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A Context for Science with a Commitment to Behavior Change

The Behavior Analyst Today

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Submission Information: Most of our articles are invited. However, we will review unsolicited manuscripts. In all cases, manuscripts should be submitted ***electronically***, saved in "rich text format"(.rtf) to BOTH Beth Rosenwasser at ibrosie@aol.com and Joe Cautilli at jcautill@astro.temple.edu Please adhere to APA format and use "Times New Roman" font in 11 pt. throughout. In references, however, please *italicize* the places where APA format would have you underline. Headings are encouraged to enhance readability and must follow APA format.

BAT is 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.

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Science Odyssey : A note from the editors

Joe Cautilli and Beth Rosenwasser

Hello all. Here we are, celebrating our fourth issue of the first year of this endeavor which began on February 3rd of 2000 – when BAT 1(1) went online at the Cambridge center website. We are thrilled with the excellent quality of submissions we have received and want to thank all of the authors thus far. Like the prior issues, we present a diverse range of articles beginning with an unusually readable review of the literature with clear "how to" steps on teaching children with a range of problems to recruit reinforcers in the classroom so that their progress is a range of areas will be naturally maintained in schools. This is followed by a detailed program description of a new ABA master's program at the University of MD in conjunction with the Kennedy Krieger Institute. Not only is it informative for those seeking further education, (funding is available by working at Kennedy Krieger), it presents a model for designing collaborative programs which gain acceptance and funding by capitalizing on the complimentary needs and skills of several parties. This is followed by a fascinating review of a BBC/Discovery Channel special program on the lives of dinosaurs by the author of a new book on how animal behavior programs are actually filmed. It's an eye opener for those who value animal behavior, direct observation, and scientific methodology as means to understanding behavior generally. Then we have messages from PennABA which is sponsoring its 1st annual Autism Conference on Friday, March 16th (certified behavior analyst CEU's offered) and from the CBA-SIG. Since data are the foundation of behavior analysis, we present two data-based articles on treating insomnia and smoking.

We hope that year two continues along the path of year one, allowing us to become the voice, both on-line and off-line, for the behavior analytic community. This year I am hoping that we put in place two regular features. The first feature is a new basic research section. An important foundation of applied work, basic humans and animal research is critical to establishing behavior principles and practices that can be extended to issues of value to our culture. Rich Weissman has been working hard to convince the experimental community that we are "*Behavior Analysis* Today" and not "*Applied* Behavior Analysis Today." To this end, we are in the process of speaking with several basic researchers about using us as the publishing ground for basic research in areas that many behavior analytic journals are not printing as much of (e.g., relational frame research of Stephen Hayes and colleagues, basic developmental research from a behavioral perspective). The second area which we are targeting for increased focus is best practices for the design and implementation of Behavior Analytic programs in the community (i.e., real world applications) dealing with a range of independent variables such as funding sources and regulations, certification, staffing and the development of local professional organizations such as PennABA, acting as strong advocacy and public education tools. We look forward to an article from our layout editor, Craig Thomas, telling us about his wonderful plans the successful independent Childhood Learning Center. We also seek focus articles by behavior analysts in directorship positions at large non-profits such as Pat Progar at Bancroft on treatment integrity and Vince Winterling at Devereux. Again, we seek to house under one roof, a range of articles from basic to applied, theoretical to pragmatic, conceptual and empirical; in this way, we emphasize the mission of behavior analysis to bridge the scientist-practitioner gap, keeping each professional abreast of their fellow behavior analysts' work.

Again, many thanks to those who have persevered with us to make our first year successful. We'd like to thanks our authors for choosing to publish with us, Ally Miller for laying out the first issue, and Craig Thomas for his generosity in laying out and printing all subsequent issues of BAT. In particular, we'd like to thank Joe Plaud and the Cambridge site for believing in us and giving us space at **www.behavior.org** to show what we could do! Thank you all for your contributions in the past and for helping us with the progress to be made in the future!
Joe and Beth

1ST ANNUAL PennABA CONFERENCE

PLACE:..... **The Best Western Inn & Suites Conference Room**

Harrisburg, Pennsylvania 888/ 868-5952 (reservations)

DATE & TIME:..... **Friday, March 16, 2001, 9am – 5 pm**

FEATURED SPEAKERS INCLUDE:

Richard M. Foxx, Ph.D., Kimberly A. Schreck, Ph.D., & Rick Kubina,Ph.D., Penn State Harrisburg

Edward Tiryak *Attorney*

Saul Axelrod, Ph.D. *Temple University*

TOPICS INCLUDE:

Autism, Developmental Disabilities, Education,

Certification of Behavior Analysts, and Legal Issues

Behavior Analysis Certification Board Continuing Education Credits for BCBAs and BCABAs!

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"Check This Out!" Teaching Students with Disabilities to Recruit Contingent Attention in the Classroom

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The most important role of a special education teacher is designing, implementing, and evaluating instruction that helps students with disabilities acquire, generalize, and maintain knowledge and skills that improve the quality of their lives in school, home, community, and workplace—now and in the future. Increasingly, students with disabilities—many of whom have limited social repertoires in addition to deficits in academic skills—are expected to learn in regular classrooms with their typically developing peers. To increase the likelihood of attaining success in these inclusive settings, students need to learn to use a repertoire of classroom survival skills such as listening, following directions, and completing assignments. Learning when and how to ask for feedback or assistance is an important classroom survival skill useful for increasing independence. Teaching students to recruit attention from adults and their peers is one way to promote success in the regular classroom because it increases the likelihood the student will fit in socially and improve academically.

The classroom is a busy place, a place where, unfortunately, many students who need approval, assistance, or feedback are often inadvertently overlooked. Additionally, students with disabilities typically retreat to passive roles when placed in situations in which they do not receive adequate levels of support or attention (Newman & Golding, 1990; O'Conner & Jenkins, 1996). Because students with disabilities cannot rely on receiving praise or feedback when they need it, they must be taught a proactive approach for obtaining attention. Training students to recruit teacher or peer attention is one way of helping students with disabilities function more independently while actively influencing the quality of instruction they receive.

Recruiting Works

Research has found that systematically training students to recruit positive attention increases recruiting responses and adult attention for wide range of learners completing a variety of tasks. Preschoolers were taught to raise their hands and make statements such as "Have I been working carefully?" or "How is this?" while working on pencil and paper tasks (Stokes, Fowler, & Baer, 1978), and approximately 90% of their recruiting responses were followed by praise. After teaching preschoolers to self-assess and recruit feedback for their cleaning-up performance during transitions, Connell, Carta, and Baer (1993) documented increased teacher praise statements and increased duration of time on task.

Recruitment training has also been effective with adolescents and adults. Adolescent girls in maximum security institution for juvenile offenders who were taught to self-assess and recruit attention demonstrated increased vocational work productivity and positive interactions with staff (Seymour & Stokes, 1976). Adults with mental retardation also attained increased work productivity and supervisor feedback after being trained to self-monitor and recruit feedback (Mank & Horner, 1987).

Six studies have examined the effects of recruitment training with upper elementary and middle school students. Recruitment training increased the frequency of teacher praise for 10-12 year-olds with behavioral disorders (Morgan, Young, & Goldstein, 1893), low achieving fourth graders (Hrydowy, Stokes, & Martin, 1984), and elementary school boys with autism and severe disabilities (Harchik, Harchik, Luce, & Sherman, 1990). Craft, Alber, and Heward (1998) taught four fourth graders with developmental disabilities to show their spelling assignments to the teacher two to three times per work page and ask for feedback or assistance with statements such as: "How am I doing?" or "Does this look right?" Not one teacher praise statement was delivered to 3 of the 4 students over 36 baseline sessions (representing a cumulative total of 12 hours of independent seat work for these three students). After recruitment training, however, the mean number of praise statements for each student ranged from 1.6 to 2.1 per 20-minute session. Before the students were taught to recruit attention, the mean percentage of spelling worksheet items completed accurately for each student ranged from 25% to 67% and increased to a mean of 67% to 97% after training.

In addition to teacher praise and academic productivity, Alber, Heward, and Hippler (1999) also assessed of the effects of student recruiting by four sixth graders with learning disabilities on the frequency of instructional feedback, a variable not examined in previous recruiting studies. Recruitment training followed a protocol developed by Craft et al. (1998) and consisted of three parts: (1) instruction and role play, (2) morning prompts, and (3) end-of-the-day check and reward. Students received praise on only 6 (10%) of the combined 60 baseline sessions. After training, the students received praise on 42 (49%) of the combined 85 post training sessions. Instructional feedback also increased significantly. Of the 60 total baseline sessions, there were only 23 (38%) sessions during which students received instructional feedback. However, students received instructional feedback on 66 (78%) of the 85 post training sessions. Students also attained higher percentages of work completion and accuracy on their math assignments.

In each of the previous recruiting studies, the students were taught to recruit attention from adults. Wolford, Alber, and Heward (1998) extended this research by teaching four middle school students with learning disabilities to recruit positive attention from peers during cooperative learning groups, and assessed the effects of training on student recruiting, praise and instructional feedback from peers, and academic productivity. All four students seldom recruited peer attention during baseline (mean rate: 0.3 to 0.8 recruiting attempts per 10-minutes), and received low rates of peer attention (mean rate: 0.7 to 1.0 per 10-minutes). After training, the four students appropriately recruited their peers' attention at a mean rate of 1.4 to 2.4 times per 10-minutes, and received instructional feedback statements from peers at a mean rate of 1.4 to 2.8 times per session. After learning to recruit their peers' attention, all four students completed more of their daily language arts assignments with greater accuracy during cooperative learning groups.

Who Should be Taught to Recruit?

Although most students could probably benefit from learning to recruit teacher or peer attention, some students should be considered a first priority. Students who tend to be shy and introverted can go easily unnoticed by teachers. Research shows that teachers are more likely to pay attention to disruptive students than students who are quietly working (Walker, 1997). When reticent students are taught to recruit attention and their recruiting attempts are met with positive attention, continued recruiting is a likely outcome. Other ideal candidates for recruitment training include: a) students who recruit for poor quality work, and consequently, may receive more negative attention than praise; b) students who recruit inappropriately (e.g., yelling out to get the teacher's attention); and c) students who recruit too frequently and become viewed as a "pest" by the teacher.

After selecting target students for recruitment training, it is important to conduct a pre-assessment to determine the extent to which teacher attention functions as a reinforcer. Unless the student is reinforced by teacher attention, recruitment training will probably not produce the desired outcomes (Alber et al., 1999). A practical alternative for students for whom teacher attention does not function as a reinforcer may be training them to recruit attention from peers.

How to Teach Students to Recruit Positive Attention

Teaching students to recruit positive attention involves the following procedures: selecting target skill for which students will recruit attention; teaching self-assessment of the target skill; and teaching appropriate recruiting responses through modeling, role playing, corrective feedback, and reinforcement.

Selecting target skills. When identifying target skills for which students will recruit attention, teachers should consider whether the behavior is likely to be reinforced in the regular classroom. Completing classwork and homework assignments accurately, writing neatly and legibly, and using appropriate social skills are examples of behaviors that are typically appreciated and reinforced by classroom teachers. Students can be taught to politely point out their accomplishments for any behavior valued by teachers and significant others. Initially, students should be prompted to recruit for only one target skill until they have attained some degree of recruiting proficiency. Then other target skills should be gradually added to the student's repertoire. To increase the likelihood that positive attention will follow a student's initial recruiting attempts, select target skills the student can already perform with some accuracy and consistency before addressing more complex skills.

Teaching self-assessment. Self-assessment is a crucial element to the success of recruitment training. The student who frequently asks her teacher to look at unfinished and incorrect work in unlikely to receive much positive attention. However, students who show careful attempts at completion and accuracy will probably receive more praise which increases the likelihood of future recruiting.

The simplest way to promote self-assessment is teaching students to determine if their work is complete. After the student can consistently make the distinction between complete and incomplete work samples, students can check the accuracy of their work using answer keys, checklists (e.g., a list of steps for editing a composition), spot checks (e.g., selecting a few items on a math worksheet and working backwards, multiplying to check division), and scans for frequently made errors (e.g., subject-verb agreement). Every self-checking technique will not work for all students, skills, or settings. Teachers should try to match the most logical technique with the demands of the skill and the capability of the student.

Teach when, how, and how often to recruit.

After the student has completed a portion of her work and self-assessed, the next step is emitting an appropriate signal to get the teacher's attention. Students should be taught when, how, and how often to recruit, as well as how to respond after receiving teacher attention. The specifics of these four elements will vary according to class size, subject area, and grade level.

Students should signal for teacher or peer attention after they have completed and self-checked a substantial part of their work. For example, Craft et al. (1998), Alber et al. (1999), and Wolford et al. (1998) taught students to emit a recruiting signal when about half of their work was completed.

Students must also learn how to appropriately signal the teacher. In many classrooms, students are expected to emit a hand raise to obtain teacher attention, but this is not always the case. Before teaching the target student a signal, the trainer must first find out—through observation, if possible—the expected method of signaling in the target setting. For example, in Alber et al. (1999) the appropriate recruiting response was a hand raise, however the students in Craft et al. (1998) were expected to walk to the teacher's desk and show her their work. Students must also learn when they should *not* try to get their teacher's attention. They will have more success recruiting attention when the teacher is nearby and available (e.g., not talking to an adult, not working with another student). When teaching students to recruit from peers, an appropriate signal may be for the students to tap a peer on the shoulder, say the peer's name, or say "excuse me." (Wolford et al., 1998).

Effective recruitment training should include providing a small repertoire of statements or questions that are likely to prompt positive feedback from the teacher. The fourth graders in the Hrydowy et al. (1984) study prompted teacher attention by asking "How is this work?" or "Did I finish quietly?" Connell et al. (1993) taught preschoolers to approach their teachers after they had finished cleaning up during transition times and simply say "I'm done." Trainers should keep the verbal responses simple, but teach the student to vary his or her verbal responses so they will sound more natural (e.g., "Please look at my work." "Did I do a good job?" and "How am I doing?"). Appropriate voice volume and intonation should also be practiced during role play.

Finally, students should be taught to respond to the teacher's feedback by establishing eye contact, smiling, and saying "Thank you." Polite appreciation by students is very reinforcing to teachers, and it will increase the likelihood of more positive attention the next time the student recruits. Not every recruiting response will result in teacher praise (Alber et al., 1999; Craft et al., 1998; Connell et al., 1993; Harchik et. al., 1990), and some efforts to recruit positive attention may even be followed by criticism or a reprimand (e.g., "Maybe if you paid attention you would understand the directions." "I can't help you right now, I'm busy."). Teachers should use role-playing to prepare the student for these possibilities and have the student practice polite and affirmative responses (e.g., "I'm sorry. Would you show me how to do this later?").

Another important component of training is teaching students to limit the number of times they recruit to avoid becoming a pest (Stokes et al., 1978). The number of times a student should recruit teacher attention will vary as a function of the grade level, the number of students in the classroom, the teacher's style, and the nature of the lesson or activity. Ideally, appropriate rates of student recruiting should be

determined by directly observing the classroom, or consulting with the classroom teacher. Based on the published recruiting research, we recommend a rate of one to a maximum of three recruiting responses spread across a 20-minute work period. The acceptable number of recruiting responses may be higher for early elementary school children (K-3), a population for which we found no published research.

Model and Role Play the Complete Sequence.

Teaching students to recruit positive attention should follow the same sequence of teaching any other complex social skill: provide a rationale for learning the skill, then model, role play, and provide directed practice with corrective feedback and praise. Planning for generalization is another important component to recruitment training.

Training should begin with the teacher clearly defining recruiting and facilitating a brief discussion about the rationale for recruiting. For example, the trainer may ask "Why do you think it would be a good idea to ask the teacher to look at your work?", eliciting student responses such as "So I know if I'm doing it right," "I might get better grades," and "The teacher will be happy if I did a good job." After students are able to explain how recruiting can benefit them, the trainer should model the recruiting sequence by thinking aloud. While performing each step the trainer might say, "I'm finished with about half of the math problems. Now I'm going to check them. Did I line up my ones, tens, and hundreds columns?... Yes... Did I remember to regroup when I added? ...Yes... okay, my teacher doesn't look busy right now, I'll raise my hand and wait quietly until she comes to my desk."

The trainer can have a student or an assistant play the role of the classroom teacher, and come to the trainer when she has her hand up. "Mr. Daniels, will you look at my work please?" The helper should be prompted to praise the trainer (e.g., "Oh, this looks very good."). Then the trainer should model appreciation by saying, "Thank you." After the trainer has modeled the recruiting sequence, she should role play with students several types of recruiting episodes (both positive and negative) giving praise and corrective feedback until the student has demonstrated proper recruiting for several consecutive trials.

How to plan for generalization. Planning for generalization for a range of settings and situations is an important component of recruitment training. When modeling or role playing recruiting skills, the teacher should attempt to simulate the generality as much as possible by using the same instructional materials and the full range of likely situations the students will encounter in the classroom. The students should practice recruiting for different kinds of classroom activities, various kinds of academic work, and various types of teacher feedback.

To further support generalization of recruiting skills, the teacher should provide the student with verbal and/or physical prompts to recruit (e.g., Alber et al., 1999; Craft et al., 1998). Once the student is recruiting proficiently in the training setting, the teacher might review the steps and the specific number times the student should recruit and then say something like, "Remember to recruit when you go to math class today." Later that day, the teacher should ask the student to report if he recruited, how many times, and how well he recruited. If a verbal reminder is insufficient for producing the desired outcome, the teacher may also want to provide the student with a physical prompt which may also serve as a self-recording device. For example, students can be provided with an index card listing the steps for recruiting, a place to check off each recruiting response, and place to mark a self-assessment symbol (e.g., a plus for correct recruiting, and a minus for incorrect recruiting).

Intermittent and delayed reinforcement may further support generalization of recruiting skills. Every effort to recruit by the student will not be reinforced in the regular classroom, so intermittent reinforcement of student's recruiting behavior during training will help prepare the student for this probable outcome and increase the likelihood that recruiting efforts will be maintained. Once the student has demonstrated consistent recruiting responses in the training setting, the teacher should move to an intermittent schedule of reinforcement by not reinforcing every recruiting attempt. Delayed reinforcement can also be a very effective generalization strategy (Baer, Williams, Osnes, & Stokes, 1984; Fowler & Baer, 1981). Teachers may want to provide rewards at the end of the day for recruiting to a pre-established criteria (Alber et al. 1999; Craft et al. 1998; Wolford et al., 1998). Having a way to verify students' verbal reports, and only rewarding those that correspond with their actual behavior, will increase the correspondence between "saying and doing" and the effectiveness of the

delayed reward strategy (Baer, Blount, Detrich, & Stokes, 1987).

In most of the recruiting research, the teachers or peers from whom the target students recruited attention were unaware of the purpose of the experiment. This was necessary in order to isolate the effects of recruiting on the variable of teacher or peer attention. However, in practice, it is a good idea to ask the classroom teacher to praise the student's recruiting efforts. For truly successful recruiting, the additional supports will eventually be unnecessary. For when in practice, just as in theory, when the student's new recruiting efforts contact existing natural contingencies of reinforcement (i.e., praise and attention follow), generalization and maintenance are probable outcomes.

Conclusion

A primary objective for special education is helping students with disabilities attain independence and success in inclusive classrooms. Teaching students to recruit attention from their teachers and/or peers can help achieve this objective. Because students with disabilities can expect fewer accommodations in regular classrooms especially as they progress into middle and high school (Schumm et al., 1995), their success will depend in part on the level of self-reliance they achieve. Teaching students to recruit assistance and attention is one strategy that can promote independent functioning, making time spent in inclusive classrooms more beneficial to students with disabilities.

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A Master's Program in Applied Behavior Analysis: Contingencies for Initiation and Maintenance

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Iser G. DeLeon and Michael F. Cataldo
The Kennedy Krieger Institute and Johns Hopkins University School of Medicine

We describe a Master's program in Applied Behavior Analysis that involves collaboration between an academic graduate program in psychology and the departments of an institution dedicated to the delivery of behavioral services: in this instance, the University of Maryland, Baltimore County, and the Kennedy Krieger Institute of the Johns Hopkins University School of Medicine. The launching of a new program and its subsequent maintenance involves a variety of contingencies, both academic and professional. This paper discusses a few of them, and demonstrates how quickly and effectively progress can be made when compatible and reciprocal contingencies of support are identified for all of the various participants in a program. As we enter the Decade of Behavior, we hope this program will provide a source of more practitioners of applied behavior analysis, so sorely needed to meet the growing demand for our demonstrably successful interventions.

One hallmark of behavior analysis and one source of its success in interventions is its recognition of multiple causation in the determination of complex behavior. Multiple causation operates, for example, in verbal behavior, as when the order that someone places at a fast food restaurant is simultaneously determined by many different variables: the person behind the counter as an audience, the menu as an occasion for textual behavior, the food visible in pictures and on the trays of other customers as an occasion for tacting, the overheard orders of other customers as an occasion for echoic behavior, the factors that make the food to be ordered reinforcing as establishing operations, and so on. When many variables that each occasion the same verbal response come together at one time, the verbal behavior that follows may be virtually inevitable. It is no surprise that many causes also enter into institutional behavior, and because much of our own activity as behavior analysts occurs in institutional settings, it may be useful to explore the multiple causation that may be involved in the creation and maintenance of behavior analytic programs.

History

It is difficult to pinpoint just when discussions began about a possible collaborative program involving the Department of Psychology at the University of Maryland, Baltimore County (UMBC) and the Kennedy Krieger Institute of the Johns Hopkins University School of Medicine (KKI); they may go back two decades or more. Some of the more recent and key administrative discussions (within the past five years) involved A. Charles Catania at UMBC, the chair of the Department of Behavioral Psychology at KKI, Michael F. Cataldo, and the chair of the UMBC Department of Psychology, Carlo DiClemente. Once agreement had been reached about the desirability and feasibility of the program and the nature of its administration, Wayne W. Fisher and A. Charles Catania undertook the implementation of the program, with special attention to design of courses and professional training. The mutual interests of all participants quickly became evident. They included but were not limited to the following: The growing field of applied behavior analysis called for more well-trained practitioners; the UMBC administration wanted to expand the enrollment of graduate students, especially at the Master's level; and, the behavior analysts at KKI needed more qualified people to staff inpatient treatment units and wanted more opportunities to interact with students of behavior analysis.

The collaborative program was approved by the UMBC Department of Psychology during the 1997-1998 academic year, and the call for applications went out late in Spring 1998 with a July 1 deadline. Under those circumstances, the numbers were of course too small to really constitute a class, and a couple of students who were unable to complete applications in time were provisionally admitted to course work as special students. More standardized application procedures brought in four more students in the 1999-2000 academic year (including one student from Iceland) and six more in the current (2000-2001) academic year. The first graduates of the

program, including most or all of the 1999-2000 entering class and probably one or two students from the first year, are expected to receive their degrees in Spring 2001. Many requests, both domestic and international, have already arrived for application packets for Fall 2001 admission. Applications are due March 1 for those needing notification of the admissions decision by April 15, or May 1 for June notification.

Before considering the contingencies of selection that operated at departmental, institutional and professional levels to shape the program, we must examine its aims and its structure, including course requirements and descriptions.

The Program

It is probably most straight-forward to describe the program with excerpts from its announcements. The following has been sent out as a poster to most undergraduate institutions in the mid-Atlantic region and to many other institutions around the country:

Applied behavior analysis applies psychology as a science to significant problems of human behavior. The UMBC program for training applied behavior analysts is designed to be responsive to the increasing call for services in areas such as developmental disabilities, behavioral medicine, education, and workplace safety. The UMBC Psychology Department, in collaboration with the Behavioral Psychology Department at the Kennedy Krieger Institute in Baltimore, is uniquely suited to developing and maintaining such a program, which has been designed to meet the accreditation requirements of the Association for Behavior Analysis. The demand for qualified professionals in this area is expected to increase dramatically in the first decade of the 21st century, which Congress is likely to designate officially as the Decade of Behavior.

The preparation of posters and announcements must take multiple audiences into account. Such materials are not just for students. They will be seen by colleagues and administrators within the host institutions, by faculty members at other institutions interested in placing their students in graduate programs, and perhaps even by some members of the general public (especially those interested in or wanting access to behavior analytic services). Thus, the materials may not merely attract students; they may enhance the name recognition, image and visibility of behavior analysis.

The following material is included in a more complete brochure that is sent out in response to inquiries about the program. It begins with some variations on the poster information:

Mastery of applied behavior analysis calls for competence in basic psychology, in the detailed knowledge base of behavior analysis, in statistical and measurement techniques for evaluating existing behavior and for designing treatment programs for individuals, and in the various skills essential to delivering services and maintaining their effectiveness. The UMBC program for training applied behavior analysts is a response to the increasing call for behavior analytic services and fills a gap in the availability of such programs in the mid-Atlantic region….

THE PROGRAM: Students complete course work in the core curriculum of the Psychology Department graduate programs, plus courses in basic and applied analysis of behavior, behavioral treatment design and data evaluation, the ethics of behavioral interventions, and practicum placement for hands-on experience with relevant behavioral procedures. In place of a masters thesis students complete a full behavioral intervention using the skills acquired in the program.

The requirements total 36 credits consisting of the courses listed below. Courses are offered both by UMBC and by KKI faculty.

I. Applied Behavior Analysis Core Courses (3 credits each = 12 credits)

Seminar in Learning (also serves as departmental core).

Seminar: Methods in Applied Behavior Analysis.

Seminar: Measurement in Applied Behavior Analysis.

Advanced Topics in Applied Behavior Analysis.

II. Departmental Core Courses (3 credits each = 12 credits)

Biological Basis of Behavior Development or equivalent.

Applied Social Psychology or equivalent.

Ethical and Professional Issues.

Elective (preferably an intervention course: e.g., Developmental Psychopathology).

III. On-site Training in Applied Behavior Analysis at KKI (12 credits)

Practicum (6 credits).

Intervention sequence (6 credits).

The Practicum gives students hands-on experience with applied behavior analysis evaluation and intervention. The Intervention sequence serves as a capstone course in which students carry through and write up a full treatment program from incoming evaluation through development of treatment protocols and intervention to evaluation of outcome.

Students accepted into the program will have good opportunities for employment at the Kennedy Krieger Institute. Full-time positions there include, along with other fringe benefits, tuition payments applicable to UMBC courses. Students who work full-time at Kennedy Krieger while taking graduate course work probably should plan to take no more than 6 credits per semester. Such students would therefore need 3 years to complete the program, though they could accelerate the pace by taking some credits during summer sessions.

The new courses specifically designed for the program are those for which catalog descriptions are given below. The previously existing Seminar in Learning, PSYC 605, is currently taught by A. Charles Catania, the Program Director. The practica and the intervention sequence involve a number of participants at both KKI and UMBC, though predominantly at the former. The faculty members who teach the ABA core courses (currently Iser G. DeLeon, SungWoo Kahng, and Louis Hagopian), at KKI with adjunct faculty appointments at UMBC, have all been current or former members of the editorial boards of JEAB or JABA.

PSYC 615. Methods in Applied Behavior Analysis (3 credits)

Prerequisite or Corequisite: PSYC 605

Treats behavioral interventions for establishing, strengthening and maintaining functional behavior (e.g., communication skills) and reducing aberrant behavior (e.g., self-injury), and examines the experimental foundations of assessment and intervention methods, including research on multiple sources of behavior. By integrating clinical research and practice, it also prepares students for the Practicum and Intervention sequences in the Applied Behavior Analysis program.

PSYC 616. Measurement and Design in Applied Behavior Analysis (3 credits)

Prerequisite: PSYC 615

Provides a basic understanding of systematic data collection and analysis methods used in applied behavior analysis to make informed (data-driven) clinical decisions. The course covers behavioral assessment strategies and topics, including sampling and observation methods, interobserver agreement, and behavioral interviewing. It also covers data-analysis methods for systematically answering clinical questions with individual clients, including functional analysis, graphical data analysis, and reversal, multiple-baseline and multi-element designs.

PSYC 655. Advanced Topics in Applied Behavior Analysis (3 credits)

Prerequisite: PSYC 616

Offers advanced coverage of special topics, such as interventions concerned with communication skills in the developmentally disabled, management of self-injury and other dangerous behavior problems, feeding disorders, autism, and so on. Students will demonstrate skills in literature search and integration of the literature by writing reviews and giving presentations on specific topics.

PSYC 693-694. Practicum in Applied Behavior Analysis Interventions (two 3 credit courses, P/F)

Prerequisite or Corequisite: PSYC 615

This sequence provides students with basic competencies relevant to increasing functional behavior (e.g., communication skills) and decreasing maladaptive behavior (e.g., self-injury). Experience with basic behavioral interventions will include procedures such as shaping and chaining, arranging differential consequences of behavior, and manipulating antecedent stimuli.

PSYC 793-794. Interventions in Applied Behavior Analysis (two 3 credit courses, P/F)

Prerequisites: PSYC 616, PSYC 693-694; Prerequisite or corequisite: PSYC 655

This capstone field placement teaches independent intervention skills essential to applied behavior analysis. Under supervision, the student is assigned a client and conducts all stages of an intervention with the client from assessment to design of a treatment program through treatment delivery and its evaluation. The sequence is completed with a presentation and written report of the treatment and its outcome. (In the Applied Behavior Analysis program, this sequence serves in place of a Master's Thesis.)

Students enrolled in the Practicum course explicitly engage in a range of activities that we considered minimally necessary for the training of competent practitioners of behavior analysis. These include but are not limited to: interviewing parents and caregivers; defining behavior operationally and developing accurate observation and measurement systems; conducting functional analyses; developing task analyses; developing hypotheses based on functional analysis data; developing and evaluating treatments and facilitating their generalization; and training staff and caregivers. Thus far, the practicum experiences have been limited to pediatric behavior problems (although plans are underway for making a wider range of experiences available, as in applications to behavioral medicine or education, they will become practical only when the program becomes larger). Skills learned during these activities are directly put to use during the Intervention sequences as the students collaborate with faculty in selecting specific target behavior upon which to intervene, assessing that behavior, developing and evaluating treatments, writing up the intervention in journal format, and presenting results to an audience of faculty members, supervisors, and peers. The intervention is evaluated by a committee consisting of the intervention supervisor, one faculty member from UMBC and one from KKI.

Departmental course requirements are discussed briefly below. Students in the program select courses in the biological and social areas from several relevant courses, depending on availability, student interests and constraints in each student's schedule. They enroll in these and the Ethics course along with students (mostly doctoral) from other departmental programs. Upon completion of the program requirements, they receive Master of Arts degrees in Human Services Psychology with specialization in Applied Behavior Analysis.

Academic and Professional Contingencies

Mutually supporting contingencies for maintaining the behavior of the academic and professional participants may be necessary but they are not sufficient conditions for the success of a collaborative program. It is also essential to deal with response effort and other potential impediments. Furthermore, contingencies operate on the behavior of the students who enter into the program as well as on the behavior of the faculty, not only at all of the stages from application and admission through course work and practica to completion of the degree, but even subsequently in wider professional arenas as influenced by the reputation of the program and its accreditation status. We can illustrate these complex and interacting contingencies by sampling just a few for discussion here.

Faculty commitment and response effort. The Department of Psychology at UMBC is a large one, with many undergraduate majors and with graduate students in other, primarily doctoral, programs. While the UMBC administration welcomed the prospect of larger enrollments at the Master's level, the departmental faculty was rightfully wary about increased course loads and the burden of thesis committees. In this instance, however, the availability of adjunct faculty from KKI allayed concerns about increased course loads. Moreover, teaching and otherwise interacting with graduate students enhanced the professional opportunities for KKI faculty. Although the faculty at KKI hold appointments at Johns Hopkins University School of Medicine, the opportunities to provide training (not unlike those at other teaching hospitals) had generally been limited to the supervision of advanced students, including predoctoral interns and postdoctoral fellows.

By providing classroom teaching opportunities through the UMBC program, the behavior analysts at KKI felt that they could attract talented faculty members who would be interested in playing a role in the early development of practicing professionals.

Meanwhile, the substitution of the Intervention sequence as a nonthesis alternative allayed concerns regarding the burden of thesis committees at the same time that it provided a master's requirement that was more appropriate for our program than a thesis would have been. It is important for practitioners to have some guided research experience, and some is included within the course work of the program, but the intervention sequence guarantees that all students will have conducted interventions and assessments similar to those that will be needed in their later professional environments and will have presented their results to audiences that include both their peers and established professionals. Furthermore, the sequence is compatible with existing ABA criteria for program accreditation.

Even the nonthesis option did not guarantee approval of the program by the UMBC faculty. Another consideration was the consistency of the program requirements with more general departmental requirements, which included core subject areas relating to the psychobiosocial perspectives within the Human Services Psychology program. The seminar in learning, already identified as necessary to the applied behavior analysis sequence, satisfied the first of these perspectives. Adding biological and social courses satisfied the second and third perspectives while increasing the breadth of training of our students, for whom course work in these areas would probably prove useful (e.g., students working with feeding disorders should be familiar with relevant physiological approaches).

Professional responsibilities, staffing, and student benefits. The faculty members at KKI deliver services. To do so effectively, they must recruit competent staff for both inpatient and outpatient units. Qualified staff can be hard to come by, especially during times of low unemployment. Aside from any professional perquisites, such as titles or remuneration for teaching (in any case typically modest under most circumstances), one factor in the participation of KKI faculty members in the UMBC program is that students in the program can provide a useful pool for filling staff positions. Historically, because of the uniqueness of its mission, high-level employees at KKI have been internally cultivated. Recent college graduates typically begin at entry level positions and only through a extensive sequence of training and professional experiences (often requiring two years or more) do they become sufficiently adept at behavioral intervention to be considered for positions of greater responsibility.

By contrast, because of the nature of their classroom and practical experiences, KKI has been able to place UMBC program students in these positions within a few months. From the students' perspective, those who work full time at KKI may need a longer time to finish the program, but those students have two advantages. First, by working at KKI, the students are already onsite for satisfying the practicum and intervention requirements and may even be able to complete some of it during working hours. Second, a fringe benefit available to KKI employees is tuition reimbursement. Given that research or teaching assistantships are only rarely available at the Master's level at UMBC, this fringe benefit becomes an important source of support for students in the program. At the same time, the tuition income provides an important basis for support of the program by the UMBC administration, and for the KKI faculty the students in the program not only fill positions that need to be filled but can also work as informed participants on collaborative projects. We expected that students in the program would occasionally become coauthors on publications with KKI faculty, and already two of the intervention projects conducted by the first-year students have been deemed sufficiently novel that they have been submitted as presentations for the 2001 meeting of the Association for Behavior Analysis.

Another benefit for students is that they are well placed to learn about employment opportunities, because many inquiries from prospective employers come both to UMBC and to KKI. Furthermore, given that their coursework is guided by objectives provided by the Behavior Analysis Certification Board, our students are well prepared to take the certification exam. (Currently, there is no licensing of applied behavior analysts in Maryland, but if such licensing is established, the program will take steps to insure that our students are eligible for licensure.) When compatible contingencies interlock in so many ways, their cumulative effects can become quite powerful indeed.

Conclusion

We have, of course, been fortunate in these many compatibilities, and especially in geography. Our collaboration would have been impossible were it not for the proximity of UMBC and KKI in the Baltimore-Washington corridor. Different problems will have to be surmounted by those behavior analysts in academic institutions who aspire to programs in applied behavior analysis but who do not have service institutions close at hand, as well as by those behavior analysts with similar aspirations but in service institutions that are distant from relevant academic institutions (a Department of Psychology or one in some related area is not enough, because few departments include adequate numbers of behavior analysts in their faculties).

But as the demand for behavior analytic services grows, we must work toward increasing the numbers of well-trained students. If we do not do so, others without appropriate training may claim our expertise. Their failures will not only ill-serve their clients but, to the extent that consumers cannot distinguish between those claimants and our well-trained students, our reputations and our effectiveness may suffer. We can be optimistic, because our advantage is that our very subject matter alerts us to the multiple contingencies, both proximal and remote, that operate on our own behavior and on the behavior of our colleagues and students at both individual and institutional levels.

Behavior analysts have the necessary and sufficient tools to effect institutional change. When many variables that support each other come together at one time, the institutional responses that follow may be virtually inevitable. How well behavior analysts do in creating new programs will depend on analyses of institutional contingencies, assessments of the barriers that might block their establishment, and plans of action for addressing and removing those barriers, so that the product is mutually beneficial and sufficiently "reinforcing," as far as the “behavior” of the collaborating institutions is concerned, to maintain the programs once they are created.

Endnote

We thank the many staff members and colleagues at both institutions, literally too numerous to mention, who have contributed to the founding and progress of the program.

Application materials for the ABA MA program at UMBC can be requested by sending an email message to cherelst@umbc.edu (Paula Todd-Cherelstein); email questions about the program can be addressed to the Program Director (A. Charles Catania) at catania@umbc.edu.

Praise's Magic Reinforcement Ratio: Five to One Gets the Job Done

Stephen Ray Flora
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All behavior analysts, teachers and parents can use praise as a reinforcer. Experimental and applied behavior analyses have established that praise, attention, and affection do in fact *function* as reinforcers. Social interaction is both a primary and a conditioned reinforcer. Contingent social interaction can shape operant behavior (lever pressing) of rats and maintain responding on fixed ratio schedules that does not differ significantly from behavior shaped and maintained with food reinforcement (Evans, Duvel, Funk, Watson, & Neuringer, 1994). Rats can be shaped to lever press when the only reinforcement is being petted and praised ("good girl') by a human (Davis and Perusse, 1988). As the term "starved for affection" suggests, social approval and affection function as reinforcers for humans as well. When adult affection is contingent on vocalization, infant vocalization increases and when infant vocalization no longer produces adult attention, vocalizations decrease (extinction; Rheingold, Gewirtz, & Ross, 1959). Just as deprivation and satiation of food alter food's effectiveness as a reinforcer, establishing operations such as deprivation and satiation of approval systematically alter the effectiveness of approval as a reinforcer. When children are deprived of approval, approval's effectiveness as a reinforcer increases. Conversely, when children are satiated with praise and admiration, approval's effectiveness as a reinforcer decreases (Gewirtz & Baer, 1958). When adult eye contact and smiling are contingent upon infant smiling, smiling is reinforced (increases) and crying, fussing and frowns decrease (Etzel & Gewirtz, 1967).

In fact, attention and praise are so well established as reinforcers that their use is seldom questioned in applied behavior analysis. Attention is regularly identified as a reinforcer in functional analyses (e.g. Berg, Peck, Wacker, Harding, McComas, Richman, & Brown 2000; Durand & Carr; 1991; Meyer, 1999). Praise and recognition are recognized as effective motivators by some in the business world. "There are two things people want more than sex and money," according to Mary Kay Ash, founder of Mary Kay Cosmetics, "recognition and praise" (Nelson, 1994, p. 9). Accordingly, Robert Preziosi, President of Management Associates argues that "there never seems to be enough recognition. After a brutal day, walk up to employees and say 'you were great. I'm so glad about what you did today.' You'll be surprised how far a simple gesture will go" (Nelson, 1994, p. 137).

As a free, virtually always available reinforcer, praise is a very pragmatic reinforcer for behavior analysts, educators, parents, clinicians, coaches and social workers. When teachers of students with "emotional and behavioral disorder" (EBD) are taught to increase their rate of behavior-specific praise, students' rates of on-task behavior increase (Sutherland, Wehby, & Copeland, 2000). College students who receive verbal praise for doing homework spend more time completing their homework assignments (Hancock, 2000). When parents of young children with "behavioral problems" were taught to praise their children's compliance and task engagement, the resulting increased praise produced improved compliance *and* decreased inappropriate behavior (Greene, Kamps, Wyble, & Ellis, 1999). The "prompt, pause and praise procedure" is an effective and recommended remedial technique for children making slow progress in reading (Merrett, 1998).

Unfortunately, despite praise's proven effectiveness as a reinforcer and it's free cost, praise is vastly underutilized. In an analysis of studies conducted in the U.S., U.K., Canada, Australia, New Zealand, Hong Kong and St. Helena, Robyn Beaman and Kevin Wheldall of Macquarie University in Sydney Australia found that "there is little evidence to suggest that teachers, universally, systematically deploy contingent praise as positive reinforcement in spite of the considerable literature testifying to its effectiveness. In particular, praise for appropriate classroom social behavior is only rarely observed" (2000, p. 431).

According to Alfie Kohn author of *Punished by Rewards: The Trouble with Gold Stars, Incentive Plans, A's, Praise and Other Bribes*, the less praise is used in the galaxy the better. In his chapter "The Praise Problem," Kohn argues that "words of praise in the form of verbal rewards generally do more harm that good, particularly when they are doled out as part of a deliberate strategy to reinforce certain ways of behaving" (1993, p. 101-102). Kohn argues that

children "should simply do what is expected of them without requiring encouragement or justification" and concludes "The Praise Problem" chapter with the disparagingly snide, "giving rewards less frequently or more stringently will not solve the underlying problem, because the problem is behaviorism itself" (p. 116).

Of course, it is impossible for anyone to know "what is expected" without some sort of encouragement or justification. In behavior analytic terms, there *must* be some sort of antecedent -- discriminative stimulus, occasion setter, setting event, or establishing operation-- that occasions the "expected" response. With children the antecedent is frequently encouragement or "verbal justification." Due to the belief in the myth that "intrinsic interest" and "self-determination" are "undermined" by "extrinsic rewards," the systematic use of praise specifically, and reinforcement generally, is argued against. But in reality, *reinforcers*, considered "extrinsic rewards," *including praise*, *increase intrinsic interest and perceived self-determination* (e.g., Overskeid & Svartdal, 1998). Eisenberger has found that pay for performance -- reinforcement -- increases perceived self-determination, creativity, and intrinsic motivation of children, college students, and employees of a chain of large electronics and appliance stores (e.g., Eisenberger & Rhoades, in press; Eisenberger, Rhoades & Cameron, 1999).

Over the last quarter century Harve Rawson, Ph.D. has studied the effects of behavior modification programs within short-term summer school programs in academic achievement and behavior problems of "at risk" boys, all of whom have some combination of learning disabilities, behavior disorders, adjustment problems, are from low socioeconomic background, broken homes and considered culturally and socially deprived (McIntosh & Rawson, 1988; Rawson, 1992, 1973; Rawson & Cassady, 1995; Rawson & McIntosh, 1991; Rawson & Tabb, 1993). These programs have been found to produce increases in self esteem, decreases in anxiety, increased perceived internal locus of control, and decreased levels of depression. In 1992, Rawson specifically investigated the effects of the intensive short-term remediation program on academic intrinsic motivation. The foundation of the program was contrived reinforcement and praise. "The program featured ... use of a token economy system …. All teachers... consistently employed the following teaching techniques regardless of the learning situation: *frequent verbal praise*;... *continual physical gestures of approval and affection*...for socially appropriate behavior;... *public ceremonial awards* (three times a day) for personal successes and achievements" (Rawson, 1992, p. 277, emphasis added).

In Rawson's study (1992), comparisons of pretest and post-test scores on the *Children's Academic Intrinsic Motivation Inventory* found that the program did indeed *increase* academic intrinsic motivation. *Significant gains in intrinsic interest were found* for reading, math, social studies, science and for general interest in academics. As a product of the contrived reinforcement program, including heavy doses of contingent praise, learning became a naturally reinforcing process. "Joy of learning was often evident in the program. [There was] observable change in a child's wanting to learn because he now knew he could learn" (Rawson, 1992, p. 282). The following school year 69% of the participants were reported by their teachers to be "doing markedly better in class" (p. 283). These results conclusively refute the myth that extrinsic rewards undermine intrinsic motivation. Reinforcement, including contingent praise, increase intrinsic interest.

If fact, the power of praise as a beneficial life changing reinforcer is so overwhelming that to argue against its systematic use is indefensible. Behavior-specific praise may be the most effective *readily available* tool to improve achievement in high-poverty schools. In 1995 at Cascade Elementary school in Atlanta, a school with a 99% Black population and 80% low income population, the 5th graders scored in the 44th percentile in reading and the 37th percentile in math on the Iowa Test of Basic Skills. But in 1999 the fifth graders scored in the 82nd percentile in reading and the 74th percentile in math. Similar improvements were seen in all other grades as well. What accounted for the improvement was principal Alfonso L. Jessie, Jr. instituting a program based on three factors: *immediate personal attention*, testing, and a basic skills focus. "'Children need constant encouragement,' Jessie remarks, 'but our encouragement has to be directed at learning.... We find every opportunity we can to say something positive, but we make sure that we are reinforcing their skill level by doing so'" (Carter, 2000, p. 50).

<u>Five to One gets the Job Done:</u>

Not only does the beneficial power of praise emerge as a life changing force across a wide range of

human situations, but a particular ratio, a ratio of five approvals -- five phrases of praise -- for every disapproval is identified as an effective ratio of approvals to disapprovals. Five phrases of praise for every reprimand produces results. As reported in their book *Meaningful Differences* (1995), Betty Hart, Ph.D. and Todd Risley, Ph.D. of the University of Kansas studied the parent-child interactions of welfare parents, working class parents, and professional class parents over several years focusing on children's vocabulary gains and I.Q. changes at age 3 and again at ages 9-10. Parenting style, not socioeconomic class, emerged as the strongest predictor of vocabulary gains and I.Q. increases. Children who made the greatest gains had parents who talked to their children more, were more affirmative and gave more praise. A parental "feedback tone" of approximately 5 confirmations, praise and approvals for every criticism or disparagement resulted in the greatest improvements. "Feedback tone was... strongly related to rate of vocabulary growth and general accomplishments estimated by I.Q. score.... The more positive the affect during interaction the more motivated the child is to explore new topics, to try out tentative relationships, to listen and practice, to add words to those already accumulated, and to notice the facts and relationships that IQ testers ask about" (p. 155). *Five to one gets the job done*.

John Gottman, professor of psychology, University of Washington, and cofounder of the Seattle Marital and Family Institute, popularly known as the "love lab," has observed over 2000 couples interacting over a range of topics. He is able to predict with over 90% accuracy which marriages will end in divorce and which marriages will be successful. Those marriages that contain at least five approvals or five positive interactions for every criticism or aversive interaction are successful. Marriages with an approval to disapproval ratio of less than five to one are very unlikely to last (e.g., Gottman, 1994, Monaghan, 1999). "The ratio model... suggests that what is important is the relative amount of positive to negative affect.... the ratio of positive to negative interaction during conflict resolution was *5 to 1*, whereas the ratio was 0.8 to 1 in unstable marriages" (Gottman, Coan, Carrere, & Swanson, 1998, p. 9).

Furthermore, Gottman finds that parents' high marital conflict (that is, partners with a low ratio of positive to negative interaction) aversively affects their children's physical health, affect and academic achievement. Fortunately, Gottman also finds that the parental technique of "scaffolding/praising" can act as a "buffer" against the coercive effects of martial conflict. Scaffolding/praising includes parental attention, responsiveness, positive directiveness, excitement, *praise and physical affection* (Gottman, Katz, & Hooven, 1997). Behavior analysts may recognize these procedures as describing prompting and reinforcing successive approximations (shaping).

The assignment:

In addition to Heart and Risley's findings and Gottman's findings, giving five approvals for every disapproval has been shown to be a beneficial ratio of approvals to disapprovals in changing the behavior of juvenile delinquents (Stuart, 1971), and for establishing appropriate behavior generally (Madsen & Madsen, 1974). Based on these results, Martin and Pear (1999, p. 43) suggest an exercise where adult students attempt to reach an approval to disapproval ratio of 5 to 1 during an hour spent with children. As described below, I require a modification of this exercise for undergraduate students taking Applied Behavior Analysis and for teachers taking a graduate course on Learning. Participants almost invariably experience beneficial results. The assignment could be used profitably by behavior analysts in many applied situations.

First students are required to record their approvals and disapprovals during a "standard" period of time for at least one hour a day for several days as a baseline. Depending on each student's circumstances, the baseline could be conducted during sports practice, on a work shift, while teaching a class, during family meal time, or at children's homework or bed time. Following the baseline period, participants must continue to record their approvals and disapprovals and attempt to reach a ratio of five approvals for every disapproval during the same standard time frame used during baseline. The 'treatment' is conducted for approximately 10 days (absolute days vary depending on personal circumstances). Participants report their ratios of approvals and disapprovals during baseline and treatment, any confounds they experience, and any objective or subjective changes they note in both their behavior and the behavior of the targets of the approvals and disapprovals.

Of course, in terms of an experimental analysis of behavior or a functional analysis this assignment is unacceptable. There is no inter-rater reliability. There are no behavioral definitions of

approvals or disapprovals. "That's good honey," could be an approval, but said sarcastically it is a disapproval. Ditto for a nonverbal pat on the back. Reactivity (changing behavior because it is being recorded) frequently occurs during baseline. There is no withdrawal or reversal phase. At best each participant is conducting his/her own baseline-treatment (AB) design which is not sufficient to establish causality. Finally, there is no specific identification or reporting of the children's behaviors which are receiving approval or disapproval prior to data collection. The behaviors each participant reports on is dependent on their own unique circumstances.

Despite these numerous shortcomings, the assignment has proved beneficial to virtually all participants: the "experimenters" and the "targets." Furthermore, the results support the claim that five to one is an effective ratio of approvals to disapprovals across a wide range of situations. Below I present the results from one class of undergraduate Applied Behavior Analysis (ABA) students and one graduate class of teachers.

During baseline the teachers' average self-reported approval/disapproval ratio was 2.59 and during treatment the ratio was 4.32, a statistically significant increase (t (21) = 4.7, p. < .001). During baseline the ABA students' average approval/disapproval ratio was 1.59 and during treatment the ratio was 4.47, a statistically significant increase (t (16) = 6.9, p. < .001). Thus, although on average neither class reached a 5 to 1 ratio, each class significantly increased the ratio of approvals to disapprovals. What effect does this have? In the ABA class, 100% of participants, that is *all* students, suggested that during the period when approvals were increased both the target child's behavior improved *and* the student experimenter's behavior improved. For the teachers, 23 of 28 reported that both their behavior improved and their students' behavior improved. One reported that her behavior worsened and the remaining four teachers' reports were inconclusive.

Other than the ratios of approvals to disapprovals, the data collected were anecdotal narratives making graphic, quantitative, or other objective analyses problematic. Nevertheless, several consistent findings emerge with direct relevance for applied behavior analysts. Teachers consistently reported believing that they were positive in their classrooms and dispensed large amounts of approval (initially). However, after objectively recording the number of approvals they gave, they reported they were "surprised," "amazed," or "shocked," at how many disapprovals and how few approvals they actually gave in their classrooms. Parents, both teachers and undergraduate ABA students, also frequently report the same surprise at how often they really disapprove and infrequently approve of their children's behaviors. Therefore, at the very least, the assignment provides an important lesson in the differences between subjective recollections on personal behavioral tendencies, and objective recording of behavior.

Fortunately, participants do manage to decrease their disapprovals and increase their praise which in turn results in reported changes in the behaviors of those receiving the approvals. For example one single mother stated that prior to increasing approvals, "My daughter and I usually argue the entire time we spend working on her homework." But, "approvals saved time spent on doing homework as well as improve the way Alexis and I communicate with one another. We decreased our arguments and now look forward to doing homework together." When the target of the approvals is the behavior of a spouse, marital relations typically improve. One wife reported, "the more approvals given created a much better atmosphere in our home. I actually saw an increase in my husband's attempts at helping with the household chores the more I praised him, and he became much more responsive (smiling, telling jokes, willing to listen, and affectionate). Before the negativity seemed to snowball." Over the years several of my student participants have reported that increased praise during the day resulted in increased intimacy during the night!

When the behavior of one child is praised, teachers and parents often find that other children then imitate the behavior. "When I gave a verbal approval to a child, many of the children involved in the activity began to work harder in an effort to get praise as well," reported one teacher. "If I commented on how I liked what one student was doing then many other children began to do the same thing."

A behavior criticized or reprimanded may actually be a successive approximation of an appropriate behavior. Therefore, rather than increase appropriate behaviors, disapprovals of "inappropriate" behavior may actually punish approximations toward

desirable behaviors. This downside to disapproval often becomes apparent during the assignment. A member of the university's baseball team reported exactly this effect of disapprovals on a teammate's "slack" behaviors in the weight room, "These disapprovals did not make him lift more, *actually it made him not want to lift with us anymore."* Fortunately praise reversed this situation. "To my amazement this [praise] actually worked, I mean he didn't lift like Hercules or anything but he was always there, waiting to lift and he was more serious when lifting." Similarly, coaches consistently report better performance when disapprovals are decreased and approvals increase. "When I gave an approval everyone seemed much more responsive to learning and participating," reported a high school track coach. "They responded to constructive criticism better after receiving an approval of their behavior than they did after receiving disapproval.... More learning went on as a result of the approval and disapproval homework." Furthermore, students often find that the disapprovals for inappropriate behavior were what was maintaining the inappropriate behaviors in the first place. "While I was increasing my approvals, I needed to use disapprovals less," wrote one teacher.

To meet the 5 to 1 ratio of approvals to disapprovals teachers occasionally "lower their standards" so that they can praise a behavior that formally they would have disapproved of. But, because behaviors criticized are often successive approximations of desired behaviors (e.g., completing part of a homework assignment is an approximation of completing the entire assignment), these teachers find that increased rates of praise result in better work than when their "standards were higher." "I did not lower my expectations on what I ultimately wanted them to accomplish," wrote one teacher. "But I did begin to praise more often for a lesser amount of work accomplished during the allotted time. I was surprised to find that these few students, as with all the students, tended to work harder, and stay more fully engaged in their work when I increased the praise." "When I praised a student that had previously not been completing assignments for having one more assignment completed a particular day than the previous day," wrote another teacher, "that student had even more assignments completed the next day." Reinforcing successive approximations with praise may be the fastest method for teachers to build academic behaviors of their students.

As the above sampling of results suggests, this assignment has a wide range of behavioral applications. The baseline has diagnostic value and establishing a ratio of five approvals for every disapproval may be an effective treatment for many problems. Those who work with families, marriages and other interpersonal relationships, those who work in developmental disabilities, coaches, teachers, and those who work in management all can profit from objectively recording their own and their clients rates of approval and disapproval. If they believe they are already very positive, then the baseline will provide proof. If they do not provide many approvals, but believe that criticism and sarcasm are effective behavior management tools, (an all too common belief), then a test phase of five approvals for every disapprovals will result in worse behavior (it won't) and their criticism and sarcasm will have justification. Conversely, the likely result of a test phase of five approvals for every disapproval is that the increased approvals will result in increased performance and improved interpersonal relationships.

Cautions:

People have occasionally reported that giving approvals "feels fake," "awkward," or that their "personality" is to be belittling and sarcastic so it is quite difficult to give out approvals. But, giving approvals is a behavior like other behaviors. To be fluent and "natural" at giving approvals, giving approvals needs to be shaped and frequently reinforced, and perhaps practiced. Role playing with a behavioral professional may even be necessary. But typically, as praise is more frequently given it feels less awkward, more natural, and the resulting changes in the people receiving the praise in turn reinforces the behavior of giving praise. Praise can be informative or affectionate, or both, but *to be an effective reinforcer praise must be behavior-specific.* For example children praised for their intelligence or ability are more likely to quit and perform worse on an effortful task than children praised for their effort (Mueller & Dweck, 1998).

Why 5 to 1:

Gottman and colleagues (1998) suggest that interpersonal situations where there is never any criticism "would seem to be one version of Sartre's relationship hell" (pp. 8-9). *Everything is always good* has as much objective meaning as *everything is always bad*. Thus, if only approvals are given their

functional effect on behavior may become minuscule. However, as the evidence reviewed above suggests, praise is very powerful and only very small amounts of disapprovals are needed to keep the value of praise maximal, amounts so small that most will still deliver sufficient amounts of disapproval even while attempting to eliminate disapproval altogether. Because praise functions as a reinforcer, like other reinforcers, one can become satiated with praise. To reduce this possibility praise should be varied. (I give my students "101 phrases of praise.")

Praise is a very powerful but very underutilized reinforcer, especially considering its cost – it's free! When individuals increase their ratio of approvals to disapprovals to five to one, the behaviors and affect of *all involved* invariably improves. Five to one gets the job done!

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Bring 'em Back. . . Alive?
The BBC's *Walking with Dinosaurs* brings extinct species back to life -- or something like it.

Derek Bousé

Derek Bousé *earned his doctorate from the University of Pennsylvania's Annenberg School for Communication, and is the author of Wildlife Films (University of Pennsylvania Press, 2000), and several articles on media depictions of the natural environment. He also contributed chapters to the recent edited collections Market Killing: What the free market does, and what social scientists can do about it (Longman, 2000), and Image Ethics in the Digital Age (University of Minnesota, 2001). He lives in Salzburg, Austria.*

In their one-hundred-plus year history, wildlife and natural history films have not always been filmed in wild or natural settings. Neither have they always depicted completely natural behavior. Harsh conditions, expensive film stocks and equipment, and most of all the uncertain behavior of animals, have driven many wildlife filmmakers to long for the control enjoyed by their colleagues in feature films. It was this lack of control, in fact, that led many critics to dismiss wildlife films unfairly as being "amateurish." Clearly, there is nothing amateurish about today's wildlife filmmakers, but even those most determined to film authentic wild behavior in the natural settings have found themselves forced by competitive pressures to shoot close-ups, missed shots, dramatic angles, and subtle bits of behavior in enclosures, zoos, laboratories, television studios, and now, finally, in cyberspace. The second century of wildlife films may well be the one in which the wild and often unpredictable behavior of some of the most awesome and ferocious creatures can be made to conform to any scripted scenario, brought under control at last -- by a mouse.

Yet well before the age of computer generated imagery, indeed, from the start there have been those wildlife filmmakers who have tried to make animal behavior conform to audiences' preconceived notions, and to the dramatic conventions of mass market entertainments. Many have resorted to manipulations more severe than the digital kind. In the 1930s, for example, a Barnumesque American named Frank Buck achieved notoriety with a trio of wild animal "capture" films, *Bring 'em Back Alive* (1932), *Wild Cargo* (1934), and *Fang and Claw* (1935). The popularity of these with audiences rested largely on the dramatic way in which they "proved" widely held notions that animals in the wild exist in a state of constant interspecies warfare (a "never ending arms race," as a more recent wildlife film put it). Buck's specialty was staging dramatic fights in small enclosures between animals who would normally have avoided each other in the wild, but who reacted to shared confinement by attacking each other with audience-pleasing ferocity. Armand Denis, who directed the second Buck outing, later recalled his reaction to Buck's plan for one such a battle. "How's about a fight to the death between a tiger and an orang-utan?" Buck asked.

> "Well," I said cautiously, "orang-utan occurs in Borneo and Sumatra; there are tigers also in Sumatra, so it is not inconceivable that an orang-utan and a tiger could meet -- but surely if they did, they'd just avoid each other. Animals don't normally fight to the death for nothing."
> "Don't they, eh?" replied Buck. "When I'm around they do."[1]

In the world of mass market entertainments, where wildlife films still reside today, accuracy continues to rest uneasily on the same slippery slope. That is, in Denis's phrase, if it is "not inconceivable" that something *could* occur, then, according to the logic of film and television it probably has occurred, or could very well at any moment. The fact that extraordinary circumstances would be required to produce its occurrence is irrelevant. The implied conclusion is, simply, that such things *do* occur. Every climactic rescue, epic gun battle, and apocalyptic explosion in film and television thus carries with it an implied, if muddled, statement of probability: such things *could* occur, therefore such things *do* occur. This is, in a way, the basis of film

[1] Denis (1964: 58).

and television *realism*. "Realistic" drama has long been seen as the meeting point between fantasy and truth, but today it seems ever more to be engulfing documentary, journalism, and even natural history exposition.

The problem is especially evident in the recent six-hour BBC production *Walking with Dinosaurs* (1999), which aired in the US in April, 2000, on the Discovery Channel. This "high concept" production combined the conventions of wildlife and natural history films with digitally produced dinosaur images of the sort seen in *Jurassic Park* (1993), *The Lost World* (1997), and Disney's *Dinosaur* (2000).[2] At its *Walking with Dinosaurs* website, the BBC described the series this way:

> this isn't some dry lecture from paleontologists, nor is it a movie-style action-drama. Incredibly, it's a complete recreation of the dinosaur era, filmed like the natural history documentaries for which the BBC is renowned.[3]

Instead of talking heads and close-up examinations of fossil fragments (typical of the expository conventions associated with television science documentary[4]), the series instead allowed viewers to sit back and be entertained by dinosaurs of all shapes and sizes in full, lifelike motion and vivid detail. At last they could be seen hunting, feeding, fighting, migrating, reproducing, and dying, just as viewers had seen so many other animals in "blue chip" wildlife films about life in the Serengeti, the Masai Mara, the Galapagos, the rainforests of South America, and elsewhere.

Some sequences in *Walking with Dinosaurs* even followed the wildlife film convention of creating individual characters, and then using their experiences to dramatize those of an entire species. Viewers could thus become emotionally involved in the story of an aging *ornithocheirus*, for example, as he struggled to find a place among the younger, stronger males from where he could make one last attempt to attract a female. Dramatization of this sort is a common enough device in literature, film, and television, where abstract concepts (good, evil, love, hate), social issues (homelessness, child abuse, alcoholism), and even minority groups (racial, ethnic, and sexual) are represented through individualization and personification. Even science, perhaps especially natural history science, has never been a stranger to techniques of dramatization, from Aristotle to Rachel Carson and well beyond. Although the issue was hotly debated nearly a century ago in the "nature faker" controversy, when writers of animal stories were taken to task by Theodore Roosevelt and others for systematically misrepresenting animal behavior, their techniques of personifying and individualizing, and of creating individual "animal biographies" to illustrate species behavior, became the foundations of contemporary wildlife filmmaking.[5]

The problem with all of this in a film about extinct species, indeed, *long* extinct species, is that much of what gets presented as *science fact*, especially in depictions of behavior, has never actually been observed, and so is largely theoretical. The (presumably) lifelike digital images in *Walking with Dinosaurs* depict body postures and movements, as well as intricate patterns of social behavior (preening, vocal communication, courtship display, mating, and other interactions) that are little more than hypothetical, or that rest largely on analogies to creatures living today. In an interview posted at the BBC website, one of the series producers, Tim Haines, acknowledged its speculative aspects:

> There are scenes that really are very good science and there are those which are more speculative, like mating. How on earth will we ever know how they mated? We're not always

[2] Producer Mike Milne compared *Walking with Dinosaurs* to its more expensive Hollywood counterparts: "All of the animators working on *Walking with Dinosaurs* look up to the animation in *Jurassic Park* and *The Lost World* as being second to none. . . [but we] think that in the realism of the skin textures and muscle movement we pushed the envelope further." Significantly, the series was animated not on high-end expensive equipment, but on "standard, off-the-shelf computers" using Softimage™3.7. See: "Live Chat -- Transcript. . . (April 5, 2000).

[3] "The Making of. . ." (April 5, 2000). The series was not, however, produced by the BBC Natural History Unit in Bristol, which makes the wildlife and natural history films referred to in the quotation.

[4] On television science documentary, see Gardner and Young (1981), Silverstone (1984), and Hornig (1990).

[5] On the "nature faker" controversy, see Lutts (1990).

> showing people stuff that we know is right, we're showing people our best guess. There is much that science does not know for sure and our approach to this was to make informed speculations about how animals behaved.[6]

Another producer on the series, Mike Milne, confessed that they had to some extent generalized from creatures living today: "We took a day out at a safari park and watched an elephant walk round to see how her weight moved as she went from foot to foot. We also filmed her and watched that again and again to help us understand how large animals move."[7] The use of *comparative anatomy* is, of course, common among paleontologists seeking clues about dinosaur locomotion and behavior, but more often than not involves a good deal of reasoning by analogy -- more than by homology. This is clearly the case, for example, in literature posted at the Discovery Channel website in conjunction with the *Walking with Dinosaurs* series, when, based on little more than evidence of facial scars found on fossil remains, the social hierarchy of some dinosaur species was compared to that of wolves.

Milne went on to remark the program's achievements in "capturing the behaviour" of different dinosaurs who (although animated) were "just acting naturally." Clearly, however, the behavior depicted in the series has not merely been "captured," and the animals are not just "acting naturally." The whole scenario has been fabricated based on selected interpretations of fossil data. Even among paleontologists, however, there remain a number of conflicting interpretations of these data.

Ultimately, despite technically brilliant production values, *Walking with Dinosaurs* helps blur the differences between capturing and fabricating, fact and the assertion of fact, and evidence and interpretation. Its combination of visual "evidence" with authoritative sounding voice-over narration leaves little room for doubt or questioning. Each acts to bolster, if not intensify the other, and to eliminate signs of speculation or hypothesis. *Walking with Dinosaurs* cannot even be called a "factual re-creation," for we simply do not know enough facts to re-create on film the world as it was several millions of years ago. What we end up with, as in so much of film and television, is not a depiction of the realities of animal behavior, but the construction of yet another *possible world*.

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[6] "Production." (April, 2000).

[7] "Computer Graphics" (April, 2000).

1ST ANNUAL PennABA CONFERENCE

PLACE:..... **The Best Western Inn & Suites Conference Room**
Harrisburg, Pennsylvania 888/ 868-5952 (reservations)

DATE & TIME:..... **Friday, March 16, 2001, 9am – 5 pm**

FEATURED SPEAKERS INCLUDE:
Richard M. Foxx, Ph.D., Kimberly A. Schreck, Ph.D., & Rick Kubina,Ph.D., Penn State Harrisburg
Edward Tiryak *Attorney*
Saul Axelrod, Ph.D. *Temple University*

TOPICS INCLUDE:

Autism, Developmental Disabilities, Education, Certification of Behavior Analysts, and Legal Issues

Behavior Analysis Certification Board Continuing Education Credits for BCBAs and BCABAs!

On-site registration is available from 8:30 – 9:00 am.
Pre-registration form: **http://fishscales.virtualave.net/PennAba/index.htm**
or see PennABA and Conference registrations in this issue of BAT.

8:30 - 9:00	**On-site registration & sign-in for those pre-registered**
9:00 – 10:15	President's Welcome Address -- *Richard M. Foxx, Ph.D.* **"Tenge Familia: Behavior Analysis in Pennsylvania— Opportunities and threats, friends and foes"**
10:30 – 11:00	Business Meeting
11:00 – 12:00	**"What is generalization and why can't children with autism do it?"** *Rick Kubina, Ph.D.*
12:00 – 1:00	**Networking Lunch *(included with registration fee)***
1:00 – 1:30	**"Wraparound Services: the Kirk T. Litigation and Federal Law."** *Edmond Tiryak, J.D.*
1:30 – 2:30	**"Treating children's sleep problems: Efficacy of behavioral interventions"** *Kimberly A. Schreck, Ph.D.*
2:30 – 3:30	**"Teaching self control through trigger analysis"** *Saul Axelrod, Ph.D.*
3:30 – 3:45	Break
3:45 – 4:45	**Panel discussion**: **"Behavior Analysis in Pennsylvania"** Richard M. Foxx, Saul Axelrod, Rick Kubina, Kimberly A. Schreck, Edmond Tiryak, and Beth Rosenwasser
4:45 – 5:00	**Closing Remarks** *Richard M. Foxx, Ph.D.*

Conference Registration &/or Membership Form

Conference: Friday, March 16th 9am – 5pm
Hotel Accommodations detailed below.

Print out and mail the following form to register (address below).

Pennsylvania Association for Behavior Analysis, Inc.

First name:_____ Initial: _____ Last Name: _____

Title/Position:_____

Organization/Affiliation:_____

Preferred mailing address:

Street:_____

City:_____State: _____Zip:_____

Country:_____

Preferred Phone No. _____ Fax: _____ E-mail:_____

Primary Professional Activity:

Please check the box(es) that most closely describes how you spend the majority of your time.

Administration ( ) Clinical ( ) Consulting/Staff Training ( ) Teaching ( ) Research ( ) Student ( ) Retired ( ) Other_____

Primary Field or Discipline: Please check the box(s) that most closely describes your areas of expertise/specialty.

Developmental Disabilities/Autism ( ) Education/Special Education/School Psychology ( ) Mental Health/Behavior Therapy ( ) Head Injury ( ) Training ( ) Basic Experimental Research ( ) Organizational Behavior Management/Staff Management/I.O. Psychology ( ) Other_____

Setting: Please check the primary setting in which you work: Agency( ) Hospital ( ) Clinical Practice ( ) Private Practice ( ) Privately-funded School ( ) Publicly-funded School ( ) State government ( ) College professor ( ) University professor ( ) Other _____

Please check any secondary setting in which you work (leave blank if not applicable): Agency( ) Hospital ( ) Clinical Practice ( ) Private Practice ( ) Privately-funded School ( ) Publicly-funded School ( ) State government ( ) College ( ) University ( ) Other _____

Most Recent Degree:_____ Year Received:_____ Major area:_____

Are you a Certified Behavior Analyst? (i.e., BCBA, BCABA, PSCBA, PSCABA) Yes / No

If yes, did you gain your educational credits though a 4-course pre-certification program? Yes / No

List any Professional Licenses: _____

Penn ABA Directory

May we include your name in the membership directory? Yes / No

Annual Membership Dues

Please check (see definitions below): Full ( ) Affiliate ( ) Student ( )

A full member is: a) anyone holding a terminal degree in a discipline which is directly related to or involving behavior analysis and whose full-time profession commitment includes teaching, research, and/or practice in behavior analysis, or; b) anyone engaged on a full-time basis in any profession or vocation that utilizes the principals or procedures of behavior analysis (including those certified in Behavior Analysis).

An affiliate member is anyone interested in the discipline of behavior analysis, but who lacks formal training. Affiliate members enjoy all benefits of membership except the right to vote on matters of interest to the organization and the right to hold office in Penn ABA. Affiliate members would include interested parents and child advocates who are not professional behavior analysts.

A student member is anyone pursuing formal training in the discipline of behavior analysis but who is not yet gainfully employed therein on at least half-time basis. Student members may neither vote or hold office.

NOTE: *The membership period begins on the first day of the annual conference (3/16/01) and ends on the day before the annual conference begins the following year.*

PennABA Membership Due Structure (see below for conference fee schedule)

Full Member …….. $25.00

Affiliate Member ……... $15.00

Student Member …… $10.00 *(please attach photocopy of your current roster, student ID card, or a letter from your advisor stating that you are a full time student.)*

Member signature required here: _____

***If you are not able to attend the conference but wish to join PennABA, kindly send a check or money order payable to "PennABA" for the appropriate membership dues to:** Penn ABA, c/o Dr. Rick Kubina, Penn State University, 231 CEDAR Bldg., University Park, PA 16802-3109. (See next page for conference registration information.)

Analyzing and Management of Three levels of Behavioral Health Rehabilitation Services (Wrap Around) for children: Building order out of Chaos.

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Current Behavioral Health Rehabilitation Programs (BHRP's) for children are characterized by chaos and confusion. Poor dissemination of empirically supported technology is just the beginning of why such systems are both expensive and have failed to establish outcome data to support their effectiveness. The typical BHRP is driven to provide services to every child as opposed to serve every child's needs; leading to a system that often provides children with well educated and well paid babysitters as opposed to technologically armed clinicians that can solve problems and rehabilitate their clientele. In addition, current organizational contingencies select behaviors of low treatment integrity from workers because of lack of adequate focus, specification of critical performance behaviors, and reward for performance (Gilbert, 1978). With agencies often providing little management, training, and supervision and even less opportunity for growth in a field of expertise it is no surprise that the organizational imperative of most agencies is a warm body to fill every hour of approved service.

Organizational behavior management (OBM) and integration of OMB within a systems framework have demonstrated effectiveness in the improvement of quality of social services (Reid, Parsons, & Green, 1989; Fleming & Reile, 1993). Recently, many have pointed to the similarities between organizational behavior management and more systems approaches to quality improvement (Hantula, 1995; Krapfl & Gasparotto, 1982; Mawhinney, 1986) The integration of a functional design within a statistical process control framework is just one way to provide such agencies with the needed organization to deliver services more effectively and more efficiently. Such services would undoubtedly have greater benefit to families.

Characteristics of the Functionally Organized Agency

A delineation of three important components or three defined levels of the organization characterize functionally organized service agencies. (1) The tool level is the technological level of the organization, key goals to research effectiveness of treatment, define and refine new assessment methods, update review and redefine "best practices" in treatment. Management at the tool level asks the question "How will technological improvements aide the quality of treatment". (2) The individual level is the clinician level of the organization, organizational hiring practices, training practices, development of a personal investment and understanding of the mission, acceptance of the responsibility to provide effective treatment. Management at the individual level asks the question "What are the effects of training and hiring practices and how can it be improved". (3) The systems level is the big picture including, goals that improve the delivery of services, policies that promote clinical expertise, policies strictly limiting the effects poor service delivery but rewarding innovation, dedication and clinical integrity. Management at the systems level asks the questions "How will changing organizational contingencies foster higher quality". A functionally organized agency would not only be able to provide all of the services that a child needs, but would ultimately be more successful in the treatment of the child then an organization concerned solely with the simple supply of adequate staffing for children in treatment.

Improving Quality at the Tool Level

Data collection and interpretation methods must be deployed to give 1:1 staff direct feedback about the acquisition of goals and objectives and measures of effective treatment. Additionally, methods for clinical staff to deliver adequate client specific training based on accurate and up to date assessments and treatment plans. Pre-service training about specific clinical approaches as opposed to limited training about job responsibilities and organizational paperwork. Direct service should be trained that service is

about change and improvement in quality of life and ultimately the rehabilitation of the client as opposed to the maintenance of the client in the community. In example, while assisting a child in a classroom to reduce the amount of interruptions they emit in a given hour, by placing themselves between the child and other peers during instruction, may ultimately stop the child from being removed. There are several proven effective techniques that would allow the direct service staff to fade themselves from the environment and effectively permanently alter the child's disruptive behavior, thus decreasing the need for intervention. While a plan may have been written to provide for such training, if the direct care staff is unwilling to implement such a procedure because of the potential for issues during the intervention (disruption of the classroom, interruption of the teachers instruction) then ultimately no change is possible and the plan will be considered a failure while valuable rehabilitation time will have been lost.

Evaluators, psychologists in particular, should be aware that to completely base service hours on a mental status exam and reported history are not just morally and ethically reprehensible but also probably libelous. Faulty or inaccurate diagnoses can jeopardize the integrity of the services. For example, the discovery that an ODD child also has receptive language delays would indeed change the treatment from one of just behavioral parent training and possibly compliance training to a program that contains protocols for building on the child' receptive language skills through verbal games and possible modifications to the environment to ensure that verbal requests are gauged within the child's level of understanding.

Before the process of assisting to rehabilitate any child can occur, clear criterion must be set as to whom is to receive assistance. This understanding is important to assisting in differentiating those who need clinical treatment from those who may suffer from other a host of social or socioeconomic conditions that do not rise to the need of "wrap around" services. A thorough understanding of medical necessity and what it means to establish that necessity is important to provide clinicians clarity in an agency that intends to ethically improve the lives of those it has identified to assist. Key areas of focus and education include:

1. Clinicians should understand that medical necessity implies that "not" conducting an intervention places the child "at greater risk" and that the child should meet some clear criterion pointing to a disintegration of their current condition or further restrictive placement (hospitalization) if an intervention does not occur.
2. Team members should be able to define medical necessity as intervention reasonably calculated to change the developmental course for a particular child psychopathological condition or at least be calculated to lessen the impact of that disorder. Evaluators should have a particular theory of the disorder and some empirical data recognized by the field that the intervention required has a reasonable chance of meeting the definition.
3. Parents have the right to refuse any and all treatment. Clinicians should have a thorough understanding of the intricacies of informed consent and the laws that surround a parents "right to refuse treatment". If that refusal rises to the level of medical neglect (i.e., by inaction the child is placed at imminent risk to health or development), then clinicians should have a clear system to let parents and family know that this will be reported, not saying that "Yes medical neglect has occurred" but rather that proper authorities must investigate if the child is at risk.
4. Critical for a parent or child to refuse is the issue of informed consent and the responsibility of informing the parent falls on the individual members of the treatment team. Clinicians must understand how to obtain informed consent, Wysoker (2000) offers the following that must be communicated to the client or in the case of a minor to the parent of the client for informed consent:
    a. What the proposed treatment consists of in language that a patient understands. Treatment plans should be written in clear and everyday language and at the level at which a child (nine years old) can read and understand the treatment that would be rendered.
    b. The possible side effects of the treatment that are being rendered and any risk that the client and family may suffer.

c. The probability that the treatment will be successful and the factors that mitigate that success.
d. Available alternative treatments with demonstrated efficacy.
e. What the course of the illness will be if the treatment is not instituted.
f. The parent should be informed of the problems that may arise if they do not disclose information to the team.

Just as no self-respecting school psychologist would do a comprehensive educational report without norm or criterion referenced data, no evaluator in behavioral rehabilitation should evaluate a child solely on subjective measures. Behavioral assessment has demonstrated utility in assessment. For example the Behavioral Assessment System for Children (Renyolds & Kamphaus, 1992) has both parent and teacher rating scales, a lie scale to determine distortion, assesses a variety of problem behaviors, school problems, and adaptive skills. It can be used to aide in the determination of aggression, hyperactivity, and conduct problems but can also find problems like anxiety, depression and somatization. It has demonstrated temporal stability, fair interrater reliability. It is management of an agency at the tool level that provides clinicians with a solid framework of technology to assess, conduct, and measure treatment for their clientele.

Improving Quality at the Individual Level

At the individual level a number of items must be "taken into account" in order to improve the overall management and organization of an agency. First and foremost is the hiring procedure. A clear understanding that the very nature of the clinical work to be conducted will rule out many potential and qualified staff. There are skills necessary to be successful in providing quality "wrap around" services that are not easily identified through a simple credentialing process that establishes age, relevance of degree in the field, child abuse clearance, criminal record check, vehicle, availability to work and eligibility to work. Yet, many agencies interview and screening processes do not reach beyond these simple goals. Developing a behavioral interview that profiles the types of skills relevant to the successful clinician in "wrap around" and specifically the target population would limit the hiring of clinicians who are likely to fail in the field and ultimately reduce the countless wasted hours of clinical time with the client until these deficits are discovered. Additionally, this pre-hire practice would greatly reduce complaints from clients, parents, and the funding source later in the process when the ill-equipped clinician fails to meet expectations in the field.

In assigning clinicians to cases a team effort requires that team members be assigned in a hierarchy that provides the best match to the client's needs. Careful scrutiny of these criterions can ultimately provide much benefit to the client and improve the overall quality of service and job satisfaction to the clinician. The warm body theory at the individual level holds little regard for the client and promises little chance of being successful for the agency long term. Examples of possible criterion to improve quality at the individual level are:

1) Assigned first by area of expertise or specialization; working with populations where you have the expertise to make change is ultimately the most effective and rewarding means of providing treatment.
2) Assigned by "cultural competence" not ethnic matching; a first or second generation working poor Asian client has little culture in common with a fifth or sixth generation upper middle class Asian although both may be ethnically matched.
3) Assigned by choice not availability; the clinician is offered an opportunity to work with a client and chooses to assist in treating the individual as opposed to being assigned a new case.

Pre-service training that focuses on clinical issues likely to be encountered in the field will greatly improve the quality and effectiveness of the services the clinician will provide. The Clinician should receive training on the core basics of providing such treatment in the "community" as opposed to a clinic or other facility based setting. An educational experience in ecosystems could hardly be viewed as anything less than essential. The behavioral methodology holds that treatment is based on direct observation in situ, or that we observe and treat behaviors in the situations and contexts in which they occur or in the "ecosystem". Understanding that the clinician is about to become a part of the client's

ecosystem and that what affects one member of the family ecosystem has effects on all the members of that ecosystem will be essential to the success of treatment. It is a holonistic approach that has been proven (Lutzker, 1984). Research conducted by Black, Molasion, and Smull (1990) suggested that attention to "family" stressors assisted individuals to avoid placement in the future. Dyson (1991) showed that treatment programs must be individually tailored to the "family" needs and attention must be paid to relieving the family stressors. Roberts, Wasik, Casto and Raney (1991) show that treatment must be in situ, must occur at a minimum of a weekly basis and that treatment must focus on the family rather than only the "target" person and young adult. As noted by Hutchins and McPherson (1991) delivery systems must be flexible, accessible, and responsive to family needs. Simply, the approach holds that the individual receive practical treatment within his or her social environment and that all family members are likely to need the attention of the professionals working with them not just the target individual. Clinicians must be armed with technology as well as means to communicate the needs of their client and those who interact with them in order to provide sound "wrap around" or ecological treatment.

A system for specialization amongst clinicians is also an important aspect of management at the individual level. Clinicians must have an opportunity to gain ongoing education and development of new clinical skills, keep abreast of current trends in the field of endeavor and develop as true specialists in treating the target populations. Management at the individual level must focus on building a culture for specialization and expertise in the treatment of specific disorders and conditions as opposed to a general utility theory. While allowing each clinician in an agency to specialize may limit their availability to assist on each case referred to the organization, specialization will increase the effectiveness of the treatment that clientele are provided and create a culture for clinicians that will limit turnover that plagues the successful treatment of clients in "wrap around" services.

Improving Quality at the Systems Level

According to Skinner (1971) a certain cultures values can be translated into that which the culture reinforces. For many cultures, the contingencies are established to reinforce poor specification and hence poor quality. Thus any good quality system will focus on both the specification of process and outcome and reinforce improvements in each.

Thus from Skinners (1971) perspective a good quality control systems begin with an analysis of the system, itself. In the area of service delivery such as BHRP's the process is a string of sub processes. These include: prescreening, intake, evaluation by psychologist or psychiatrist, assignment of team members based on area of specialty and cultural matching, treatment by the different professions such as behavior specialist consultant, mobile therapists, and therapeutic staff support, gathering of clinical and customer data, the setting of treatment long term goals and short term behavioral/performance objectives, linking behavioral difficulty to establishing operations, antecedent, and consequence variables (Skinner, 1953; Stage, 2000), the making of treatment decisions based on clinical and customer data, re-evaluation until preset treatment goals are met, and then discharge. At the same time as the above a supply of staff are being hired. That process looks like: advertising, receiving resumes, review of resumes, selecting those to interview, behavioral interviewing (Cautilli & Clarke, 2000), formally hiring, sending to pre-service training, assigning to case, on going in service training and professional development seminars, and supervision.

Each of the above stated process has internal goals and sub processes. Once these processes are identified critical control points can be identified where inspection or measurement takes place. The types of measurement or tests required. The amount of inspection of the data should also be decided on prior to the data being collected. Data needs to be reviewed by all team members on a continuous basis including the clinical supervisor.

The first step in designing a quality control system is to identify critical points in the process. At these processes measures must be designed and continuously monitored. The second step in designing quality systems is to decide the types of measures to be used at each of the critical inspection points. The third step in designing quality control systems is to decide on the amount of inspection to be used. The final step in creating quality control systems is to decide who is to do the inspections.

A well-designed quality control system requires a series of management judgments and

participation of all functions (e.g., the hiring department, training, staffing, supervisors, behavior specialist, etc.) and players (e.g., parent, teacher, client, siblings of client, behavior specialist consultant, mobile therapist, therapeutic staff support, etc.). The control principles themselves are performance standards, measurement, and feedback of results to correct the process. Charting results and changing intervention if results fall below statistical standards can measure quality.

Developing behavioral objectives for the supervisors of an agency may seem like a busy work procedure and may be met with some resistance, but management at the system level must be cognizant of the relevance and importance of such endeavors in increasing the overall quality and productiveness of the organization. The focus on behavioral objectives in guiding learning and performance is not new (e.g., Piper & Elgart, 1979; Vargas, 1972). Clinical directors may be weary of writing objectives for supervisors because of the additional paperwork involved. In addition, writing objectives that are more administrative then clinical might be problematic in a traditionally functionally organized system; however, in cross-functional teams (Pfadt & Wheeler, 1995) has demonstrated that this approach might be helpful. If one wishes to stay with the traditional functionally organized management system, then operation directors can set the administrative goals and objectives, while he clinical staff can set the clinical goals.

In a management by team objective, placing the supervisor as ultimately responsible for team performance to the clinical director can be used as the basis for promotion, raises, bonuses, and disciplinary action. In such a system a supervisor is held accountable for the performance of his/her team and is expected to hold each member of that team accountable. After baseline data is collected, some objectives might look like:

1. Given all nine-behavior specialists currently under your supervision, 95% of all monthly summaries will be completed each month over the evaluation cycle of 4 months.
2. Given all of the completed monthly summaries, 80% of children will be making progress on both monthly summary (BSC judgment) and on standardized clinical measures such as the BASC reducing disruption by _____ for the evaluation cycle. In addition, any child failing to show improvement will have a specific action plan written and reviewed with the supervisor to remedy the problem situation.
3. Given your supervisory personnel, less then 10% under servicing will occur by such personnel attributable to other then client and act of god (i.e., snow storms) issues over he course of the evaluation cycle.
4. Given the current performance of your supervisory staff, less then 1% of bad debt will be accrued by BSC errors such as failure to conduct and IAM, get signature, or complete treatment plan.
5. Given the current training schedule, supervisor will create all of the BSC trainings needed for the schedule and 11 out of 12 trainings will occur.
6. Given current BSC staff, 90% will attend the monthly BSC trainings with at least 75% passing competency exams on material over the next four months.
7. Each week, supervisor will review x% of the in coming documentation for the clinical teams that he works with.
8. Given you current average of customer satisfaction (including teacher, client and parent survey's), which is____ this average will increase by .4 over he next six months.
9. Given you current attendance levels, which is_____ for supervision from your staff, attendance will increase by 12% over he next three months.

Of course each of the above objectives should have a target date and the target date should be reviewed and the supervisor's input should be taken into account in crafting the objective and deciding what is achievable and reasonable. A system such as this can be implemented system wide, for example, the Clinical Director having an objective fewer then a preset number of citations at the next audit. When these systems are directly tied to raises and bonuses, clinicians are motivated to perform in a dynamic workplace that is rewarding as opposed to a taxing and overwhelming experience.

Conclusion

BHRP's characterized by chaos and confusion have caused an overabundance of issues

that effect not only the survival of individual organizations, but the entire service delivery system. Integration of organizational behavior management within a systems framework at three levels of the service delivery system can provide organizations with a firm method to improve service quality increase profitability and sustainability and create order out of chaos.

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Notes from ABA's Clinical SIG
By Daniel J. Moran, Secretary
The Clinical Special Interest Group of the Association for Behavior Analysis

- We met Saturday, May 27, 2000.

- Officers were elected: Anthony Procaccino, Chair; Kurt Freeman, Vice-Chair; Daniel J. Moran, Secretary; Chauncey Parker, Treasurer.

- Dues were collected and Chauncey's hat was filled with $119.

- A mailing list of all the members was generated.

- The main discussion of the meeting centered on increasing the number of case conferences presented at the convention. Three cases could be presented during the convention and one case will be presented at the Clinical SIG meeting. In addition, David Greenway, coordinator for the Clinical, Family and Behavior Medicine area of ABA, suggested that more submissions be made for presentations at the convention, and more clinical roundtables will be a welcome addition to the convention. Dr. Greenway also invited people to submit single papers or presentations and he would put those papers together with other presenters to round out a paper session. (In other words, do not let your good presentation go unheard just because it won't fill the entire fifty minutes).

- There will be an effort during ABA 2001 to include sufficient time after the clinical presentations for audience participation, as the members requested "real panel discussions." This may take the form of reducing presentation time to 10 minutes per presenter to allow 10 minutes for the audience to discuss the topic. The ABA programming board put time limitations on the presentations for the 2000 convention, which raised some concerns among the Clinical SIG members. These concerns have been addressed by ABA as the guidelines have been restructured for ABA 2001. (Visit ABA's website for more information: http://www.wmich.edu/aba/index.html).

- The special interest group agreed to enhance communication with the administrative board of ABA. The Clinical SIG will prepare an information packet to send to all new members who indicate interest in the clinical area on the new member application. Kurt Freeman volunteered to be the liaison for this project.

- A web page for the Clinical SIG is under construction and the temporary URL is: www.geocities.com/clinicalbehavioranalysis. If you have anything you would like to post on this website, contact Daniel Moran at daniel.moran@valpo.edu

- We encourage publications by ABA members on the topic of CBA in this new mini-journal, BAT. E-mail questions or manuscript submissions to the co-editors: iBRosie@aol.com AND jcautill@astro.temple.edu Particularly if you had a symposium paper, poster, or case presentation at ABA 2000 and would like to have broader dissemination.

- If you have questions about the Clinical SIG, then contact Tony Procaccino at stimuluscontrol@msn.com.

- Many members of the Clinical SIG remarked that this meeting was one of the most productive in recent years and there seems to be a renewed interest and increased camaraderie among the members. ABA 2001 is destined to be very productive for clinical psychologists and we look forward to everyone's involvement

Semantic Relaxation Intervention (SRI) and the Systematic Attenuation of Insomniac Symptoms: A Psychological Behaviorism Approach

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Abstract

Semantic Relaxation Intervention (SRI) is derived from Psychological Behavior Therapy (PBT). Semantic relaxation was applied to modify the maladaptive sleeping behaviors of a 22-year-old male. The participant's sleep behaviors, sleep-related cognitions, and affect were self-monitored prior to sleep onset. The intervention program applied semantic relaxation to elicit a positive emotional state. The psychological behaviorism intervention promoted adaptive sleeping behaviors and consequently decreased insomniac symptoms. The favorable treatment effects were maintained at a 4-week follow-up.Semantic Relaxation Intervention (SRI) and the Systematic Attenuation of Insomniac Symptoms: A Psychological Behaviorism Approach

Literature regarding the treatment of insomnia is extensive, with behavior therapy and pharmacotherapy, most notably benzodiazepines (e.g., Holbrook, Crowther, Lotter, Cheng, & King, 2000), receiving the greatest empirical support. Successful behavior modification strategies include progressive relaxation (Borkovec & Hennings, 1978), hypnosis (Borkovec & Fowles, 1973), systematic desensitization, cognitive therapy, sleep hygiene maneuvers, sleep restriction therapy, and stimulus control (Walsh, Benca, Bonnet & Buysse, 1999). The efficacy of these treatments has been reviewed extensively, with the consistent conclusion that pharmacotherapy should only be utilized as a secondary alternative to behavior modification strategies (Holbrook et al., 2000).

Insomnia is often defined as the dissatisfaction with the quantity and or quality of sleep. It is a rather common complaint that is notorious for its resistance to change and its vulnerability to relapse (Holbrook et al., 2000) although adaptive habits that contribute to healthy sleeping patterns may be just as resistance to change. Relaxation techniques are typically incorporated in the pursuit of this change (Walsh et al., 1999). However, exclusive reliance on relaxation techniques is typically not sufficient in the effort to modify insomniac behaviors. Relaxation techniques alone rely primarily on bodily awareness and the release of muscular tension. They often neglect distinctive, motivational, emotional, and behavioral factors that maintain maladaptive sleeping behaviors.

Because the definition of a "normal" sleeping pattern is not well established, the estimates of the severity of insomnia vary widely (Holbrook et al., 2000), thus suggesting that sleeping behaviors are relatively multi-dimensional with sensory-motor, language-cognitive, and emotional-motivational components (Nelson & Hekmat, 1991). In order to achieve a better grasp of the variables contributing to one's sleeping pattern a unifying, multi-dimensional behavioral approach is needed.

In the present study, Staats' framework theory of psychological behaviorism was utilized to formulate an intervention program designated to modify maladaptive sleeping behaviors. Staats (1975, 1986, 1990) theorized that a stimulus performs three (A-R-D) distinct functions: eliciting affect (A), reinforcing behavior (R), and directing behavior (D); thus performing as an incentive to motivate behavior. Particularly in the human species, language serves as a higher-order stimulus (Eifert, 1987; Hekmat, 1990; Hekmat, Deal, & Lubitz, 1985; Levely & Martin, 1987; Staats & Eifert, 1990). Evaluative properties of words or symbols that were conditioned previously may serve as UCS's and consequently transfer their motivational significance, through associative principles, to a CS. Self-language or for practical purposes, self-talk operates in the same manner, eliciting positive or negative emotions, reinforcing responses, and directing behavior patterns. In essence, self-statements are a valuable means to achieving self-control (Nelson & Hekmat, 1991).

The present study utilized self-monitoring to measure behavior repertoires of an adult male who presented with maladaptive sleeping behaviors. Pre- and post sleeping behaviors and affect were recorded. Due to the fact that psychological behaviorism gives emphasis to the significance of language in behavior change, semantic relaxation combined with pleasant imagery was utilized to modify the subject's maladaptive sleeping behaviors. I hypothesized that given the complexity of insomniac symptoms, an integrative, multi-dimensional behavior therapy

program formulated from psychological behaviorism theory would have a beneficial effect in modifying maladaptive sleeping behaviors in my subject.

Method

Client

The participant was a 22-year-old, male college undergraduate who presented concerns regarding maladaptive sleeping behaviors, which consequently resulted in a lack of sleep. He also complained of feelings of drowsiness in the daytime, stress, anxiety, and irritable mood. Since resuming college, he reported getting an inadequate amount of sleep and consequently not being able to function efficiently in the daytime. The participant was not taking any medications.

Measures

Self-monitoring. A Daily Sleep Questionnaire (DSQ) was used to assess sleeping behaviors, which included the time to sleep onset (approximately how long it took for the participant to fall asleep), sleep maintenance (how long he slept), as well as sleep interruptions (how often he woke up throughout the night). A hierarchial list was also developed for the documentation of insomniac eliciting behaviors. This hierarchy was used to determine the amount of time, on average, the participant spent performing behaviors that prevented him from sleeping.

Psychological Assessments. The participant's stress level was measured by the Index of Clinical Stress (ICS; Abel, 1991), a 25-item instrument designed to measure the magnitude of problems clients have with personal stress. The Semantic Differential Feeling and Mood Scale (SDFMS; Lorr & Wunderlich, 1988), a 35-item semantic differential scale, was used to measure the participant's feeling and mood state. The participant's level of anxiety was measured by the State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970).

S.U.R. Wolpe's (1973) Subjective Unit of Distress (SUD) was modified as a Subjective Units of Relaxation (SUR), with a rating of 0-100 (0 = not relaxed, 100 = extremely relaxed) as a measure of the participant's level of relaxation.

Procedure

The initial session was primarily dedicated to development of the DSQ and additional pre/post self-monitoring instruments for the collection of behavioral and affective data for a 3-day baseline, a one-week treatment period, a 3-day post-treatment period, and a consequent 4-week follow-up.

The participant then established a hierarchy of insomnia eliciting behaviors as well as the approximate time dedicated to these behaviors. The hierarchy consisted of 3 behaviors: 1) watching T.V, 2) listening to the radio, and 3) thinking about school, which the participant self-reported prevented him from going to sleep at night when he was ready to do so.

Following the collection of three days of baseline data, the Semantic Relaxation Intervention (SRI) was initiated. In order to increase the motivational state of the participant, he was first instructed to focus on healthy sleep promoting behaviors–regular daytime exercise, avoiding eating large meals at night, avoiding caffeine, tobacco and alcohol, maintaining a consistent wake-up time and limiting daytime napping.

Language restructuring was implemented by altering the participant's coping statements. Thus, instead of thinking or saying, "I'm not sleeping right," or "I will never get to sleep," the participant substituted, "I'm doing a great job sleeping on time, and studying for school". Such statements according to Staats' Psychological Behaviorism Theory have three functions: The A-function of the A-R-D theory indicates that positive stimuli can elicit positive affect. The R-function of the A-R-D theory indicates that positive stimuli can reinforce positive behavior. The third function or the D-function of the A-R-D theory indicates that positive stimuli can direct more positive behavior (Staats & Eifert, 1990). In summary, positive affect (A) is elicited, and reinforces (R) and directs (D) more of the same positive self-statements and related behaviors, and consequently maintains that behavior. Restructuring the participant's language-cognitive repertoire in the positive direction will ultimately reduce his negative affect (Nelson & Hekmat, 1991).

SRI was then implemented. The participant was instructed to imagine the natural process of relaxation occurring throughout his body, he was then told to self-report when he had achieved this state. After doing so he was then instructed to concentrate on the

sensory appreciation of sleep: soft breathing, drowsiness, peacefulness, calmness, and quietness. The relaxation response and imagery associated with it was paired with scenes that the participant considered pleasant, such as a resort beach, a garden, or a waterfall. These scenes were furnished to facilitate semantic relaxation. In the process of SRI scenes, which have a personally meaningful connotation, are formulated to foster pleasant affective responses. The SR scenes, which encompass vivid visual, auditory, and tactile images of pleasurable activities, are then paired with physiological and mental relaxation (Nelson & Hekmat, 1991).

of time the participant spent, on average, engaged in insomniac eliciting behaviors during each phase of the study. The amount of time spent in insomniac eliciting behaviors was less during treatment and this improvement was maintained during the follow-up phase.

Figure 2 illustrates sleep onset throughout the program phases. Ratings during the baseline phase reached a maximum of approximately 50 minutes, whereas ratings during the treatment phase reached a maximum of only 13 minutes. This improvement was also maintained during follow-up phase.

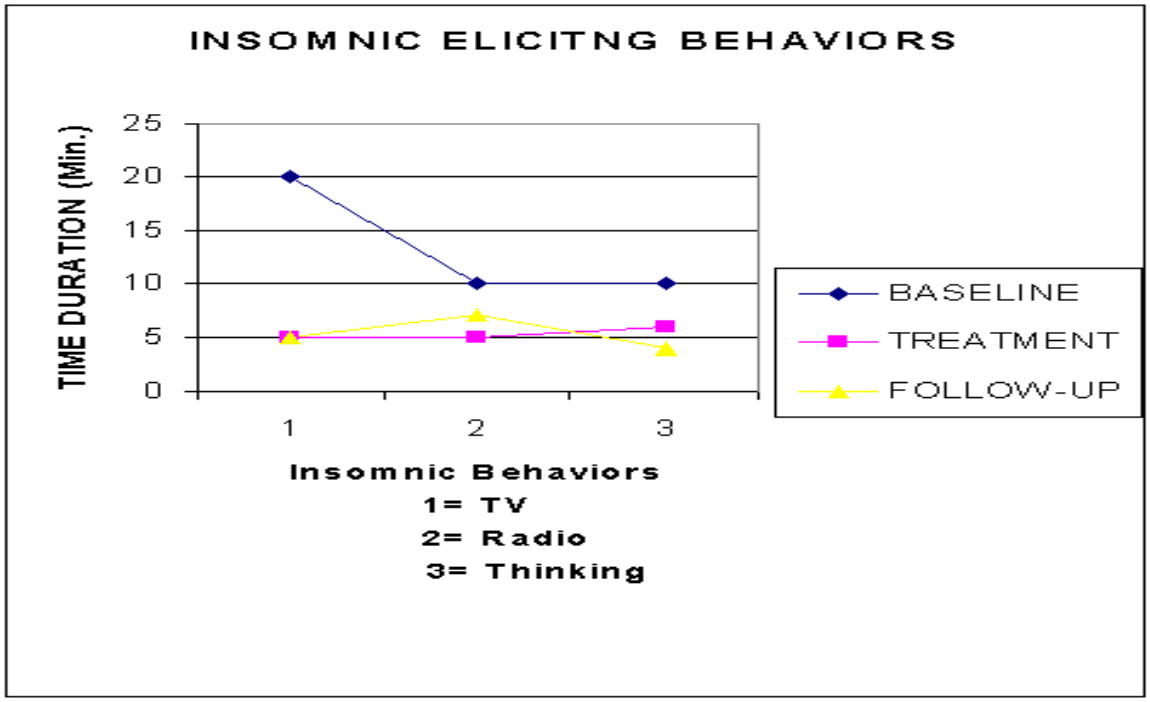

Figure 1. Amount of time on average spent on insomniac eliciting behaviors during baseline, treatment, and follow-up phases.

A third session was utilized to instruct the participant on SRI. He was also instructed and encouraged to practice SR for 25 minutes each night prior to attempting to go to bed for an additional seven days and to practice SR in place of his maladaptive sleep behaviors. The participant self-reported compliance with this portion of the treatment program. A three-day post treatment and a four-week follow-up were performed, in which the participant again completed daily self-monitoring charts.

Results

Maladaptive sleeping behaviors were changed successfully. Figure 1 illustrates the amount

Figure 3 illustrates sleep maintenance throughout the night. The participant's self-reported sleep maintenance ranged from 255-275 minutes during the baseline phase. However, the participant reported maintaining sleep from 352-487 minutes during the treatment phase. This improvement was also maintained during follow-up.

The participant reported sleep interruptions 3-4 times per night during the baseline phase. Self-reported sleep interruption ratings during the intervention phase ranged between 0-2 times and 0-1 during the follow-up phase. Typically reported relaxation ratings were in the 10-15 range during the baseline phase, 55-68 during the treatment phase, and

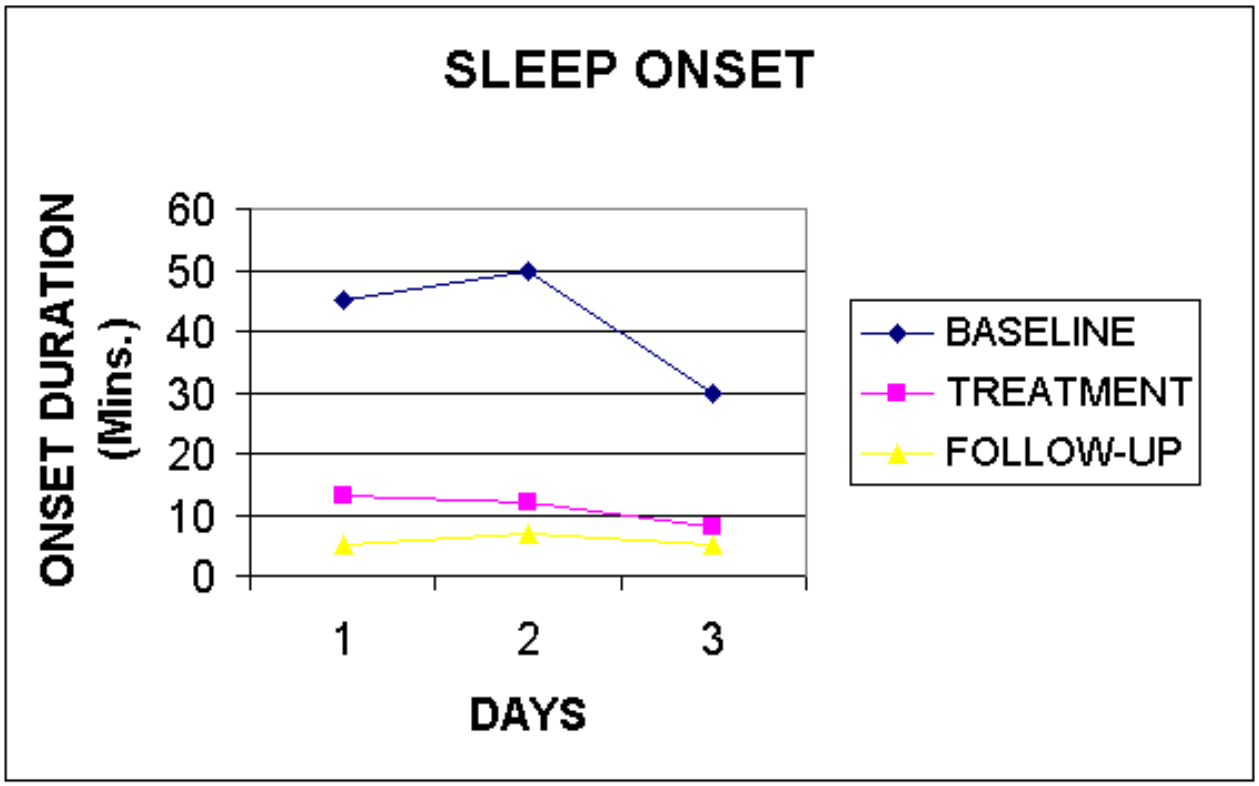

Figure 2. Amount of time it took to fall asleep during baseline, treatment, and follow-up phases.

58-64 at follow-up. Table 1 illustrates data from ICS, the SDFMS, and the STAI inventories that were administered during each phase of the study. There was noticeable improvement on each psychological assessment and this improvement was maintained during the follow-up phase.

Not reflected in the results, but of considerable clinical significance, was the participant's increased ability to use positive language or self-talk (e.g., "I'm doing a great job sleeping on time"). At the end of the treatment period the participant self-reported having more control and

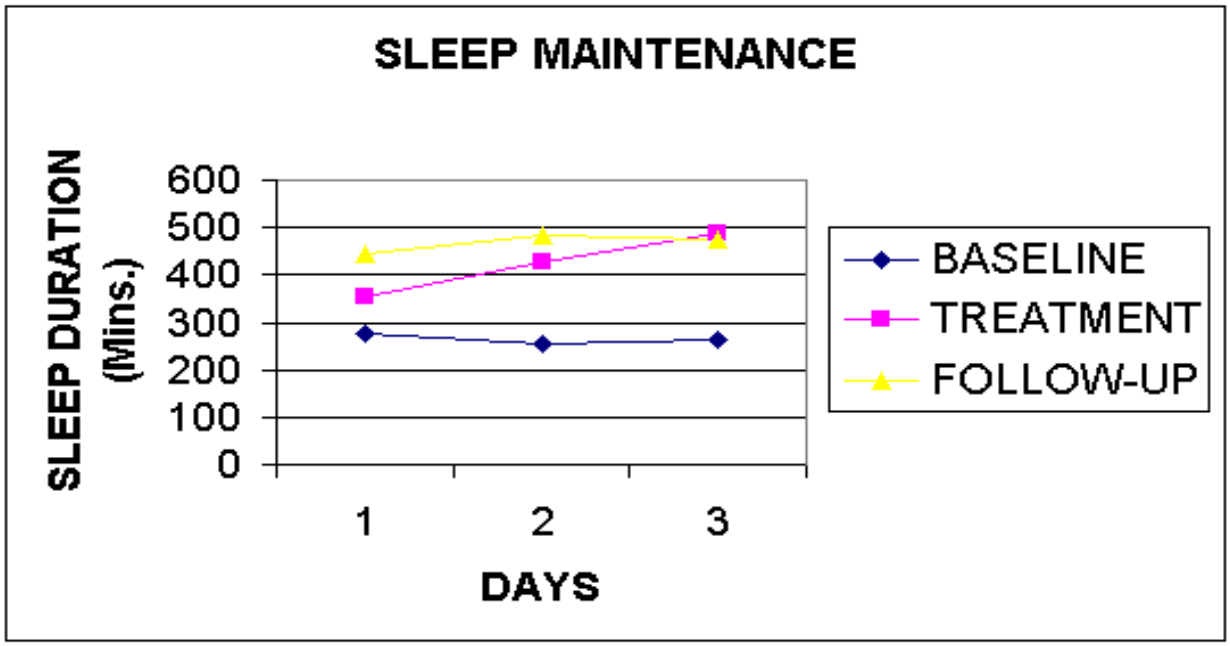

Figure 3. Duration of sleep without significant interruption during baseline, treatment, and follow-up phases.

doing better in school.

It should be noted that caution is highly advised against the generalization of the results to the general public for two reasons. First, the multidimensional quality of the treatment intervention makes it rather difficult to detect which component of the treatment intervention might prove to be effective on its own. Second, the participant was extremely motivated due to his active involvement in developing and implementing the treatment program.

Table 1. Data from ICS, the SDFMS, and the STAI inventories that were administered during each phase of the study.

Psychological Test Results

	Baseline	**Treatment**	**follow-up**
ICS	65	21	21
STAI			
S-ANXIETY	67	23	23
T-ANXIETY	53	26	27
SDFMS			
CONFIDENT-UNSURE	26	12	13
ENERGETIC-FATIGUED	32	16	17
GOOD NATURED-GROUCHY	**26**	**14**	**17**

ICS, STAI, and SDFMS scores are all raw scores.

Discussion

The primary aim of this treatment intervention was to modify the participant's insomniac symptoms and consequently promote a healthier sleeping pattern. The subject decreased maladaptive sleeping behaviors, which ultimately resulted in an increase in sleep maintenance, accelerated sleep onset, less sleep interruptions, and an increased state of relaxation. The successful continuance of the favorable results in the follow-up phases attests to the efficacy of SRI and Psychological Behaviorism.

Sleeping behaviors are construed by Psychological Behaviorism as having multidimensional components established in an individual's unique personality repertoires (Nelson & Hekmat, 1991). Those components include the sensory-motor, the language cognitive, and the emotional-motivational. For this reason, change was also assessed in stress, anxiety, and mood states.

Psychological behaviorism emphasizes the primacy of language and imagery in human learning (Nelson & Hekmat, 1991). In view that image-elicited emotional responses may be beneficial depending upon one's language conditioning history (Lohr & Hamberger, 1990). Consequently by combining the positive effects of relaxation, imagery and positive language, positive affect in this study was counter-conditioned to the imagery of sleeping and healthy sleeping behaviors.

Nonetheless, the integration of various techniques into a treatment intervention that reduces maladaptive sleeping behaviors may be valuable in the effort to create an effective treatment for insomnia. Programs that primarily promote healthy sleeping behaviors are particularly needed, as sleeping patterns are so difficult to modify, and as our sleeping patterns have serious implications on our health.

The integrative element that binds this treatment intervention together is the A-R-D functions of words, imagery, and human language abilities. Although the results support psychological behaviorism's predicted connection between modifications in an individual's unique sensory-motor, language-cognitive, emotional-motivational repertoires, and behavior change (Nelson & Hekmat, 1991), future investigations should focus on the efficacy of utilizing SRI and psychological behaviorism therapy on more severe cases of insomnia.

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The A-B-C's of Smoking Cessation: Using Behavioral Strategies to Help Undergraduates Stop Smoking

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Abstract

Despite reports claiming cigarette smoking remains the most preventable cause of premature death in the United States, cigarette use by college students is increasing on campuses nationwide. We investigated the effectiveness of a brief multicomponent smoking cessation program provided for a 21-year-old female (Sue) and an 18-year-old male (Tom) undergraduate student from a midwestern university. The treatment program consisted of self-report functional assessment methodology, schedule-reduced smoking, and functionally derived self-management strategies. The use of a functional assessment device provided descriptions of antecedent-behavior-consequence relationships, thereby engendering idiographic self-management cessation strategies, and a schedule-reduced smoking component was included in order to facilitate the programmed reduction in nicotine intake. Dependent measures included self-report of daily smoking frequency and alveolar carbon monoxide levels. Treatment included four weekly sessions lasting approximately 45 minutes. Though neither participant achieved complete cessation, Sue achieved a 70% reduction in smoking at 6-months follow-up. Tom achieved a 60% reduction in smoking at 14-day follow-up, but reported returning to above pre-treatment smoking frequency at 6-months follow-up. Treating college smokers with a rapid multicomponent program targeting the both the behavioral and pharmacological aspects of smoking behavior may offer reductions in smoking.

Approximately one quarter of U.S. adults are regular users of tobacco (U.S. Department of Health and Human Services, 1996). Despite reports that claim cigarette smoking remains the most preventable cause of premature death in the United States (U.S. Department of Health and Human Services, 1989), cigarette use by college students is increasing on campuses nationwide (Wechsler, Rigotti, Gledhill-Hoyt, 1998). In a recent sample of college students in California who were less than 24-years-old, 20.3% reported smoking cigarettes (Patrick, Covin, Fulop, Calfas, & Lovato, 1997). Of those, 14.3% reported smoking for the first time in college and 44.3% had tried to quit smoking during the previous six months but had failed. Considering the health risks attributable to smoking, smoking cessation programs play an important role in public healthcare because they can be designed to target high-risk groups, such as college students, or those with the highest risk for the dose-dependent morbidity and mortality associated with cigarette smoking (Fiore et al., 1990).

A variety of methods used to help tobacco smokers achieve and maintain cessation have been evaluated in several studies and may be divided into several categories. These include behavioral methods (e.g., self-control and aversion techniques), pharmacological methods (e.g., nicotine replacement therapy), self-help approaches (e.g., Freedom From Smoking in 20 Days, American Lung Association, 1984), hypnosis, acupuncture, mass media and community programs and multicomponent techniques (e.g., behavioral and pharmacological methods)(Glasgow & Lichtenstein, 1987; Pechacek, 1979; Schwartz, 1987; Skaar et al., 1997). Typical cessation rates range from approximately 15-20 %, and treatments that target both the psychological and pharmacological aspects of smoking behavior (i.e., multicomponent techniques) produce

higher abstinence rates than those that do not (Cinciripini et al., 1994). For example, Killen, Maccoby, and Taylor (1984) found 50% abstinence rates at 10.5-month follow-up for participants receiving behavioral skills training and nicotine gum. Multicomponent procedures that have been designed to systematically reduce smoking and nicotine intake provide abstinence rates at 1-year follow-up of ≥ 40% (e.g., Cinciripini et al., 1994, 1995; Foxx & Brown, 1979). These procedures address the two fundamental components of successful smoking cessation: initial cessation and maintenance.

Initial smoking cessation may involve either a gradual reduction of smoking prior to complete abstinence or abrupt abstinence (Cinciripini et al., 1994). While results from studies evaluating the impact of abrupt versus gradual quitting are equivocal (Schwartz, 1987), Cinciripini et al. (1995) found participants who adhered to a schedule of gradually increasing intercigarette intervals over a 3 week period (i.e., schedule-reduced smoking) had better long-term abstinence at one year follow-up than participants who gradually reduced on their own or stopped abruptly.

Following the initial cessation phase, an individualized maintenance phase should be incorporated into a treatment program (Schwartz, 1987). Designing a maintenance phase tailored to individual smoking patterns requires the therapist to obtain information on potential interdependent functional relationships between the client's smoking and the contextual cues in their environment via functional assessment (Epstein & Collins, 1977). Such a behavioral approach begins with the premise that smoking has multiple predictors and serves multiple functions (Hunt & Azrin, 1973; Sobell, Sobell, & Sheahan, 1976; Sobell, Toneatto, & Sobell, 1994). A self-report functional assessment occurs when a person delivers a thorough verbal report of a target behavior, the context within which it occurs, and a list of hypothesized causal variables (Haynes 1998). The functional assessment can be used to generate a host of self-management interventions customized to address specific functional relations. These interventions can range from stimulus control strategies (e.g., reducing smoking in the presence of, or avoidance of certain events that exert the most control over a target response), to contingency management strategies (e.g., engaging in alternative responses which may serve the same function as the target response).

An underlying assumption of a functional assessment of smoking is that smoking is functional, i.e., it serves a function for the individual in the context within which she behaves. Another assumption is that smoking is not a static response emitted within a single set of contingencies. Meyers and Smith (1995) suggest the purpose of a functional assessment (of nicotine consumption) is to identify the chain of events that lead to smoking and to clarify the consequences resulting from smoking. A potential benefit of having the client complete a functional assessment is that they may learn about some of the antecedents and consequences functionally related to their smoking (i.e., controlling variables) and dispel the belief that smoking "just happens." Furthermore, because one of the goals of clinical behavior analysis is to assist the client with identifying the environmental causes of private or implicit events (e.g., thoughts and emotions), Kazdin (1982) states, "Clients' own reports of their behaviors or their perceptions, thoughts, and feelings, may...be relevant for several clinical problems" (p. 35). In the context of self-reporting smoking, reports about emotions may be informative in hypothesizing about sources of stimulus control. For example, "…a self-awareness by some clients of how certain situational factors influence their behavior, emotional states included, may be sufficient for them to act to modify or avoid those situations " (Sobell et al., 1976, p. 130). Skinner (1974) noted the importance of self-reports when applied to self-management and self-modification of one's behavior: "When we don't know why we behave, we are likely to invent causes" (p. 34).

The primary purpose of this study was to evaluate the effectiveness of a multicomponent procedure designed to systematically reduce smoking and nicotine intake, in concert with a procedure designed to maintain reduction (or abstinence), with three undergraduate college students who reported abusing nicotine via cigarette smoking. The multicomponent procedure was comprised of a functional assessment of smoking component, a schedule-reduced smoking component and a maintenance component comprised of functionally-derived self-management strategies. The procedure was applied via four weekly group therapy sessions lasting approximately 45 min in duration. The outcome of the procedure was evaluated by utilizing a within-subject A-B-C-D-A withdrawal design. Dependent measures were self-reported daily frequency of cigarettes consumed and alveolar carbon monoxide (CO) levels collected using a hand-held CO monitor.

Method

Subjects and Setting

Participants were two undergraduate students from a midwestern university who were recruited through public postings of the following notice: "Moderate to heavy cigarette smokers, who are thinking about quitting, wanted for five week smoking cessation study. You will be pad for your participation." Sue was a 21-year-old female junior who lived at home, reported smoking for the past 8 years and who had attempted to quit smoking 5 times on her own using both abrupt cessation and gradual reduction techniques. Tom was an 18-year-old male freshman who reported smoking for 1 year and who had attempted to abruptly quit smoking once on his own. Neither participant had ever used behavior modification techniques, nicotine replacement therapy or hypnosis. Both met the following inclusion criteria: currently enrolled as university students, at least 18 years of age, reportedly in good physical and psychiatric health, and study completion. Participants received $25.00 cash upon treatment completion. Treatment was comprised of one orientation and four treatment sessions. Sessions were conducted Fridays from 9:00 a.m. to 10:00 a.m. in a small group room located in the on-campus health clinic. Carbon monoxide assessment measures (described below) were collected throughout the study at various locations on campus, such as the student union, the library and the dormitories.

Dependent Variables

The dependent variables for both participants were self-reported smoking frequency, alveolar carbon monoxide (CO) levels measured in parts per million (ppm) and scores on the Client Satisfaction Questionnaire (Attkisson, 1994). Biological assays of CO in exhaled breath provided a convenient, objective estimate of the frequency of cigarettes smoked (Stitzer & Bigelow, 1985). Levels for nonsmokers are reported to range from 2 to 8 ppm whereas levels for smokers range from 6 to 90 ppm (Frederiksen & Martin, 1979). For this study, a handheld portable CO meter assessed CO levels (Micro Medical Limited, Kent ENGLAND). The unit was calibrated to a known concentration of 50ppm of CO gas at least every seven days.

CO measures were scheduled on at least two separate days between the weekly treatment sessions. When participants missed a scheduled assessment appointment, they were contacted by e-mail or the telephone to reschedule. No feedback concerning the CO measure was provided at any time in order to avoid introducing a procedural confound (e.g., a possible negative psychological impact of a high reading). Procedures for collecting a CO measure included instructing the participant to exhale normally, inhale deeply, and then breath-hold for 20 seconds. The 20-second breath-holding period allowed time for equilibrium of alveolar gas within the lungs. After 20 seconds, the unit displayed a "BLOW" icon and the participant was instructed to put their mouth over a disposable mouthpiece and exhale slowly and completely. The displayed CO level in ppm was recorded.

The Client Satisfaction Questionnaire (CSQ, Attkisson, 1994), comprised of eight items scored on a 4-point Likert-type scale, was administered to participants at the conclusion of the study. Possible scores range from 8 to 32 with higher scores indicating greater satisfaction. This questionnaire was included as an informal measure of social validity.

Experimental Design and General Procedure

The experimental design for this study was a within-series design (A/B/C/D/A) replicated across participants and across the three components of the treatment program (cf. Hayes, 1981).

Pre-treatment baseline (Phase A1). The baseline phase occurred during the first week of the study. Participants met with the experimenter during an initial orientation session to complete the informed consent form and provide an initial measurement of CO. During the baseline phase, participants were instructed to not alter their smoking as they self-monitored their daily smoking frequency on a 4 x 6 index card. Participants provided two additional measurements of CO during the week. Throughout the baseline phase, no feedback was provided about the CO measurements.

Functional Assessment Component (Phase B). The functional assessment procedure was based in part on that of O'Neill et al. (1997) and was designed to obtain the information that was used later to derive the self-management strategies of the maintenance component. This component occurred during the second week of the study and was comprised of one 45 to 60 minute group session during which participants were provided with the functional assessment tools (available by request). A CO reading was taken during the treatment session with two additional CO readings obtained during the week. Functional assessment tools were a self-report paper-and-pencil questionnaire and a self-monitoring tool, both containing the same items. The questionnaire, completed during the session after an introduction, required that participants rate the likelihood that certain antecedents and consequences from a list of items were functionally related to their smoking. The self-monitoring tool, provided to participants in the form of a 4" x 6" booklet, was comprised of a list of all the items in addition to several blank data recording cards. Participants were instructed to self-monitor their smoking during at least three 24 hour periods, including one weekend day, according to the following instructions: after smoking a cigarette, record the time of day the cigarette was smoked; while referring to the list of items, recall all the antecedents that occurred prior to smoking the cigarette and then record all the relevant setting factors and predictors from the list of items on the data recording cards; and complete the same procedure for the consequences that occurred after the smoking episode. Antecedents and consequences were derived from previous studies using behavioral strategies in the treatment of smoking or substance abuse (Axelrod, 1991; Cole & Bonem, 1999; Colletti, Supnick, & Payne, 1985; Epstein & Collins, 1977; Ikard, Green, & Horn, 1969; Meyers & Smith, 1995; Sobell et al., 1976; Turner, Annis, & Sklar, 1997). Antecedents to smoking were arranged into a behavioral taxonomy of "setting factors" and "predictors." The antecedent category "setting factors" included the setting events or contextual conditions in which smoking could occur (Morris, 1982) and the establishing operations (EOs) that could momentarily alter the reinforcing effectiveness of smoking (Michael, 1993). The antecedent category "predictors" included the conditional stimuli (CSs) and discriminative stimuli (S^Ds) that had the potential to elicit and evoke, respectively, smoking. Consequences of smoking, described in terms of their functional relation to a smoking episode, were arranged according to a behavioral taxonomy of immediate and delayed reinforcing and punishing consequences. "Immediate" and "delayed" refer to the temporal relationship between smoking and a consequence such that an immediate consequence would tend to occur closer in time to smoking than a delayed consequence; the terms "reinforcing" and

"punishing" refer to those events that have the potential to increase or decrease the frequency of smoking, respectively.

Initial Cessation Component (Phase C). This component placed participants' smoking on a schedule comprised of progressively increasing intercigarette intervals to facilitate initial smoking cessation (cf. Cinciripini et al., 1994, 1995). The smoking reduction schedule progressively increased the intercigarette interval over a 2-week period until smoking frequency was zero. Schedules were based on an individual's baseline smoking frequency, the approximate number of hours they smoke per day, and the time they usually smoke the first cigarette of the day. This phase consisted of two sessions conducted 7-days apart. During the first 45 to 60 minute group session, participants reviewed their progress from the previous week, provided a CO measurement, and were given the smoking reduction schedule on 4 x 6 index cards. Participants were instructed to continue self-monitoring their smoking, but were no longer required to identify functional relationships. During the second 45 to 60 minute group session, participants discussed ongoing progress using the schedule, received feedback as appropriate, and provided a CO measurement.

Maintenance Component (Phase D). This maintenance component occurred during the last week of the study and was comprised of functionally derived self-management strategies. During the final 45 to 60 minute group treatment session, participants were given a 4" x 6" booklet containing idiographic self-management strategies derived from their completed functional assessment self-monitoring tools, prompted to rehearse some of the maintenance strategies and provide a CO reading. The strategies were arranged according to the following general categories: stimulus control strategies, manipulating emotional conditions, and constructing replacement behaviors (Skinner, 1953). Stimulus control strategies were antecedent function-altering self-management strategies designed to change the setting factors for smoking (by instructing participants to change the usual context of behavior), manipulate functionally relevant EOs (by instructing participants to engage in certain preemptive behaviors such as relaxation) and weaken the evocative strength of relevant S^Ds (by instructing participants to putt smoking on an extinction schedule and refrain from smoking in the presence of the functionally-relevant S^D).

The maintenance component also contained self-management strategies that were part of a general compilation of self-management strategies designed to induce what can be described as emotional changes. For example, participants were instructed to make such self-statements as, "I feel great now that I don't smoke," and, "I'll use relaxation strategies to help me calm down." Another plan to induce emotional changes designed to maintain cessation involved instructing participants to increase the salience of certain consequences. For example, both Sue and Tom identified "had a bad taste in my mouth" as a consequence that occurred after they smoked a cigarette. Accordingly, their 4" x 6" booklet contained a cognitive rehearsal technique designed to increase the salience of this punishing consequence by requiring Sue and Tom to picture or imagine the steps involved in smoking a cigarette, placing a focus on the bad taste left in the mouth.

Finally, consequence function-altering self-management strategies designed as constructive replacement behaviors were included to help participants engage in distracting behaviors or behaviors incompatible with smoking. For example, both Sue and Tom identified the item "felt relaxed" as functionally related to their smoking, suggesting that one of the perceived functions of smoking was escape from anxiety-provoking situations. Accordingly, they each were given a list of alternative responses that they can emit in order to "feel relaxed," such as relaxation strategies, removal of self from stressful situation, etc. As another example, both participants identified "feeling energized" as a perceived function of their smoking. Both participants were provided with self-

management strategies that could produce the same functional outcome as feeling energized, such exercising and eating high fructose shakes.

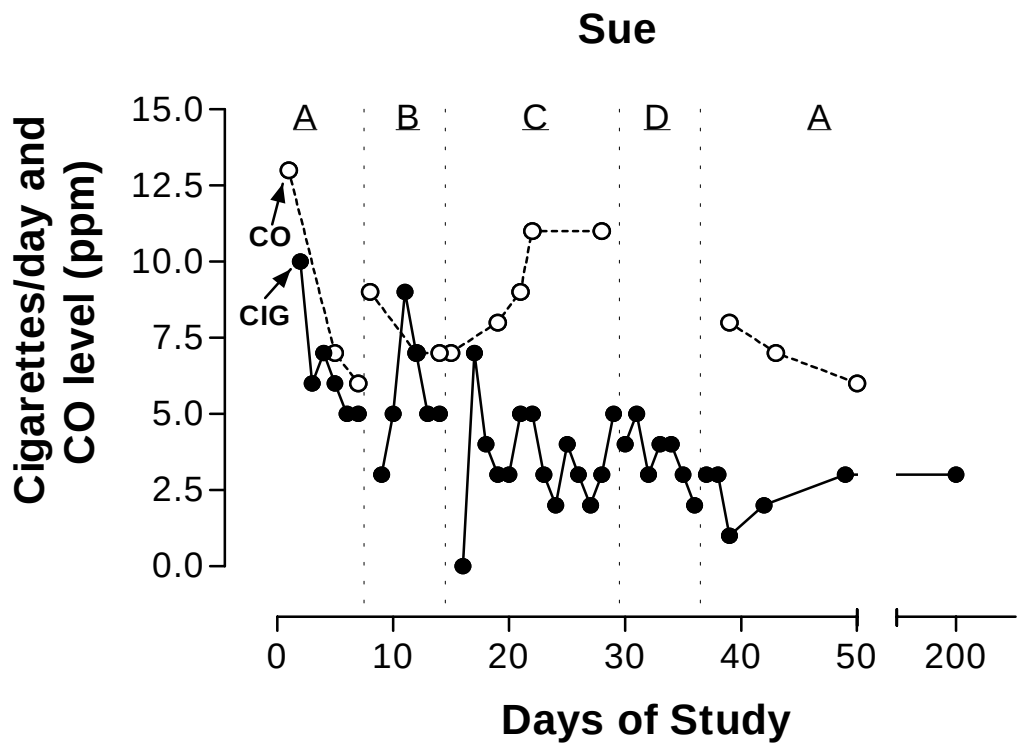

Figure 1. Self-reported daily frequency of smoking and CO measures (in ppm) displayed as a function of successive days of the study for Sue

Post-Treatment Baseline (Phase A2). The post-treatment baseline (Phase A2) was implemented immediately following completion of Phase D. During a brief assessment session, participants provided a measurement of CO, completed the Client Satisfaction Questionnaire (Attkisson, 1994), and discussed treatment issues and/or concerns. Post-treatment follow-up CO measures were collected at 7 and 14 days. Participants were contacted by telephone during the post-treatment baseline phase to self-report smoking frequency up to 6 months post-treatment.

Results

Tables 1 to 4 present the results from the functional assessment component of the treatment program (phase B). Table 1 shows the setting factors selected by Sue and Tom after completing the functional assessment self-monitoring tool from a list of 17 possible setting factors. Predictors for smoking selected by Sue and Tom from a list of 30 possible items are shown in Table 2. Tables 3 and 4 show the consequences that were perceived by Sue and Tom as reinforcing and punishing, respectively, from a list of 14 immediate and delayed reinforcing consequences of smoking and from a list of 18 immediate and delayed punishing consequences of smoking.

Figure 1 presents Sue's self-reported daily frequency of cigarettes consumed and the CO readings in ppm taken throughout the study. As illustrated, Sue entered the pre-treatment baseline component (phase A1) smoking 10 cigarettes per day and reported smoking 3 cigarettes per day at 6 months follow-up; CO levels were 13 ppm prior to treatment and 6 ppm at 14 days post-treatment follow-up (neither participant was available at

6 months post-treatment to provide a CO measurement). Her average self-reported frequency during the pre-treatment baseline was 6.5 cigarettes per day, with average CO readings during the same period of 8.7 ppm; the average smoking frequency during the post-treatment baseline (phase A2) was 2.5 cigarettes per day with average CO readings during the same period of 7.0 ppm. The Wilcoxon matched-pairs signed-ranks test (*Z*) found the difference in smoking frequency between pre- and post-treatment baselines was statistically significant ($Z = -2.207$, $p = 0.027$). Sue began the functional assessment component of the treatment program (phase B) smoking 5 cigarettes per day; she reported smoking 5 cigarettes per day at the end of the 7 days comprising this phase ($Z = -0.185$, $p = 0.854$). During both the cessation (phase C) and maintenance (phase D) components of the treatment program, Sue reported smoking significantly less than her baseline cigarette consumption (phase C mean = 3.5 cigs/day, $Z = -2.226$, $p = 0.026$; phase D mean = 3.57 cigs/day, $Z = -2.214$, $p = 0.027$).

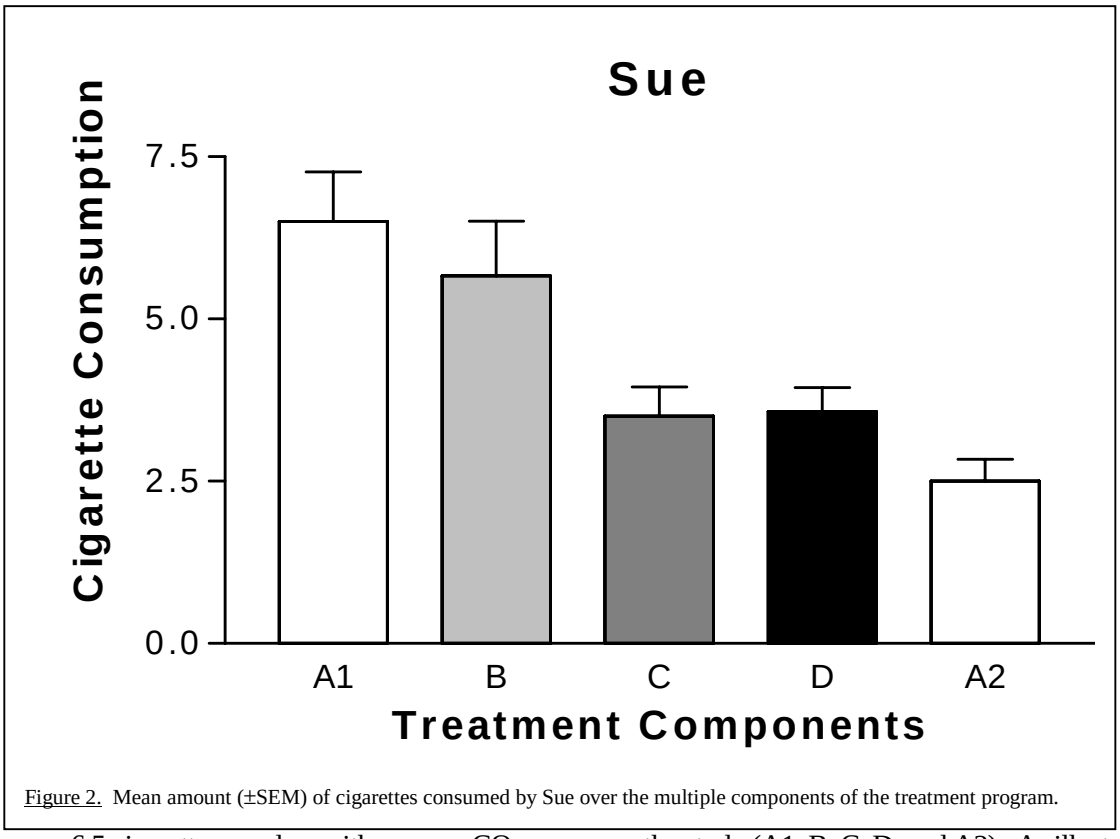

Figure 2. Mean amount (±SEM) of cigarettes consumed by Sue over the multiple components of the treatment program.

Figure 2 presents the mean amount (±SEM) of cigarettes consumed by Sue during each treatment component over the 5 phases of the study (A1, B, C, D, and A2). As illustrated, analysis of within-treatment changes in smoking consumption shows that the greatest reduction in Sue's smoking compared to all other treatment components occurred during the cessation component (phase C; mean difference in smoking = 2.17 cigs/day).

Similar to Sue, Tom did not achieve smoking cessation (see Figure 3). He entered treatment smoking an average of 13 cigarettes per day (phase A1), with an average CO alveolar level during the same period of 11.67 ppm. At 14-day post-treatment follow-up (phase A2), Tom reported smoking an average of 2.8 cigarettes per day, with average CO readings taken during the same period of 6.67 ppm. The difference in smoking frequency between pre- and post-treatment baselines was statistically significant at 14 days follow-up ($Z = -2.207$, $p = 0.027$). Whereas Sue maintained a reduction in smoking at 6 months post-

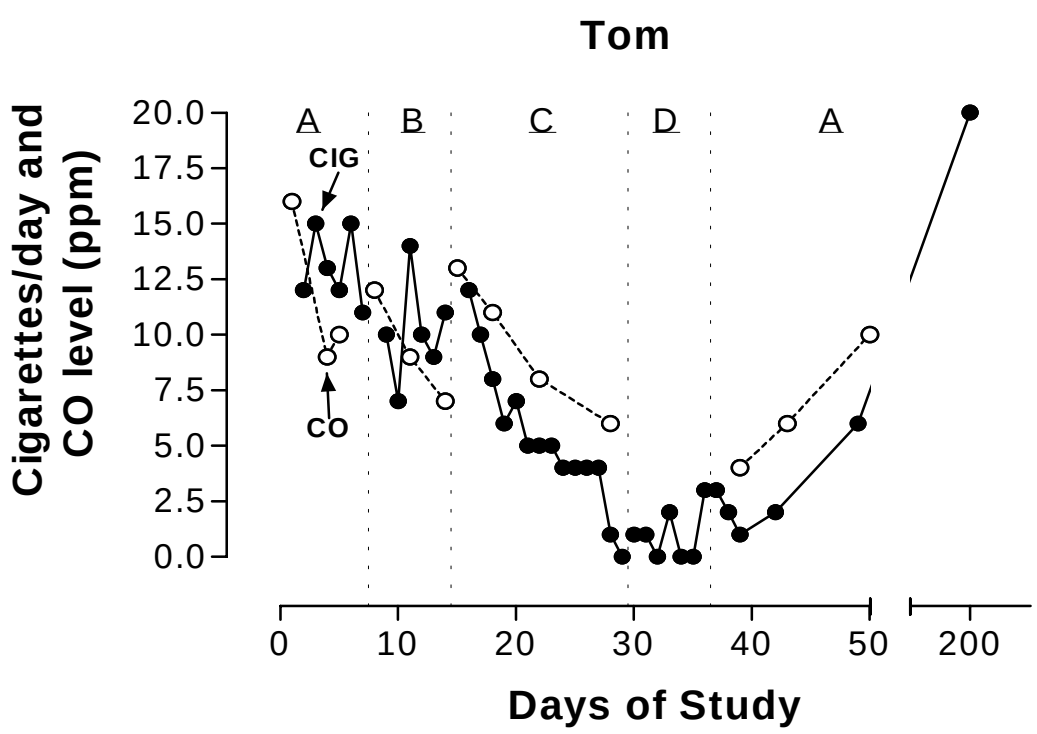

Figure 3. Self-reported daily frequency of smoking and CO measures (in ppm) displayed as a function of successive days of the study for Tom.

treatment, Tom returned to pre-treatment smoking frequency, and at 6 months follow-up reported smoking approximately 30% more then when he entered treatment. The difference in smoking frequency between pre- and post-treatment baselines was no longer statistically significant at 6 months follow-up (Z = -1.802, p = 0.072). Tom began the functional assessment component of the treatment program (phase B) smoking 10 cigarettes per day; he reported no change in cigarette consumption at the end of the 7 days comprising this phase (Z = -1.761, p = 0.078). During both the cessation (phase C) and maintenance (phase D) components of the treatment program, Tom reported smoking significantly less than baseline (phase C mean = 5.357 cigs/day, Z = -2.207, p = 0.027; phase D mean = 1.00 cigs/day, Z = -2.207, p = 0.027).

Figure 4 presents the mean amount (±SEM) of cigarettes consumed by Tom during each treatment component over the 5 phases of the study (A1, B, C, D, and A2). As illustrated, analysis of within-treatment changes in smoking consumption shows that the greatest reduction in Tom's smoking compared to all other treatment components occurred during the cessation component (phase C; mean difference in smoking = 4.81 cigs/day).

Client Satisfaction Questionnaire (Attkisson, 1994) scores range from 8 to 32, with higher scores indicating greater satisfaction. Sue's score was 29 and Tom's score was 26 suggesting both participants were satisfied with the multicomponent treatment program.

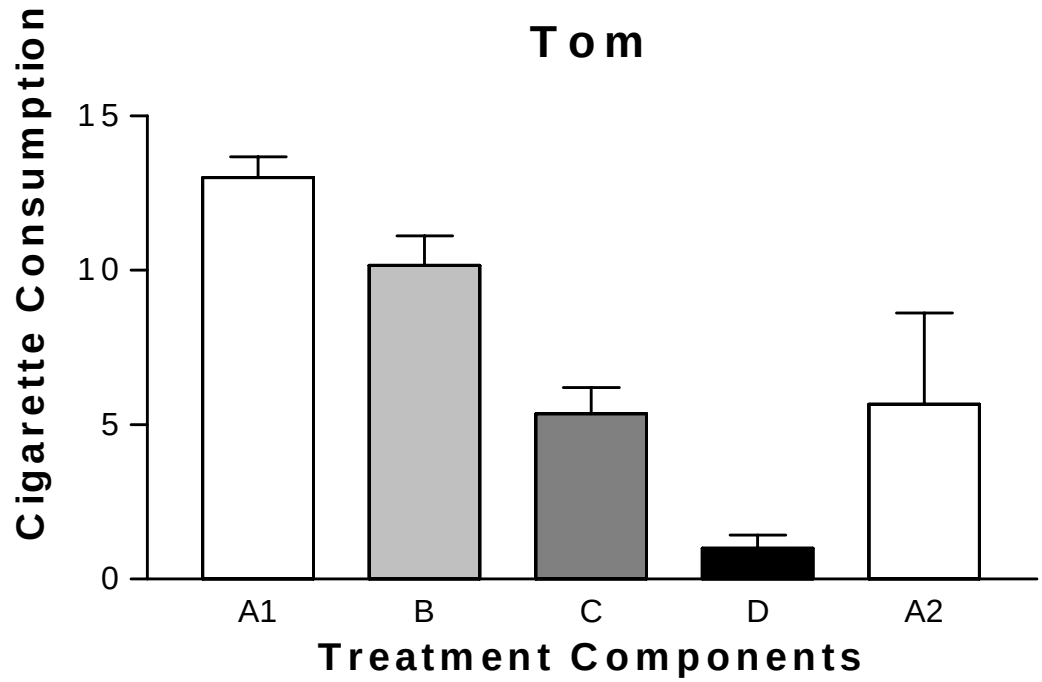

Figure 4. Mean amount (±SEM) of cigarettes consumed by Tom over the multiple components of the treatment program.

Discussion

This study investigated the utility and effectiveness of a brief multicomponent smoking cessation program comprised of a functional assessment component, a cessation component and maintenance component. Two undergraduate students from a midwestern university served as participants. Treatment was provided across four 45 to 60 minute group sessions. Follow-up data was collected at 6 months post-treatment. Although neither participant achieved complete cessation from smoking, both participants achieved a significant reduction in smoking during the course of treatment with Sue maintaining a 70% reduction in smoking at 6 months follow-up. On the other hand, Tom acquired a 60% reduction in smoking at 14 days post-treatment follow-up but resumed pre-treatment smoking

Sue	Tom
Alone	Alone
Socializing with others who are smoking	Socializing with others who are smoking
Socializing with others who are not smoking	Hungry
Hungry	In a bar
In class or work for a long time	In someone else's car
In my car	In my dorm room
In someone else's car	Walking between classes
In my dorm room	

Table 1: Results of Functional Assessment Self-Monitoring Tool: Setting Factors

frequency at 6 months post-treatment. In fact, Tom reported smoking approximately 30% more then when he entered treatment.

Sue	Tom
Drinking coffee	Drinking alcohol
Before class or work	Immediately after waking up
After class or work	Studying
Before starting a task	Watching television
After completing a task	After a meal
Immediately after waking up	Relaxing
Studying	Feeling anxious or nervous
Watching television	Feeling lazy or unmotivated
Being offered a cigarette	Feeling sad or depressed
Driving	
After a meal	
Talking on the telephone	
Relaxing	
Feeling anxious or nervous	
Feeling lazy or unmotivated	

Table 2: Results of Functional Assessment Self-Monitoring Tool: Predictors

One factor that may explain Tom's resumption of smoking at such a high level may be his use of alcoholic beverages. For example, Tom reported "in a bar" and "drinking alcohol" as a setting factor and a predictor for his smoking, respectively. The relevance of these results is related to a recent study by Dawson (2000) in which data collected from the 1992 National Longitudinal Alcohol Epidemiology Survey found that drinkers had a 42% reduced chance of achieving smoking cessation. The study also suggests that smoking relapse might be likely to occur under the disinhibiting context of being in a bar, or, alternatively, the use of alcohol might disrupt a quitter's self-control and contribute to poor decision making, such as selecting a cigarette versus selecting a piece of gum to chew.

One of the strengths of this multicomponent treatment program is that smoking is considered a learned behavior, and as such, the overall goal of this program was to *teach* participants how to change their learned behavior. In other words, the treatment program did not begin with an assumption that a participant was "powerless" over the behavior, rather, the participant was engaging in an excessive behavior functionally related to certain antecedent and consequent events. Some events set the context for smoking, some events occur prior to smoking, some events occur during a smoking episode, and some occur after a smoking episode. Those events that precede smoking were described as predicting smoking, or setting the occasion for smoking, and were called antecedents to smoking. Events that occur after smoking were

Sue	Tom
Holding cigarette	Holding cigarette
Smoke in lungs	Smoke in lungs
Exhaling smoke	Exhaling smoke
Distracted from worries	Distracted from worries
Feeling relaxed	Feeling relaxed
Feeling energized	Feeling energized
Feeling more confident in social situations	Feeling euphoric or "high"
Watching television	Feeling more confident in social situations

Table 3: Results of Functional Assessment Self-Monitoring Tool: Reinforcing Consequences

Sue	Tom
Bad taste in mouth	Bad taste in mouth
Did not complete an important task	Laziness
Laziness	Nausea
	Dizziness

Table 4: Results of Functional Assessment Self-Monitoring Tool: Punishing Consequences

described as defining the function of smoking, and may be thought of as maintaining smoking. These events were called consequences of smoking. A unique characteristic of this smoking cessation program is that participants completed a self-report functional assessment in order to identify events perceived as functionally related to their smoking. In turn, functionally-derived self-management strategies were developed to assist with the maintenance of smoking cessation (or reduction).

One limitation of the present study concerns the assessment of participants' compliance with the functionally derived self-management strategies comprising the maintenance component of the treatment program. Although each set of self-management strategies was customized to individual smoking patterns via the functional assessment, no data was collected on their use. Although a check list was provided, and participants were instructed to self-monitor their use of a specific self-management strategy once, two to four times, or more than five times during the week, neither participant completed the check list. Rather, participants reported verbally that they had used the self-management strategies, but were not able to estimate frequency of use. The maintenance component should be modified to allow for easy and rapid self-monitoring of each and every time a self-management strategy is used. Increased self-monitoring may increase compliance in using the self-management strategies to maintain abstinence or reduced smoking.

Other limitations of the current study concern the design and procedure for evaluating treatment effectiveness. First, a control group was not employed. Comparison of the treatment program to a control group would increase the believability of the results. Additionally, more time could have been spent helping participants to behaviorally rehearse their specific self-management strategies either in a group format, or as individual training sessions.

In summary, the ultimate usefulness of smoking cessation programs which utilize a nicotine reduction phase and rapid functional analysis procedures coupled with maintenance strategies will be assessed in terms of their ability to add value to contemporary models of health care (Cone, 1997). To this end, more research is needed to assess treatment and efficiency outcomes when multicomponent smoking cessation programs such as that used in the current study are compared to potentially more time consuming and costly standardized treatment packages. Treating college smokers with a rapid multicomponent program may offer reductions in smoking. Providing treatment for undergraduate smokers may also contribute to a reduction in the risk of illicit drug use, as tobacco use by adolescents and young adults has been shown to increase the risk of substance use (Best et al., 2000).

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Issues for the Consulting Behavior Analyst: EO's, SD's, and Promoting Business Versus Promoting the Science of Behavior Analysis

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Recently there has been an increased interest in Skinner's (1957) Verbal Behavior, most notably among parents of children with autism seeking to reverse and correct the devastation of the condition. The current commentary suggests that with the "new" popularity of Skinner's analysis and the subsequent application in clinical treatment that behavior analyst's have a responsibility to properly educate the community about the history of the analysis of verbal behavior and to adequately train people who conduct behavior protocols using Skinner's analysis or suffer the lessons of the past.

Recently there has been an increased interest in Skinner's 1957 Verbal Behavior. This is a long awaited change among those of us who have studied Skinner's work and have long believed in the validity of his analysis. Much of the new interest in this body of work has come about due to the application of Skinner's analysis by Sundberg and Partington with children who have autism. This work is outlined in the 1998 book Teaching Language to Children With Autism or Other Developmental Disabilities and formalized through the publication of their assessment manual The ABLLS Protocol (Partington & Sundberg, 1998). This protocol in the hands of someone familiar with the functional analysis of verbal behavior is a powerful tool not only in assessing deficits and strengths in verbal behavior, but in creating an intervention program for children with deficit verbal behavior repertoires. Note that I have not specifically stated "children with autism" because truth be known when the assessment is used appropriately with children with "other developmental disabilities" it is just as powerful in assisting to determine deficit repertoires. Although, the sudden popularity given rise to Skinner's analysis is due mainly to it's application in the autism community, it seems important to remember that this is indeed verbal behavior. The analysis applies to all organisms when learning to become members of their verbal community and the operants are apparent in every verbal community.

Perhaps the most important statement that must be made at this point is that along with this rise in "popularity" among behavior analysts comes a large responsibility. The most important thing that Behavior Analysts could do for behavior analysis, and more focally the analysis of verbal behavior is to properly educate people about the history of behavior analysis, basic and applied taking this opportunity to promote our science, and not just businesses. Behavior Analysts should not commit the same sins that linguist, psychodynamic researchers and clinicians of the past have committed. In an article by John Eshelman and Ernest Vargas (1988) the pair speaks of promoting the behaviorological analysis of verbal behavior. They note several issues of commission and omission that they account for the general malaise surrounding the radical behaviorist analysis of verbal behavior.

Do we not commit the same wrong when we allow the public, for whatever reason, to call the analysis of verbal behavior "the new method of ABA" or to say that "discrete trial training, direct instruction, precision teaching and milieu language training doesn't take into account the analysis of verbal behavior" a few comments I recently read on an parent internet list for children with disabilities. Additionally again and again I have heard of clinicians in the field and their new approach to verbal behavior. In the meantime I see little about the history of the analysis or the current work in this area of behavior. This does little justice to work of Vargas, Michael, Catania, Sidmund, Sundberg and the countless less famous, but equally capable others who have contributed to our knowledge in the analysis of verbal behavior. It seems to me to be no different when current behavior analysts omit the history upon which they base their current work to the public and the omission that Eshelman and Vargas speak about.

What are the Effects on the Community: Where are the Real Issues?

Perhaps one of the most confused aspects, in terms of the general community, is the SD versus EO "controversy". Parents, educators and unfortunately some "behavior specialists" speak of discriminative

stimulus and establishing operations as competing terms, as if one exists and the other does not. Recently in an Internet chat forum a parent from Maryland was "flamed" for using SD's with her child. She was told that SD's were "old news" and recent development in ABA had determined that her child would never learn "real" language unless she used EO training alone to teach language. Effectively one parent told another that she was harming her child conducting treatment designed by a local behavior analyst. The advising parent had apparently learned this at a local training she recently attended. Obviously we would all agree that discriminative stimulus has a role in evoking verbal responses and that this parent, although enlightened to the power of using EO's to teach verbal behavior had only acquired a minimal education and was and is now spreading misinformation that could have long-lasting negative effects on the acceptance of our science.

Only a few weeks ago while conducting an in-service for Behavior Specialists I was surprised when one of the participants asked me to explain how to manipulate EO's to evoke intraverbal responding. After some probing I discovered that the clinician had attended a workshop where he learned that EO's evoked all verbal operants as opposed to other stimuli. After some discussion we resolved that using an EO as a stimulus prompt to train intraverbal responding may be helpful but that ultimately an intraverbal response had to come under the control of a speaker's "words". The frightening aspects of this is that, uncorrected, as a Behavior Specialist this individual would ultimately train teams of individuals to work with children and replicate this incorrect information many times over and use this incorrect information to develop prompt dependency in the children he treated.

Finally, and perhaps the most frightening experience occurred only several days ago when I was told that a person whom I was considering hiring for a direct care position at our organization was independently consulting as an AVB (Applied Verbal Behavior) consultant for families having children with autism. We were considering this individual as a front line 1:1 staff person to work under the direction of a Senior Support Specialist (BCABA) and a Consultant (BCBA), she had a high school diploma and was working on obtaining her bachelors degree in speech. When questioned as to her credentials as an "AVB consultant" she explained that she had attended two workshops on AVB and had certificates to indicate her expertise.

I have attended some of the workshops offered by the major presenters in the field and have been impressed by the professionalism, thoroughness and the cautionary statements offered about not taking these protocols lightly. Yet, despite these best efforts we are plagued with numerous examples like those offered previously and a general misunderstanding of the of the most important and basic elements of verbal behavior.

Discriminative Stimulus (S^D) or Establishing Operation (EO)?SD & EO?

An Establishing Operations (EO) is "an environmental event… that affects an organism by momentarily altering (a) the reinforcing effectiveness of other events and (b) the frequency of occurrence of that part of the organism's repertoire relevant to those events as consequences" (Michael, p. 192). Establishing Operations can be utilized to teach many verbal responses by making a previously neutral stimulus function as a reinforcer. It can also be invaluable in the analysis of problem or aberrant behavior.

Both Establishing Operations (EO) and Discriminative Stimuli ($S^{D'}$s) evoke behavioral responses (often identical), it is difficult at times to identify which is at work. It takes careful training and practice to accurately identify these differences and apply the use of each appropriately in the field.

The differences between EO and $S^{D'}$s relate mostly to the process of bringing specific responses under functional control of specific stimuli. The control of an S^D is established because the stimulus (S^D) is correlated with a frequency (availability) of reinforcement. An EO does not make reinforcement more available; it makes it more valuable to the individual at a particular time and this change in value affects the motivational variables that increase the likelihood of an individual emitting a behavioral response at a particular time. Responses under the control of EO occur due to environmental events or operations, not specific instructions. EO evokes behavior as it changes the value of what functions as reinforcement for the response. When I am thirsty, I am more likely to say "coffee". The briefest of rules would specify S^D = availability and EO = value, a simplification, but one that can assist in beginning to increase the skills in looking for the differences between S^D's and EO's.

Unconditioned Establishing Operations (UEO's) such as hunger, thirst, or even access to frequently manipulated or perhaps perseverative toys or activities are easily captured, as the passage of time will increase the momentary effectiveness as a reinforcer. A simple deprivation schedule applied to the child in treatment will increase the opportunities to train the child under the control of a captured EO. As noted by Hart & Risley (1975) and expanded upon by Sundberg (1987), There are many opportunities and means to contrive such EO's in training. To evoke the most tacted; feeding a child salty foods is likely to contrive the EO (or increase the value) for liquids.

Michael (1981) also identifies several Conditioned Establishing Operations (CEO's) that can be used in training. Michael identifies three CEO's, transitive, reflexive, and surrogate that should be captured and contrived in an intensive intervention. Transitive conditioned Establishing Operations (^{T}CEO's) as Sundberg notes (1993) are brought about by the occurrence of one stimulus in the environment that alters the reinforcing value of a second stimulus and that second stimulus cannot be obtained without the emission of behavior. For example a barefoot child seeing his siblings and peers going outside to play might emit "Where are my shoes?" or a trainer might place a favored item in a clear (closed) container to contrive the ^{T}CEO for "open". Specifically, Michael (1988) identifies the importance of using CEO's to establish the mand. Hart and Risley (1975) used incidental teaching incorporating the effectiveness EO training in the model.

Michael defines the Reflexive Conditioned Establishing Operation (^{R}CEO) as "any stimulus condition whose presence or absence has been positively correlated with the presence or absence of any form of worsening will function as a CEO in establishing it's own termination as effective reinforcement and in evoking any behavior that has been so reinforced" (p. 203). In intensive programs where children are "drilled" repetitiously, with minimum variance in reinforcers the term "Good Job", typically deployed as a generalized reinforcer, can for example come to function as the ^{R}CEO in evoking "tantrums" that in the past caused trainers to stop or pause the "drilling" process. The ^{R}CEO appears to have practical applications in the analysis of "lying" or the side effects of incorrectly applied punishment procedures. Perhaps these will be explored in greater detail in future papers.

Finally, the Surrogate Conditioned Establishing Operation (^{S}CEO) where stimulus correlated with stimulus evokes behavior as a CEO rather than an S^{D} increasing the value of terminating the former stimulus as opposed to the availability of termination. In many intensive home programs problems arise when the child tantrums on the way to the "training room" that has been previously paired with punishing stimuli, although the particular trainer may have never worked with the child before or have any aversive history with the child. The stimulus of the room evokes the behavior of tantrums. Sundberg (1993) points out that the ^{S}CEO could be essential in the analysis and treatment of shyness or self-injurious behaviors. It appears that the ^{S}CEO may have possible implications for the effective analysis and treatment of unrealistic fears or "unexplained" sudden "emotional mood" shifts.

What about responses that are evoked by EO's and SD's? Currently the consumer public of applied behavior analysis has an overwhelming either or understanding of EO's and SD's. This is especially noticeable in the intensive interventions using discrete trial training exclusively and those using natural training methods exclusively. It seems that both behaviors evoked by S^{D}'s and EO's are a necessary part of the "normal" behavioral repertoire. The child who learns to spontaneously ask for juice when thirsty learns a behavior that will be very important to their future, but is responding to the teacher "I want juice please", when asked "What do you want to drink?" and not asking in class unless offered any less important. Certainly, I have attended several meetings where I did not enter the room and ask for coffee, but once posed the question "Can I get you something to drink?" I promptly replied, "I would like some coffee, black please".

S^{D}'s indicating the availability of reinforcers after emitting a certain behavior, and EO's altering the value of certain stimulus would appear to share similar circumstances in the area of verbal behavior as both may evoke a verbal response.

<u>What can we do?</u>

The proper use of EO's in analyzing and treating problem behavior as well as training new behavior is a powerful tool for applied behavior analysts. With these powerful tools comes an awesome responsibility to properly train and supervise those who use these techniques, both about the rich

history of our science, origins of these technologies and about the proper and responsible application of these technologies in the field. Behavior Analysis is powerful and more and more it is becoming the treatment of choice for a number of issues effecting people. It is my hope that we as a profession will not fall victim to our own popularity. Perhaps, most importantly we should caution those who attend trainings and workshop that applying these techniques in training or analysis is a difficult task that requires something beyond a basic knowledge. Reminding individuals that proper supervision by someone who is fluent in the use of such techniques is not only advisable but also necessary. Perhaps we can distribute an outline of the credentials that someone should have to direct and supervise treatment in the field at workshops as a subtle reminder to those who participate that it is not a license to practice.

There is little doubt of the importance verbal behavior plays in the day to day of the average human. Indeed, verbal behavior may be the most important of human behaviors. As Sundberg has pointed out it seems curious that such a large, as well as important, repertoire of human behavior has received such little attention. Now that the focus is turning more towards behavior analysis and the radical behaviorist analysis of verbal behavior (for whatever reason), we should use this opportunity to educate the communities about this important science.

Hopefully the increased popularity born through clinical treatment of children with autism and other developmental disabilities will finally lead the field to empirical study based on and building on Skinner's analysis. Ultimately, his own words will ring true that this book would prove to be his most important work. This will only occur if behavior analysts assume the responsibility to place the same standards to the treatment and study of this behavior as we have to every other behavior studied in the human organism as well as those who apply it in the field. Given time behavior analysts will prove beyond a shadow of doubt that we understand words best once we realize that they have no inherent meaning.

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