the development of commenting while the other expands upon the descriptive vocabulary of the child (by teaching attributes and other modifiers). The first branch will be described next.

Since responding to questions is a useful skill, the fifth phase teaches children to answer the simple question, “What do you want?” This phase takes advantage of another delayed prompt strategy, though a progressive one. At first, the teacher simultaneously asks the question while tapping/gesturing to the “I want” icon. Over trials, a delay is gradually introduced and expanded over time. Generally, children quickly learn to ‘beat the prompt’ and respond to the question without the teacher resorting to use of the prompt.

The final phase aims to teach children to comment. To effectively teach this lesson, several facets about commenting should be noted. First, the reinforcer for commenting is social- or ‘educational reinforcement’ as described by Skinner (1957, pp. 84). Thus, when a child says, “I see the sock” he does *not* end up with the sock. Therefore, whereas the first phase of training sought to use powerful reinforcers to maximize motivation, this phase begins with use of far less powerful reinforcers. Furthermore, when young children develop language, it is readily apparent that their first comments are not about static aspects within the environment- instead, they are about things that suddenly change, disappear, etc. In general, our first comments are about things that literally capture our attention. Thus, to improve the likelihood of children with autism acquiring commenting skills, the lesson should be arranged in an interesting fashion so as to capture the child’s attention.

This phase of training takes advantage of the teaching strategy introduced in the previous phase.

That is, it begins by having the teacher ask, “What do you see?” while gesturally prompting to a new icon, “I see.” Over trials, the delay to the gestural prompt is increased, leading the child to respond to the question only. Other types of comments also are rapidly introduced involving other senses, i.e., hearing, smelling, tasting, touching, etc. Next, to promote spontaneous commenting, the question is gradually faded.

It has been my observation, and the verbal report of virtually everyone I have spoken to, that not all children with autism come to be spontaneous commenters. Many learn to comment when they think it is a lesson, often by virtue of various accidentally conditioned signals to ‘a trial.’ However, these children may continue to rarely comment in ‘open’ situations. I believe that this partial success is related to our limited ability to significantly impact upon some children with autism’s relative insensitivity to social reinforcement. As our teaching technology improves, hopefully we will see a greater success rate at achieving this central goal of intervention.

Expanding vocabulary

As noted earlier, after the fourth phase of training, one branch seeks to expand upon a child’s vocabulary. One route toward this goal is accomplished by noting features relating to currently effective reinforcers. Here, too, incorporating various EOs into training opportunities will enhance motivation for children. For example, a child may be observed to select only the red Skittles® from an offered cluster. Given this preference, the child is taught to request, “I want red skittle.” Other colors of Skittles® may be taught by manipulating the colors available (i.e., while he loves red ones, he’ll take a yellow one if no reds are available). Of course, color must be introduced with other objects almost immediately to avoid accidental pairings between colors and candy. Similar lessons are readily arranged for big vs. little, shapes, body parts, quantity, location, etc. It is important when teaching conceptual opposites (e.g., big/little, fast/slow, etc.) to be sure to teach both elements- sometimes the ‘big’ one is preferred (e.g., cookies, candy, etc.) but sometimes the ‘small’ one is preferred (e.g., broccoli, a spoon vs. the kitchen ladle, etc.).

PECS and other communication skills

Note that these lessons can readily be taught without the child having to respond in a receptive fashion. That is, a child can readily learn to request a red candy without having learned to respond to 'give me red' or some similar receptive skill. The only necessary prerequisite is to demonstrate that the feature or attribute to be taught currently controls some behavior of the child. Of course, if the child does learn to request by a particular feature, he may not automatically respond to the use of that feature receptively. The point is more that receptive skills do not necessarily precede the acquisition of productive use. Furthermore, especially for children with autism but likely for many other children as well, it is more motivating to request a big cookie than to point to the big paper circle.

Given the visual nature of PECS, are attributes limited to visual features? If so, could it be that users are engaging in a type of simple visual matching-to-sample? That is, the icon for 'red' contains stimuli on the same dimension as the red of the object requested. However, I have observed, and have been told about many other children using PECS who have readily learned to request features that have no overlapping stimulus dimensions, such as asking for louder music, faster spinning toys, rougher surfaces, colder drinks, etc.

Children using PECS also learn to request other critical reinforcers, such as asking for help or a break (from demand or monotony). Their requests are used to teach them about making 'deals' with teachers- they may want a toy, but the teacher wants them to learn a skill! These deals are transformed into visually mediated systems that include, but are not limited to, token systems. Children also are taught to respond to visual cues within instruction following routines, schedule systems, transitions between activities, and- most importantly for some- learning to wait.

Potential problems

Among the concerns that are raised by use of PECS are issues related to the use of pictures and other visual icons. First, everyone should plan for pictures to be lost! Since this can't be avoided, plan ahead to make multiples of critical pictures. Also, there will be times when a child seeks to communicate about something not yet in his system. In such cases, use whatever other strategies the child

has and then quickly create a symbol for use. Do not be overly concerned about your artistic ability- meaning does not derive merely from the visual appearance within the image but rather from the use of the icon. Another concern may appear over time regarding the total number of pictures in the system. Our early observations (Bondy & Frost, 1994) indicated that the majority of children with autism who started using PECS before age six, and used the system for more than one year, came to use speech as their sole modality when their picture repertoires were from 80 to 120 icons. However, some users who do not develop adequate independently understood speech have picture repertoires may grow beyond this range. In such cases, changing to an electronic system that can accommodate more symbols would be appropriate. For ethical reasons, it is strongly advised that when such changes are made that the child should not lose any current skill and that the social approach taught in the first phase is maintained. That is, the child approaches someone, assures his or her attention, and then proceeds to use the device (as opposed to pushing the buttons to activate a voice that someone then interprets is meant to be communicative).

Potential benefits

An important advantage of using PECS is that critical members of the community do not have to be specially trained in the system- the pictures are readily understood (and may be augmented by having a printed word on the card). This expands the range of potential communicative partners.

The initial observations about PECS indicated that the core skills were readily acquired, even by young children with autism (Bondy & Frost, 1994). This observation has been noted by others, including Schwartz, Garfinkle, & Bauer (1998) and Charlop-Christy (i.e., Carpenter, Charlop-Christy, LeBlanc, & Le, 1998; Carpenter & Charlop-Christy, 2000). Both groups also have supported our original observations that PECS appears to have a positive impact upon the development of speech. As with other AAC strategies, there is no evidence that using PECS inhibits the development or use of speech (Mirenda & Erickson, 2000). Research continues to look into the relationship between use of PECS and improvements in social skills and behavior management concerns (Charlop-Christy, 2001). I have co-published two recent reviews concerning PECS (Bondy & Frost, 1998; Bondy & Frost, in press) supporting the view

that research (both nationally and internationally) about the use and benefits of using PECS continues to grow. Hopefully, this trend of increased empirical evidence will improve our understanding of when PECS can be used with the greatest benefit.

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THE BEHAVIORAL TREATMENT OF OBESITY

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Obesity is a major public health problem in America. The majority of U.S. adults are now overweight, and over one-fifth of U.S. adults are obese (Kuczmarski, Carroll, Flegal, & Troiano, 1997). Obesity is associated with increased risk of numerous medical disorders and all-cause mortality (National Heart, Lung, & Blood Institute, 1998) as well as social stigmatization (Wadden & Stunkard, 1996). Behavior therapy has played a large role in the development of effective treatments for obesity. This paper reviews the history of behavioral obesity treatment, the effectiveness of the behavioral approach, and limitations of behavioral weight loss treatments.

HISTORY OF THE BEHAVIORAL TREATMENT OF OBESITY

Historically, there have been a number of therapeutic approaches to weight loss based on purely medical or physiological formulations. However, a psychodynamic interpretation of obesity became common in the 1950s. According to this model, obesity is related to underlying difficulties with identifying, containing, and expressing thoughts, feelings, and needs (Moreno, Fuhrman, & Hileman, 1995). Treatments based on this formulation focused on helping patients identify and tolerate troublesome experiences that were acted out in eating behavior, not on changing eating and physical activity directly. As might be expected, this approach was not successful in the treatment of obesity. For example, Stunkard (1958) revealed that only 12 of 100 patients treated in a specialty clinic of a hospital lost more than 20 pounds. Furthermore, only two of the 12 "successful" patients maintained their weight loss after two years. Stunkard summed up the state of obesity treatment in the 1950s in decidedly pessimistic terms: "Most obese persons will not stay in treatment for obesity. Of those who stay in treatment most will not lose weight and of those who do lose weight, most will regain it."

As part of the reaction to psychoanalysis and psychoanalytic theory, in the early 1960s behavioral theorists began to conduct weight loss treatments based on learning principles. These early behavioral weight loss studies were more concerned with testing the efficacy of behavioral theory than treating obesity per se; weight loss was merely a convenient outcome variable (Brownell & Jeffery, 1987; Brownell & Kramer, 1989).

Ferster, Nurenberger, & Levitt (1962/1996) were the first to apply learning theory to the treatment of obesity. Ferster and colleagues conceptualized obesity as a failure of self-control in which overweight individuals focus on the immediate reinforcing consequences of eating (e.g., taste of food) as opposed to the ultimate aversive consequences of overeating (e.g., increased weight and body fat). Based on this formulation, a major aspect of Ferster et al.'s treatment involved amplifying the aversive consequences of overeating. Patients developed an extensive verbal repertoire of the negative consequences of eating to be used in situations associated with eating. By pairing eating with the ultimate aversive consequences of overeating, it was thought that undesirable foods and situations would become conditioned aversive stimuli.

Ferster et al.'s treatment also involved stimulus control in which patients identified places, times, and events which they usually ate as well as people with whom they commonly ate. Patients were taught to break these connections by eating regular meals at one location (e.g., the dinner table) and to do nothing else while eating (e.g., reading or watching television). Additionally, chaining was used, in which patients lengthened the number of behaviors required to eat. Specific chaining techniques included waiting until the first bite was finished before taking another bite, putting the fork down between bites, and keeping food in hard to reach places.

Ferster and colleagues (1962/1996) did not provide outcome data on their program; however, this first application of learning principles to obesity appears to have been largely unsuccessful. Penick, Fillion, Fox, and Stunkard (1971) reported that Ferster's group lost a modal weight of only 10 pounds, with a range of 5-20 pounds.

Stuart (1967/1996) provided the first encouraging data on the effectiveness of the behavioral approach for weight management. Stuart's treatment was based on the formulation of Ferster and colleagues (1962/1996); however, Stuart de-emphasized aversive control of eating and emphasized self-control techniques and self-monitoring. Stuart's intervention began with brief, frequent sessions (30 minutes, three times a week) for 12-15 sessions. Patients then slowly decreased treatment to monthly sessions and entered a "maintenance phase."

Stuart (1967/1996) encouraged patients to become their own contingency managers and to become creative in constructing their own positively reinforcing behaviors. Stimulus control procedures similar to those described by Ferster and colleagues (1962/1996) were used (e.g., eating only in the kitchen, preparing only one portion at a time, putting utensils down between bites), as was self-monitoring (i.e., food records). In contrast to Ferster et al.'s study, 80% of patients in Stuart's program lost over 20 pounds, and 30% lost over 40 pounds. These results represented a true breakthrough in the treatment of obesity and set the stage for hundreds of weight loss studies investigating the efficacy of behavioral treatment.

During the 1970's, numerous trials were conducted to determine which behavioral techniques were most effective for changing eating behavior and inducing weight loss. These techniques included stimulus control (Bellack, Rozensky, & Schwartz, 1974; Romanczyk, Tracey, Wilson, & Thorpe, 1973; Stunkard, 1972), self-monitoring (Bellack, 1976; Bellack et al.; Romanczyk, 1974; Romanczyk et al.), self-monitoring (Bellack, 1976), contingency management (Bellack, 1976; Mahoney, 1974; Mahoney, Moura, & Wade, 1973; Mann, 1972), aversive control (Bellack, 1975; Foreyt & Kennedy, 1971; Harris, 1969), differential reinforcement of incompatible behavior (Stunkard, 1972), and covert sensitization (Romanczyk et al.). In general, evidence was best for the efficacy of self-monitoring, contingency management, and stimulus control (Abramson, 1977; Brownell & Jeffery, 1987; Brownell & Kramer, 1989). These three techniques ultimately formed the core of the behavioral weight loss treatment "package," (Brownell & Jeffery; Brownell & Kramer).

Although researchers in the early 1970s demonstrated that the behavioral approach to weight loss was effective, absolute amounts of weight loss were small. In a review of the early literature, Brownell and Jeffery (1987) found that treatment averaged approximately nine weeks, with a resulting weight loss of nine pounds. By the late 1970s, researchers were being called upon to produce clinically meaningful amounts of weight loss. In response, treatment using the behavioral "package" was lengthened in the late 1970s and early 1980s to 10-12 weeks, and weight loss increased to approximately 11 pounds (Brownell & Kramer, 1989). Follow-up was also lengthened to approximately one year in the face of questions of long-term efficacy (e.g., Jeffery, Wing, & Stunkard, 1978; Stunkard, 1977).

By the mid-1980s, the core behavioral package had been supplemented with a number of added treatment components, including nutritional information, exercise, cognitive techniques, relapse prevention, and use of social support (Brownell & Jeffery, 1987; Keefe & Blumenthal, 1980; Stunkard & Berthold, 1985). In order to accommodate these added components, treatments became longer (16-20 weeks) and weight loss became correspondingly greater (20-30 lbs; Brownell & Kramer, 1989). It is not clear, however, if the added treatment components had an independent effect on weight loss or if improvements in outcome were simply a result of increasing treatment length. Nevertheless, it is this expanded behavioral package that is most identified with behavioral weight loss programs today, and complete behavioral weight loss treatment manuals based on this expanded package now exist (e.g., the LEARN manual, Brownell, 1997).

The Behavioral Approach to Weight Loss Today

Unfortunately, "behavior therapy" for weight loss has come to be equated with the techniques of therapy, such as stimulus control, rather than a systematic way of analyzing human behavior (Brownell & Kramer, 1989; Stunkard, 1996; Stunkard & Berthold, 1985). For example, several major scientific bodies now recommend "diet, exercise, and behavior therapy" as a standard treatment for obesity (Council on Scientific Affairs 1998; National Heart, Lung, and Blood Institute, 1998, 2000). Of course, from a behavioral perspective this statement makes very little sense; behavior therapy is a technology of behavior change, and two of the main target behaviors

are diet and exercise (Stunkard, 1996). The following section is a brief review the most common treatment components of behavioral weight loss programs.

Functional analysis

Because the etiology of obesity may be different for each individual, the first step in behavioral weight loss programs involves conducting a functional analysis (Wadden, 1993). This stage of treatment establishes what behaviors need to be changed. Patterns of eating habits and physical activity are reviewed to determine how a positive energy balance (i.e., caloric intake exceeding caloric output) has been established. Based on the functional analysis, treatment goals are framed in terms of eating patterns and activity that will result in a negative energy balance. Although weight loss is the goal of an obesity treatment program, weight loss goals are de-emphasized, as weight itself is not a behavior. Common problematic behaviors and treatment goals are listed in Table 1.

Behavioral techniques.

After a functional analysis is conducted, patients are provided with a number of techniques that have been found to be effective in changing patterns of eating and physical activity. Most patients entering a behavioral weight loss program are already aware that they need to change their patterns of eating and activity; however, they are unable to do so on their own. Patients often report that they have “poor motivation,” or that they “know what they need to do, but just can’t seem to do it.” Behavioral strategies teach patients how to modify their behavior in order to reach treatment goals. Because it is not clear which specific techniques are most effective for changing eating and activity patterns (Brownell, Heckerman, Westlake, Hayes, & Monti, 1978; Jeffery et al., 1978; National Heart, Lung, & Blood Institute, 1998; Stalonas, Johnson, & Christ, 1978; Wilson & Brownell, 1980), patients are instructed to use several of them in treatment. Common techniques are summarized below.

Self-Monitoring

Self-monitoring is the cornerstone of weight loss treatment (Brownell, 1997). Self-monitoring has been found to positively affect eating behavior by itself, although this effect is generally small and short-lived (Bellack, 1975, 1976; Bellack et al., 1974;

Table 1. Common problematic behaviors and corresponding treatment goals in behavioral weight loss programs.

PROBLEM AREA	TREATMENT GOAL
Eating meals/snacks too frequently	Eat only three meals and two snacks per day
Too much time between meals, leading to excessive hunger and binge-type eating	Schedule regular eating times (4 hrs between meals)
Excessive meal size	Reduce portion sizes
Poor meal composition (e.g., too much fat in diet)	Adhere to the Food Guide Pyramid
Sedentary lifestyle	Increase physical activity to recommended minimum or beyond

Romanczyk, 1974; Romanczyk et al., 1973). Self-monitoring is primarily useful in providing feedback to patients and providers.

Throughout treatment, patients actively monitor their food intake very specifically, including time they ate, what and how much they ate, the caloric content of the meal, and the situation/context in which they ate. Patients are also asked to monitor the amount and intensity of physical activity in which they engage.

Stimulus Control

A number of stimulus control techniques are widely used in the behavioral treatment of obesity to reduce the amount, content, and temporal pattern of food eaten and to increase physical activity. A partial list of these activities can be found in Table 2.

Contingency Management

Reinforcement for habit change appears to be more effective than reinforcement for weight loss (Abramson, 1977; Israel & Saccone, 1979). Also, as might be expected, self-reward appears to be more effective than self-punishment (Mahoney et al. 1973). Self-reinforcement appears to be at least as effective as reinforcement by others, and possibly more effective over the long-term (Jeffery, 1974; Wilson & Brownell, 1980).

Cognitive Techniques

Cognitive techniques began to be included in behavioral treatment programs in the early 1980s.

Cognitive techniques are similar to those developed by Beck (1979), and can be helpful in two ways.

emotional well-being of obese clients even when they do not result in weight loss (Tanco, Linden, & Earle,

TECHNIQUE	DESCRIPTION AND RATIONALE
Do Nothing Else While Eating	This reduces the likelihood that eating will become paired with other behaviors such as watching television or reading a book. Engaging in activities while eating also reduces one's awareness of caloric consumption.
Eat in One Place	This allows eating to become associated with one specific chair or table position, rather than many places within the home or office, reducing the chance of cravings at various locations. Individuals who work and eat at the same desk should turn or use another side of the desk to consume food.
Follow an Eating Schedule	Following an eating schedule helps control unnecessary caloric intake. This helps clients gain control over eating patterns and it reduces eating associated with external cues.
Shop From a List	Shopping from a food list reduces unnecessary impulse purchases.
Buy Foods That Require Preparation	Buying foods that require preparation avoids easy, prepared meals.
Remove Serving Dishes From Table	Removing food from the table makes the automatic response to have a second helping more difficult, so one must think about the consequences of taking a second helping. Clients should wait five minutes after the urge to have a second helping before consuming more food.
Serve and Eat One Portion at a Time	This technique is used to interrupt automatic eating and slows the eating process. Therefore, a person is less likely to continue eating when full.
Keep Problem Foods Out of Sight	Store problem foods higher on the shelf and healthier foods more readily accessible.
Control Behaviors at the Table	Clients are instructed to not clean their plate; put fork down between bites; pause during the meal; leave the table after eating.
Techniques taken from Brownell, (1997).	

First, patients often hold distorted ideas about weight loss; cognitive techniques are used to help patients accept more rational ideas about weight and weight loss. Second, many patients report that stress and negative emotion elicit overeating. This notion has some support from both laboratory (Polivy & Herman, 1999) and naturalistic (Connor, Fitter, & Fletcher, 1999; Wardle, Steptoe, Oliver, & Lipsey, 2000) studies. By helping to reduce emotional distress, cognitive therapy may reduce the need to eat for emotional reasons (e.g., happy, sad, bored, jealous, stressed). There is some evidence that cognitive interventions are beneficial for the

1998).

Nutrition Interventions

As mentioned previously, behavior therapy techniques are used to help patients comply with a prescribed dietary regimen. However, the exact nutritional components of this regimen are extremely controversial. One reason for the controversy is that nutrition and weight loss issues are not identical; it is possible to lose weight with extremely poor nutritional practices (e.g., total starvation), just as it is possible to gain weight on an extremely healthy diet

(e.g. 3000 calories per day of intake). Weight loss programs must balance nutritional needs with reducing caloric intake. Currently, nutrition advice in popular weight loss books ranges from the low-fat, high-carbohydrate approach advocated by Dr. Dean Ornish (Ornish, 1997) and others (e.g., Katahn & Pope, 1995) to the low-carbohydrate, higher-fat approach advocated by Dr. Robert Adkins (Adkins, 1999). It is beyond the scope of this paper to review the scientific evidence (or lack thereof) supporting these approaches. However, a recent review by the National Institutes of Health concluded that a nutritionally balanced, low-calorie, low fat diet (1,200 - 1,500 calories per day for women, 1,500 - 1,800 calories per day for men) is most effective for weight loss. Very-low-calorie diets (800 calories/day) are no longer recommended for most patients because of concerns about adverse side effects and rapid weight regain (National Heart, Lung, and Blood Institute, 1998). To maximize good nutrition, patients should follow the Food Guide Pyramid (National Livestock & Meat Board, 1993) as well as the Exchange Lists developed jointly by the American Diabetes Association and the American Dietetic Association (American Diabetes Association, American Dietetic Association, 1995).

Exercise Interventions

As with dietary intervention, behavior therapy is used to modify patients' levels of physical activity. While physical activity appears to produce, at best, modest weight loss independent of the effect of caloric restriction through diet (Foreyt et al., 1993; National Heart, Lung, and Blood Institute, 1998), it is highly correlated with long-term maintenance of weight loss (Pronk & Wing, 1994). Moreover, exercise has independent health effects. Recent studies suggest that the impact of sedentary lifestyle on health is equivalent to that of cigarette smoking (Blair et al., 1996; Wei et al., 1999). For these reasons, most weight loss programs include increasing physical activity as a treatment goal.

Fortunately, the level of physical activity necessary to significantly improve health is less than previously suspected (Pate et al., 1995). Major scientific bodies now recommend that all adults should accumulate at least 30 minutes or more of moderately intense physical activity every day or close to every day (Pate et al.); patients are encouraged to gradually increase their physical activity to this level or higher. Lifestyle activity, such

as taking the stairs rather than the elevator, is as effective as structured exercise programs (Dunn et al., 1999).

Outcome of Behavioral Treatment of Obesity

While a behavioral approach has greatly increased the effectiveness of weight loss programs, absolute amounts of weight lost remain disappointingly small for many patients. Although some patients are able to lose significant amounts of weight (Klem, Wing, McGuire, Seagle, & Hill, 1997), most patients typically lose only 10% to 15% of initial body weight (Wadden & Sarwer, 1999).

Long-term outcome of weight loss treatment remains problematic as well. A recent review found that most patients had regained 35% to 50% of their weight loss one year after treatment, regardless of the weight reduction method used (Wadden & Sarwer, 1999). However, few of these studies provided long-term care for patients. In the past, obesity has been treated as an acute disorder, a view that was encouraged by the commercial diet industry. However, obesity is a chronic disorder that requires long-term care, and maintenance of weight loss requires a different set of skills than weight loss itself (Brownell & Rodin, 1990; Wadden, 1995). Long-term patient-provider contact has been associated with successful maintenance of weight loss (Bjorvell & Rossner, 1992; Perri, 1998).

Fortunately, the modest degree of weight loss achievable through behavioral weight loss programs is associated with improvements in hypertension, hypercholesterolemia, type 2 diabetes mellitus, and all-cause mortality (National Heart, Lung, and Blood Institute, 1998). However, many patients do not appear to be satisfied with this amount of loss. Patients in a recent study described their goal weight as a 32% reduction in body weight, which is much greater than most behavioral treatments can produce (Foster, Wadden, Vogt, & Brewer, 1997). After losing on average 16 kg after 48 weeks, 47% of participants in this study did not lose up to the amount they specified as their "disappointed weight" prior to starting treatment.

Limitations in the Behavioral Treatment of Obesity

The behavioral treatment of obesity is limited by a number of factors. First, obesity is not fully determined by environmental factors that can be

controlled through changing patterns of eating and activity. Genetic factors have a strong influence over body mass (Bouchard, 1997; Grilo and Pogue-Geile, 1991; Sorensen, Holst, Stunkard, & Skovgaard, 1992; Stunkard, Harris, Pedersen, & McClearn, 1990). Genetics do not determine body mass, but may play a role in limiting the amount of weight loss that can be produced by behavioral weight loss programs.

Second, we do not live in an environment that supports weight loss. People in western cultures are exposed to a wide variety of palatable high-fat, high-calorie foods (e.g., fast food) that are often less expensive and easier to prepare than lower-calorie options, and busy schedules make it difficult to engage in physical activity. It is difficult to maintain weight loss in the face of overwhelming environmental pressure to eat more and exercise less. Patients must develop their own "mini-environment" that supports the changes they are trying to make. As mentioned previously, long-term patient-provider contact can help patients to maintain this environment.

Third, patients may become discouraged when their weight loss plateaus before they reach their weight loss goals. Most obese individuals expect to lose more weight than behavioral weight loss programs can reasonably deliver, and they may feel that the amount of effort necessary to maintain weight loss is not worth a loss of only 5%-10% of initial body weight (Foster et al., 1997). To counteract discouragement, modifying unreasonable expectations and increasing body acceptance may be useful treatment strategies (Wilson, 1996).

Conclusions

Despite some limitations, the introduction of a behavioral treatment approach has revolutionized the treatment of obesity. Behavioral techniques are now an integral part of diet-and activity-based weight loss programs. In fact, it is difficult to find a weight loss program that does not include at least some behavioral techniques. Behavior therapy has also been recommended as an adjunct to pharmacological and surgical interventions for obesity (National Heart, Lung, and Blood Institute, 1998).

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RECENT DEVELOPMENTS IN THE COGNITIVE-BEHAVIORAL TREATMENT OF OBSESSIVE-COMPULSIVE DISORDER

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The lifetime prevalence rate of OCD in adults is two to three percent (e.g., Karno, Golding, Sorenson, & Burnam, 1988). Symptoms typically wax and wane as a function of general life stress, and a chronic and deteriorating course is the norm if adequate treatment is not sought. In many cases, fears, avoidance, and rituals impair various areas of functioning (e.g., academic, social). Although many sufferers recognize their obsessional fears and rituals as senseless and excessive, others believe that their rituals actually serve to prevent the occurrence of disastrous consequences, i.e., they have "poor insight" (Foa et al., 1995). Depression and other anxiety disorders are often observed to co-occur with OCD. The aim of this article is to provide an up-to-date review of the latest developments in the research on cognitive-behavioral treatment of OCD. Studies on treatment effectiveness and predictors of outcome are also discussed.

Obsessive-compulsive disorder (OCD) is characterized by (a) recurrent, unwanted and seemingly bizarre thoughts, impulses or doubts that evoke affective distress (obsessions; e.g., that one has struck a pedestrian with their automobile); and (b) repetitive behavioral or mental rituals performed to reduce this distress (compulsions; e.g., checking the rear-view mirror). Obsessional fears tend to concern issues related to uncertainty about personal safety or the safety of others. Compulsions are performed to reduce this uncertainty. Common OCD themes are fears of contamination and washing rituals, fears of harming others and checking rituals, fears of discarding important information and saving rituals (hoarding), and blasphemous thoughts (fears of sinning) with praying rituals. Some patients also have excessive concerns about lucky/unlucky numbers, or worries about orderliness and symmetry.

treatments. However, the general consensus that OCD was considered unmanageable (Rachman & Hodgson, 1980) suggests that the effects of these therapies were neither robust nor durable.

In 1966, Victor Meyer (Meyer, 1966) applied the experimentally established principles of learning theory to the treatment of OCD. He reported treating fifteen inpatients with OCD using two behavior therapy procedures that have come to be known as exposure and response (ritual) prevention (EX/RP). Meyer persuaded these patients to deliberately confront, for two hours each day, situations and stimuli they usually avoided (e.g., floors, bathrooms). The purpose of confrontation was to induce obsessional fears and urges to ritualize. The patients were also instructed to refrain from performing compulsive rituals (e.g., washing, checking) after exposure. Ten of Meyer's patients responded extremely well to this therapy and the remainder evidenced partial improvement. Follow-up studies conducted several years later found that only two of those who were successfully treated had relapsed (Meyer, Levy, & Schnurer, 1974).

Foa and Kozak (1986) attempted to elucidate mechanisms involved in successful treatment of OCD (and anxiety disorders in general). They proposed that two conditions are necessary for fear reduction. First, the fear must be activated, and second, new information must be provided that is incompatible with the pathological elements of the fear. They further proposed three indicators of successful emotional processing in the context of therapy: fear activation, habituation (fear reduction) within the session, and habituation between sessions.

Development of Cognitive-Behavioral Treatment Procedures

Prior to the mid 1960's, treatment for OCD consisted largely of psychodynamic psychotherapy derived from psychoanalytic ideas of unconscious motivation. Unfortunately, there are virtually no scientific studies assessing the efficacy of these

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Assessment of OCD Symptoms: The Yale-Brown Obsessive-Compulsive Scale

The use of assessment instruments that are psychometrically reliable, valid, and sensitive to change is important in assuring that any improvement in symptoms is really due to the treatments, as opposed to fluctuations in a poor measuring scale. The Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989a, 1989b), a semi-structured clinical interview, is considered the gold standard measure of OCD symptoms. Due to its respectable psychometric properties (Taylor, 1995), the Y-BOCS is widely utilized in OCD treatment outcome research, providing an excellent “measuring stick” by which to compare the results of treatment across studies. Therefore, it is important to briefly discuss some specifics about what scores on the Y-BOCS indicate clinically. The scale contains ten items: five for obsessions and five for compulsions. Both types of symptoms are rated on their 1) time, 2) interference, 3) distress, 4) resistance, and 5) control (0 = no symptoms to 4 = severe). Total scores range from 0 to 40. Y-BOCS scores ranging from 0-7 indicate subclinical OCD, 8-15 = mild symptoms, 16-25 = moderate symptoms, 26-35 = severe symptoms, and 36-40 = extreme severity. To suggest another idea of how Y-BOCS scores map onto clinical severity, patients with scores below 17 are typically considered too mild for inclusion in OCD treatment studies.

Efficacy of EX/RP

Since Meyer’s (1966) initial report, numerous investigations of EX/RP for treating OCD have been conducted. Randomized controlled trials (RCTs) have demonstrated the superiority of this treatment over credible control therapies such as progressive muscle relaxation training (e.g., Fals-Stewart, Marks, & Shaffer, 1993), anxiety management training (Lindsay, Crino, & Andrews, 1997), and pill placebo (Kozak, Liebowitz, & Foa, 2000). For patients receiving EX/RP, Y-BOCS reductions typically exceed 50-60%, and post-treatment scores average between 9 and 13, indicating mild symptoms. Importantly, despite clinically significant improvement in symptoms, patients rarely achieve complete symptom reduction with EX/RP (Abramowitz, 1998).

Whereas many individuals with OCD exhibit overt compulsive rituals (e.g., washing, checking), a substantial subset report mental rituals which are

difficult to distinguish from obsessional (anxiety-evoking) phenomena. These patients, often labeled as “pure obsessionals,” were once considered non-responsive to cognitive-behavioral treatments (Jenike, 1993). Recently, however, Freeston and colleagues (Freeston et al., 1997) conducted an RCT in which they compared a form of EX/RP, developed specifically for OCD without overt rituals, to a waiting-list control. This treatment primarily involved repeated exposure to descriptions of obsessional thoughts (via audiotapes) and abstinence from mental ritualizing. Mean pre- and post-treatment Y-BOCS scores for the EX/RP group were 25.1 and 12.2 respectively. As expected, there was no improvement in the waiting-list group: Y-BOCS pre- and post-treatment scores were 21.2 to 22.0 respectively. Importantly, at 3-month follow-up, EX/RP patients had maintained their gains as evidenced by the 10.8 mean Y-BOCS score. These results demonstrate that EX/RP procedures may be effectively varied to accommodate the heterogeneous phenomenology of OCD, including those with obsessional symptoms and mental rituals.

Effectiveness Research

Although RCTs have yielded sound evidence that EX/RP reduces OCD symptoms, these studies employ highly selective patient samples that are not representative of the typically treatment-referred OCD patient. For example, despite the high frequency with which comorbid conditions exist in clients with OCD, individuals with comorbid disorders (e.g., Axis II, major depression) are usually excluded from RCTs. Effectiveness studies are designed to address these methodological shortcomings and examine the effects of treatments in highly representative patient samples treated in general clinical settings. The aim of effectiveness research is therefore to bridge the gaps between research and clinical practice.

Our research group conducted a large effectiveness study of intensive EX/RP in which 110 patients with OCD were treated on a fee-for-service basis in an outpatient clinic (Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000). Treatment included three weeks of daily two-hour sessions. No patients were excluded for reasons of age, comorbidity, previous treatment failure, or medical problems. In fact, half of the sample had comorbid Axis I or Axis II diagnoses and 61% were also using serotonergic medication. Patients were only denied EX/RP if clinically indicated (i.e., if they were actively

psychotic, abusing substances or suicidal). An intent-to-treat analysis indicated considerable improvement: mean Y-BOCS scores improved from 26.79 (SD = 4.89) to 11.81 (SD = 7.30). This is equivalent to a 60% reduction in OCD symptoms. This study suggests that the effects of EX/RP extend beyond the highly selected patient samples treated in research studies.

Predictors of Improvement

While EX/RP is effective for most people with OCD who enter treatment programs, about 25-30% of patients suitable for this treatment drop out of therapy. Among those who do stay in treatment, about 80% respond well, yet 20% or more do not. Therefore, about 50% of patients referred with OCD are not significantly improved with EX/RP, and it is important to consider this as well as the impressive data for this treatment's effectiveness. Substantial effort has recently gone into investigating factors that might predict poor treatment response. In the following section, we describe some of the recent research on predictors of EX/RP treatment outcome, and consider the following variables: 1) insight into OCD symptoms, 2) depression, 3) neuropsychological factors, and 4) family expressed emotion.

Insight

In the DSM-IV Field Trial for OCD, Foa and colleagues (Foa et al, 1995) found that some individuals with OCD articulate specific feared consequences of not performing rituals (e.g., "if I do not repeat my prayer six times, my relatives will die"), whereas others do not. Moreover, of those with specific feared consequences, a subset hold strongly fixed beliefs that their obsessional fears are realistic, and that compulsive rituals are necessary to prevent disasters. On the basis of this finding, patients who show this pattern of fixed beliefs are given the DSM-IV diagnosis "OCD with poor insight". Foa, Abramowitz, Franklin, and Kozak (1999) recently examined whether the presence of feared consequences and fixed beliefs were related to treatment outcome with EX/RP.

In their study, 20 OCD patients received an intensive (daily) 3-week EX/RP program. Eleven patients articulated fears of disastrous consequences, whereas nine did not. At pre-treatment, mean Y-BOCS scores did not differ between groups (overall mean = 25.20). However, at post-treatment patients

with articulated fears of disasters (Y-BOCS = 8.2) tended to improve more than those who did not articulate these kinds of fears (Y-BOCS = 14.9). Although this difference was not significant ($p = .06$), the authors concluded that the inability to articulate feared consequences of exposure decreases the therapist's ability to contrive exposure exercises that provide disconfirming information. This, in turn, might hinder treatment with EX/RP.

Of the 11 patients in the Foa et al. (1999) study with articulated feared consequences, five evidenced poor insight into the irrationality of the beliefs. A comparison of outcome indicated that these individuals showed a poorer response to EX/RP relative to patients with good insight. To explain this finding, Foa et al. (1999) speculated that patients with poor insight may have difficulty learning information that is inconsistent with their OCD beliefs. Alternatively, it could be that these patients did not comply with EX/RP instructions as well as did patients with better insight. The findings from this small study highlight the importance of assessing OCD patients' degree of insight into the senselessness of their symptoms. Although more studies with larger samples are necessary, insight is likely an important prognostic indicator of response to EX/RP.

Comorbid Depression

Depression often co-exists with OCD (Ricciardi & McNally, 1995). Using a large sample of 87 patients, Abramowitz and colleagues (Abramowitz, Franklin, Street, Kozak, and Foa, 2000) examined the effects of comorbid depressive symptoms on outcome of EX/RP. They divided patients into groups of non-depressed, mildly, moderately, and severely depressed on the basis of pre-treatment scores on the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erlbaugh, 1961). Results indicated attenuated outcome only for the most severely depressed group of patients. The authors suggested that because of their high emotional reactivity, depressed individuals fail to undergo the decrease in anxiety/distress that occurs following extended exposure to feared stimuli. Thus, they do not have the therapeutic experiences of feeling comfortable in the presence of feared stimuli, and fail to learn that their obsessive doubts are unrealistic. Motivational difficulties, which often accompany depression, may also account for poor treatment outcome.

Abramowitz and Foa (2000) compared outcome of EX/RP for OCD patients with and without a diagnosis of comorbid major depression. They found that although the presence of major depression was not related to treatment failure per se, non-depressed patients had significantly lower post-treatment and follow-up Y-BOCS scores than patients with an additional diagnosis of depression.

Neuropsychological Factors

Some have suggested the presence of neurological deficits in OCD, with the most direct evidence coming from studies finding structural differences between individuals with and without this disorder (c.f. Hoehn-Saric & Greenberg, 1997). Recently, Bolton, Raven, Madronal-Luque, and Marks (2000) examined whether the presence of neuropsychological deficits and/or neurological soft signs (e.g., in visuo-spatial functioning) predicted poor response to EX/RP. Thirty-five OCD patients received 8 - 12 weekly treatment sessions. Overall, scores on the Y-BOCS improved from 30.2 to 20.3 following therapy. Prior to treatment, patients completed tests of visuo-spatial skills (e.g., block design subtest of the WAIS), set-shifting ability (e.g., Wisconsin card sorting test) visual memory (e.g., Rey-Osterreith test of spatial memory), and an assessment of neurological soft signs (e.g., sensory integration, motor coordination). Correlational analyses suggested no relationship between treatment response and performance on neuropsychiatric measures. Although the size of the Bolton et al. (2000) sample was somewhat small, the authors concluded that neuropsychological deficits were not related to EX/RP treatment outcome.

Expressed Emotion

The way in which family members respond to a relative with OCD (or any problem) is called expressed emotion (EE). Researchers have conceptualized EE as including emotional overinvolvement, hostility, and perceived criticism. To determine whether these family interaction variables play a role as predictors of response to EX/RP, Chambless and Steketee (1999) conducted a study in which patients with OCD ($n = 60$) and with agoraphobia ($n = 41$), and their families, were administered measures of EE prior to beginning treatment. The most consistent predictor of negative treatment outcome was hostility: when relatives were hostile to the identified patient, the odds of premature

termination were about six times greater than when relatives were not hostile. Hostility was also associated with poorer response in patients who completed treatment. Interestingly, once hostility was statistically controlled, criticism had a positive effect. This suggests that when relatives express dissatisfaction with patients' symptoms, but do not express personal rejection, criticism may have motivational properties that enhance treatment response. This underscores the importance of educating family members about OCD and how to therapeutically assist with EX/RP exercises during treatment.

Summary and Future Directions

Recent research has demonstrated that cognitive-behavioral therapy using EX/RP is the most effective short- and long-term treatment for OCD. These encouraging findings notwithstanding, full remission is not the standard; rather a 60-70% reduction in symptoms is observed. Evidence from recent effectiveness studies suggests that EX/RP is transportable to non-research settings, and therefore should be a "first-line" treatment modality for OCD patients in general clinical settings. Although response to treatment is highly variable, we are beginning to identify factors that may reliably predict poorer response, such as poor insight into the senselessness of obsessional fears, severe depression, and family hostility.

Although the research to date has addressed many critical issues in the treatment of OCD, there are still important topics that will require further study. For example, a treatment program that includes training of family members about OCD, its treatment, and how to effectively assist with a loved one's therapy would be useful given the high prevalence of relational problems in families of OCD patients. Motivation to begin treatment, especially given the nature of EX/RP, is often a problem. Thus, readiness programs in which patients read case histories or discuss treatment with former patients, might decrease refusal rates and increase treatment compliance. From the clinician's perspective, providing successful EX/RP can be a challenge, and very few centers offer the training needed to become proficient in these procedures. Therefore, development of programs for psychology and psychiatry trainees might improve access to this effective therapy.

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BEHAVIOR ANALYST CERTIFICATION BOARD UPDATE

Gerald L. Shook, Ph.D., BCBA
Executive Director

Spring examination administrations were scheduled on May 19 in 14 sites across the country, and on May 30 in New Orleans in conjunction with the ABA Annual Convention. The BACB received nearly 150 applications for these administrations, and increase of over 25 percent from the May 2000 administrations. The BACB currently has approximately 600 certificants.

Fall examination administrations are scheduled for November 17, 2001, with an application postmark deadline of September 10, 2001. The BACB is exploring administration of the examinations in the United Kingdom in November. Individuals who are interested in having the examinations administered in their area should contact the BACB Executive Director. Information and applications are available on www.BACB.com.

Two new members have been named to the BACB Board of Directors: Dr. James Partington of California and Dr. John Jacobson of New York. Dr. Partington's term as Director began in May of 2000, while Dr. Jacobson's joins the Board in May of 2001.

The Florida Behavior Analysis Certification program and the BACB are working together on a major Job Analysis project that will result in a new Task List being developed and new examinations being constructed that reflect any change in content suggested by this process. As an initial step, the BACB convened a meeting of a Content Expert Panel in February in conjunction with the California Association for Behavior Analysis annual conference. A survey instrument is being constructed that, once finalized, will be sent to over 1000 behavior analysts around the world to garner their input on the content of the new Task List and examinations. Professional Testing, Inc. of Orlando is serving as a consultant to the BACB on the project.

The BACB has completed field-testing its University Graduate Coursework Pre-Approval process. University programs that have their coursework pre-approved will be able to assure students that this coursework will meet the BACB coursework eligibility standards and can advertise their pre-approved coursework status. The BACB

plans on posting the names of university programs with pre-approved coursework on the BACB website. Individuals who are interested in having their university coursework pre-approved by the BACB should check the BACB website for information and applications.

Because the Association for Behavior Analysis CEU Approval process is not yet operational, the BACB Board of Directors adopted the following resolution:

*BACB Resolution 02-2001
Extension of Certification Cycle*

Resolved: That the Board of Directors of the Behavior Analyst Certification Board, Inc., recognizes that the time required for the Association for Behavior Analysis to implement a CEU approval mechanism may have delayed the availability of approved CEUs for BACB certificants. To correct this delay, the BACB will provide an extension of the certification cycle for all certificants who were certified prior to January 1, 2002. Those certificants who were certified between December 31, 1999 and June 30, 2000 will have a certificate expiration date of June 30 2005; those certificants who were certified between July 1, 2000 and December 31, 2000 will have a certificate expiration date of December 31, 2005; those certificants who were certified between January 1, 2001 and June 30, 2001 will have a certificate expiration date of June 30 2005; those certificants who were certified between July 1, 2001 and December 31, 2001 will have a certificate expiration date of December 31, 2005.

In addition to correcting the delay in the availability of the CEU approval process, the Directors took this opportunity to establish December 31 and June 30 as the only two recertification dates. This resolution extends the recertification period for Charter Certificants (individuals certified between December 1999 through December 2000) a minimum of two years, and the recertification period for individuals certified during 2001 a minimum of one year. BACB certificants can find their current certificate expiration date on their certificate. Note that this resolution does not affect annual renewal

dates prior to 2005; certificants will need to adhere to their current certification date and submit annual renewal applications and fees until 2005. Additional

information on this new policy and available Approved CEUs may be found on the BACB website.

REPORT FROM THE 1ST ANNUAL PENNSYLVANIA ASSOCIATION FOR BEHAVIOR ANALYSIS CONFERENCE

Beth Rosenwasser, M.Ed., BCBA, CAC
PennABA, Board Member at Large

We just returned from an awesome conference (held March 16, 2000 in Harrisburg) – what a great service this organization has begun to provide for the state of Pennsylvania! We are one of 37 affiliate chapters to the Association for Behavior Analysis (ABA), the international organization for behavior analysts working in a wide range of domains (www.wmich.edu/aba). The current PennABA board was elected at ABA 2000 in Washington last year and will remain in place for two year terms. This first annual conference included five educational presentations, an awards ceremony, an open business meeting, and a panel discussion on “Behavior Analysis in PA,” for which 5 CEU’s for the behavior analyst credential were offered. This bulletin will highlight these events, let you know about the PennABA upcoming goals for 2001-2, and provide contact information at the conclusion. Please feel free to contact any of us for further information!

The first presenter was the always entertaining and enlightening president of PennABA, Richard Foxx, PhD, BCBA. His humorous, yet provocative talk was entitled, “Tenge familia: Behavior analysis in PA – opportunities and threats, friends and foes.” *Tenge familia* meaning, “the family sticks together,” made use of cartoons, colorful metaphors and latin terms, historical references and current events, and actual state agency vituperatives against behavioral strategies, to explore issues such as language and cultural barriers to the dissemination of behavior analysis, the current state of research on the efficacy and cost-effectiveness of behavioral interventions, and areas of hope. For example, he cautioned that “we are so used to being out of the mainstream that we don’t have a mainstream repertoire” and gave examples of how we need to watch our language and presentation. He also emphasized multiple reasons why parents of children with special needs are major allies, being outcome-oriented, educated and motivated. Ultimately, he concluded that “our time has come.” With the publication of clear outcome data that support many of our interventions, recent coverage of behavior analysis on major networks, and certification, “this is

a wonderful opportunity for us” and thus we must work together and stick together to bring excellent services to families who need them.

A special guest was not a behaviorist, but a lawyer, Edmond Tiryak, J.D. who followed up on some of the themes raised by Richard Foxx with a focus on state and federal level organizations and regulations, how they influence the practice, or not, of behavior analysis, as well as how behavior analysis can influence the ways that policies are established. He pointed out that different divisions of child services housed in the same building in PA hold completely disparate views of behavioral interventions and gave very specific examples of the ways that institutional resistance to behaviorism leads to practices and policies that block the use of behavior analytic interventions and experts. He told fascinating stories of class action law suits for which he was council, and specifically explained how behavior analytic emphasis on data and outcomes helps him win cases. Overall he encouraged us, stating that as an outsider he sees behavior analysis as a “distinguished and effective method of solving problems.”

Given all of this talk about dissemination, it is no wonder that Fran Warkowski, Ph.D., the director of the PA Bureau of Special Education, was given an award for her tremendous support of behavior analytic interventions on account of their efficacy. Anyone who has met her knows what a passionate advocate she is for parents and their children with special needs. This award recognized her contributions to behavior analysis, PennABA, and behavior analyst certification in Pennsylvania.

There were three clinical presentations. The first was by PennABA treasurer, Rick Kubina, Ph.D., covering the problem of generalization for children with autism in a particularly stimulating manner. Giving a new twist by using a precision teaching conceptualization, he discussed the ways that typical educational strategies inhibit, or place ceilings, on generalization of newly learned material. Following some fun audience participation demonstrations to

clarify the problem, he concluded with several suggestions on how to modify instruction to avoid these problems for children both with and without special needs. Board member at large, Kimberly Schreck, Ph.D. gave an energetic yet scholarly review of the surprisingly sparse research literature on the treatment of sleeping difficulties in children (for both typically developing and those with special needs), and specifically described the range of behavioral interventions and their efficacy. Saul Axelrod, Ph.D. spoke in his warm and engaging style on the topic of trigger (antecedent stimulus) analysis for enhancing self-control. Given that he has been in the field a long time, he had an interesting historical perspective on the relative underuse of antecedent control procedures (both respondent and/or operant) as compared with the emphasis on functional analysis and consequences. He pointed out several benefits of heightened focus on antecedents including the ease of non-professional observers to identify and change antecedents, the self-image that teachers often have of themselves as changers of antecedents, and the rapidity of on-the-spot antecedent procedures, as compared with consequent manipulations. (Of course, he was not saying that they always work or that consequent manipulations are not often necessary!)

Last, but not least, a panel discussion was held by the board members and presenters in a lively dialogue with over 100 participants at the conference. The accomplishments of PennABA this year were reviewed and goals for the upcoming year were

developed in conjunction with the new membership of PennABA. We were thrilled at how eager people were to engage. Among the goals discussed were: a Penn ABA listserv, a PennABA web site with links to areas of interest to practitioners and families, including a link listing certified behavior analysts, a series of public service pamphlets on topics such as “What is Behavior Analysis?” “Autism and Applied Behavior Analysis,” and “Behavior Disorders and Applied Behavior Analysis,” an effective snail-mailing list, and a newsletter. The final goal for the coming year is the 2nd Annual Penn ABA Conference. Kudos to Kim Schreck who took the lead organizing this successful conference, to Richard Foxx for his guidance, and to Rick Kubina who agreed to take the lead for next year’s conference to be held at Penn State University. If you live in Pennsylvania and would like to help with any of these activities, please join and jump in!

Who are we? The Executive Board of PennABA includes Richard Foxx (President), Richard Weissman (Secretary), Richard Kubina (Treasurer), Beth Rosenwasser (Member at Large), and Kim Schreck (Member at Large), and Angela Smith (Student Representative).

Joining PennABA: Please contact Rick Kubina at (814) 863-2400 or rmk11@psu.edu and request a PennABA Membership pamphlet.

Joining PennABA Listserv: Please contact Beth Rosenwasser at iBRosie@aol.com

SUCCESSFUL MANAGEMENT OF EPSDT FUNDED COMMUNITY-BASED
BEHAVIORAL HEALTH REHABILITATION SERVICES FOR CHILDREN (WRAP
AROUND): WHAT OBM HAS TO OFFER

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As part of the Behavior Analyst Today's (BAT) on going discussion of ways to improve and reform Behavioral Health Rehabilitation Programs (BHRP) for children, this paper addresses the role of behavioral management in increasing treatment integrity. With the questionability of traditional organizational development procedures (Terpstra, 1981), organizational behavior management rose in the field of management and human resources. Thus while changing corporate culture has remained an elusive task, changing corporate behaviors has prove to be quite successful and enduring (Wilhelm, 1992).

Critical to the long term goals of an OBM approach is increasing service quality and integrity of socially valid services, while improving specific outcomes for children within the programs. Also OBM attempts to produce more productivity and greater satisfaction in workers, thereby improving effectiveness and efficiency in organizations (Mawhinney, 1984). In addition, reducing costs is a major theme that needs to be addressed. It is hoped that this paper will spark interest from those involved in organizational behavior management to address issues of performance in social service agencies, particularly in the areas where the programs are involved directly in the field and not in the office, where practices are readily and clearly observed.

An OBM approach involves (a) specification of standards for workers guided by strong behavioral objectives linked to long term agency objectives and treatment objectives tailored to the needs of the particular child in which they serve (b) measurement, particularly measures of compliance and treatment integrity (c) monitoring and feedback systems that reward appropriate behavior and offer corrective feedback and training to lessen performance discrepancies. To achieve these goals, a BHRP company needs to move past three types of common management errors: (1) inadequate structural support including supervision and representative management (2) blaming employees and (3) solely relying on grievances as a measure of treatment integrity performance. This paper will define these issues, starting with the management errors.

Inadequate structural support

The key player in the structuring of BHRP is the first line Supervisor (Cautilli, Rosenwasser, & Clarke, 2000). Cautilli and colleagues (2000) laid out a clear job description of the roles, responsibilities, and function of the clinical supervisor. Unfortunately, few agencies have supervisors who understand and can apply the technology of both administrative and clinical roles enhancement. Even more problematic is that most agencies have not recognized the importance of management and supervision in the overall effectiveness of BHRP.

Blaming the Employee

One of the strongest achievements of statistical process control and total quality management, for which behavior analysts should be deeply indebted, is the enduring lesson that these approaches have left on managers to recognize that many performance problems are indeed systemic and not the fault of a particular employee. Over the years management has developed a style in which the most natural thing for a manager to do, when a grievance or problem arises is to blame it on the particular staff member involved. For example, when faced with a grievance from the school about an employee sitting in the back of the class and not being helpful when the child is engaged in disruptive behavior, the first reaction might be to decide to remove the employee and start the process of helping this employee to find another career. This is a simplistic but counterproductive reaction.

Whenever employees are punished it leads to a suppression of not just the current behavior but all

behavior emitted by that employee. In addition, punishment has the distinction of bringing negative emotional side effects to the employee. Thus the employee may become less effective from the action and actually begin to blame the supervisor. The supervisor may feel frustrated because the employee's job performance is suffering (the exact opposite result than what the supervisor intended) and the relationship with the employee may become adversarial. Although supervisors want to have good relations with employees, they may be under pressure to make problems go away quickly and quietly and so may use punishment to achieve this.

We do not believe that the majority of employees come to a position to be ineffective or to do the least amount of work possible. It is our belief that these programs are not structurally sound in managerial style. When employees are not performing their jobs effectively, an analysis of the performance problem should be conducted (Mager & Pipe, 1997). The performance discrepancy may be due to motivation (the employee knows what to do but does not want to do it) or may be a skill deficit (the employee does not know how to do the job).

To promote improvements in employee performance, and retain productive, qualified employees, supervision needs to take on a developmental role. In this process, the supervisor must allow for mistakes by the employee, and use these mistakes during individual supervision as a means of educating and developing the employee's skills. These skills should not only include those in the employee's primary position focus, such as behavioral consultation, but also in other areas such as customer relations, management, organizational, and financial skills. Expanding the employee's knowledge and skills in these areas will increase the employee's job satisfaction. This, in turn, increases the likelihood of longevity with the organization, allows for growth within the organization, and helps to ensure that, if the person does aspire to advance within the organization, he/she will have the necessary skills to function effectively at the time of promotion.

Use of feedback and positive reinforcement of competency in the position will enhance productivity and will help promote a positive image for the organization due to the quality services that will be provided in such a supportive supervisory environment. OBM can aid in very constructive ways

to foster such a positive work environment that is focused on quality services. Use of a "Competency-Based" approach to employee performance and improvement is one method to improve employee performance by gradually developing skills in various areas of competency over time, and will aid in quality improvement for the organization. Available reinforcement is very real in the Competency-Based approach when annual salary increases are linked directly to performance improvement, which is easily measurable across competency areas identified for improvement in the employee's position.

Using a Competency Based approach begins with the hiring process. The organization needs to first identify core skills for the position as the basis for hiring employees at the outset. Organizations should have a clear and logical business reason for differentiating between essential and non-essential duties for a position. Steps must be taken to ensure which competencies are essential for the position. This can be accomplished by using managers and those with expertise in the job function to rate the importance of various competencies. Once decided, those interviewing for the position should develop a set of interview questions that will assess the skills of the prospective employee, or "behaviorally-based" questions. This approach results in prompting the interviewee to relate personal experiences and approaches when answering questions as a means of demonstrating competency. It will become readily clear to the interviewers whether the prospective employee has the skills and experience to handle various situations in the position, such as treating difficult behaviors, consulting in the schools with teachers, interacting with families and training staff to implement treatment programs.

Solely Relying on Grievances as a Measure of Treatment Integrity Performance

Since grievances are a low probability event, relying purely on grievances might lead to underreporting of difficulty by staff. Fortunately for effective intervention one does not have to rely solely on a single measure. It has been well established that when dealing with behavioral response classes, covariation occurs between behaviors within that class and incompatible with the class (Streff, Kalsher, & Geller, 1993).

In addition to the above by solely focusing on the number of grievances, it is easy to fall into the

routine of management by exception. Management by exception or waiting until someone has made a mistake to punish (rather than reinforcing appropriate job performance) is strong in organizational cultures because of the perception that “aversive” controls are more effective. Some managers are uncomfortable with using reinforcement in the workplace due to cultural, personality or environmental factors. Many managers have not experienced models for reinforcement and therefore do not know how to use reinforcement effectively (Komacki, 1983).

Specification of Standards for Workers

Performance targets should be socially significant and target process that will lead to greater treatment integrity of workers (Sulzer-Azaroff & Fellner, 1984). Thus selected behaviors and processes in the company should be guided by strong behavioral objectives linked to long term agency objectives and treatment objectives tailored to the needs of the particular child in which they serve. According to Alberto and Troutman (1999), sound behavioral objectives contain five components: they (1) identify a target person or group (2) identify an observable behavior (3) identify a context that the behavior is to be displayed (4) identify a criterion of achievement and for termination and finally (5) have a target date for achievement.

Measurement: Measures of Compliance and Integrity

Probably one of the most important contributions of a behavioral approach to organizational behavior has been the focus on measurement and measurement systems (Hall, 1971; Komaki, Collins, & Thoene, 1980). Behavioral measures may help employees to better understand the expectations placed on them and the steps involved in achieving the goal (Komacki et al.). In BHRP, mobile behavioral auditors can go into the field to view and record staff performance (Cautilli, Rosenwasser, & Clarke, 2000).

Some behaviorally defined measures that behavioral auditors in BHRP systems may target are promptness and consistency of worker arrival, quality of interaction with the child, parent or teacher, number of individualized comments made to the child, and frequency, intensity, duration and appropriateness of form with respects to the delivery of treatments identified in the treatment plan.

In addition to the above measures, BHRP need to rely on softer measures such job satisfaction surveys (Mawhinney, 1989) and parent and teacher satisfaction surveys. The satisfaction of behavior specialist consultants, mobile therapists, and therapeutic staff support is critical to retention and the creation of a more humane work place (Rosow, 1982).

Another approach to measuring employee performance is known as the “360 degree” evaluation, (Ghorpade, 2000). In this approach, an employee receives feedback on his/her job performance from a variety of sources – the supervisor, peers, co-workers, subordinates, clients (e.g., parents, teachers). This information is supplied anonymously in order to encourage honest feedback. The employee also rates his/her performance and this is then compared to the rating(s) of the other feedback providers. This type of performance evaluation can then become the basis for a professional development plan where the employee focuses on addressing areas of need as identified by the evaluation. This approach does not depend solely on performance appraisal by supervisors, who may not have much daily contact with the employee. It provides critical information about the employee’s job performance as perceived by individuals who are in direct contact with the services being delivered.

Monitoring and Feedback Systems

By monitoring the information obtained in the above step, supervisors would attempt to reward appropriate behavior and offer corrective feedback and training to lessen performance discrepancies. Rewards themselves should not be limited to just praise and recognition but should take the form of a host of feedback on one’s performance and the contingent use of organizational reinforcers such as training opportunities and travel (Komacki, 1983), and directly linking performance improvement to salary increases, as mentioned earlier. Managing the program by team objectives and its correlation with treatment outcomes, can enhance performance of workers and increase performance.

It is our belief that mental health agencies should reinvest 3-5% of their gross salaries into professional development for their employees. This money should be designated for job related training. Training can then be linked to employee compensation packages through the use of skill-based pay systems. In a skill-based pay system employee

salaries are based on the knowledge and skills that employees demonstrate. The skills reflected in this type of plan go beyond the immediate skills required for their current job. Linking raises to job performance often motivates attendance at trainings and can be used to encourage generalization of trained skills to the natural environment. This means that the volume of training must increase and therefore so does the cost to the organization. However, this cost is offset by the benefit to the organization of having skilled employees who deliver effective services to children and families resulting in increased consumer satisfaction.

For training to be effective it must be incorporated into an entire performance management program. Such programs identify key behaviors for the staff to perform (e.g., engaging in continuous interaction with the child or delivering 200 effective descriptive praises in a 1-hour period). The program should use a measurement system to determine whether these behaviors are exhibited. The program should specify to the employee what behaviors are expected. Finally, feedback and reinforcement are provided to the employee (Anderson, Crowell, Sucec, Gilligan & Winkoff, 1983).

Unfortunately in many instances training generalization does not occur. Skills learned in the training are not demonstrated in interventions with the client. In this case, all have lost. The company has lost an outcome. The client has lost an opportunity for improvement and the worker has lost the opportunity for professional development and the mastery of a new skill. Tracy, Tannenbaum & Kavanagh (1995) list the following practices to help set a climate for generalization of learned skills from the training workshop to the job setting: (1) Supervisors need to encourage and set goals for trainees to use new skills acquired during training. (2) Task cues should be readily used. These cues are characteristics of a trainee's job that prompt the trainee to use the new skills. (3) Feedback from supervisors can be an excellent consequence. If supervisors support the application of new skills, employees are more likely to use them. (4) Lack of punishment is important. Trainees should not be openly discouraged from using the new skill. (5) Reinforcement is critical. Natural reinforcement is preferred by might not exist to the extent needed to maintain the behavior in the initial use. Trainees should receive external rewards for using the new skills. (6) Use of natural reinforcers – for training

material to adequately generalize, the new learning must “feel right”. Trainees should be provided with enough opportunities to practice the new skill to enable them to become fluent in the skill and able to apply it automatically. (7) Trainees should create their own system for monitoring their performance and recognize that lapses into old patterns of behavior are natural. Lapses to old patterns of behavior are common but careful supervision can be helpful in lessening these lapses (Marx, 1982). Employees should be told that there will be no penalty if they ask supervisors and other staff for help with the execution of a particular skill.

Another way to ensure that training skills generalize to the natural environment is to use the mobile behavioral auditor as a field coach. Showers and Joyce (1988) document the importance of coaching in learning. According to Showers and Joyce, training that consists of teaching only theory (e.g., a typical workshop) increases knowledge by 60-80%, increases skill by 10% but increases application by only 2-5%. Training consisting of theory and demonstration increases knowledge by 80%, skill by 10-40% and application by 2-5%. When feedback is combined with theory and demonstration, knowledge increases by 80%, skills increase by 80% but application improves only by 2-5%. However, when coaching is added to training of theory, demonstration and feedback, knowledge increases by 80%, skills increase by 80% and application increases by 80%. Coaching is therefore a critical element that must be provided to employees in order to improve the likelihood that they will apply the skills they learn in training.

To do this, mobile behavioral auditors would be trained to pinpoint target skills that TSS workers should perform. Skills may need to be task analyzed and broken down into subskills or tool skills. The mobile auditor can then give the TSS worker specific examples of how to use a skill and different contexts for its use. The next step would be for the mobile auditor to be trained to be an effective model (Latham & Saari, 1979). The mobile auditor would demonstrate the skill to the TSS worker, then observe the TSS worker engage in the behavior and provide feedback, coaching and reinforcement for their performance. The skill should be practiced until the TSS is fluent. Finally, the TSS and the mobile auditor should review the treatment plan (with attention to the activity schedule for the TSS included in the plan)

and use this as a basis for an action plan for when and where to use the skill.

Developing Best Practices guidelines for the business and clinical components of services provided by the organization also offers a direct means of monitoring performance. Using the items in a best practices guideline for clinical services, for example, can be used as the tool to measure such performance and ensure that the employee is following the guidelines. Feedback on the adherence to these guidelines can improve performance, and also serves as a quality improvement process for the organization.

Mental health agencies that apply the principles that have been described in this paper to their programs will be rewarded with skilled employees at all levels who implement effective treatment services to children in need. This will also increase consumer satisfaction with the program and the organization. Everyone wins when this occurs. It is our belief that OBM has much to offer to the Behavioral Health Rehabilitation Programs and encourage agencies to adopt this approach.

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REVAMPING THERAPEUTIC STAFF SUPPORT PRACTICES

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Therapeutic Staff Support (TSS) provide proactive child management, time structuring, positive behavioral support, and crisis intervention to children with serious mental health diagnoses via a federal entitlement program, Early Periodic Screening Diagnosis and Treatment (EPSDT). For those of us who work daily in the behavioral health rehabilitation field, having this position filled by well trained and supervised staff is critically important. However, despite the real and potential benefits of the TSS in the context of “wrap around services,” most stakeholders in the state of PA, (where this type of service is more extensively developed than most other states), agree that the current system for TSS must change. Almost all are concerned and complaining. Parents and agencies have filed suit against the Commonwealth for failure to provide medically necessary services in a timely fashion, as in the precedent setting Kirk T. litigation. Parents and provider agencies are also concerned about the quality of services, particularly when they hear that “treatment” involves trips to McDonald’s or the arcade. Teachers complain that TSS in their classrooms are often nonproductive and sometimes a hindrance. Managed care companies and agencies complain that TSS services decay into “glorified babysitting.” Finally the state of PA is overwhelmed with the over utilization of the TSS service, usually the most costly aspect of EPSDT service provision.

The above problems can be grouped into the following areas: a) insufficient number of TSS to fill child needs as assessed by psychologists and psychiatrists evaluating children brought to the attention of the system (see Kirk T. et al. vs. Houston, 2001 circuit 3rd); b) poor learning history and insufficient training of the TSS (e.g., TSS no-shows, TSS who become embroiled in the same power struggles with children as parents and teachers, thus offering no increased professional benefit, and agency failure to staff - see Kellner vs. Philadelphia School District); and c) almost exponential growth of TSS

Creating a Five Tier System Based on Need

Ideally, a provider agency’s program manager should begin, with the psychological evaluation (including the results of formalized behavioral assessment instruments) to create treatment goals in collaboration with the family. Once goal analysis is done, the treatment team leader (either the Behavior Specialist Consultant or Mobile Therapist) develops a treatment plan with an individualized task analysis of the skills and strategies need for each individual. This task analysis should result in an *hour-by-hour breakdown*

Table 1. Experience Requirements for a Five Tier TSS System

TSS level 1: TSS Aide requires High-school diploma and three years of experience
TSS level 2: TSS Associate requires Associates Degree and two years experience working with children or 60 college credits and two years experience working with children.
TSS level 3: TSS Full requires a Bachelor’s degree and at least one year working with children.
TSS level 4: TSS Diplomate requires a Bachelor’s degree and three years working with children with emotional and behavioral disorders, specifically as a TSS for the same agency
TSS level 5: TSS Diplomate II, the Associate Level BSC requires 3 years experience plus associate level certification in applied behavior analysis through the Pennsylvania Training and Technical Assistance Network.

costs since 1994. Each of the above concerns can be addressed with a radical job restructuring of the TSS position in which service prescriptions are based on objective measures, thereby increasing the focus on clear goals established through empirical assessment practices. This paper presents the nuts and bolts of how to place the TSS position in a new light in order to solve the problems commonly raised.

of expected TSS activity. Then, in the following revised system, TSS skills are matched with the level of service needed by each child receiving services (see Table 1). The TSS position can be fruitfully divided into five separate levels of care, depending on the child’s needs. The training level for the TSS can vary. Since there will be stratification of job levels, there will be an increased pool of potential TSS applicants to select from as well as pay/cost

differentials that will help address the high cost of services to state. Additionally, improved access and quality of TSS are addressed.

Lowering Costs while Increasing Services to more children

Table 2. Pay Scale for Five Tier TSS Plan

TSS Level 1= \$16/hr
TSS level 2= \$26/hr
TSS level 3= \$30/hr
TSS level 4 = \$32/hr
TSS level 5= \$35/hr

TSS level 1 should receive one and a half hours/week of group supervision plus an additional one hour/week of individual supervision. In addition, they should receive at least one hour/week of direction from the behavior specialist or mobile therapist assigned to the case on specific aspects of the treatment plan. It is believed that the Level 1 TSS would be most useful when conducting empirically valid techniques which need little deviation in protocol. In addition, this level allows for the servicing of cases in which the cultural needs of a child outweigh previous training and experience in mental health. Level 1 TSS should have 80 hours of orientation with at least 12 of those hour spent learning common proactive child management techniques, two hours on legal and ethical issues, and 16 hours of mentoring from a level 4 or higher TSS.

TSS level 2 should receive a at least one and a half hours of group supervision/week and one hour/week of individual supervision. In addition, level 2 TSS should receive one hour/week of individual direction from the behavior specialist or mobile therapist on the case which they are working. This direction should deal with the specifics of executing the current treatment plan, including de-escalation procedures. Level 2 TSS should have at least a 60 hour orientation, 20 of which should be on proactive and reactive child management techniques including 5 hours on specific forms of childhood psychopathology. In addition, Level 2 TSS workers should have 16 hours of direct mentoring of work by a level four or higher TSS. This type of TSS worker would be particularly good for cases of less severity or chronic conditions which show little change.

TSS level 3 should receive one and a half hours/week of group supervision. Also, they should have one hour/week of specific case consultation with the behavior specialist consultant on the case. This consultation should provide specific direction on the current treatment plan and how that plan should be implemented with the child concerned. Efforts should be made to review current data collected and to readjust the treatment according to the data reported. In addition, level 3 TSS should receive 50 hours of orientation. The orientation should include 10 hours on current proactive child management techniques and four hours on reactive techniques. In addition, at least 3 hours should be conducted on crisis prevention and interventions. Also, this level would profit from at least a 1 hour orientation on data collection and

Using Behavioral Assessment and Other Formal Measures

So far, we have addressed the labor pool shortage and cost containment. However, the above would do nothing to increase the accountability or create standardization for services. As the system currently exists, two psychologists could see the same child for the same length of time and prescribe radically different services and utilization levels. Thus some decision-making guidelines for the five tier TSS system need to be suggested. These guidelines are meant to be flexible so as to be tailored for each child. At the same time, they formalize procedures to decrease “agency hopping” by TSS who hope to escape more stringent requirements at better provider agencies while increasing the quality, fit, and measurability of service provision.

Supervision and Training Requirements

The further step in assuring quality in this proposed system is a more detailed specification of the training that TSS at each level should receive. Despite clarification of prior job requirements, the fact is that most TSS are under prepared to handle the severity of the problems of children qualified to receive intensive community-based services. It is unethical as well as illegal for practitioners at any level to simply “fly by the seat of their pants” using intuition. Of course, even with training and procedural clarity, there is always a need for good judgment and creative adaptation for the moment; it is a fallacy that clear procedures omit the need for empathy, warmth, and individualization such as the tone and type of words used by staff, physical proximity, timing, and gradual increase in child expectations (i.e., shaping). The following specifies a framework for the amount and type of training each level of TSS should receive.

Table 3. Child Assessment Criteria for Five Tier TSS Plan

Criteria	TSS level 1	TSS level 2	TSS level 3	TSS level 4	TSS level 5
General prognosis for the disorder	Fair	Guarded	Poor	Poor	Poor
Severity of Disorder	As determined by standardized behavioral assessment instruments such as the BASC, Connors, Devereux DSMD, Achenbach, to be mild in one or more of the scales.	As determined by standardized behavioral assessment instruments such as the BASC, Connors, Devereux DSMD, Achenbach, to be moderate elevation in one or more of the scales.	As determined by standardized behavioral assessment instruments such as the BASC, Connors, Devereux DSMD, Achenbach, to be high elevation in one or more of the scales.	As determined by standardized behavioral assessment instruments such as the BASC, Connors, Devereux DSMD, Achenbach, to be high elevation in one or more of the scales	As determined by standardized behavioral assessment instruments such as the BASC, Connors, Devereux DSMD, Achenbach, to be high elevation in one or more of the scales
Level of adaptive functioning	As determined by the BASC or other behavioral assessment scale such as the Vineland to be fair or mildly impaired or in the bottom 20%.	As determined by the BASC or other behavioral assessment scale such as the Vineland to be fair or mildly impaired or in the bottom 15%	As determined by the BASC or other behavioral assessment scale such as the Vineland to be fair or mildly impaired or in the bottom 15%	As determined by the BASC or other behavioral assessment scale such as the Vineland to be fair or mildly impaired or in the bottom 10%	As determined by the BASC or other behavioral assessment scale such as the Vineland to be fair or mildly impaired or in the bottom 5%
Level of social and communication skills	As determined by standardized instruments of social behavior such as the Walker McConnel Scale, School Social Behavior Scale, or standardized instruments of communication skills such as the Celf-R to be in the normal or bottom 40%	As determined by standardized instruments of social behavior such as the Walker McConnel Scale, School Social Behavior Scale, or standardized instruments of communication skills such as the Celf-R to be in the normal or bottom 30%	As determined by standardized instruments of social behavior such as the Walker McConnel Scale School Social Behavior Scale, or standardized instruments of communication skills such as the Celf-R to be in the normal or bottom 20%	As determined by standardized instruments of social behavior such as the Walker McConnel Scale School Social Behavior Scale, or standardized instruments of communication skills such as the Celf-R to be in the normal or bottom 10%	As determined by standardized instruments of social behavior such as the Walker McConnel Scale, School Social Behavior Scale, or standardized instruments of communication skills such as the Celf-R to be in the normal or bottom 5%
History of diagnosis	At least 3 months	At least 8 months	At least 8 months	At least 12 months	At least 24 months
Previous remediation failures	Failed at out patient level	Failed at outpatient level or reason to believe that child would fail at outpatient level.	Failed at outpatient level or reason to believe that child would fail at outpatient level.	Failed at outpatient level or reason to believe that child would fail at outpatient level. Failure with previous levels of TSS service.	Failed at outpatient level or reason to believe that child would fail at outpatient level. Failure with previous levels of TSS service. Multiple previous hospitalizations.

analysis. Finally, this level should have 16 hours of mentoring from a level 4 or higher TSS. This type of TSS worker would be good for chronic mental health and behavioral disorders.

TSS level 4 should receive one hour/week of group supervision. Also, they should have one hour/week of specific case consultation with the behavior specialist consultant. Efforts should be made to review current

data and to adjust and tailor treatment to these new levels of care. Re-orientation after promotion to this level should include 16-20 hours of training in applied behavior analysis, functional assessment, social skills training and childhood psychopathology. The level four TSS would be particularly useful for children with long-standing behavioral difficulty with extreme forms of psychopathology. This TSS worker would be particularly useful for dealing with children with

disruptive disorders who have shown failure with lower levels of TSS service.

TSS level 5 should receive one hour/week of group supervision from a certified behavior analyst. In addition, they should also have biweekly consultation with a qualified behavior specialist to tailor the treatment to the child's needs. When promoted to this level, the TSS should have an orientation with at least 20 hours of training. This TSS level would be especially helpful for children where protocols need continual revamping by someone with a strong knowledge of behavior analysis and modification. For example, a conduct disorder child who needs ongoing changes in the contingency management system or the autistic child that need more complex shaping procedures for language acquisition.

Orientation

Orientation and on going training for TSS workers is a critical long term investment. As Luthans, Hodgetts, & Rosenkrantz (1988) point out, "new personnel who are not given a realistic orientation are much more likely to leave the organization during the first year than those who are" (p. 151). Orientation serves to socialize TSS into the organization's culture and to demonstrate to the new employee's that they are valued members and that their job is important.

Orientations should be long and intense (and enjoyable!). This will allow employee more time to understand the organizational culture and get to know other staff. Thus we suggest that in addition to the twenty hours suggested by the state an additional twenty hours be added. The last twenty should be focused on the most vital parts of the TSS job, such as behavior management, social skills training, creating token systems, offering praise, building a relationship, etc. This amounts to a one week training prior to beginning to work. Agencies can run these orientations one each month or two, depending on the size of the unit.

In addition, we suggest following Luthans, Hodgetts, & Rosenkrantz (1988) orientation strategy: (1) start with the most relevant material, such as information on child behavior management and documentation skills (things used every day), then moving to the more peripheral information such as CPR (rarely used); (2) provide information in the orientation about individual supervisors and behavior specialists. An excellent strategy is to have supervisors conduct part of the orientation and also have a module on what

supervision is about, having the TSS ask questions about the goals and objectives of each supervisor. Alternatively, have behavior specialists attend the orientation and discuss and demonstrate consultation as they direct treatment; (3) each TSS should be assigned a mentor at the orientation, the mentor should provide not just the required observation of work but should also provide encouragement and discussion around the culture and practices of the company; and (4) TSS should be given necessary skills to work on cases in the orientation and should be given time and feedback to master those skills prior to being given new skills to learn.

All trainings should have objectives. Training objectives should have three components (1) **performance**- what behaviors are to be developed (2) **conditions**- the context that behavior should be displayed (3) **criterion**- how will we know that the objective is reached. Each training should have a formalized evaluation component such as a criterion role-play or a competency exam at the end.

Considerable research has shown that paraprofessional staff can be trained to use behavioral interventions, can successfully apply those interventions with integrity and can produce stable and long term changes in behavior (Harchik, Sherman, Hopkins, Strouse, & Sheldon, 1989). However, training and supervision appear to be critical factors.

Developing TSS from Paraprofessionals to Professionals

While informal coaching and counseling should always be available to staff and supervision should be weekly, other efforts can be put in place to ensure that TSS staff are able to perform to the highest standards.

While agencies should have an on going training program that is standardized and evaluated on a regular basis, an effort should be made tailor trainings around uncovered staff needs. If this is done correctly, every TSS should have the necessary training to pass the associate exam in behavior analysis and thus successful become a professional with standing in the mental health field.

On-going bi-weekly training should be geared to help the paraprofessional TSS to become a true professional. This goal should be stated at the outset. The training needs of the staff should be identified by the supervisory staff in conjunction with information

provided from the Behavior specialist and the mobile behavioral auditor.

Career Development

Supervisors should create goals and objectives with the TSS in the area of professional development. Supervisors should be aware of the strengths and weakness of each TSS worker under them and help that worker to move past those limitations. Short range goals should be built in collaboration with the TSS and connect to a long term plan.

TSS should be encouraged to keep a file for rewards and recognition that they receive as well as recommendations, and performance evaluations. Managers should be willing to write letters of recommendation for the TSS and not be worried that the TSS will use such letters as to support merit pay which can and will be highly motivating to staff.

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