



---

Volume Number 4

2008

Issue Number 2

---

ISSN 1555 - 7855

## Table of Contents

**Page 119: Editorial – *Jack A. Apsche***

**Page 120: Fear of Failure and Criticism among Students Having Mild Mental Retardation: How Much Do We Know? - *Huijun Li, Michael Bridgewater & Qian Liu***

**Page 130: Behavioral Models of Depression: A Critique of the Emphasis on Positive Reinforcement - *Paulo Roberto Abreu & Carlos E. Santos***

**Page 146: Effect of Behavioral Activation Treatment on Chronic Fibromyalgia Pain: Replication and Extension - *Duane A. Lundervold, Chris Talley & Michael Buermann***

**Page 158: Computer-assisted exposure treatment for flight phobia - *Miquel Tortella-Feliu, Xavier Bornas & Jordi Llabrés***

**Page 172: Behavioral Interventions in the Treatment of Pathological Gambling: A Review of Activity Scheduling and Desensitization - *Nicki Dowling, Alun C. Jackson & Shane A. Thomas***

**Page 188: Functional Analytic Psychotherapy for Interpersonal Process Groups: *A Behavioral Application* - *Renee Hoekstra***

**Page 199: Consulting with Teachers Regarding Academic Skills: Problem Solving for Basic Skills - *Kristin A Gansle & George H. Noell***

**Page 212: Starting off on the Right Foot: One Year of Behavior Analysis in Practice and Relative Cost - *Jeremy H. Greenberg & Rosa C. Martinez***

**Page 227: A Behavioral Approach to Training Day Care Workers - *Jonathan W. Ivy & Kimberly A. Schreck***

**Page 239: Recent Studies in Functional Analytic Psychotherapy - *Rafael Ferro García***

**Page 250: State of the Art Procedures for Assessment and Treatment of Learners With Behavioral Problems - *Robert H. LaRue Jr., Mary Jane Weiss & Suzannah J. Ferraioli***

**Page 264: Family Mode Deactivation Therapy as a Manualized Cognitive Behavioral Therapy Treatment - *Jack A. Apsche, Christopher K. Bass & Marsha-Ann Houston***

# **International Journal of Behavioral Consultation and Therapy**

**VOLUME NO. 4, ISSUE NO. 2**

*ISSN: 1555 - 7855*

**Published: May 25, 2008**

## **PUBLISHER'S STATEMENT**

The International Journal of Behavioral Consultation and Therapy (IJBCT), is published quarterly by BAO. IJBCT is an online, electronic publication of general circulation to the scientific community. IJBCT's mission is to provide a focused view of behavioral consultation and therapy for the general behavioral intervention community.

Additionally, IJBCT hopes to highlight the importance of conducting clinical research from a strong theoretical base. IJBCT areas of interest include, but are not limited to: Clinical Behavior Analysis, Behavioral Therapy, Behavioral Consultation, Organizational Behavior Management, Human Performance Technology, and Cognitive Behavior Therapy. IJBCT is an independent publication and is in no way affiliated with any other publications.

The materials, articles, and information provided in this journal have been peer reviewed by the review board of IJBCT for informational purposes only. The information contained in this journal is not intended to create any kind of patient-therapist relationship or representation whatsoever. For a free subscription to The International Journal of Behavioral Consultation and Therapy, send the webmaster an e-mail at [subscribe@behavior-analyst-today.com](mailto:subscribe@behavior-analyst-today.com), containing your name, e-mail address, and the word "subscribe IJBCT" in the subject box, and you will be added to the subscription list. You will receive notice of publication of each new issue via e-mail that will contain a hyperlink to the latest edition.

---

## **ADVERTISING IN THE INTERNATIONAL JOURNAL OF BEHAVIORAL CONSULTATION AND THERAPY**

**The prices for advertising in one issue are as follows:**

**1/4 Page: \$50.00   1/2 Page: \$100.00   Full Page: \$200.00**

**If you wish to run the same ad in multiple issues for the year, you are eligible for the following discount:**

**1/4 Pg.: \$40 - per issue  
1/2 Pg.: \$75 - per issue  
Full Page: \$150.00-per issue**

**An additional one time layout/composition fee of \$25.00 is applicable**

**For more information, or place an ad, contact Halina Dziejowska by phone at (215) 462-6737 or e-mail at: [halinadz@hotmail.com](mailto:halinadz@hotmail.com)**

# **International Journal of Behavioral Consultation And Therapy**

*ISSN: 1555 - 7855*

## **Mission Statement**

The behavioral psychologies are major forces that influence many areas of human interest. These psychologies draw on various learning theories to produce change in clients and consultees performance and combine in an area known as Behavior Therapy. Behavior therapy is a broad area that often lacks integration and understanding between the theoretical and technological aspects of the field.

The International Journal of Behavioral Consultation and Therapy is committed to increasing the communication between various areas of behavioral consultation and therapy. As the massive body of behavioral research in psychology and education has been produced, the BAO group deemed that a new journal was needed to handle the ever increasing interest and ever fractionating field.

The International Journal of Behavioral Consultation and Therapy strives to be a high quality journal that also brings up to the minute information on current developments within the field to those who can benefit from those developments. Thus, the International Journal of Behavior Consultation and Therapy will continue to publish original research, reviews of the discipline, theoretical and conceptual work, applied research, program descriptions, research in organizations and the community, clinical work, and curriculum developments. Our vision is to become the voice of clinical behavior analysis and behavior therapy practices.

## **Submissions**

Authors who wish to be considered for publication in IJBCT must submit a signed assignment of rights form with their article. The form can be downloaded from the IJBCT website on the submissions page.

The International Journal of Behavioral Consultation and Therapy (IJBCT) is wholly owned by BAO. IJBCT contributions are by invitation of the lead editor or the associate editors only. All submissions are peer-reviewed. After acceptance, all articles are copyedited.

## **Peer Review**

All submitted manuscripts are reviewed initially by an IJBCT editor. Manuscripts with insufficient priority for publication are rejected promptly. Other manuscripts are sent to expert consultants for peer review. Information from submitted manuscripts may be systematically collected and analyzed as part of research to improve the quality of the editorial or peer review process. Identifying information will remain confidential.

## **Manuscripts**

Rejected manuscripts will be returned to authors when specifically requested in the cover letter. Print copies of original illustrations, photographs, and slides will be returned with the manuscript. In all cases, manuscripts must be submitted electronically saved in "rich text format" (.rtf) to Joseph Cautilli, Ph.D., BCBA.

### **A Word about Abstracts**

In order to ensure that IJBCT will be accepted in the major psych databases, there are certain guidelines that must be followed for abstracts relating to our article and the Journal. The following guidelines are straight from the PsycINFO website: <http://www.apa.org/psycinfo/about/covinfo.html>

### **General Guidelines for Writing Effective Abstracts**

For use in PsycINFO and other databases, an abstract should not exceed 960 characters and spaces (approximately 120 words).

Characters may be conserved by:

- using digits for numbers (except at the beginning of sentences)
- using well-known abbreviations
- using the active voice

Begin with the most important information, but don't waste space by repeating the title. Include in the abstract only the four or five most important concepts, findings, or implications.

Embed as many key words and phrases in the abstract as possible; this will enhance the user's ability to find the citation for your article in a computer search. Include in the abstract only information that appears in the body of the paper.

**Style:**

Remember that not all people who read your abstract will have a high level of psychological knowledge.

Define all acronyms and abbreviations, except those for measurements.

- Spell out names of tests
- Use generic names for drugs (when possible)
- Define unique terms

Use the present tense to describe results with continuing applicability or conclusions drawn and the past tense to describe variables manipulated or tests applied. As much as possible, use the third person, rather than the first person.

### Abstracts for Empirical Studies:

Abstracts of an empirical study are generally about 100—120 words. Include the following information:

- problem under investigation (in one sentence)
- pertinent characteristics of subjects (number, type, age, sex, and genus and species)
- experimental method, including apparatus, data-gathering procedures, complete test
- names, and complete generic names and the dosage and routes of administration of any drugs (particularly if the drugs are novel or important to the study)
- findings, including statistical significance levels
- conclusions and implications or applications

### Abstracts for Review/Theoretical Articles

Abstracts for review or theoretical articles are generally about 75—100 words. Include the following information:

- the topic in one sentence
- purpose, thesis, or organizing construct and the scope (comprehensive or selective) of the article
- sources used (e.g., personal observation, published literature)
- conclusions

### Editing:

Accepted manuscripts are copy edited according to APA format and returned to the author for approval. Authors are responsible for all statements made in their work, including changes made by the copy editor and authorized by the corresponding author. Please adhere to APA format and use "Times New Roman" font in 11 pt., single spaced throughout. In references, however, please italicize the places where APA format would have you underline.

### Additional requirements:

To be published in any of the BAO journals, we have additional requirements that authors must adhere to. Our requirements supersede any requirements that conflict with APA requirements.

\* All articles must be created as one continuous document - no documents that are created in sections or sub documents.

\* Authors must not insert their own headers, footers, or pagination.

\* Graphics, figures, tables, etc., must be in jpg or bmp format. Graphics, figures, tables, etc., may be embedded in the text body of the article by the author. No Excel graphs will be accepted. If graphical materials are submitted as separate Word documents, they should be in portrait format and should be full page, or one half page or less only. Graphical materials larger than one page cause serious layout problems. If graphical materials are not inserted into the text portion of the article by the author, indicators must be placed in the text body so we know where the graphical materials belong.

\* All articles should be single spaced, with one-inch margins all around.

\* All abstracts must contain keywords.

\* Full author contact information must be included in the article.

Thank you!

*The Behavior Analyst Online Journals Department*

---

Advertisement

## **Behavior Analyst Online**

[www.Behavior-Analyst-Online.org](http://www.Behavior-Analyst-Online.org)

The Behavior Analyst Online organization (BAO) develops and deploys new resources for behavior analysts and makes them available on the Internet free of charge to the public. These resources are dedicated to educating the public about behavior analysis as well as serving as a resource for professionals involved in the field of behavior analysis.

The BAO organization is responsible to its membership to develop resources that the membership will find useful in everyday research, education, and application of the science of behavior analysis.

The BAO organization offers many perks to its members, including a Web Forum and the ABA-PRO Mailing List. In addition, the organization publishes several major free e-journals of interest to the behavior analysis community:

**The Behavior Analyst Today**

**The Journal of Early and Intensive Behavior Intervention**

**The International Journal of Behavioral Consultation and Therapy**

**The Journal of Speech and Language Pathology - Applied Behavior Analysis**

**The Behavioral Development Bulletin**

Membership in the BAO organization is free. For details, visit our website at

[www.behavior-analyst-today.org](http://www.behavior-analyst-today.org)

# International Journal of Behavioral and Consultation Therapy

ISSN: 1555 - 7855

## Editorial Staff

### Editor In Chief:



**Jack Apsche, Ed.D, ABPP - Jack A Apsche, Ed.D., ABPP, *Capital Academy & Apsche Center, Yardley, PA***

### Senior Associate Editor:



**Joe Cautilli, Ph.D., BCBA- *Children's Crisis Treatment Center - Philadelphia, PA***

NO PICTURE AVAILABLE

**Robert Kohlenberg, Ph.D. - *University of Washington - USA***

### Associate Editor



**Michael Weinberg, Ph.D., BCBA - *Orlando Behavioral Health, Orlando, FL***

### Action Editor



**Christopher K. Bass, Ph.D. - *Clark Atlanta University***

NO PICTURE AVAILABLE

**James K. Luiselli, Ed.D., ABPP, BCBA - *May Institute***

# **International Journal of Behavioral Consultation And Therapy**

## **Editorial Board:**

**John Austin, Ph.D.** - *Western Michigan University - USA*

**John Blackledge, Ph.D.** - *Spectrum Center (Berkeley, California) USA*

**Teri Burcroff, Ph.D.** - *East Strausburg University - USA*

**Ken Carpenter, Ph.D.** - *New York State Psychiatric Institute Division - CPMC - USA*

**Jim Connel, M.Ed.** - *Private Practice*

**Richard A.C. Dale, Ph.D.** - *Cornell University -USA*

**Simon Dymond, Ph.D., B.C.B.A.** - *University of Wales, Swansea - United Kingdom*

**Patrick Friman, Ph.D.** - *Boys Town, USA*

**Steven C. Hayes, Ph.D.,** *University of Nevada, Reno*

**Lee Kern, Ph.D.** - *Lehigh University -USA*

**Marsha Linehan, Ph.D., ABPP** - *University of Washington*

**Smita Mehta, Ph.D.** - *University of Texas - USA*

**Caio F. Miguel, Ph.D.** - *Western Michigan University - USA*

**Cheryl McNeil, Ph.D.** - *West Virginia University - USA*

**Arthur M. Nezu, Ph.D., ABPP** - **President – ABPP - Department of Psychology, Drexel University**

**Christine Maguth Nezu, Ph.D., ABPP** - **Professor of Psychology - Associate Professor of Medicine - Drexel University**

**Paul H. Pittman, Ph.D.** - *Indiana University Southwest - USA*

**Phil Reed, Ph.D.** - *University of Wales Swansea, United Kingdom*

**David M. Richman, Ph.D.** - *University of Maryland, Baltimore County - USA*

**Kimberly Schreck, Ph.D.** - *Penn State University – USA*

**James Snyder, Ph.D.** - *Wichita University - USA*

**Peter Sturmey, Ph.D.** - *Private Practice*

**Lee Underwood, Psy.D.** *Regent University*

**Adam Weaver** - *Mississippi State University - USA*

**David Wilder, Ph.D.** - *University of Florida - USA*

**R.D Zettle, Ph.D.** - *Wichita University – USA*

## **BAO Journals Staff**

**Melissa Apsche** - **Managing Editor**

**Lucia R. DiMeo, Ph.D.** - **Copy Editor**

## Editorial

It is with a great sense of satisfaction that I announce that IJBCT has been accepted for indexing into the Psych Info Data Base of the American Psychological Association. This is an important step for IJBCT and I am proud of everyone's efforts in our behalf of IJBCT.

Also we are reprinting with permission of the publisher and Editor of The Behavior Analyst Today an article that appeared in BAT 8.(3); Family Mode Deactivation therapy as a Manualized Cognitive Behavior Therapy Treatment. The article appears in IJBCT for several reasons:

1. It is a new and innovative CBT treatment of adolescents and their families.
2. It was awarded the 2007 article of the year and it is deserving of another look.
3. It has been requested to be reprinted by numerous individuals and agencies.

Humbly, we present the article for a second "look."

Jack Apsche

Jack A. Apsche  
Editor and Chief IJBCT

---

### Advertisement

## Behavior Analyst Online

[www.Behavior-Analyst-Online.org](http://www.Behavior-Analyst-Online.org)

The Behavior Analyst Online organization (BAO) develops and deploys new resources for behavior analysts and makes them available on the Internet free of charge to the public. These resources are dedicated to educating the public about behavior analysis as well as serving as a resource for professionals involved in the field of behavior analysis.

The BAO organization is responsible to its membership to develop resources that the membership will find useful in everyday research, education, and application of the science of behavior analysis.

The BAO organization offers many perks to its members, including a Web Forum and the ABA-PRO Mailing List. In addition, the organization publishes several major free e-journals of interest to the behavior analysis community:

The Behavior Analyst Today  
The Journal of Early and Intensive Behavior Intervention  
The International Journal of Behavioral Consultation and Therapy  
The Journal of Speech and Language Pathology - Applied Behavior Analysis  
The Behavior Development Bulletin  
The Journal of Analysis of Gambling Behavior

Membership in the BAO organization is free.

For details, visit our website at [www.behavior-analyst-today.org](http://www.behavior-analyst-today.org)

## Fear of Failure and Criticism among Students Having Mild Mental Retardation: How Much Do We Know?

Huijun Li, Michael Bridgewater & Qian Liu

### Abstract

This study examined the self-reported fears of failure and criticism in youth having mild mental retardation (MIMR), using Fear Survey Schedule for Children-Revised. Participants included 73 students (7 to 18 years of age; males = 43, females = 30), a subsample of a larger study. The results reveal that adolescents (13 to 18 years of age) and males with MIMR have reported significantly higher levels of fear of failure and criticism than their younger counterparts (7 to 12 years of age) ( $p < .000$ ) and females ( $p < .05$ ), respectively. Students have rated giving oral report as their top fear. The results indicate low inter-rater agreement ( $p > .05$ ) and similar level of fear of failure and criticism between students with MIMR and others with special needs ( $p > .05$ ). The study adds to the literature on a population that has not been extensively evaluated.

*Keywords: fear, failure, criticism, adolescents, mild mental retardation*

---

Fears are common among youth of all ages. Most fears are mild and transitory, while others may be severe and persist into adulthood (Li & Morris, 2007). Although extensive studies have been conducted to examine the typical or normal fears in the regular population, little research has looked at the specific fears of children and adolescents with disabilities (e.g., Li & Morris, 2007; Ramirez & Lukenbill, 2007; Ramirez, Nguyen, & Kratochwill, 1998). In the few studies in this area, having mental retardation has been found to be consistently related to higher levels of self-reported fears in children and adolescents (e.g., Al-Yagon & Mikulincer, 2004; Gresham & MacMillan, 1997; Ramirez & Lukenbill, 2007). A number of studies have demonstrated that students with mild disabilities, including mild mental retardation, are often poorly accepted or even rejected by peers without disabilities (MacMillan & Morrison, 1984; Gresham & MacMillan, 1997). As a consequence, students with mental retardation, especially those at adolescence stage, experience greater loneliness than their non-disabled peers in their social lives at school (Williams & Asher, 1992). According to Ollendick, Oswald, and Ollendick (1993), the limited cognitive abilities and skills of children and adolescents with mental retardation may be related to their extensive failure experiences. These failure experiences may lead to reduced expectancies and reduced sense of control and in turn, contribute to increased levels of fears, including fear of failure and other social evaluative fears.

Research studies of the non-disabled population indicate that there are age and gender differences in the content of fears (Costa & Weems, 2005; Morris & Kratochwill, 1998; Warren & Sroufe, 2004). For example, children of elementary school age are reportedly more fearful of physical danger, supernatural beings, and punishment. As children enter adolescence stage, the increased social understanding may lead to social and evaluative concerns, which may become the predominant fears in this age group (Barrios & Hartmann, 1997; Costello, Egger, Angold, 2004; Morris & Kratochwill, 1998; Westenberg, Drewes, Goedhart, Sidbelink, & Treffers, 2004). Gender differences indicate that females report significantly higher levels of fears than males and their fears are more intense (American Psychiatric Association, 2004). However, these results and evidence are based on non-disabled children and adolescents and their normal developmental curve. Few studies have examined the characteristics of fears of individuals with

mild mental retardation. Those that have examined the social evaluative fears in this population are even sparser.

Among the few studies that have examined the fears among children and adolescents with mental retardation, Duff et al. (1981) compared fears of adults having mental retardation with those of non-retarded adult controls and children matched with the mental age of adults with mental retardation. Duff et al. found that adults with mental retardation reported significantly more fears and greater intensity of fears than did non-retarded adults, but less overall fear than children without disabilities. The types of fears reported by adults having retardation were found to be similar to those of the matched children, which included fear of thunder, lightning, and being kidnapped.

Knapp, Barrett, Groden, and Groden (1992) studied the nature and prevalence of fears in developmentally disabled children and adolescents 9 to 22 years-of-age. They found that participants with a developmental disability shared seven of the ten most prominent fears reported by those without disabilities in the study conducted by Ollendick et al. (1989). The three fears only reported by participants with developmental disabilities were related to animals, objects, and events that endanger physical well being, whereas the fears only reported by the developmentally non-handicapped group included fears of criticism and failure (Knapp et al., 1992).

Similarly, Vanderberg (1993) pointed out that adolescents with mental retardation exhibited patterns of fears similar to those of younger normal children, and females reported more fears of small animals than boys. Similar age results were reported in studies conducted by Ramirez and Kratochwill (1997) and Ramirez et al. (1998). No social evaluative fears were reported in the aforementioned studies. However, a recent study conducted by Li and Morris (2007) showed that older male students (14-18 years-of-age) with mild mental retardation reported higher levels of social evaluative fears related to failure and criticism than their younger and female counterparts, a result that was not reported in previous studies involving students with mild mental retardation.

Therefore, findings regarding the social evaluative fears in youth with mental retardation were inconsistent. Some studies did not find social evaluative fears a significant concern of youth with mental retardation, while others find age and gender effects on such fears. Another observation was that studies including youth with mental retardation used different terms for this population and some of them did not specify the intelligence level of the participants. Studies with well specified participant information are warranted to examine social evaluative fears of youth with mental retardation. Furthermore, based on the Twenty-Fourth Annual Report to Congress, nearly 613,000 children between 6 and 21 years-of-age in the United States are identified as in need of special education services in the schools due to different levels of mental retardation (*Twenty-Fourth Annual Report to Congress*, U.S. Department of Education, 2002). Of those youth receiving special education services, 87% are classified as having mild mental retardation. Therefore, more studies examining the needs of this population should be conducted to increase the knowledge of individuals who closely work with this population. In this way, educators, mental health professionals, and parents can work more effectively in promoting the emotional, social, and educational growth of students with mild mental retardation, allowing them to become more productive citizens.

To sum up, there were several purposes of this study. First, it was to examine if there would be age and gender effects on social evaluation fears of children and adolescents with mild mental retardation. Second, it was to examine the most common fears related to failure and criticism based on age and gender. Third, best practices in psychoeducational assessment require that "assessment of a child...must be based on a variety of different types of information from different sources (Jacob & Hartshorne, p.94), therefore, this study would look at inter-rater agreement between student self-report, parent report, and teacher report of student fear of failure and criticism. Lastly, this study was to examine if students with mild mental retardation would report similar or different levels of fear of failure and criticism with

students having other special needs, i.e., students with learning disabilities and those with anxiety disorders, using existing results.

## Method

### *Participants*

The participants included 73 students with mild mental retardation in a large city in Southwest United States. This was a subsample of a larger study. Participant age ranged from 7 to 18 years of age ( $Mean = 12.26, SD = 3.43$ ). They were attending self-contained special education classrooms in public schools and their IQ ranged from 51 to 69. These participants were not receiving counseling or other psychological services due to emotional concerns at the time of the data collection. Among the 73 participants, males comprised 58.9% ( $n = 43$ ) of the sample, females 41.1% ( $n = 30$ ). White students comprised 19.6% ( $n = 14$ ) of the sample, Mexican American students 78.1% ( $n = 57$ ), and other ethnicities (e.g., African American, Native American) represented the remaining 2.8% of the sample. In order to examine developmental changes, participants were divided into two age groups, Childhood, 7 to 12 ( $N = 40$ ) and Adolescence, 13 to 18 ( $N = 33$ ). In addition to the student participants, 41 parents and 12 teachers participated in the study. Parents who had received a middle school education in the United States were included in this study. This criterion was created to ensure that parents were able to understand the survey instrument and rate their child properly. Approval from the local institutional review board was obtained, and so were parent and teacher consent and child assent.

### *Assessment Instrument*

Research on the normative developmental course of social evaluation fears has used the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983). FSSC-R has a “fear of failure and criticism” subscale which obtains 23 items concerning a variety of social fears (e.g., looking foolish, failing a test, or being sent to the principal, etc.). The validity of this subscale as a measure of social fearfulness has been supported by various studies demonstrating substantial correlations with assessments of social anxiety (e.g., Muris, Merckelbach, Ollendick, King, & Bogie, 2002). FSSC-R has been used with children having learning disabilities and mental retardation (Li & Morris, 2007; Ramirez et al., 1998; Ramirez & Kratochwill, 1997). Ramirez et al. (1998) indicate that individuals with lower IQs even below 50 are able to understand and respond to this particular instrument. Thus, children and adolescents with mild mental retardation with IQs between 50 and 69 in this particular study should have the ability to understand and respond to the items on FSSC-R. In addition, this survey instrument has the advantages in assessing the cognitive components of fears in individuals with mental retardation (Ollendick et al., 1993). It has pre-established lists of fear stimuli and it is less dependent on expressive communications (Ramirez & Lukenbill, 2007).

*The Fear Survey Schedule for Children-Revised (FSSC-R).* The FSSC-R (Ollendick, 1983) is an 80-item, paper-and-pencil self-report instrument for use with school-aged children and adolescents. Respondents are instructed to consider the things that can make them scared and fearful (e.g., spiders, bears, being teased, being sent to the principal) and to rate their level of discomfort and fear on a 3-point Likert scale (None, Some, and A Lot). Five identified factors have been reported: fear of failure and criticism, fear of the unknown, fear of minor injury and small animals, fear of danger and death, and medical fears (Ollendick, King, & Frary, 1989). This particular study only used the factor of fear of failure and criticism, which assesses social evaluative fears. The score range of this subscale is 1 to 69.

Good reliability and validity have been reported for the scores on the *FSSC-R*. Ollendick (1983) found that scores on the *FSSC-R* possesses high internal consistency ranging from .92 to .95. Internal consistency coefficient with the current sample on the factor of fear of failure and criticism was,  $\alpha = .73$ .

### *Procedure*

Adaptations were made in the administration of the *FSSC-R* to accommodate the special needs of the student participants. In administering the instrument, each item or question was read out loud to the students in a small group format (2 to 3 students). A picture system, indicating “None,” “Some,” and “A Lot”, was used to help students understand each item choose the best answer. This administration procedure was consistent with procedural modifications reported by Matson, Manikam, Heinze, and Kapperman (1986) and Ramirez and Kratochwill (1990). In addition, children’s comprehension of the questions and level of attention and fatigue were monitored at each assessment session. Parents and teachers individually completed the instrument on their child or student.

### Results

A 2 (Age: Childhood, 7 to 12; Adolescence, 13 to 18) x 2 (Gender: Male, Female) analysis of variance (ANOVA) was applied to investigate if age and gender had significant main effects and interaction effects on the fear of failure and criticism. Results showed a statistically significant main effect of age on fear of failure and criticism,  $F(1, 72) = 22.70, p < .000$ , Cohen’s  $d = 1.17$ ; and a statistically significant main effect of gender,  $F(1, 72) = 4.19, p < .05$ . Cohen’s  $d = .44$ . Specifically, adolescents reported significantly higher levels of fear of failure and criticism ( $M = 41.52, SD = 9.42$ ) than their younger counterparts ( $M = 30.98, SD = 8.56$ ), and males ( $M = 37.56, SD = 10.92$ ) reported significantly higher levels of fear of failure and criticism than did females ( $M = 33.13, SD = 9.01$ ). No statistically significant Age x Gender interaction effects were found ( $p > .05$ ).

### *Most Common Fears*

The most common fears were measured by the scores at the item level of the 23 items measuring fear of failure and criticism. Common fears were defined as the top five fears rated “A Lot” by student self report. The most common fears were compared between younger students (Childhood) and older students (Adolescence), and between male and female students (see Table 1 and Table 2, respectively).

When contrasting the most common fears in two age groups, the following results were found. Younger children with mild mental retardation reported the following five most common fears: getting punished by mother, having my parents argue, being sent to the principal, my parents criticizing me, and having to eat something I don’t like. Adolescents with mild mental retardation reported the following most common fears: giving an oral report, taking a test, having to put on a recital, being sent to the principal, meeting someone for the first time, being teased, and getting poor grades. The last three items were ranked at the same level, so they were included in the list. Males with mild mental retardation reported the following five most common fears: giving an oral report, getting punished by mother, being sent to the principal, failing a test, and getting punished by father. Girls reported the following five most common fears: giving an oral report, having my parents argue, meeting someone for the first time, being teased, and my parents criticizing me.

Table 1: *Most Common Fears of Failure and Criticism by Age (percentage of endorsement)*

Rank	Childhood: Endorsement percentage and number of endorsements	Adolescence: Endorsement percentage and number of endorsements
1	Getting punished by mother (30%)	Giving an oral report (48.5%)
2	Having my parents argue (25%)	Taking a test (39.4%)
3	Being sent to the principal	Having to put on a recital Being sent to the principal (36.4%)*
4	My parents criticizing me Having to eat something I don't like (20%)*	
5		Meeting someone for the first time Being teased Getting poor grades (33.3%)*

Note: \* indicates two items are ranked at the same level

Table 2: *Most Common Fears of Failure and Criticism by Gender (percentage of endorsement)*

Rank	Male: Endorsement percentage and number of endorsements	Female: Endorsement percentage and number of endorsements
1	Giving an oral report Getting punished by mother Being sent to the principal (32.6%)	Giving an oral report (33.3%)
2		Having my parents argue (30%)
3		Meeting someone for the first time Being teased My parents criticizing me (26.7%)
4	Failing a test Getting punished by father (32.2%)	
5		

Note: \* indicates two items are ranked at the same level

### *Agreement for Student-Parent, Student-Teacher, and Parent-Teacher Ratings*

It was important to evaluate the level of agreement between different pairs of raters. Pearson product moment correlations were calculated for the scores of student fear of failure and criticism from student self report, parent ratings, and teacher ratings. No statistically significant Pearson correlations ( $p > .05$ ) were found between any of the three pairs of raters: student versus parent, student versus teacher, and parent versus teacher.

### *Comparison of Mean Differences*

Mean scores of fear of failure and criticism were compared between students with mild mental retardation and students with learning disabilities (LD) and those with anxiety disorders. The results of students with LD and anxiety disorders were from previous studies using FSSC-R (Li & Morris, 2007; Weems, Silverman, Saavedra, Pina, & Lumpkin, 1999). One sample t-tests were computed for all comparisons. The mean score of the participants with mild mental retardation was 35.74, and those for students with LD and anxiety disorders were 36.93 and 35.79, respectively (Li & Morris, 2007; Weems, Silverman, Saavedra, Pina, & Lumpkin, 1999). No statistically significant differences in the levels of fear of failure and criticism were found between students with mild mental retardation, LD, or anxiety disorders,  $t = -.98 (1, 73), p > .05$ ;  $t = -.98 (1, 73), p > .05$ ; and  $t = .45 (1, 73), p > .05$ , respectively. The results indicated that the three groups of students reported similar levels of fear of failure and criticism.

### Discussion and Implications

This study examined the social evaluative fears of youth with mild mental retardation. It also looked at the most common fears and inter-rater agreement between different informants. In addition, using existing results, this study compared mean differences between youth with mild mental retardation and individuals with other special needs. Similar to the results of some previous studies (e.g., Li and Morris, 2007), the findings of this study indicated that adolescents (13-18 years of age) with mild mental retardation reported significantly higher levels of fear of failure and criticism than their younger peers. This finding suggested that developmental differences of social evaluative fears were also evident in students with mild mental retardation. Specifically, when students with mental retardation get to the adolescence stage, like many of their non-disabled peers, they may develop social evaluative fears and such fears increase as they grow. This finding is worth noting in that adolescents with mild mental retardation may be able to comprehend their environment and social cues better than is expected of them. As indicated earlier, many adolescents with mild mental retardation understand the concept of loneliness and report feeling lonely at school. It seems that they also understand the concept of failure and criticism or derision. Their lack of cognitive ability to prevent and overcome failure and avoid criticism may heighten their social evaluative fears (Ollendick, Oswald, and Ollendick, 1993).

Another result from this study that warrants attention is that male students in general reported significantly higher levels of fear of failure and criticism than their female counterparts. One possible postulation is that this result may be characteristic of this study because over 78% of the participants were Mexican-American. Recent Mexican-American immigrant students have stricter "gender-role" stereotypes than the overall American students (e.g., Sue & Sue, 2008). In many cases, Mexican American males shoulder higher expectations from parents and other people around them. However, they may feel a sense of failure when they cannot live up to the social expectations due to their cognitive deficits.

In terms of the most common fears at the item level, most participants rated giving an oral report as their top fear. In addition, most participants rated getting punished or criticized by parents as their

common fears. A careful examination of the most common fears by age shows that both the Childhood (7 to 12 years of age) and the Adolescent (13 to 18 years of age) groups reported being sent to the principal as their third top fear. However, the others fears of the two groups were quite different. The most common fears of the younger group were more related to parental conflict and being punished and criticized by parents, e.g., getting punished by mother (top fear), having my parents argue, and my parents criticizing me. Nevertheless, the adolescent group was more fearful of performance at school and public settings, e.g., giving an oral report (top fear), taking a test, having to put on a recital, being teased, and getting poor grades. When contrasting the most common fears between male and female students with mild mental retardation, it was found that both groups rated giving an oral report as their top fear. The fears that were unique to males included getting punished by mother, being sent to the principal, failing a test, and getting punished by father. Fears that were only reported by girls included having my parents argue, meeting someone for the first time, being teased, and my parents criticizing me. This finding reveals the many students with mental retardation care a lot about their school performances, and they are also bothered by parental conflict and punishment from parents.

Previous cross-informant studies of internalizing issues like fears and anxieties show that the level of agreement among raters tends to be low (Li & Prevatt, 2007; Sarphare & Aman, 1996). Consistent with the findings reported by Sarphare and Aman (1996), low inter-rater agreement, or no agreement to be exact, was observed on the scores of fear of failure and criticism in this study between student self report, parent ratings, and teacher ratings. One reason can be that children and adolescents behave differently in different settings. Another reason is that abstract fears are not so easily noticed. This finding underscores the significance of gathering information from multiple informants when psychoeducational assessment is conducted.

Children and adolescents with mild mental retardation in this study reported similar levels of fear of failure and criticism to those with other special needs. This result suggests that social evaluative fears are not only experienced by individuals with learning difficulties and emotional disturbances, and individuals with no disabilities. Children and adolescents with mild cognitive delays may also be sensitive to how other people treat them, and they may also long for success in their academic performance and daily life events. Educators and parents should be aware of the challenges and needs of these individuals and provide opportunities for them to experience success. Positive reinforcement strategies in the education process rather than criticism and negative reinforcement techniques should be implemented when working with this population. Research also suggests that these students learn better through collaborative learning techniques, acceptance and appreciation of student language use, and presentation of challenging materials related to their student interests (e.g., Losey, 1995).

One limitation of this study is that the sample size was comparatively small. Future studies with larger sample size should be conducted to confirm the findings of this current study.

In summary, the present study adds to the literature on a population that has not been extensively evaluated. Fears and related anxieties can have a significant impact on the academic and emotional development of school aged children and youth with mental retardation, whose cognitive deficits tend to lead to failure experiences in their academic and social performances at both school and home settings. The most common social evaluative fears of youth with mild mental retardation are informative to teachers, psychologists, and parents in that they may need to adjust their teaching and parenting techniques in order to for these children and adolescents to learn more efficiently and feel more accepted. This study also reinforces the need for better communication between parents and teachers (Li & Prevatt, 2001). Parents and teachers have very limited ability to agree on areas that worry or concern their children/students. Parents and teachers may be more observant of their children and students with mild mental retardation so that they can be aware of important information that could help them to better respond to the needs of their child and students.

## References

- Al-Yagon, M., & Mikulincer, M. (2004). Patterns of close relationships and socio-emotional and academic adjustment among school-age children with learning disabilities. *Learning Disabilities Research & Practice, 19*, 12-19.
- American Psychiatric Association (2004). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed.). Washington, DC: Author.
- Barrios, B. A., & Hartmann, D. P. (1997). Fears and anxieties. In E. J. Mash, & L. G. Terdal (Eds.), *Assessment of childhood disorders* (pp.230-237). New York: The Guilford Press.
- Costa, N. M., & Weems, C. F. (2005). Developmental differences in the expression of childhood anxiety symptoms and fears. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 656-663.
- Costello, E. J., Egger, H. L., & Angold, A. (2004). Developmental epidemiology of anxiety disorders. In T. H., Ollendick & J. S. March (eds.), *Phobic and anxiety disorders in children and adolescents: A clinician's guide to effective psychosocial and pharmacological interventions* (pp.61-91). New York: Oxford University Press.
- Duff, R., La Rocca, J., Lizzet, A., Martin, P., Pearce, L., Williams, M., & Peck, C. (1981). A comparison of the fears of mildly retarded adults with children of their mental age and chronological age matched controls. *Journal of Behavioral Therapy and Experimental Psychiatry, 12*, 121-124.
- Gresham, F. M., & MacMillan, D. L. (1997). Social competence and affective characteristics of students with mild disabilities. *Review of Educational Research, 67*, 376-415
- Gullone, E., & King, N. J. (1997). Three-year follow-up of normal fear in children and adolescents aged 7 to 18 years. *British Journal of Developmental Psychology, 15*, 97-111.
- Knapp, L. G., Barrett, R. P., Groden, G., & Groden, J. (1992). The nature and prevalence of fears in developmentally disabled children and adolescents: A preliminary investigation. *Journal of Developmental and Physical Disabilities, 4*, 195-203.
- Jacob, S., & Hartshorne, T. S. (2007). *Ethics and law for school psychologists*. John Wiley & Sons, Inc.
- Li, H., & Morris, R. (2007). Fears and related anxieties in children with learning disabilities and mild mental retardation. *Journal of Research in Developmental Disabilities, 28*, 445-457.
- Li, H., & Prevatt, F. (2007). Fears and related anxieties across three age groups of Mexican American and White children with disabilities. *The Journal of Genetic Psychology, 168*, 381-400.
- Losey, K. M. (1995). Mexican American students and classroom interaction: An overview and Critique. *Review of Educational Research, 65*, 283-318.

- MacMillan, D. L., & Morrison, G. (1984). Sociometric research in special education. In R. Jones (Ed.), *Attitude and attitude change in special education* (pp.93-117). Reston, VA: Council for Exceptional Children.
- Matson, J. L., Manikam, R., Heinze, A., & Kapperman, G. (1986). Anxiety in visually handicapped children and youth. *Journal of Clinical Child psychology, 15*, 356-359.
- Morris, R. J., & Kratochwill, T. R. (1998). Childhood fears and phobias. In R. J. Morris, & T. R. Kratochwill (Eds.), *The practice of child therapy* (3<sup>rd</sup> ed., pp. 91-131). Boston: MA: Allyn and Bacon.
- Muris, P., Merckelbach, H., Ollendick, T. H., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety questionnaires: Their reliability and validity in a normal adolescent sample. *Behaviour Research & Therapy, 40*, 753-772.
- Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behavioral Research Therapy, 21*, 685-692.
- Ollendick, T. H., King, N. J., & Fray, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age and nationality. *Behaviour Research & Therapy, 27*, 19-26.
- Ollendick, T. H., Oswald, D. P., & Ollendick, D. (1993). Anxiety disorders in mentally retarded persons. In J. L. Matson, & R. P. Barrett (Eds.), *Psychopathology in the mentally retarded* (pp.41-85). New York: Allyn & Bacon.
- Ramirez, S., Z., & Kratochwill, T. R. (1990). Development of the Fear Survey for Children with and Without Mental Retardation (FSCMR). *Behavioral Assessment, 12*, 457-470.
- Ramirez, S., Z., & Kratochwill, T. R. (1997). Self-reported fears in children with and without mental retardation. *Mental Retardation, 35*, 83-92.
- Ramirez, S. Z., & Lukenbill, J. F. (2007). Development of the fear survey for adults with mental Retardation. *Research in Developmental Disabilities, 28*, 225-237.
- Ramirez, S. Z., Nguyen, T., & Kratochwill, T. R. (1998). Self-reported fears in Hispanic youth with mental retardation: A preliminary study. *Mental Retardation, 36*, 145-156.
- Sarphare, C., & Aman, M. G. (1996). Parent- and self-ratings of anxiety in children with mental retardation: Agreement levels and test-retest reliability, *Research in Developmental Disabilities, 17*, 27-39.
- Sue, D.W. & Sue, D. (2008). *Counseling the culturally diverse: Theory and practice*. (5th Edition). New York, NY: Wiley.
- Twenty-Fourth Annual Report to Congress, U.S. Department of Education, (2002). Retrieved May 10, 2005 from <http://www.ed.gov/about/reports/annual/osep/2002/index.html>
- Vandenberg, B. (1993). Fears of normal and retarded children. *Psychological Reports, 72*, 473-474.

- Warren, S. L., & Sroufe, L. A. (2004). Developmental issues. In T. H. Ollendick & J. S. March (eds.), *Phobic and anxiety disorders in children and adolescents: A clinician's guide to effective psychosocial and pharmacological interventions* (pp 92-115). New York: Oxford University Press.
- Weems, C. F., Silverman, W. K., Saavedra, L. M., Pina, A. A., & Lumpkin, P. W. (1999). The discrimination of children's phobias using the Revised Fear Survey Schedule for Children. *Journal of Child Psychology and Psychiatry*, 40, 941-952.
- Westenberg, P.M., Drewes, M. J., Goedhart, A. W., Sidbelink, B. M., & Treffers, A. (2004). A developmental analysis of self-reported fears in late childhood through mid-adolescence: Social-evaluative fears on the rise? *Journal of Child Psychology and Psychiatry*, 45, 481-495.
- Williams, G., & Asher, S. (1992). Assessment of loneliness at school among children with mild mental retardation. *American Journal on Mental Retardation*, 96, 387-385.

### Author Contact Information

Huijun Li, Ph.D.  
307 Stone Building  
Program of Psychological Services in Education  
Department of Educational Psychology and Learning Systems  
College of Education  
Tallahassee, FL 32306-4453  
Voice Mail: (850) 644-3064  
Fax (850) 644-8776  
Email: hli@coe.fsu.edu

Michael Bridgewater, Ph.D.  
Private Practice  
1701 River Run, Suite 310  
Ft. Worth, TX 76107  
Voice Mail: (817)334-0011  
Email: michael.j.bridgewater@us.army.mil

Qian Liu, M.A.  
307 Stone Building  
Program of Psychological Services in Education  
Department of Educational Psychology and Learning Systems  
College of Education  
Tallahassee, FL 32306-4453  
Voice (850) 644-3064 Fax (850) 644-8776  
Email: ql03@fsu.edu

## Behavioral Models of Depression: A Critique of the Emphasis on Positive Reinforcement

*Paulo Roberto Abreu & Carlos E. Santos*

### Abstract

This paper provides a review of behavioral models of depression highlighting the problems associated with its historical emphasis on lowered frequencies of positive reinforcement. We analyzed the models of Ferster and Lewinsohn in their theoretical approach, methodology and application. We conducted a review of the suppressive characteristics exercised by punishment, by the presentation of non-contingent aversive stimulation and by operant extinction. A number of recommendations are made concerning how these processes can inform interventions. We conclude that interventions geared towards identifying aversive control play a promising role in clinical change in the treatment of depression.

Keywords: Aversive Control, Response-Contingent Positive Reinforcement, Depression, Clinical Behavior Analysis, Functional Assessment, Behavioral Activation.

---

The present article aims to revisit the principles of behavioral models of depression by emphasizing advancements in the field, as well as providing a critique of the dominant models. With this goal in mind, we aim to re-direct the conceptual analysis towards an understanding of the environmental variables frequently observed in the behaviors of depressed individuals. Drawing from the existing literature, we propose possible variables associated with behavioral suppression and its mechanisms during the development and course of depressive behavior repertoires. Three particular behavioral processes are considered: (1) suppressive characteristics exercised by punishment, (2) the presentation of non-contingent aversive stimulation, and (3) operant extinction. We begin with a discussion of the dominant models of depression, followed by a critique, and we conclude with a discussion of how each of these processes can inform clinical interventions.

### *Models of depression*

Behavioral analysis, in addition to advocating for a pragmatic approach to control and prediction of behavior (Skinner 1974/1976), is concerned with promoting an understanding of clinical phenomenon in order to create effective interventions. With this goal in mind, behavioral analysis has studied depression for decades, describing this type of behavioral phenomena along contextual and behavioral lines. In order to understand behavioral variations observed in depressed clients, it is necessary to understand the variables responsible as cause and maintenance of the feelings of dysphoria present throughout the history of the individual. This process can be reached by identifying the “depressive” contingencies, which involves identifying the antecedent events and consequences of the depressive behaviors of interest. Taken together, the problem behaviors, the antecedent and consequential events form the unit of analysis referred to as “triple contingency” (Skinner, 1953/1965). Behavioral analysis focuses on the application of this analytical tool in order to understand the context in which depressive repertoires are taking place. This perspective offers possibilities of clinical interventions. Examples of interventions afforded by this perspective can be found today in various private and public practice settings.

Given this emphasis on a contextualized understanding of the problems associated with depressive behaviors (Jacobson, 1997; Hayes, Hayes, & Reese, 1998), the study of depression gained momentum with the publication of a 1973 article written by Charles Ferster and published in the

*American Psychologist*. Ferster (1973) proposed a functional analysis of depressive behaviors building on the cumulative knowledge reached by previous base studies (Ferster, 1967; Ferster, Culbertson, & Boren, 1968; Ferster & Skinner, 1957/1997). Functional analysis, in this context, refers to how certain contextual factors in the environment of the individual influences behaviors. The functional analysis model proposed by Ferster has influenced the work of many practitioners and researchers today; however, research on the efficacy of this model lacked rigorous evaluation and interventions to validate Ferster's theoretical contribution (Kanter, Callaghan, Landes, Busch, & Brown, 2004). This lack of empirical work was later addressed by the work of Peter Lewinsohn. Lewinsohn adopted most of Ferster's model while also adding significant findings through his own research (Blaney, 1980, Lewinsohn, Biglan, & Zeiss, 1976). Ferster's conceptual analysis, coupled by the empirical work done by Lewinsohn, provided the initial basis of applied studies in depression, laying the foundation for the development of modern behavioral analytic treatment.

Ferster (1973) stated that certain characteristics of the depressed person such as excessive crying, irritability and self-criticism is associated with the loss of other types of activities. The variables that are influencing this type of repertory are lowered frequency of positive reinforcement and the increase of negative reinforcement (Ferster, 1973). Positive reinforcement occurs through events that heighten the frequency of behaviors observed in non-depressed individuals, such as behaviors associated with the experience of having a positive and fulfilling relationship with a significant other, feeling productive at work or relating to friends, among others. Negative reinforcement, on the other hand, refers to a heightening of the frequency of avoidance or escaping behaviors associated with an aversive stimulation. Avoidance behaviors are evidenced, for instance, in a situation where a depressed worker avoids tenuously being face to face with his or her boss. The avoidance of a potential conflict can maintain the non-resolution of the problem and with it perpetuate the suffering. Escape behaviors occur when a depressed individual escapes undesirable situations, such as by abandoning responsibilities at work and at home, or even in everyday situations when an individual finds excuses to isolate him or herself from being in the presence of friends.

Hypotheses have been proposed concerning the determinants of lowered frequency of positive reinforcement. These include sudden changes in the environment of the depressed individual. Sudden changes offer life circumstances similar to contingencies of schedules of reinforcement in high-fixed ratios. When the effort necessary for the production of reinforcement is too high, there are pauses among reinforcements. This effect is known in the literature as abulia. Sudden changes in the environment are noticeable in situations where the individual moves out of his or her residency to a setting where they no longer possess a social network that can operate as a source of positive reinforcement. A high response cost can be observed in professional situations in which the employee is required to work beyond normal expectations. When a task is complete, there is a slowed response to the next task. If the work constitutes an inevitable high effort, then it becomes likely to identify abulia. Overtime pay or additional benefits provided by corporations are good examples of companies attempting to exert influence over this type of intense effort.

Lewinsohn's model was similar to Ferster's in that it recognized that feelings of dysphoria of a depressive person would be the result of a reduction of the positively reinforced behaviors. The author coined the term response-contingent positive reinforcement to refer with greater emphasis to this singular characteristic of the repertory of the depressed (Lewinsohn et al., 1976). According to Lewinsohn and colleagues (1976), there are three ways to explain the low rates of response-contingent positive responses. One would be a loss of reinforcement effectiveness of events which formerly used to serve as positive reinforcers. Another might be that a change in the individual's environment could cause the former reinforcer to no longer be available. Third, the reinforcer might still be available in the environment however, the individual may no longer have the ability to access it.

Lewinsohn elaborated on these explanations further when proposing a structured treatment for depression. The treatment's main goal would be to re-establish the rate of response-contingent positive reinforcement to an adequate level. In order to make this happen, it would be necessary to change the

frequency, quality and quantity of pleasure activities and social interactions of the individual. The primary technique used in the evaluation and intervention towards this end are scales that attempt to characterize and measure the symptoms, focusing on the interpersonal behavioral patterns of the individual, social skills training and the use of the Pleasant Events Schedule, which is focused on proposing pleasurable activities. Perhaps its greatest contribution was the creation of the Pleasant Events Schedule (MacPhillamy & Lewinsohn, 1982). The Schedule involves asking the individual to choose 160 options of pleasurable events among a list of 320 pleasurable events that are previously listed. Depressed individuals generally present very brief lists of pleasurable activities; hence the use of an extensive list with predetermined pleasurable activities. Once made, the choices are organized on a 3-point scale. The individual is also asked to record daily the activities that were attempted (by checking them off) and to note an adjective describing the corresponding mood when the event took place (Lubin, 1965). Following 30 days of doing this, 10 activities that are significantly associated with changes in mood are chosen for further exploration.

Therefore, the Lewinsohn therapy became synonymous of behavior treatment for depression (Shaw, 1977). Consequently, a number of researches have been conducted on components of the proposed intervention. Some studies suggest that simply raising the number of positive reinforced activities would not be enough for the treatment of depression. Two studies conducted showed no significant change of depressive behavior among the group of subjects instructed to use the Pleasant Events Schedules in comparison to control groups (Dobson & Joffe, 1986; Hammen & Glass, 1975).

What are potential variables that could affect the lack of significant findings in the Pleasant Events Schedule studies discussed above? The phenomenon in question is often observed in the clinic setting among clients who reproduce depressive behaviors despite having a schedule full of “pleasure” events (Martell, Addis, & Jacobson, 2001). A careful investigation may reveal that their behavior repertoires may be controlled by aversive stimulation rather than by positive reinforcement, as one might assume. From a behavior-analytic perspective, some authors have argued that it is important to evaluate the consequences of behaviors using as reference the ideographical character of each subject rather than determining arbitrarily the environmental consequences at the expense of a more accurate contingential analysis (Martell et al., 2001).

The common factor present in Ferster and Lewinsohn’s model in determining depression would be a reduction in the frequency of positively reinforced behaviors. It is important to note that stimulus that reinforces positively a class of responses also present an eliciting function of determined responses that can lead a layperson to conclude that a certain stimulus is a reinforcer because it reinforces certain behaviors – meaning that it is a reinforcer because it has properties that elicit body responses considered “pleasant”. The stimuli reinforced is considered “good”; however, “good” is a verbal reinforcer utilized in the transmission of cultural practices (Skinner, 1981/1984).

With regards to reinforcement circularity in the assertions set forth by Skinner (1953/1968), positive reinforcement can not only heighten the frequency of behaviors reinforced as such in the past, but can also elicit responses considered “pleasant” and therefore act as antidepressants. Skinner (1989) states that:

“One feels good who feels a body which has been positively reinforced. What is felt in that way is an apparently strong probability of action and a freedom from aversive stimuli. We are ‘eager’ to do things which have had reinforcing consequences and feel ‘better’ in a world in which we do not have to do unpleasant things. We say that we are enjoying life or that life is good. We have no complaints because complaining is a kind of negatively reinforced behavior and there are no negative reinforcers” (p. 83).

In the quote above, Skinner frames this discussion of positive reinforcements; however, the antidepressive effects of positive reinforcement are difficult to isolate and analyze in randomized studies involving clinical populations. Some studies on depression conducted with animals have shown some findings supporting Skinner’s assertions. The uncontrollable learned helplessness model (discussed later

in this chapter) shows that previous exposure to positive reinforcement prevents helplessness in rats after being exposed to uncontrollable aversive events (Hunziker & Lima, 2006; Hunziker, Manfré, & Yamada, 2006). Added to this, there is evidence that treatment with positive reinforcement after experience of uncontrollable shocks can revert helplessness (Hunziker, 2005).

Thus, it is important to consider the latter given the history of behavioral therapy. In prioritizing the increase of pleasant activities through contingencies of positive reinforcement, Lewinsohn's intervention model (Lewinsohn & Libet, 1972; Lewinsohn et al., 1976) seems to have achieved partial success: but not all depressed individuals have the same susceptibility to positive reinforcers as they used to have before becoming depressed. Other responses occurring through aversive stimulation may be competing with the emission of positively reinforced behaviors. Lewinsohn's therapy did not adequately consider the coping mechanisms necessary to modify a person's mood. The problem did not begin with the application, but rather in the theoretical conception laid out by Lewinsohn and his colleagues.

Moreover, aversive stimuli are utilized in the control of behavior due to its rapid ability of suppressing undesirable behaviors. Cultures normally possess aversive forms of social control that impede the emission of positively reinforced behaviors (Sidman, 1989). As a result, the use of aversive control leads to the emergence of any behavior that may have freed the individual of a similar aversive stimulus in the past. For instance, avoidance behaviors are frequently associated with the maintenance of problem behaviors in psychiatric pathologies, as in modeling of compulsive behaviors under contingency of negative reinforcement observed in patients who are obsessive-compulsive (Abreu & Prada, 2004/2005).

Ferster (1973), in fact, expresses doubt concerning the generalized effect of behavior practices among the depressed: is depression occurring due to the absence of positive reinforced behaviors, or is aversive behavior impeding its emission? This leads to the question of whether depressive behaviors are influenced by aversive events.

In 2001, Jacobson and colleagues (Martell et al., 2001) released a handbook on behavior analysis with a new proposal for the treatment of depression called Behavioral Activation (BA). The handbook criticized the protocol of Lewinsohn's treatment pointing out that only increasing the number of "pleasant" activities would not be enough because it would be necessary to understand the context in which the behavior is being enacted. According to the authors, "the assumption that any activity will enable a client to contact positive reinforcement in the environment is never made until a change in mood or behavior is seen" (Martell et al. 2001, p. 37). Like other behavioral analysts, they point out that "depression results from problems in the individual's interaction with the environment that result in the individual not engaging in behaviors that will be positively reinforced and that would allow that individual to exert control over [his or] her environment" (Martell et al. 2001, p. 26). The central philosophy of Behavioral Activation would be to promote coping of aversive situations, what would arguably lead to solving the problems and with it the promotion of positive reinforcement. The therapist would have to try to map which contingencies would be maintaining the depressive behaviors of the client and attempt to change them.

The Jacobson and colleagues therapy (Coffman, Martell, Gallop, Dimidjian, & Hollon, 2007; Dimidjian et al., 2006; Martell et al., 2001) brought back the functional character of the contingential analysis forgotten in the cognitive approach (Beck, Rush, Shaw, & Emory, 1979). Their approach brought back Ferster's model (1973), highlighting the importance of the contingencies of avoidance and escape behaviors, as well as complaining, among others, observed in the depressive client. The BA therapy highlights that these behaviors would be negatively reinforced and would inhibit positively reinforced behaviors from being emitted. Therefore, facing the aversive situations would be primordial in solving depressive behaviors.

Existing evidence suggests the need to change the focus of the investigation from the deficit of positive reinforcement to a focus on the contingencies which impede the emission of positively reinforced

responses (Abreu, 2006). Ferster (1973) pointed out that the identification of all processes responsible for the decrease in positively reinforced responses would have to consider the influence of the physical and social environment of the individual. A contextualized understanding of the relationship between aversive control and depressive behaviors would allow for the creation of more effective therapies in clinical behavior analysis.

### *Punishment*

Punishment consists of an aversive stimulus applied after the emission of a given behavior (Ferster et al., 1968). Punishment is a technique of control in which the punisher or punishing institution tries to eliminate behaviors that are judged inadequate. Excessive punishment can be observed in the environment of depressed individuals in family and conjugal relationships, in institutional settings such as work, prisons, military, etc... and thus it can be observed in various types of social interactions. For example, a punishment may consist of a mother trying to eliminate a son's complaining by use of physical aggression. Positive reinforcement establishes one's tendency to behave in a certain way while punishment is concerned with ending it (Skinner 1953/1968).

The practical value that individuals observe in the use of punishment by leading another individual to behave in a certain way reinforces this type of behavior because of the suppressive characteristics of this operation. The three punishment effects, according to Skinner (1953/1968), would be (1) the eliciting of incompatible respondents (or suppressive effect), (2) the establishment of behaviors consistently punished as a new source of conditioned aversive stimulation, and (3) the selection of any avoidance and escape operant which suspends such aversive stimulation. With regards to punishment, whether presenting an aversive stimulus contingent to a certain operant (punishment type I) or withdrawing a positive reinforcer (punishment type II), what is commonly noted is the eliciting of emotional responses normally incompatible with the punished operant, and that is why it interferes with its emission (Ferster et al., 1968). The same happens with correlates of these operations such as the presence of or removal of conditioned aversive stimulus.

Parents who raise their children using physical punishment may be eliminating the punished behaviors from the children's behavioral repertory; however, they may also restrict positively reinforced responses. Many studies have shown a positive relationship between physical punishment and depression, over and above the effects of other behavioral problems (Backar, Canetti, Bonne, Denour, & Shalev, 1997; Frias & Armenta, 2002; Good, 1999; Matta, 2002; Spencer, 1999; Straus & Kantor, 1994; Turner & Finkelhor, 1996). But according to Ferster and colleagues (1968) the efficient punishment in this kind of practice may be the suspension of attention given to the child by the parent who punishes him or her constantly – a finding which highlights the importance of understanding punishment type II. Other examples can be seen in punishments type I and II observed in coercive job characteristic of modern societies. The demand for productivity at any price, the disqualification or lack of recognition of reached goals, the lack of salaries and benefits, longer work days, among other things, may also present contingencies which contribute to the development of depressive repertoires.

Frequently, the unpredictability of punishment occurs only in the first presentation of aversive stimulus because its recurrence allows other stimulus existent in the environment to be associated with it. In this context, another operation of emotional suppression of response is observed in the association of a neutral stimulus temporally preceding the presentation of an unconditioned aversive stimulus (Estes & Skinner, 1941). If this association S-S occurs, not having the possibility of escape from the immediate presentation of the unconditioned stimulus (US), the neutral stimulus will start to present the same eliciting characteristics of the original stimulus (CS). The group of reflexes elicited during the time-interval between the presentation of the CS and US was called anxiety (Skinner, 1953/1965).

Normally, a high comorbidity between anxiety and depression can be observed, a fact which seems to be the rule rather than the exception in the elaboration of psychiatric diagnoses (Barlow, 2002).

Facing this clinical phenomenon, Barlow, Allen and Choate (2004) proposed a combination of anxiety and depression diagnosis in a wide nosologic category.

It is important to point out that the emotional responses related to anxiety have suppressive effects more pronounced than the suppressive effects present in punishment that is not signaled: its effect is more generalized because it does not restrict itself to the punished operant and the circumstances in which the punishment happened. They extend differently by generalizing any other operant which is being emitted, as well as other environments which present physical similarities with the original environment (Appel, 1969). Added to this, the creation of classes of equivalent stimulus could be promoting the transfer of the CS function to other controlling stimulus (Dougher, Augustson, Markham, & Greenway, 1994). The operants positively reinforced in course could be disorganized in their emission and could be completely eliminated from the individual's repertory depending on the intensity, the frequency in the aversive stimulus' presentation (CS and US), and the contiguity with the target operant (Ferster et al., 1968). Estes and Skinner (1941) called the emotional effect incompatible with the operant behavior "conditioned suppression."

In the signaled punishment, while the operant repertory frequency decreases given the effects of conditioned suppression, there is a raise in the frequency of other operants which avoid the appearance of CS as well as US. Avoidance behaviors raise in frequency because they are negatively reinforced with the suspension of CS or US. Avoidance behaviors in depression can be observed in two distinct periods. First, during the installation of the depressive repertory (condition I), the individual receives punishment in his or her environment contingent to many response classes. In this context, an increase in avoidance behavior that is negatively reinforced is likely to occur if punishment is not present. For example, an individual who works long daily hours in a punishing environment, facing the CS related to going to work, may miss a couple of days or arrive late finding excuses to justify his or her absence. This way the individual is avoiding the CS punishment (when paired CS-US or CS-CS) and/or US normally present in his or her work environment. Another way avoidance can happen would be after the installation of a depressive repertory (condition II). An increase in avoidance frequency is frequently observed in clients, contributing to the maintenance of behavioral problems (Ferster, 1973). The avoidance could be evidenced, for instance, in situations when the individual reports sleeping in excess. Excessive sleeping may prevent the individual from contacting the CS related to solving problems, or from thoughts or aversive subject, or even, from doing a tedious or extremely challenging job (Martell et al., 2001).

Soon, some observations related to signaled punishments and non-signalized can be formulated. First, since *non-signalized punishments* are contingent procedures to an operant that was previously positively reinforced, they allow the formation of relations R-S by the organism – a fact which causes emotional effects to have suppressive effects (Appel, 1969). The suppressive effects are temporary, that is, the behaviors are only eliminated when there is immediate contingent presentation of the aversive stimulus or the suspension of positive reinforcement (Skinner, 1953/1968). When punishment is ceased, suppressed behaviors tend to return to baseline levels (Catania, 1998). Moreover, since punishment depends largely on the behavior of the person who controls it, it is probable that it will occur intermittently as punished behavior becomes rare (Skinner, 1953/1968). With regards to the *signaled punishments*, avoidance in the context of problem behavior can be effective since it may become present for an extended period of time and may turn the *disorganizing* or *suppressive* effect of operants that are positively reinforced to be less accentuated (Ferster et al., 1968). In this case, the CS would gradually lose the propensity of eliciting conditioned responses since it is no longer being paired with the US. The consequence of an avoidance-type response is that the aversive response is avoided effectively (Catania, 1998). Normally, under these conditions, the individual lowers the frequency of emission of avoidance behaviors, making it possible for the US to present itself again. As such, the association S-S becomes re-established, and with it the effectiveness of the negatively reinforced avoidance behaviors (Skinner 1953/1968).

Given this, it is hypothesized that the probability of developing depression if punishment occurs is relatively smaller compared to other procedures of aversive control because the positively reinforced

behaviors continue to be emitted – even if in lower frequencies. It is possible that certain operations allow for the development of other problems present in the medical nosology (e.g., anxiety disorders) before the development of depression.

#### *Loss of effectiveness of operant behavior*

There is another procedure of aversive stimulation which requires particular attention. According to Hunziker (2003) behavior analysis has studied operants and its direct correlation with modification consequences caused in the environment. This line of research has highlighted the effects of the presentation and suspension of aversive stimulus as a consequence of the operant performance. And leads to the following questions: what is the role of the aversive stimulus presentation not contingent to any operant? And would they also influence the learning and emission of positively reinforced behaviors?

Provided that learning is a cumulative process – previous learning interferes with the acquisition of new ones, it would be expected that the uncontrollability of aversive stimulus would interfere with the learning of new responses (Hunziker & Santos, 2007). Seligman & Maier (1967) created an experimental procedure with three distinct groups of dogs to investigate the effects of the presentation of uncontrolled shocks in the animal's learning. Two dogs were submitted to electric shocks while a third was placed in a control group and was not administered shocks. The ability to control the shocks was granted to one of the groups in which the dogs were able to suspend the shocks by pressing the board with its nose. The responses of the second group did not have any programmed consequence. When the first dog pressed the board, besides suspending its own shock, it also suspended the shock of the second dog. Twenty-four hours after the treatment with shocks, the dogs were submitted to an escape response test. The results showed that the animals previously treated with controllable shocks were able to emit an escape response, and so were the animals exposed to the experimental control group. Both groups emitted the escape response that was negatively reinforced with lowered latency and greater probability. The animals submitted to shock uncontrollability did not emit the escape behavior, or when they did, they presented high latencies, not changing the probability of the response happening. As a result, these dogs did not learn the escape response. This challenge in their learning was characterized as learned helplessness (Maier & Seligman, 1976).

It is important to point out that the learned helplessness procedure should not be confused with the punishment operations. In punishment operations, there is a contingent character necessary to define the procedure as being “punishment” of a previously installed response that is reinforced (Ferster et al. 1968). This characteristic allows the operant selection of the avoidance and escape behaviors which gives control to the individual to escape or avoid the aversive event.

Hunziker (2003) presented a behavior-analytic interpretation of this procedure, stating that:

“(…) under uncontrollability there is no differential reinforcement of responses, in other words, selections of relations R-S are never established. With that said, high body excitement elicited by the first shocks is only being controlled by the habituation process, which is promoted by the repeated presentation of shocks. Consequently, the frequency and intensity of body movement drops throughout the session, leaving the individual with a ‘passive’ appearance. Once the generalization process becomes ‘learned’, and the test has a lot of stimulus common to the treatment phase, it is likely that the individual will behave as in the beginning of the test, the same way he or she behaved in the previous phase. This way, the individual will move a little, which decreases the chances of selected responses to be emitted through positive reinforcement. However, even if the subject emits this response and experiences the reinforcement, learning will not be easily established because it involves a relationship of dependency among responses and the termination of shocks incompatible with the relationship of independency previously learned. Being opposite learning processes, it is expected that the first will make it difficult for the next, producing helplessness”. (p. 18-19)

Learned helplessness was soon presented as the animal model for depression given its phenomenological similarities to the psychiatric disorder (Seligman, 1975). The similarities were apparent, above all, with regards to the difficulty of starting operant responses (referred to as motivational deficit), the difficulty of associating the fact that the emitted responses produced consequences (referred to as associative deficit), and in various noted physiological changes (Maier & Seligman, 1976).

It is possible that many contextual determinants in depression are incorrectly associated with punishment. The examples previously hypothesized about corporal punishment during childhood or the coercive labor conditions aforementioned can be considered, in this context, because they fit the model of helplessness uncontrollability. The *relative* effects already discussed in punishment (signalized or not) regarding positively reinforced behavior, would make it difficult for the development of a depressive repertory.

A fact which seems central to the argument presented here is that, in the psychological explanation and in common sense, it is said that one punishes another not consistently but according to one's mood. Therefore, it does not matter what a child does, for instance, since this child will ultimately be punished by parents who by nature possess unstable moods. The behavior of physically hurting normally emitted is assumed to be negatively reinforced. Parents who hit their children could be acting in this fashion because certain behaviors of the child could be the source of aversive stimulation. By definition, a reinforced behavior would tend to increase in frequency in future emissions. The act of hitting a child could then be considered as being an avoidance and escape operant. The emerging problem is that the operant control of hitting behaviors could extend itself by generalization and formation of equivalence classes to other stimulus. As Skinner (1953/1968) points out, in the anxiety paradigm it is possible for an individual to avoid not only the CS and US but also the elicited emotional components. In other words, hitting behaviors could serve as not only the inadequate behaviors of the aggressed person, but also as operant control of other variables – a fact which would characterize the uncontrollability in the aversive stimulus to the person who experiences this type of aggression. For this reason, the context in which the terminology “punishment” is normally used in the current literature seems inadequate given the actual conceptual definition of punishment in behavioral analysis.

Despite its contribution to understanding the phenomena of depression, the learned helplessness model leaves some important questions unanswered. Different from other models which bring the deficit in the positive reinforcement as the critical variable in the functional evaluation of depression (Ferster, 1973, Lewinsohn et al. 1976, Martell et al., 2001), in the learned helplessness model, the criteria to consider whether subjects are depressed or not would be the emission of escape behaviors during the test phase. But according to Skinner (1953/1968), escape behaviors do not produce pleasant feelings rather, it produces feelings of relief. Even when there might be efficient repertories which allow for the avoidance or escape behaviors from the aversive stimulus, there could be a deficiency in positively reinforced behaviors (Ferster, 1973). This seems congruent with cases previously noted of clients with “full schedules” who remain chronically depressed despite having large quantities of events in their schedules (Martell et al., 2001).

#### *Operant extinction*

The extinction procedure is characterized by the suspension of reinforcement contingent to responses which were positively reinforced in the past. When a present performance is no longer reinforced, it re-occurs in higher frequency at first, and then starts to decrease in emission (Ferster et al., 1968). Extinction is defined here as a procedure of aversive control which could be impeding the emission of positively reinforced behaviors due to (1) intense emotional responses elicited in the organism in which it is desired to terminate certain behaviors and (2) through the capacity that such operation has to condition stimulus that would function as aversive stimulus if presented contingent to

any response. Due to this, extinction is here assumed to be an aversive control procedure which could eliminate the emission of positively reinforced behaviors.

As Dougher and Hackbert (1994) point out, clients usually search for treatment after an expressive aversive event takes place such as the loss of a family member, a relationship break-up, a loss of job, retirement or children leaving the home. Other forms of extinction can be observed in institutions where there is excessive privacy (e.g., correctional facilities) which impedes the prisoner from being able to emit positively reinforced behaviors.

Operant extinction should not be confused with the procedure of uncontrollable aversive stimulus noted in learned helplessness. Although the suspension of stimulus independent of the response of the individual characterizes this stimulus as being uncontrollable in the learned helplessness model, in extinction (similar to punishment), it is necessary that the individual is exposed to the operant control earlier (Hunziker, 2003).

Of special interest regarding extinction, however, is the development of an avoidance repertory controlled by aversive stimulus and conditioned by environmental circumstances in which there is a suspension of positive reinforcement. In this context, the individual may start avoiding people, environments or activities related to the loss of reinforcement – which would prevent the individual from getting in contact with potential positive reinforcement contingences and its *antidepressive* effects. There are cases with children in clinical settings where a conflictive familiar environment can not be observed which might have favored the development of depression. Upon investigation, it can be noticed that one parent may be absent or does not provide the positive reinforcement characteristic of an adequate parent-child relationship (or that the frequency of interactions may produce insufficient reinforcing effects to the child). In this case, one could argue that the possibility of developing depression is low given that the behaviors of the child are being reinforced intermittently. This phenomenon is not contradictory to the core of behavior-analysis if it is considered from a molar functional analysis of the insufficient frequency of attention provided by the parent (Baum, 1994). The function of the stimulus of the parent's presence may have changed the  $S^D$  into  $S^?$  throughout the child's history due to the operant extinction of behaviors associated with the child's desire for an adequate relationship with the parent.

#### *Implications for clinical and applied settings*

We will now turn to the implications for clinical and applied settings of the suppressive characteristics exercised by punishment, the presentation of non-contingent aversive stimulation, and operant extinction.

#### **Punishment**

There are unique characteristics in the observed avoidance and signalized punishment in conditions I & II as previously discussed, which require further attention. As Ferster (1973) points out, avoidance behaviors in depression are characterized as passive because they have indirect action on the environment. They may appear as complaints of the individual who recognizes the aversive situation. The author calls them indirect actions, superstitious performance or extended avoidances, due to their passive role in affecting the environment. Throughout the installation period of depressive behaviors, it is noticeable that the behaviors which avoid facing the punishing agency do not modify the aversive environment (condition I). Likewise, ruminative behaviors – despite causing temporary relief on feelings of dysphoria, do not suspend the aversive stimulus critical to depression (condition II). In contrast to passive avoidance, active avoidance would be negative operant behaviors that reduce or end aversive stimulus. It is considered for this reason as coping behavior.

A possible intervention in this context would be to alter the consequences of avoidance behaviors (Ferster et al., 1968). In place of temporary suspension of aversive everyday events and feelings of dysphoria, another stimulus is presented. This situation normally occurs in clinical settings with the use of

verbal analysis through the promotion of functional analysis, which can be done by pointing out the ineffectiveness of temporary suspension. BA, at its core, is concerned with the promotion of this particular goal (Martell et al., 2001).

However, only promoting the recognition of functional relations would not be enough if there is a strong control exerted by the establishing operations (EO) – which also controls passive avoidance during depression. Daily aversive events (condition I) and feelings of dysphoria (condition II) are considered operations which promote an increase in the effectiveness of reinforcement of its suspension, evoking behaviors which in the past may have suspended aversive stimulation (Michael, 1982, 1993, 2000). Therefore, due to these characteristics, in a conflict situation, the EO would momentarily turn the emission of passive avoidance to the emission of active avoidance (Skinner 1953/1968).

According to Michael (2000), in order to modify the problem behavior, it would not be enough to modify the EO because it would soon re-establish itself to desired levels, and again such behaviors would reappear. This is likely to occur with techniques that are essentially composed of contingencies of passive avoidance which promote the temporary relief of feelings of dysphoria, including the Distraction From An Unpleasant Event, Behavioral-Stopping and the Limiting Contact With Unpleasant People (Martell et al., 2001). An alternative for this impasse would be the reinforcement of incompatible behaviors through the mapping of behaviors which have similar or *better* consequences than the consequences obtained through avoidance behaviors (Ferster et al., 1968). In depression, incompatible behaviors would have to effectively suspend everyday aversive events (condition I) or feelings of dysphoria (condition II), which would affect the emission of coping behaviors or active avoidances. For this reason, it is important to gradually raise the levels of difficulty faced with each proposed situation, so that the consequences that occur in the natural contingencies are evaluated constantly. Beyond the diminishing of levels of exposure to the aversive stimulus (Wolpe, 1961), another advantage of the gradual increase in difficulty is the differential reinforcement of the behaviors necessary for the execution of each gradual step.

In the event of an insufficiency or even a non-existence of the necessary repertory needed for the reinforcement to be achieved, the training of specific abilities related to this deficit is recommended (Libet & Lewinsohn, 1973). It is important to highlight again the need to constantly evaluate the adaptation of these behaviors to the natural contingencies. At last, strengthening the positively reinforced behavior repertory should always be considered since programming and promoting the emission of newer behaviors can be more effective than a client's own initiative.

#### Presentation of non-contingent aversive stimulation

In order to consider the clinical implications of the animal model, it is necessary to divide it into two distinct temporal situations. Thus, we consider the treatment phase with an uncontrollable aversive stimulus, as well as the test phase of escape responses in the experimental model.

Normally, when a client is seen with depression in which the learned helplessness model is adequate, it is normally ascertained that the exposure to the un-controlling aversive stimulus is still in course. This is equivalent to the phase of uncontrolled shocks in the animal model. This might happen in situations noted earlier of physical punishment. For heuristic purposes, and given the definition of learned helplessness, it is believed that any intervention which would lead the client to countercontrol the aggressor would not fit the model. The possibility of control is not characteristic of this approach. In addition, it is possible that an attempt to exert control in this environment will have little effectiveness given that the individual has already tried with little success to countercontrol the aggressor. The aggressive behavior of the person who controls can be a form of escape-avoidance behavior strongly maintained in the repertory of the aggressor, and may be one of few operants that are emitted. The aggressor will not be inclined to lose the reinforcement obtained by controlling the aggressed, in other words, it is as if the aggressor countercontrols the attempts of countercontrol made by the aggressed. For this reason, it is observed that the countercontrol in human environments present a complexity of difficulties inherent in reproducing the behavior of animals in laboratory.

An experimental correlate more likely of this situation would be if the experimenter would also present shocks contingent to the escape response in the operant control group – which would lead the contingencies of control to be more complex, leaving fewer, if any, possibilities for the animal. By doing this, the experimenter would be deliberately countercontrolling the attempt of countercontrol of the experimental group.

Similarly, pharmacological interventions may not be successful for the same reasons: even if the medication raises susceptibility of the reinforcement (Dougher & Hackbert, 1994) it will not be successful if it does not allow for the selection of an effective operant that suspends the uncontrollable aversive stimulus. These types of cases can be observed in patients who do not respond to medication, for whom active components of medication do not exercise its effect (Phillips & Nierenberg, 1994). This problem is not related to a biological given, and rather appears related to a contextual problem.

Given this, it may very well be that the only possible intervention is the removal of the individual from the uncontrollable aversive environment: a suggestion which raises important debates about its social and ethical implications (e.g., in a prison context or substitute families in the case of parental use of violence). This debate extends beyond the scope of this article.

However, another possibility in the clinical setting can be found in situations that appear similar to the testing phase in the helplessness model. If no new compatible learning has taken place between the individual's experience of uncontrollability and the present moment (Mestre & Hunziker, 1996), it is probable that the helplessness effects are still present. These individuals may present very strict self-rules related to the improbability of control (Rehm, 1977). In this case, interventions which promote self monitoring of activities along with an understanding of antecedents and consequences could allow for more accurate discriminations to be made (Martell et al., 2001; Rehm, 1977). The gradual exposure to contingences associated with tasks would promote the extinction of conditioned responses in situations of helplessness. With the installation of an adequate discriminative repertory, it is possible that the individual would emit positively reinforced behaviors again.

Similar to the interventions proposed in the punishment situations noted earlier, the specific abilities training and the amplification of a positively reinforced repertory would benefit the client.

#### Operant extinction

A depression that is caused by extinction has characteristics different from depressions that are caused by other kinds of aversive control. In this form, there is no need to establish countercontrol of any controlling agency. Perhaps a sufficient and effective intervention, in this context, may be the gradual exposure to the CSs associated with the circumstances of loss and the promotion of a positively reinforced repertory.

The exposure to CS should be encouraged not only in the natural contingences but also in the verbal contexts of clinical sessions. Talking about this loss, might have as consequence the extinction response of many verbal conditioned Ss associated with the suspension of positive reinforcement by the formation of equivalence classes (Hayes, Strosahl, & Wilson, 1999). The increase in the repertory of positively reinforced behaviors should be motivated so that it can regain sources of previous reinforcement and help foster new ones. If necessary, modeling the specific abilities needed to accomplish this must be a core element of training.

It is possible that this kind of depression is more easily treated and pose lower rates of remission. The DSM-IV-TR (American Psychiatric Association, 2003) states that major depressive disorders are often episodic, with a course of duration lasting from approximately nine to twelve months – even in the absence of treatment. Unlike the medical model which regards spontaneous remission as a biological determinant of the species, behavioral analysis is concerned with understanding the contingencies of reinforcement responsible for the remission or maintenance of behavioral problems (Goertner, Gollan,

Dobson, & Jacobson, 1998; Jacobson & Gortner, 2000). Within this perspective, and as determined by operant extinction, there might occur spontaneous reemission for two reasons. First, social contingencies would prevent the individual from stopping to behave in a certain way (e.g., having to go to work despite the loss of a close relative). Second, the individual could gradually occupy him or herself with positively reinforcing activities, if throughout his or her history this person behaved in a distinct fashion compared to someone who is clinically depressed. The absence of a controlling agency facilitates the regaining of activities. In this case, it can be observed that the instant abulia would be an exception, rather than the rule, in the life of an individual who has never developed a depressive repertory.

### Conclusion

Even though three aversive control operations were independently examined in order to strengthen our understanding of each, it is a fact that these three aversive control operations may combine and present themselves together in the determination and control of a depressive repertory. As Kanter, Cautilli, Bush and Barush (2005) point out:

“The diversity of the above factors clarifies that depression is not a unitary phenomena, a specific disease state, or a simple reaction. It has a complex, multiply controlled, and co-occurring set of operant and respondent behaviors, and any similarity between two cases of depression is assumed, not determined” (p. 74).

However, this complexity should not impede its experimental and applied study, nor lend the behavioral analyst to disregard adopting or mixing multiple theoretical approaches as it has historically happened in the ascension of the cognitive-behavioral model (Kanter et al., 2004).

### References

- American Psychiatric Association (2003). *Diagnostic and statistical manual of mental disorders* (4th ed., rev). Washington, DC: Author.
- Abreu, P. R., & Prada, C. G. (2004). Transtorno de ansiedade obsessivo-compulsivo e transtorno da personalidade obsessivo-compulsivo: um “diagnóstico” analítico-comportamental [Obsessive-compulsive disorders and the obsessive-compulsive personality disorders: a behavior-analytic "diagnosis"]. *Revista Brasileira de Terapia Comportamental e Cognitiva*, 6 (2), 211-220.
- Abreu, P. R., & Prada, C. G. (2005). Relação entre os condicionamentos operante e respondente no transtorno obsessivo-compulsivo [Operant and respondent conditionings relation in obsessive-compulsive disorder]. *Revista Estudos de Psicologia*, 22 (3), 225-232.
- Abreu, P. R. (2006) Terapia analítico-comportamental da depressão: uma antiga ou uma nova ciência aplicada? [Behavior-analytical therapy of depression: an old or a new applied science?]. *Revista de Psiquiatria Clínica*, 33, (6), 322-328.
- Appel, J. B. (1969). On punishment. *Midway*, 9, 03-13.
- Bachar, E.; Canetti, L., Bonne, O., Denour, A. K., & Shalev, A. Y. (1997). Physical punishment and signs of mental distress in normal adolescent. *Adolescence*, 32 (128), 945-958.
- Blaney, P. H (1981). The effectiveness of cognitive and behavioral therapies. In L. P. Rehm (ed.), *Behavior Therapy for Depression: Present Status and Future Directions*, (pp. 01-32). New York: Academic Press.

- Barlow, D. H. (2002). *Anxiety and its disorders: the nature and treatment of anxiety and panic*. New York: Guilford.
- Barlow, D. H., Allen, L. B., & Choate, M. L. (2004). Toward a unified treatment for emotional disorders. *Behavior Therapy, 35* (2), 205-230.
- Beck, A. T., Rush, A. J.; Shaw, B. F., & Emory, G. (1979). *Cognitive therapy of depression*. New York: Guilford.
- Baum, W. M. (1994) *Understanding behaviorism: science, behavior and culture*. New York: HarperCollings.
- Catania, A. C. (1998). *Learning*. (4 th ed). Nova Jersey: Prentice-Hall
- Coffman, S. J., Martell, C. R., Gallop, R., Dimidjian, S.; & Hollon, S. D. (2007). Extreme nonresponse in cognitive therapy: Can behavioral activation succeed where cognitive therapy fails? *Journal of Consulting and Clinical Psychology, 75* (4), 531-541.
- Dimidjian, S., Hollon, S. D., Dobson, K. S., Schmalong, K. B., Kohlenberg, R. J., Addis, M. E., et al. (2006). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *Journal of Consulting and Clinical Psychology, 74*(4), 658-670.
- Dobson, K. S., & Joffe, R. (1986). The role of activity level and cognition in depressed mood in a university sample. *Journal of Clinical Psychology, 42* (2), 264-271.
- Dougher, M. J., & Hackbert, J. A. (1994). A behavior analytic account of depression and a case report using acceptance-based procedures. *The Behavior Analyst, 17* (2), 321-334.
- Dougher, M. J.; Augustson, E., Markham, M. R., & Greenway, D. E. (1994). The transfer of respondent eliciting and extinction functions through stimulus equivalence classes. *Journal of the Experimental Analysis of Behavior, 62*, 331-351.
- Estes, W. K., & Skinner, B. F. (1941). Some quantitative properties of anxiety. *Journal of Experimental Psychology, 29*, 390-340.
- Ferster, C. B (1967). Transition from animal laboratory to clinic. *The Psychological Record, 145-150*.
- Ferster, C. B (1973). A functional analysis of depression. *American Psychologist, 28*, 857-870.
- Ferster, C. B.; Culbertson, S., & Boren, M. C. P. (1968). *Behavior Principles*. New Jersey: Prentice-Hall.
- Ferster, C. B., & Skinner, B. F. (1997). *Schedules of Reinforcement*. Acton, MA: Copley Publishing Group. (Original work published 1957)
- Frias-Armenta, M. (2002). Long-term effects of child punishment on Mexican women: a structural model. *Child Abuse and Neglect, 26* (4), 371-386.
- Goertner, E. T.; Gollan, J. K.; Dobson, K. S., & Jacobson, N. S. (1998). Cognitive-behavioral treatment for depression: relapse prevention. *Journal of Consulting and Clinical Psychology, 66* (2), 377-384.

- Good, J. A. (1999). Shame, images of God and the cycle of violence in adults who experienced childhood corporal punishment. *Dissertation Abstracts International Section A: Humanities and Social Science*, 59 (11-A), 4292.
- Hayes, S. C.; Hayes, L. J., & Reese, H. W. (1998). Finding the philosophical core: a review of Stephen C. Pepper's world hypotheses. *Journal of Experimental Analysis of Behavior*, 50, 97-111.
- Hayes, S. C.; Strosahl, K. D., & Wilson, K. G. (1998). *Acceptance and commitment therapy: an experiential approach to behavior change*. New York: Guilford.
- Hammen, C. L., & Glass, D. R. (1975). Depression, activity, and evaluation of reinforcement. *Journal of Abnormal Psychology*, 54 (6), 718-721.
- Hunziker, M. H. L. (2003). *Desamparo aprendido* [Learned helplessness]. Dissertation, Instituto de Psicologia, Universidade de São Paulo. São Paulo-SP.
- Hunziker, M. H. L. (2005). O desamparo aprendido revisitado: estudos com animais [Learned helplessness revisited: animal studies]. *Psicologia: Teoria e Pesquisa*, 21, 131- 139.
- Hunziker, M. H. L., & Lima, R. S. G. G. (2006). Imunização ao desamparo aprendido após reforçamento positivo em ratos [Immunization to learned helplessness after positive reinforcement in rats]. *Interação em Psicologia*, 10 (2), 195-206.
- Hunziker, M. H. L., Manfré, F. N., & Yamada, M. T. (2006). Immunization against learned helplessness due to previous exposure to positive reinforcement of behavioral variability and repetition. *Brazilian Journal of Behavior Analysis*, 2, 53-66
- Hunziker, M. H. L., & Santos, C. V. (2007). Learned helplessness: Effects of response requirement and interval between treatment and testing. *Behavioral Processes*, 76 (3), 183-191.
- Jacobson, N. S. (1997). Can contextualism help? *Behavior Therapy*, 28 (3), 435-443.
- Jacobson, N. S., & Gortner, E. (2000). Can depression be de-medicalized in the 21st century: Scientific revolutions, counter-revolutions and magnetic field of normal science. *Behavior Research and Therapy*, 38, 103-117.
- Kanter, J. W.; Callaghan, G. M.; Landes, S. J.; Bush, A. M., & Brown, K. R. (2004). Behavior analytic conceptualization and the treatment of depression: traditional models and recent advances. *The Behavior Analyst Today*, 05 (3), 255-274.
- Kanter, J. W.; Cautilli, J. D.; Bush, A. M., & Baruch, D. E. (2005). Toward comprehensive functional analysis of depressive behavior: five environment factors and a possible sixth and seventh. *The Behavior Analyst Today*, 06 (1), 65-81.
- Lewinsohn, P. M.; Biglan, A., & Zeiss, A. S. (1976). Behavioral treatment of depression. In P. O. Davidson (Ed.), *The behavioral management of anxiety, depression and pain*, (pp. 91-146). New York: Brunner/Mazel.
- Lewinsohn, P. M., & Libet, J. (1972). Pleasant events, activity schedules and depression. *Journal of Abnormal Psychology*, 79, 291-295.
- Libet, J. M., & Lewinsohn, P. M. (1973). Concept of social skill with special reference to the behavior of depressed persons. *Journal of Consulting and Clinical Psychology*, 40 (2), 304-312.

- Lubin, B. (1965). Adjective checklists for the measurement of depression. *Archives of General Psychiatry*, 12, 57-62.
- MacPhillamy, D. J., & Lewinsohn, P. M. (1982). The pleasant events schedules: studies in reliability, validity, and scale intercorrelation. *Journal of Consulting and Clinical Psychology*, 50, 363-380.
- Maier, S. F., & Seligman, M. E. P. (1976). Learned helplessness: theory and evidence. *Journal of Experimental Psychology: General*, 105, 03-46.
- Martell, C. R.; Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: strategies for guided action*. New York: W. W. Norton.
- Matta, M. A. (2002). Parental corporal punishment as a predictor of child maladjustment: race and parental responsiveness as potential moderators. *Dissertation Abstracts International Section B: The Science and Engineering*, 64 (4-B), 2091.
- Mestre, M. B. A., & Hunziker, M. H. L. (1996). O desamparo aprendido em ratos adultos, como função de experiências aversivas incontroláveis na infância [The learned helplessness, in grown up rats, in function of adverse and uncontrollable experiences in childhood]. *Tuiuti: Ciência e Cultura*, 6 (2), 25-47.
- Michael, J. (1982). Distinguishing between discriminative and motivational functions of stimuli. *Journal of Experimental Analysis of Behavior*, 37, 149-155.
- Michael, J. (1993). Establishing operations. *The Behavior Analyst*, 33, 401-410.
- Michael, J. (2000). Implications and refinements of establishing operations. *Journal of Applied Analysis of Behavior*, 33, 401-410.
- Phillips, K. A. & Nierenberg, A. A. (1994). The assessment and treatment of refractory depression. *Journal of Clinical Psychiatry*, 55 (Suppl), 20-26.
- Rehm, L. P. (1977). A self-control model of depression. *Behavior Therapy*, 8, 787-804.
- Seligman, M. E. P. (1975). *Helplessness: on depression, development and death*. San Francisco: Freeman.
- Seligman, M. E. P., & Maier, S. F. (1967). Failure to escape traumatic shock. *Journal of Experimental Psychology*, 74, 01-09.
- Shaw, B. F. (1977). Comparison of cognitive therapy and behavior therapy in the treatment of depression. *Journal of Consulting and Clinical Psychology*, 45 (4), 543-551.
- Sidman, M. (1989). *Coercion and its fallout*. Boston: Authors Cooperative
- Skinner, B. F. (1965). *Science and human behavior*. New York/London: Free Press/Collier Macmillan. (Original work published 1953)
- Skinner, B. F. (1976). *About behaviorism*. New York: Vintage Books. (Original work published 1974)
- Skinner, B. F. (1984). *Selection by consequences*. *The Behavioral and Brain Sciences*, 7, pp. 477-510. c

- Skinner, B.F. (1989). *Recent issues in the analysis of behavior*. Columbus: Merrill Publishing.
- Spencer, M. J. (1999). Corporal punishment and ridicule: residual psychological effects in early adulthood. Implications for counselors. *Dissertation Abstracts International Section A: Humanities and Social Science*, 60 (4-A), 1030.
- Straus, M. A., & Kantor, G. K. (1994). Corporal punishment of adolescent by parents: a risk factor in the epidemiology of depression, suicide, alcohol abuse, child abuse, and wife beating. *Adolescence*, 29 (115), 543-561.
- Turner, H. A., & Finkelhor, D. (1996). Corporal punishment as a stressor among youth. *Journal of Marriage and the Family*, 58 (1), 155-166.
- Wolpe, J. (1961). *Psychotherapy by reciprocal inhibition*. Stanford: Stanford University Press.

**Author Contact Information:**

Paulo Roberto Abreu,  
Universidade de São Paulo,  
Departamento de Psicologia Experimental, Av.  
Prof. Mello Moraes 1721, Cidade Universitária –  
CEP 05508-030. São Paulo-SP, Brazil.  
E-mail: pauloabreu@iacc.psc.br

---

**ADVERTISING IN THE  
INTERNATIONAL JOURNAL OF BEHAVIORAL CONSULTATION AND THERAPY**

**The prices for advertising in one issue are as follows:**

**1/4 Page: \$50.00    1/2 Page: \$100.00    Full Page: \$200.00**

**If you wish to run the same ad in multiple issues for the year, you are eligible for the following discount:**

**1/4 Pg.: \$40 - per issue  
1/2 Pg.: \$75 - per issue  
Full Page: \$150.00-per issue**

**An additional one time layout/composition fee of \$25.00 is applicable**

**For more information, or place an ad, contact Halina Dziewolska by phone at (215) 462-6737 or e-mail at: halinadz@hotmail.com**

## Effect of Behavioral Activation Treatment on Chronic Fibromyalgia Pain: Replication and Extension

*Duane A. Lundervold, Chris Talley & Michael Buermann*

### Abstract

A multiple-baseline-across two behavior sets and positions (reclined, upright) was used to experimentally examine the effect of Behavioral Activation Treatment for Pain (BAT-P) on pain-related behavior of a 44-year-old woman with a 22-year history of fibromyalgia (FM). BAT-P, based on the matching law, is comprised of Behavioral Relaxation Training (BRT), scheduled relaxation-activity cycles, daily relaxation practice, shaping performance of valued activities, visual feedback of performance and descriptive praise. Visual feedback was provided for pain interference rating, performance of relaxation skills, and self-rated depression. A behavioral contract was implemented to increase maintenance of intervention effects. Percent-relaxed behavior was functionally related to BRT with limited generalization from reclined to upright positions or across behavior sets. BAT-P resulted in clinically significant decreases in self-reported pain interference, pain anxiety, and depression and medication usage. Pain anxiety cognition declined without direct cognitive restructuring. Results were maintained at three- and six-month follow up. Findings replicate results of BAT-P for FM pain interference and pain anxiety cognition. Use of systematic maintenance procedures extends past research on BAT-P. Results provide further support for the utility of “pure” behavior analytic interventions for FM and the benefit of such procedures for pain anxiety cognition. Keywords: Behavioral Activation Treatment for Pain (BAT-P), Fibromyalgia (FM), Behavioral Relaxation Training (BRT)

---

Fibromyalgia (FM), one of the most common disorders treated in rheumatology clinics in North America, consists of numerous physical symptoms including chronic, diffuse musculoskeletal pain, “tender points” at various bodily locations, fatigue and sleep disturbance (Wolfe, Smythe, Yunus, et al., 1990). Depression, memory deficits and confusion are often reported (Baumstark & Buckelew, 1992). Over three times as many women suffer from FM than men (White, Speechley, Harth, & Ostbye, 1999).

Etiology of FM is unclear; however, physiological mechanisms including dysregulated pain modulation within the central nervous system, alteration of brainwave patterns affecting sleep, and a hyperalgesic response to nociception have been implicated (Kosek, Ekholm & Hansson, 1996; Okifuji, Turk, & Marcus, 1999). Dysregulation of the autonomic nervous system stress hormone regulatory system has also been reported (Crofford, Engleberg, & Demitrack, 1996; Bennett, Clark, Campbell & Burckhardt, 1992). Environmental insults such as flu-like illness, physical trauma, stress, and emotional distress also have been linked to the onset of FM (Clauw & Chrousos, 1997; Turk, Okifuji, Starz, & Sinclair, 1996).

At present, there is no definitive medical or psychological intervention for FM. “Pure” behavior analytic and cognitive behavioral interventions have been shown to be effective in decreasing pain and disability (Rossy, Buckelew, Dorr et al., 1999; Thieme, Gromnica-Ihle, & Flor, 2003). Despite demonstrated effectiveness of operant conditioning interventions for chronic pain, (Fordyce, 1976; 2000; Sanders, 2003) it has been argued that cognitive behavioral intervention is necessary. According to Turk and Okifuji (1997), physical, cognitive and affective factors explain more variance in pain behavior and disability than do environmental (operant) factors. Unfortunately, results were based entirely on patient self-report. Pain-related fear has been found to be one of the most important predictors of chronic pain

and associated disability among chronic pain patients (Vlaeyye & Linton, 2000).

Pain anxiety is comprised of four components: cognition, fear, escape/avoidance and physiological sensations (McCracken & Gross, 1992). From a behavior analytic perspective, pain anxiety cognition (e.g., catastrophic thinking) is verbal behavior that has discriminative or evocative functions (Malott, 1989; Malott & Garcia, 1991). Discriminative functions serve as a contingency specifying stimulus or a rule setting the occasion for behavior (Poppen, 1989; Skinner, 1969). As an establishing operation (EO), the verbal behavior alters the strength of consequences affecting pain behavior. For example, "My pain will get worse if I sweep the floor" increases the relative strength of the negative reinforcer (nociception) for avoidance behavior (recumbent behavior). The function of rule-governed behavior is most closely associated with depression and cognitive therapy (Beck, 1979). Chronic pain and depression share similar response characteristics in that each is clinically defined as a covert behavior, verbal behavior (e.g., pain anxiety cognition, catastrophic thinking in depression) is seen as the central feature affecting treatment outcome, with behavioral avoidance secondarily involved (Beck 1979; McCracken et al., 1998; Turk & Okifuji, 1997). Importance of overt behavioral performance (i.e., behavioral activation) is minimized.

A series of case studies and randomized controlled trials have demonstrated that Behavioral Activation Treatment for Depression (BAT-D), based on the matching law (Herrnstein, 1961; Noll, 1995), is effective in the treating depression (Hopko, Lejuez, Ruggier, & Eifert, 2003; Hopko, Lejuez, & Hopko 2004). Using BAT-D, overt behaviors targeted for intervention increase in frequency while the frequency of non-targeted covert dysfunctional verbal behavior decreases. The goal of BAT-D is to have patients make contact with valued activities and life goals. BAT-D can be discriminated from merely attempting to increase pleasant events based on two critical features: (a) idiographic (functional) assessment of valued activities and goals that serve as reinforcers for behavioral action, and (b) direct intervention for decreasing behavioral avoidance.

Because of the similarities between depression and chronic pain, a behavior analytic intervention based on BAT principles may be especially valuable (Hopko et al., 2003). Lundervold, Talley and Buermann (2006), employed BAT for pain (BAT-P) with a 43-year-old woman with an extensive history of chronic FM pain. BAT-P resulted in decreased pain interference, depression and pain anxiety cognition. Pain anxiety cognition declined without direct intervention. Medication usage also declined from baseline to end-of-treatment but rose again at three-month follow up. Results of BAT-P replicated findings change in depression and cognition following BAT (Hopko et al., 2003) and behavior analytic interventions for FM (Thieme et al., 2003). Unfortunately, a clear functional relationship between BAT-P and pain-related dependent variables was not demonstrated due to experimental design limitations. The purpose of the present investigation was to: (a) replicate the effect of BAT-P for FM pain, and (b) extend past research through systematic use of a behavioral contract for maintenance of pain management skills.

## Method

### *Participant*

Janet was 44-years-old, Caucasian, employed, and married. She had an extensive history of chronic pain including FM, lower and upper back, and migraine and abdominal pain. (See Table 1). She was a frequent user of anxiolytic, antidepressant, analgesic and narcotic pain medications. Five years earlier Janet took received surgery to fuse her cervical vertebrae. Current lower back pain complaints were due to bulging disks secondary to congenital degeneration of the spine and vertebrae.

### *Dependent variables*

*Behavioral Relaxation Scale (BRS).* The BRS is an objective, quantitative measure of relaxed behavior that employs a partial-interval direct observation measurement procedure (Poppen, 1998) to record occurrence of 10 behaviors during successive one-minute intervals. During the first 30-seconds of each interval, number of breaths is observed and recorded; in the next 15-seconds the remaining nine behaviors are observed and then recorded in the final 15-seconds. Percent-relaxed behavior is obtained by dividing the number of relaxed behaviors by the total number of observations multiplied by 100. The BRS has been found to be a reliable and valid measure of relaxed behavior associated with reduced electromyographic activity and decreased motor disability (Lundervold & Poppen, 2004; Poppen, 1998; Schilling & Poppen, 1983).

*Pain interference rating (PIR).* A 10 cm visual analogue scale (VAS) was used to measure pain interference each day. VAS measures of pain are recommended for use with younger adults and are valid, reliable and sensitive to treatment effects (Jensen, Turner, Romano, & Fisher, 1999).

*Geriatric Depression Scale 15 (GDS-15).* Self-reported depression was assessed using the GDS-15. The GDS-15 is suggested when assessing depression with comorbid medical conditions. GDS-15 has been validated with younger adults and is strongly correlated with the original GDS-Long Form (Ferraro & Chelminski, 1996; Leshner & Berryhill, 1994). A cut off score of > 6 suggests major depression.

*Pain Anxiety Symptom Questionnaire (PASS).* The 40-item PASS (McCracken & Gross, 1992) was used to assess pain anxiety: fear (F), escape/avoidance (E/A), cognition (C), and physiological (P). A six-point Likert scale was used to rate the magnitude of pain anxiety. The PASS has good reliability and validity with preliminary normative data with chronic pain patients.

*Medication index (MI).* The MI score was calculated based on daily self-recording of type and dosing schedule of medication (Blanchard & Andrasik; 1985). Mean daily MI was calculated by summing the products of the number of doses of a drug multiplied by its potency scale value divided by the total number of doses per day.

### *Experimental design*

A multiple-baseline-design-across behavior sets and positions (reclined, upright) was used to demonstrate a functional relationship between BAT-P and dependent variables (Bloom, Fischer & Orme, 2006). Two behavior sets, comprised of five behaviors each, for reclined and upright positions, respectively, were formed following baseline observation. Behavioral Relaxation Training (BRT) was first implemented in the reclined position for Behavior Set 1 with time-lagged implementation for Behavior Set 2, followed by upright BRT for Behavior Set 1 and 2.

### *Procedure*

*A 1 (baseline 1).* Four baseline observations of reclined relaxed behavior were conducted. Consent to take part and release of information was obtained. One observation of upright relaxed behavior was conducted (session 4). During each of these sessions self-report measures of pain anxiety and depression were obtained. A rationale for multimodal behavioral assessment was provided. Self-report questionnaires for depression and pain anxiety were completed. A structured chronic pain behavioral interview was conducted. A five-minute adaptation period for observation was conducted (session one only) followed by a five-minute observation of relaxed behavior. Behavioral skill training was used to teach Janet to record daily pain interference, behavioral activities and medication usage. Homework (self-recording) was reviewed at each session and contingent praise and feedback provided. At the last baseline

session for Behavior Set 1, the participant was given the Valued Behavioral Activity Checklist (Lejuez et al., 2001) for completion as a homework assignment.

*Surgery.* Unexpected surgical intervention for bulging vertebral disks occurred and resulted in an 11-week hiatus.

*A 2 (baseline 2).* Upon the participant's return a second baseline was conducted. Between two and four reclined baseline observations were obtained. Three to six baseline observations of upright relaxed behavior were obtained. Self-reported depression and pain anxiety was obtained on each baseline observation. Self-recording of PIR, activities and medication usage was conducted on a daily basis as before.

*B (BAT-P).* BAT-P consists of visual feedback (i.e., graphical depiction of performance data), Behavioral Relaxation Training (BRT), activity-relaxation cycles, shaping performance of valued behavioral activities, and descriptive praise. Visual performance feedback was provided each session in relation to PIR, depression and relaxation skills. Activity-relaxation cycles were employed to maintain a dense schedule of negative reinforcement for muscle tension-pain cycles. Daily at-home 15-minute relaxation sessions were also included. No visual feedback was provided for pain anxiety. No direct cognitive restructuring was conducted (Turk, Meichenbaum, & Genest, 1983). Fourteen sessions of BAT-P were conducted.

At session one, a biobehavioral conceptualization of chronic pain was provided describing gate control theory (Melzak & Wall, 1965; Melzack, 1999), deconditioning, loss of valued activities and their relationship to depression. Self-management of pain rather than its elimination was emphasized. BRT was presented as a means to "close the pain gate," a self-management procedure to be employed as needed, and as a means to improve quality of life and reach life goals. Increasing contact with valued activities was described in the context of improving quality of life and mood. An expectation of treatment benefit regarding decreased pain interference and improved mood was presented. No expectation regarding change in pain anxiety was presented. After the first post-training observation, the Valued Behavioral Activity Checklist (Lejuez et al., 2001) was reviewed and items rank ordered from 1-15 (easy to difficult to complete).

Following the conceptualization and rationale for BAT-P, BRT was conducted. Reclined relaxed behaviors were trained first. Reclined Behavior Set 1 was comprised of: Breathing, Shoulders, Hands, Feet, and Head. Behavior Set 2 consisted of Quiet, Body, Eyes, Mouth, and Throat. BRT (Poppen, 1998) was conducted for approximately 15-20 minutes each session. A five-minute post training observation was conducted immediately after training. A forward chaining procedure was used to teach the relaxed behavior.

The behavior was first labeled and examples and non-examples of relaxed behavior modeled. The participant was then instructed to imitate the relaxed behavior. Praise and descriptive feedback were presented contingent on meeting a 30-second acquisition criterion for each behavior. If the behavior was unrelaxed at anytime during the 30-second period, contingent feedback was provided and followed by the instruction "relax your (behavior)." If the correct response was not performed, manual guidance was provided, as appropriate and the instruction given again. Contingent on meeting the 30-second acquisition criterion, the next behavior was introduced to training. After instruction and modeling of the new behavior the participant was instructed to relax the newly trained behavior and all previously trained relaxed behaviors. All relaxed behaviors had to meet the 30-second acquisition criterion before a new relaxed behavior was introduced to training. Chaining continued until all five behaviors in the behavior set were acquired at the 30-second training criterion.

Upon mastery of the acquisition criterion, BRT proficiency training was conducted. Janet was instructed to demonstrate the relaxed behaviors with contingent descriptive praise, feedback and manual guidance provided. During alternate one-minute intervals (i.e., 1, 3, 5 etc), the trainer provided instructions to “notice the sensations while you relax your (the behavior) in the (relaxed position).” During opposing one-minute intervals contingent descriptive praise and feedback was provided. At the end of the BRT session, Janet was instructed to “relax on your own for the next few minutes” and a post training observation was conducted. Both reclined and upright relaxed behaviors were trained using forward chaining procedures. Upright Behavior Set 1 was consisted of Breathing, Quiet, Body, Head, and Eyes. Behavior Set 2 in the upright position was Mouth, Throat, Shoulders, Hands, and Feet.

Homework consisted of instructions to conduct self-managed BRT sessions every two hours for approximately 15-minutes, implement activity-relaxation cycles, engage in assigned valued activities, and record daily rating PIR and medication usage. Level 1 valued activities were first assigned as homework. Higher-level valued activities were assigned as homework contingent on mastery of previous levels. Duration of activity-relaxation cycles was determined by pinpointing the maximum duration of activity performed up to the onset of pain. Activity duration was then decreased with instructions to conduct 5-minute mini- BRT sessions at the end of the activity and then resume activity.

A behavioral contract was implemented at the second to last session that described the benefits of continued use of the skills acquired. The contract stated the participant would continue practicing the skills as scheduled and completing the Chronic Pain Daily Record (used to record PIR, activities etc.) for the first seven weeks following end of intervention. Each week self-recorded data would be mailed to the investigator. A follow up phone call was conducted at the end of week one and two to prompt and reinforce self-recording, mailing of data, and problem solve difficulties related to maintenance.

*Follow up.* Three- and six-month follow up was conducted as in baseline. Assessment of depression, pain anxiety and reclined and upright relaxed behavior was conducted. One week of daily PIR, medication usage and activities was obtained and mailed to the investigator.

### *Results*

Interobserver agreement of relaxed behavior was obtained on 22% of sessions (Mean 96%, range 85-98%). Agreement was calculated by dividing the number of relaxed behaviors by the number of relaxed and unrelaxed behaviors multiplied by 100. Percent-relaxed behavior in the reclined position was low and deteriorating for Behavior Set 1 during A1. (See Figure 1). Behavior Set 2 showed more variability with an upward trend. Upright BRS scores for Behavior Set 1 and 2 were low and stable. At A2, reclined BRS scores increased and then declined to previous levels for Behavior Set 1; however, percent-relaxed behavior remained stable for reclined Behavior Set 2. While some generalization had occurred, upright BRS scores were below the standard training criterion of 80%. (Poppen, 1998).

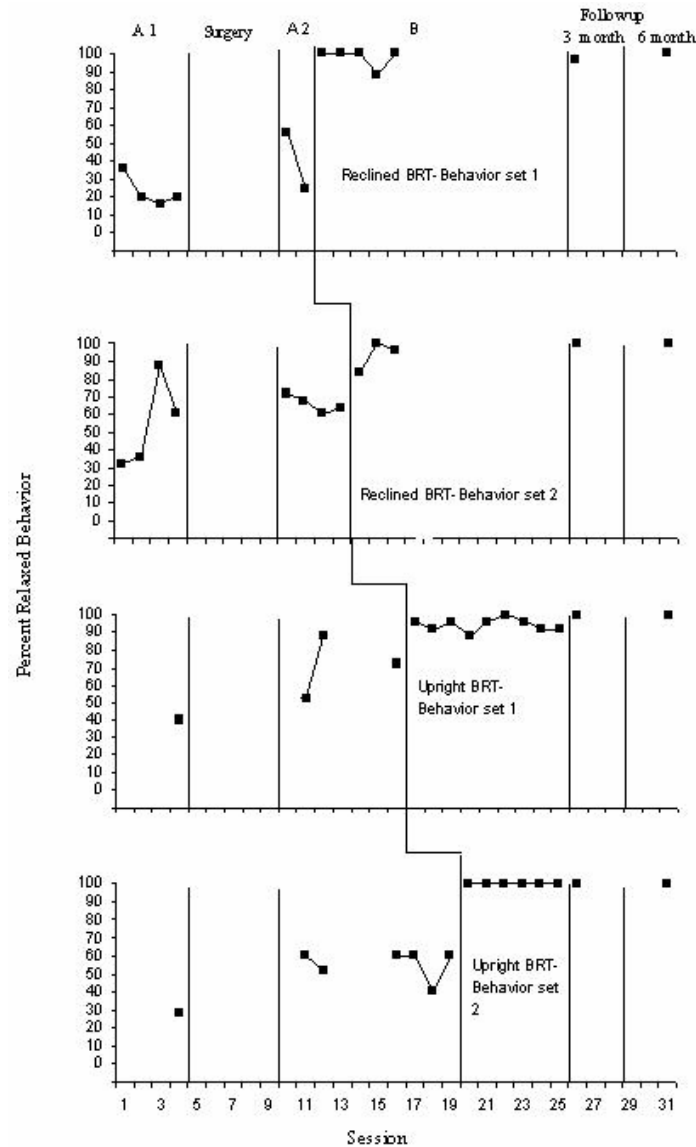


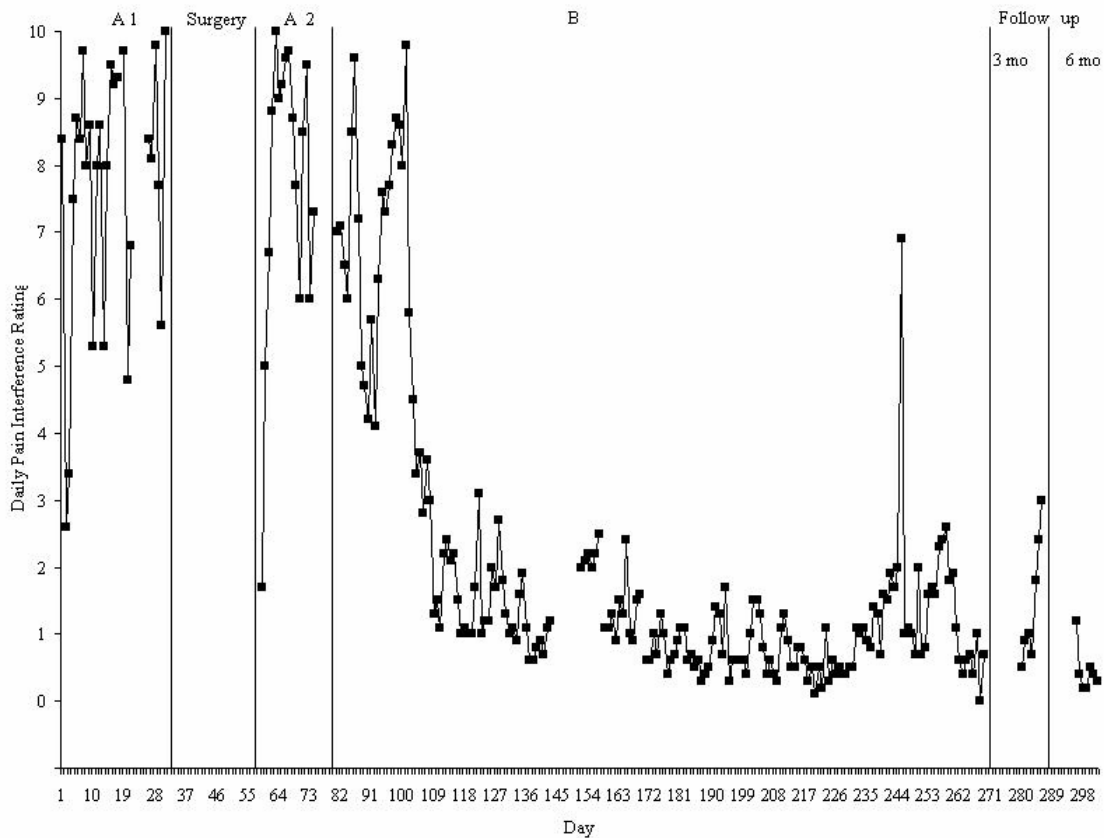
Figure 1. Percent-relaxed behavior across behavior sets, relaxed positions and experimental conditions.

A large, immediate increase in reclined BRS scores was obtained for Behavior Set 1 following BRT while BRS scores for Behavior Set 2. With implementation of BRT for reclined Behavior Set 2, the effect of BRT was replicated. BRS scores for each Behavior Set ranged from 85-100% relaxed during training. No improvement in upright BRS scores was during reclined BRT. Follow up assessment at three and six months indicated 100% relaxed for reclined Behavior Set 1 and 2.

The effect of BRT was replicated in the upright position for Behavior Set 1 and 2. Large, immediate increases in BRS scores for each Behavior Set was systematically observed following implementation of upright BRT with sustained performance over of the training period. Results were maintained at three and six month follow up.

Figure 2 displays PIR. Considerable variability during A 1 was observed (range 2.75-10.000 cm). Following surgery, PIR returned to extremely high levels (range 1.75-10.00 cm), which were sustained

during baseline 2.



**Figure 2.** Daily pain interference rating (PIR) across experimental conditions.

During the first two weeks of BAT-P, PIR was variable and overlapping with A2. At week three, and corresponding with training in upright BRT, PIR rapidly declined to low levels and remained stable. With one exception, very low pain interference ratings were reported throughout the phase. Three month follow up showed a slight increase in PIR (range .5-3.00 cm). Six-month follow up indicated a decline in PIR (range .5-1.25 cm) below that obtained at end of intervention.

Pain anxiety scores are displayed in Figure 3. Cognitive and Physiological anxiety showed the greatest elevation, with scores above the norm, followed by Escape/avoidance and Fear. Cognitive and Physiological scores were above the norm. Following surgery, Cognitive anxiety substantially worsened and remained stable. No meaningful change in other pain anxiety subscale score was observed.

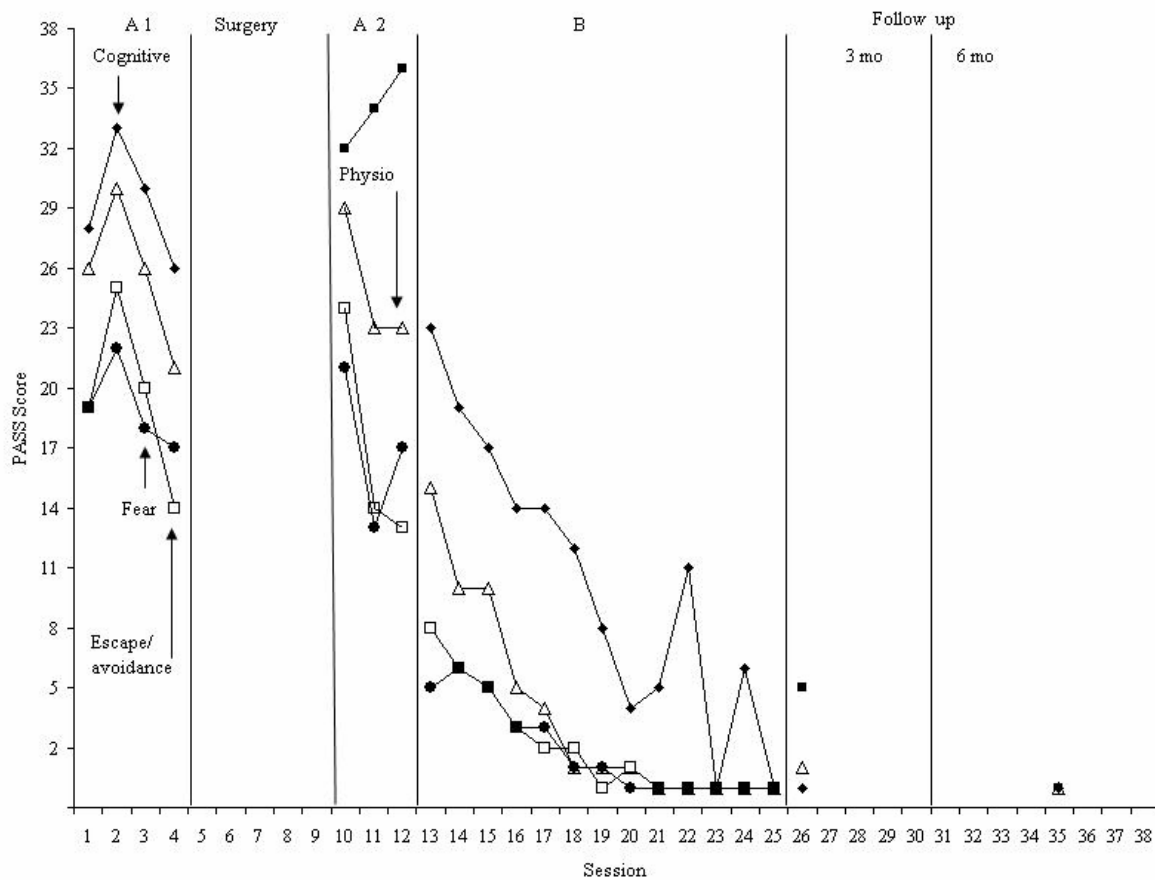


Figure 3. Pain anxiety symptom scale scores (PASS) across experimental conditions.

Immediately following BAT-P, each pain anxiety subscale scored dropped precipitously (e.g., 5-12 points) with a systematic downward trend in each. At the end of the BAT-P all pain anxiety scores were near or at zero. Results were maintained at three and six month follow up.

Self-reported depression declined during A1. Surgery did not alleviate depression. Depression ratings began trending downward during A2 with further decreases during BAT-P. Results were maintained at follow up.

Medication index (MI) score at A1 was 39.71 indicating a high usage of anxiolytic, antidepressant, and analgesic medications. MI score (64.57) for the second baseline was substantially greater despite surgery to relieve chronic back pain and an 11-week recuperative period. One week of BAT-P produced a significant decline in medication usage (37.00) from A2. End of BAT-P intervention resulted in an MI score of 23.62. At the three-month follow MI score had risen to (35.51) but was below both baseline levels. Medication usage at six-month follow up was markedly reduced (13.00).

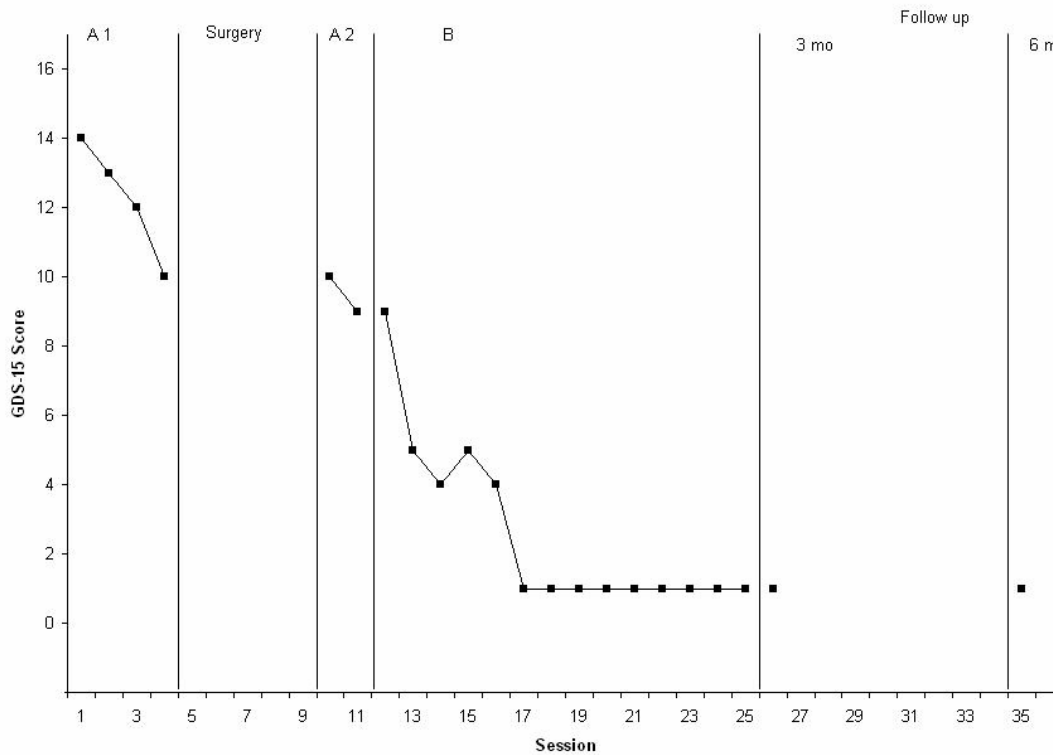


Figure 4. Geriatric Depression Scale-15 (GDS-15) scores across experimental conditions.

## Discussion

Effects of BAT-P for FM pain interference and pain anxiety cognition were replicated and extended relative to Lundervold et al. (2006). Experimental control was demonstrated using a multiple-baseline-across-behavior sets and relaxed positions design. Clinically significant change in pain anxiety cognition occurred without direct cognitive intervention. Analgesic and anxiolytics medication usage markedly declined from baseline to end of intervention. Results were maintained at three and six-month follow up. Results support the use of behavior analytic interventions for FM pain and are consistent with findings reported by Theime et al with an in patient population. Use of a behavioral contract for enhancing maintenance has not been reported in the FM literature. Systematic evaluation of this component of BAT-P is needed. Limited generalization of relaxed behavior across behavior sets and relaxed positions clearly indicates that instruction of all behaviors is necessary and positions is necessary (Lundervold et al., 2006).

That BAT-P produced in indirect change in pain anxiety cognition without direct cognitive restructuring. Behavioral activation based on the use of functional activities and goals that create the conditions for reinforcing behavior incompatible to behavioral avoidance. The effect of approach behavior is a decrease in the strength of a dysfunctional verbal EO (pain anxiety cognition). Approach behavior is systematically reinforced through shaping of performance of valued activities and contact with life goals and visual feedback of performance.

Though behavior analysts are seldom concerned with psychiatric diagnosis, the lack of systematic diagnostic assessment in this report is a limitation. High scores on the GDS-15 and PASS suggested that Janet was not coping well with FM pain. Use pain assessment instruments that allow systematic

discrimination of subtypes of pain patients who are coping poorly and those at risk of increased pain and suffering would be valuable in future BAT-P research. Though results are encouraging and consistent with those reported previously, replication is needed.

#### References

- Beck, A.T., (1979). *Cognitive therapy for depression*. NY: Basic Books.
- Baumstark, K.E. & Buckelew, S.P.(1992). Fibromyalgia: Clinical signs, research findings, treatment implications and future directions. *Annals of Behavioral Medicine, 14*, 282-291.
- Bennett, R.M., Clark, S.R., Campbell, S.M., & Burckhardt, C.S. (1992). Low levels of somatomedin C in patients with fibromyalgia: A possible link between sleep and muscle pain. *Arthritis and Rheumatism, 35*, 1113-1116.
- Blanchard, E. B. & Andrasik, F. A. (1985). *Management of chronic headache*. NY: Pergamon Press.
- Bloom, M., Fisher, J., & Orme, J., G. (2006). *Evaluating practice: Guidelines for the accountable professional* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Clauw, D.J. & Chrousos, G.P. (1997). Chronic pain and fatigue syndromes: Overlapping Clinical and neuroendocrine features and potential pathogenic mechanisms. *Neuroimmunomodulation, 4*, 134-153.
- Ferraro, F.R. & Chelminski, I. (1996). Preliminary data on the geriatric Depression Scale - Short Form (GDS-SF) in a young adult sample. *Journal of Clinical Psychology, 52*, 443-447.
- Fordyce, W. E. (1976). *Behavioral methods for chronic pain and illness*. St.Louis: Mosby.
- Fordyce, W.E (2000). Learned pain. Pain as behavior. In J.Loeser, S. Butler, C.R., Chapman & D.C. Turk (Eds.), *Bonica's management of pain* (3rd ed., pp. 478-482).
- Herrnstein, R. J. (1961). Relative and absolute strength of response as a function of frequency of reinforcement. *Journal of the Experimental Analysis of Behavior, 4*, 267-272.
- Hopko, D.R., Lejuez, C.W., Ruggiero, K.J., & Eifert, G.H. (2003). Behavioral activation treatments for depression: Procedures, principles, and process. *Clinical Psychology Review, 23*, 699-717.
- Hopko, D.R., Lejuez, C.W., & Hopko, S.D. (2004). Behavioral activation as an intervention for co-existent depressive and anxiety symptoms. *Clinical Case Studies, 3*, 37-48.
- Jensen, M.P., Turner, J.A., Romano, J.M., & Fisher, L. (1999). Comparative reliability and validity of chronic pain intensity measures. *Pain, 83*, 157-163.

- Kosek, E., Ekholm, J. & Hansson, P. (1996). Sensory dysfunction in fibromyalgia patients with implications for pathogenic mechanisms. *Pain, 57*, 277-292.
- Leshner, E.L. & Berryhill, J.S. (1994). Validation of the geriatric Depression Scale-Short Form among inpatients. *Journal of Clinical Psychology, 50*, 256-260.
- Lundervold, D.A. & Poppen, R. (2004). Biobehavioral intervention for older adults coping with essential tremor and related disability. *Applied psychophysiology and Biofeedback 29*,
- Lundervold, D.A., Talley, C. & Buermann, M. (2006). Effect of Behavioral Activation Treatment on fibromyalgia pain and pain anxiety cognition. *International Journal of Behavioral Consultation and Therapy, 2*, 73-85.
- Lejuez, C.W., Hopko, D.R., & Hopko, S.D. (2001). Brief Behavioral Activation Treatment for depression. A treatment manual. *Behavior Modification, 25*, 255-86.
- Malott, R.W. (1989). The achievement of evasive goals: Control by rules describing contingencies that are not direct acting. In S.C. Hayes (Ed.), *Rule governed behavior: Cognition, contingencies and instructional control* (pp. 269-324). NY: Plenum.
- Malott, R. W. & Garcia, M.F. (1991). The role private events in rule-governed behavior. In L.J. Hayes & P. Chase (Eds.), *Dialogues on verbal behavior* (pp. 237-254). Reno, NV: Context Press.
- McCracken, L.M.& Gross, R.T. (1998). The role of pain-related anxiety reduction in the outcome of multidisciplinary treatment for chronic low back pain: Preliminary results. *Journal of Occupational Rehabilitation, 8*, 179-189.
- McCracken, L.M., Zaylor, C., & Gross, R.T. (1992). The Pain Anxiety Symptom Scale: Development and validation of a scale to measure fear of pain. *Pain, 50*, 67-74.
- Melzak, R. & Wall, P. D. (1965). Pain mechanisms: A new theory. *Science, 50*, 971-979.
- Melzack, R. (1999). Pain and stress: A new perspective. In R. Gatchel & D.C. Turk (Eds.), *Psychosocial factors in pain: Critical perspectives* (pp. 89-106). NY: Guilford.
- Michael, J. (1993). Establishing operations. *The Behavior Analyst, 16*, 191-206.
- Noll, M.J. (1995).The matching law as a theory of choice in behavior therapy. In W. O'Donohue & L. Krasner (eds.), *Theories of behavior therapy* (pp.129-144). Washington DC: American Psychological Association.
- Okifuji, A., Turk, D.C., & Marcus, D.A. (1999). Comparison of generalized and localized hyperalgesia in recurrent headache and fibromyalgia patients. *Psychosomatic Medicine, 61*, 771-778.
- Poppen, R.L. (1989). Some clinical implications of rule-governed behavior. In S.C.

- Hayes (Ed.), *Rule governed behavior. Cognition, contingencies and instructional control*. (pp. 325-358). NY: Plenum.
- Poppen, R. (1998). *Behavioral relaxation training and assessment* (2nd Ed.). Thousand Oaks, CA: Sage Publications.
- Sanders, S.H. (2003). Operant conditioning with chronic pain: Back to basics. In D.C. Turk & R.J. Gatchel (Eds.), *Psychological approaches to pain management*, (2nd ed., .128-137). NY: Guilford.
- Schilling, D., & Poppen, R. (1983). Behavioral relaxation training and assessment. *Journal of Behavior Therapy and Experimental Psychiatry*, 14, 99-107.
- Skinner, B.F. (1969). *Contingencies of reinforcement*. NY: Appleton Century-Crofts
- Thieme, K., Gromnica-Ehl, E., & Flor, H. (2003). Operant-behavioral treatment of fibromyalgia: A controlled study. *Arthritis and Rheumatism*, 49, 314-320.
- Turk, D.C. & Gatchel, R. J. (2002). *Psychological approaches to pain management* (2nd ed.). NY: Guilford.
- Turk, D.C., Meichenbaum, & Genest, M. (1983). *Behavioral medicine. A cognitive behavioral approach*. NY: Plenum.
- Turk, D.C., Okifuji, A., Starz, T.W. & Sinclair, J. (1996). Interdisciplinary treatment for fibromyalgia syndrome: Clinical and statistical significance. *Arthritis Care and Research*, 11, 186-195.
- Turk, D.C. & Okifuji, A. (1997). Evaluating the role of physical, operant, affective and cognitive factors in predicting pain behaviors in chronic pain patients. *Behavior Modification*, 21, 59-280.
- White, K.P., Speechley, M., Harth, M., & Ostbye, T. (1999). The London fibromyalgia epidemiology study: The prevalence of fibromyalgia in London. *Journal of Rheumatology*, 26, 1570-1576.
- Wolfe, F., Smythe, H.A., Yunus, M.B., Bennett, R.M, et al. (1990). American College of Rheumatology 1990 criteria for the classification of fibromyalgia: Report of the multicenter criteria committee. *Arthritis and Rheumatism*, 36, 160-172.

**Author Contact Information:**

Duane A. Lundervold,  
Department of Psychology,  
Central Missouri State University,  
Warrensburg, MO 64093.  
E-mail: Lundervold@CMSU1.CMSU.edu.

# Computer-Assisted Exposure Treatment for Flight Phobia

Miquel Tortella-Feliu, Xavier Bornas & Jordi Llabrés

## Abstract

This review introduces the state of the art in computer-assisted treatment for behavioural disorders. The core of the paper is devoted to describe one of these interventions providing computer-assisted exposure for flight phobia treatment, the Computer-Assisted Fear of Flying Treatment (CAFFT). The rationale, contents and structure of the CAFFT are presented and data on the efficacy and clinical utility of CAFFT are also provided.

*Key words: Computer-assisted treatments; brief cognitive-behavioural treatments; specific phobia; flight phobia*

---

New information and communication technologies, especially computers, have opened up unforeseen possibilities in conducting psychological interventions, e.g., they have made it easier for the general population to access treatment and for clinical researchers to interpret studies, control non-specific variables and compile data (McMinn, 1998; Norton, Asmundson, Cox, & Norton, 2000).

This article refers to second generation technological advances with clinical impact (McMinn, 1998) i.e., computer-assisted treatments (CAT), with special attention to its application to flight phobia

## Types of computer-assisted treatment

Since the late 1980s different types of CAT have been developed for treatment of a wide range of clinical problems. Moreover, the use of personal computers and software that facilitate their use have become widespread during this period. The emergence of CAT as an intervention strategy is also related to developments in clinical psychology: on the one hand, the ideal nature of cognitive-behavioural procedures in programming computerized treatments (their structured, systematic nature and focus on specific conducts (Newman, Consoli, & Taylor, 1997) and on the other, the efforts to streamlining existing effective cognitive-behavioral treatments to make them more efficient, cost-effective, and affordable (Hazlett-Stevens & Craske, 2002). The most common way to enhance the efficiency has been to reduce the number of sessions of existing treatment protocols and make them briefer. CAT are another way to attempt to improve the efficiency of existing treatments.

Regarding contents, there are three basic kinds of CAT programs, aside from those that increasingly make use of the Internet (e.g., Schneider, Mataix-Cols, Marks, & Bachofen, 2005): (a) computerized versions of self-help programs or patient manuals for self-applied treatments with minimal therapeutic contact, (b) telephone-administered treatment programs with interactive voice response systems and finally, (c) treatments that use computers to reproduce the natural setting in which patients display problematic behaviors (e.g. virtual reality treatments). It should be noted that in some cases, regardless of CAT type, computerized treatment is the only intervention modality, whereas in others it is used to complement treatments that include face-to-face therapeutic contact. In the section below a brief review of the main features of CAT programs and its applications is presented.

*Computerized self-help programs and patient manuals*

They are the most thoroughly developed CAT and focus on a wide range of problems: phobic disorders, obsessive-compulsive disorder, generalised anxiety disorder, depression and alcohol and drug abuse.

These treatment programs use personal computers or personal digital assistants (PDA) as support. The structure and contents are essentially the same as those found in self-help manuals for specific problems or patient manuals that often accompany standardised treatments. Assessment tools and their automated correction are usually included in the program as a part of the algorithms that control the types of activities that patients are instructed to carry out in each treatment stage.

The computer program guides treatment for self-application in the same way that a programmed instruction text (manual-driven treatments) on paper format. Thus, it could be understood as a substitute for the therapist. The main difference lies in interactivity, which is incorporated in diverse degrees, and in the inclusion of multimedia in the most recent applications. The level of interactivity and feedback that such programs can offer are believed to overcome many of the disadvantages of traditional self-help or patient manuals on paper format (Riley & Veale, 1999).

The efficacy of computerized self-help programs has been established in a number of randomized controlled trials and it is similar to face-to-face therapy,

In other cases, computer technology has been used to complement traditional interventions including direct therapeutic contact. In these cases, the number of face-to-face sessions has been reduced and most of the treatment takes place outside the office with the assistance of a laptop or, more often, a PDA. This modality was used for the first time to treat two treatment-resistant individuals with obsessive-compulsive disorder (Baer, Minichello, & Jenicke, 1987; Baer, Minichello, Jenicke, & Holland, 1988).

Its efficacy for the treatment of social phobia, panic disorders, depressive disorders and generalized anxiety has also been demonstrated (Gruber, Dwell, Roth, & Taylor, 2001; Gruber, Taylor, & Roth, 1996; Marks et al., 2003; Marks, Kenwright, McDonough, Whittaker, & Mataix-Cols, 2004; Newman, Consoli, & Taylor, 1999; Newman, Kenardy, Herman, & Taylor, 1996, 1997) and, in general, the outcomes were equivalent to face-to-face treatment.

Several studies indicate that treatments which combine face-to-face sessions with a therapist and computer-assisted intervention are more effective than computer-assisted alone, achieving higher completion rates and fewer drop-outs (Newman et al., 1997), although the results are not always consistent (Gruber et al., 2001). Overall, results suggest that computerized treatments are a good way to reduce the number of direct therapeutic contact hours without undermining efficacy or effectiveness.

*Self-help programs with interactive voice response systems*

This kind of CAT combines the use of a patient's manual in paper format with phone calls to an interactive voice response system that can be accessed from any dial tone telephone. The system includes taped messages based on the patient's demands that guide him/her through the type of activities to be carried out. The interactive voice system is also used for patient assessment at different treatment stages. This procedure has been used with remarkable success in the COPE program to treat mild depression (Osgood-Hynes et al., 1998) and in the BT Steps program to treat obsessive-compulsive disorder (Marks et al., 1998). Despite its efficacy, this type of computer-assisted intervention has not been as widely disseminated as might be expected.

### *Computer-assisted exposure programs*

This type of computer-assisted intervention uses computers to treat phobic disorders through exposure-based techniques (computerized exposure) and thus, is one of the variants of exposure techniques. The aim is not to guide in vivo or imaginary exposure through instructions supplied by the computer program, but to tailor the stimuli (images, sounds) to the stimuli feared by the patient. The program devises an exposure hierarchy based on the automated evaluation of the person who is to undergo treatment and determines the conditions (duration, sequencing, etc.) in which the confrontation with fear-inducing stimuli that will appear in the computer's output devices are to be conducted.

The first work on computerized exposure, which studied two children with a phobic fear of spiders, was published by Nelissen, Muris, & Merckelbach (1995). The program was very rudimentary; the exposure hierarchy was not personalised and duration was predetermined at one hour, after which live exposure was proceeded to. The intervention was not effective.

Coldwell and his collaborators (1998) developed a very complex program shortly afterwards to treat fear of dental injections that combined exposure to images of paediatric dental interventions with relaxation training and cognitive techniques to control activation. It also included a module for the dentist or dental hygienist who guided their actions when patients decided to expose themselves to the situation, once the computerized exposure stage had concluded. The treatment was shown to be very effective after the treatment and at a one-year follow-up.

The University of the Balearic Islands' Neurodynamic and Clinical Psychology Research Group has worked systematically to develop and analyse computer-assisted exposure, specifically in treating the fear of flying. The following sections analyse its contributions in detail.

We think that computer-assisted exposure has not been as thoroughly developed as it might have been, most probably because of the parallel advent of virtual reality in treating psychopathological disorders. This is a technology that most behavioural researchers have found much more appealing and that intuitively appears to be of greater use in promoting behavioural change.

#### Computer-assisted exposure for fear of flying

In vivo exposure is the treatment of choice for specific phobias. Despite that, there is only one randomized controlled trial on the effectiveness of in vivo exposure in fear of flying (Öst, Brandberg, & Alm, 1997). Unlike other phobias, the difficulty and expense of conducting this type of intervention have made most clinicians and researchers practically discard its application and have encouraged several research groups to develop the most realistic and vivid simulations possible of flying conditions. Simulated exposures were first used with very promising results in the 1970s, when slides were presented and, in some cases, sounds related to flight conditions were reproduced (Denholtz & Mann, 1975; Solyom, Shugar, Bryntwick, & Solyom, 1973). However, practical problems at the time, such as the difficulties involved in integrating sounds and images and the therapist's control of the stimuli, etc., made disseminating this strategy very difficult during more than twenty years. For an exhaustive review of fear of flying treatments, see Tortella-Feliu & Fullana (2001, 2006) and Fullana & Tortella-Feliu (2002).

The dissemination of new information and communication technologies that have enabled these limitations to be easily overcome since the 1990s have made it easier for researchers to develop new simulated exposure treatments. The use of these new technologies in treating fear of flying, and other

behavioural disorders boasts remarkable advantages beyond strictly therapeutic and effectiveness-related ones: a reduction in direct therapeutic contact time, the possibility of standardising treatment to the maximum, the low cost – which allows a greater extension - and, perhaps most importantly, access to patients who would not be very willing to subject themselves to live exposure (a real flight) with a steep exposure gradient (Botella, Baños, Perpiñà, & Ballester, 1998). The application of cognitive-behavioural procedures such as exposure through interactive computer programs, such as the one indicated above, is also especially recommended.

The use of computer-assisted exposure programs in stimulating phobic stimuli configurations is an alternative to virtual reality that has proven its efficacy in treating fear of flying on repeated occasions (Botella, Osma, García-Palacios, Quero, & Baños, 2004; Maltby, Kirsch, Mayeres, & Allen, 2002; Mühlberger, Herrmann, Wiedemann, Ellgring, & Pauli, 2001; Mühlberger, Weik, Pauli, & Wiedemann, 2006; Mühlberger, Wiedemann, & Pauli, 2003; Rothbaum, Hodges, Smith, Lee, & Price, 2000). As mentioned above, computer-assisted exposure treatments use specific software to confront patients gradually with their fears by displaying images and real sounds related to feared stimuli conditions on a personal computer screen.

Our research group has designed and evaluated the efficacy (Bornas, Fullana, Tortella-Feliu, Llabrés, & García de la Banda, 2001; Bornas, Tortella-Feliu, Fullana, & Llabrés, 2001; Bornas, Tortella-Feliu, & Llabrés, 2006), effectiveness (Bornas et al., 2002) and predictive variables of the therapeutic outcomes (Fullana & Tortella-Feliu, 2001) of the different versions and application procedures of the CAFFT (Computer-Assisted Fear of Flying Treatment) computer program, which will be described below, and has conducted psycho-pathological research on different aspects involved in fear of flying (Fullana & Tortella-Feliu, 2000; Tortella-Feliu & Fullana, 2000; Tortella-Feliu, Fullana, & Bornas, 2000, 2001; Tortella-Feliu & Rubí, 2000) and on the psycho-physiological responses to simulated exposure (Bornas, Llabrés, Noguera, & Lopez, 2006; Bornas et al., 2004, 2005).

#### *The Computer-Assisted Fear of Flying Treatment (CAFFT)*

The Computer-Assisted Fear of Flying Treatment (CAFFT) is a computer program that allows people who are afraid to fly to be exposed to images and sounds related to their phobic fears on a standard personal computer. The treatment is applied with minimum direct therapeutic contact and can even be totally self-applied. The average time of effective exposure less than four hours. This article describes the program's latest version: the CAFFT2.2 (Bornas, Tortella-Feliu & Llabrés, 2003).

One of the starting points is that flights may be broken down into a series of chronological events with certain critical moments. The CAFFT2.2 divides the flight process into five sequential stages: (1) flight preparation, (2) a series of activities immediately prior to flying on the day of the flight, (3) boarding and takeoff, (4) the central part of flight and (5) the airplane's descent and approach to the runway and landing. In addition to those five, the CAFFT includes a sixth sequence with images and auditory stimuli related to plane crashes. Exposure to this sequence is included because anxiety about possible accidents is a key component in the fears of most flying phobics.

Although many people who fear flying normally experience anxiety during all the phases in the process, many display idiosyncratic patterns in terms of intensity at different points in that process. In other words, fear is notably more intense at certain critical moments than at others. The first time patients access the program, they complete the Fear of Flying Questionnaire (QPV-II) (Bornas & Tortella-Feliu, 1995; Bornas, Tortella-Feliu, García de la Banda, Fullana, & Llabrés, 1999), which is part of the CAFFT, and the CAFFT automatically configures their fear hierarchies on the basis of their self-reported responses. Each item in the QPV-II is associated with an exposure sequence. The CAFFT calculates the average score for each flight phase and presents the sequences according to these ratings (from least to

most). Every sequence is made up of a chronological series of photographs (at home, at the airport terminal, when boarding, etc.) and sounds directly recorded in the real settings in which they were generated – we wish to emphasise that sounds seems to play a crucial role in this phobia (Bornas et al., 2005) – which are reproduced on personal computers. For example, the flight preparation sequence begins with three photographs of the facades of different travel agencies with the corresponding sounds of the street on which the snapshots were taken. The following photograph is inside one of the agencies and the patient can hear typical office noises (a ringing telephone, typing, an employee talking...). The first sequence continues with images that show an open suitcase with clothes inside on a bed and the airplane ticket beside it, then the closed suitcase near the front door of the house and finally, a photograph of the airport bus at a bus stop. The composition of the different sequences and their duration are described in table 1.

Table 1: Contents, composition and duration of the exposure sequences in CAFFT2.2.

Exposure sequence	Beginning of the sequence	End of the sequence	N° photographs	Duration (minutes)
1	Buying the ticket at a travel agency	Packing the suitcase at home	10	1.51
2	Trip to airport	Waiting for take-off in the plane	16	2.49
3	Safety instructions from the flight crew	Take-off and ascent	16	2.17
4	Airplane in flight (cruising)	Inside the plane in flight	14	2.17
5	Landing announcement	At the airport arrivals terminal	17	2.06
6	Flight accidents		10	2.18
Additional exposure in special conditions	After exposure to the above sequences, patients can choose additional exposure to night-time or adverse weather.		Same as in regular sequence	Same as in regular sequence

After each sequence has been presented, the patient must rate the level of anxiety experienced during the confrontation on a 1-9 Likert scale. The program repeats the same sequence until the patient reports that anxiety has fallen to only one or two points on that scale. Once habituation has taken place, the program proceeds to the following sequence in the personal fear hierarchy. The computer-assisted exposure treatment ends when habituation to the CAFFT's six sequences is achieved. At this point, the

patient can choose to receive additional exposure (the over-exposure phase) to one of the six sequences - the one he selects, considering the situation which he thinks will produce the greatest anxiety - before taking a real flight. Immediately after answering the QPV-II in the pre-treatment evaluation, the program asks patients to indicate whether flying at night and/or under adverse weather conditions increases the fear experienced. If so, the patients are then over-exposed to the images and sounds that reproduce these special conditions within the selected sequence that is made up of the same number of photographs with the same duration as those used in the regular exposure phase.

Finally, the CAFFT2.2 program also includes a very detailed on-line help tool that allows total self-application. This tool, which is made up of responses to 38 possible questions, includes a range of information on the logic behind the treatment, general application conditions, suggestions for overcoming some of the difficulties that may appear during exposure and recommendations on the process to be followed once exposure has concluded.

#### *The CAFFT's efficacy and effectiveness*

In order to evaluate the CAFFT's efficacy and effectiveness, Bornas' research group and collaborators conducted a series of studies following the "hourglass" process used in research validating psychological treatments (Salkovskis, 1995). The first systematic attempt to test the CAFFT's usefulness was a single case study. In view of the promising results, the program was then evaluated in a randomized controlled trial in which we compared our computer exposure procedure both with a multi-component program that has a structure and content typical of those offered by airlines and companies working in this field (van Gerwen, 2003) - which included aeronautical information, activation control techniques and finally, CAFFT- assisted exposure - and with a waiting list control group. On the basis of this study's outcomes and in order to overcome some of its limitations and clarify certain aspects considered of special interest for its subsequent extension to ordinary clinical practice outside CAFFT research laboratories, a second randomized controlled trial was designed in which the CAFFT's efficacy was compared with a multi-component intervention program that did not include any type of systematic exposure strategy. Finally, we analysed the CAFFT's effectiveness in an open clinical context in two different and socio-culturally distant countries with new therapists who had not been involved in the program's development in any way. The most outstanding results of these studies are summarised in table 2.

Table 2, Next Page!

Table 2: Studies on the CAFFT's efficacy and effectiveness

Study	CAT application conditions	Design	Main outcomes
Bornas , Fullana et al. (2001)	First version of the CAFFT Pentium 133 Mhz, 32 MB RAM Projected on a 100x75 cm screen Immersive conditions 8 exposure sessions in 4 weeks with therapeutic assistance.	Single-case study. Patient with a severe specific situational phobia (flying) with high interference. Complete avoider.	Recovery Flight without any significant discomfort, fear scores within the normal population's range. Results maintained at follow-up.
Bornas, Tortella - Feliu et al. (2001)	First version of the CAFFT Pentium 133 Mhz, 32 MB RAM Projected on a 100x75 cm screen Immersive conditions 2 sessions per week with therapeutic assistance	Randomized controlled trial. CAT (n=15) IRCAT (n=18) WLC (n=17)	<i>Completed treatment:</i> 100% CAT, 72% IRCAT <i>Flying after treatment:</i> 93% CAT > 50% IRCAT > 12% WLC <i>Self-reported fear of flying:</i> CAT > IRCAT > WLC Results maintained at follow-up.
Bornas et al. (2002)	First version of the CAFFT And the German version of the CAFFT <b>Study1:</b> Son Sant Joan Airport 21-inch screen Pentium II 400 Mhz 128 RAM <b>Study 2:</b> University of Tübingen (Germany) LCD Projector, 150 x 150 cm Screen Pentium II 400 Mhz 128 RAM 2 sessions per week with therapeutic assistance	Open CAFFT Study Study 1 (n=12) Study 2 (n=8)	<i>Completed Treatment:</i> 95% <i>Flying after treatment</i> 100% of Those who completed treatment. <i>Self-reported significant reduction in fear:</i> 90% <i>Average time of effective exposure:</i> 3.2 hours.
Bornas, Tortella - Feliu et al. (2006)	CAFFT 2.2. 17-inch screen PowerMac 6500, 64 MB RAM Intervention guided by self-help included in the computer program, minimum therapeutic assistance, a maximum of 6 CAT sessions, no accompanied flight.	Randomized controlled trial, blind external evaluators CAT (n=19) 6 sessions at most MNE (n=21) 6 sessions	<i>Completed treatment:</i> 100% CAT. 100% MNE <i>Flying after treatment:</i> 57.9% CAT. 76.2% MNE <i>Flying at follow-up:</i> 76.2 CAT. 57.9 MNE <i>Self-reported reduction in fear of flying:</i> CAT=MNE: size of the CAT's effect (3.6 at the end: 3.8 at the 6-month follow-up) Clinical/6 months (improvement and recovery): 92.3% CAT, 78.9% MNE <i>Average duration of exposure:</i> 4.11 sessions of 50'.

---

CWL = Wait-list control; IRCAT = information, relaxation, computer-assisted treatment; MNE = multi-component intervention without exposure; CAT = Computer-assisted treatment; </> = more or less than.

We concluded from the first controlled study (Bornas, Tortella-Feliu et al., 2001) that both computer-assisted exposure treatment and the multi-component program are more effective than a waiting list. More importantly, the additional strategies (aeronautical information and activation control techniques) that are part of the multi-component program do not increase the effectiveness of the CAFFT. Moreover, the CAFFT has a lower drop-out rate than the multi-component intervention, since it is briefer and less expensive.

Nevertheless, because of the very nature of the experimental design used, analysing the role of computerized exposure suitably and in certain detail is a complex matter, firstly, because the CAFFT was also an integral part of the multi-component program, secondly, because of the interventions' different durations and finally, because both interventions included a flight accompanied by a therapist at the end. Although the data analysis very clearly shows that this flight does not help reduce self-reported fear, but rather that its decline is totally attributable to the treatment itself, we cannot consider these flights a good indicator of success as a behavioural test. We also wish to mention that exposure was conducted in immersive conditions (dark room, LCD projector to display the images on a 100 x 75 cm screen located 2 metres from the patient's face, presentation of sounds with earphones and restriction of the lateral field of vision through separating screen placement), both in this first controlled study as in the single-case study.

The second controlled study (Bornas, Tortella-Feliu et al., 2006) was primarily aimed at specifically analysing the role of computerized exposure, which is why the CAFFT was compared with a multi-component program that did not include any type of exposure. The duration of the treatments was also the same (6 sessions), but the application conditions for the computer-assisted exposure varied significantly: the CAFFT 2.2 version with self-help was used, which allowed therapist interaction to be drastically reduced, exposure took place on the computer screen in a brightly-lit, completely open room (the study on the CAFFT's clinical usefulness, some aspects of which will be commented on below, stated that the results obtained in these conditions were equivalent to those achieved through exposure with LCD projectors in immersive conditions) and the end-of-treatment flight was taken without a therapist. As can be seen in table 2, the results indicate that the two interventions reduced fear of flying to a similar extent and that improvement was maintained at the six-month follow-up. As for the CAFFT, its application in low immersion conditions and with less direct therapeutic guidance (in other words, less therapeutic contact time) did not reduce its efficacy in any way. In cost-efficiency terms, we can affirm that the CAFFT is preferable to other alternative treatments, taking into account the lower amount of time devoted by the therapist, who is not required to have a high level of training (the treatment was led by four therapists with varying degrees of experience and knowledge of the program, which did not affect the results in any way), which also allows the treatment's total duration to be reduced. The average duration of computer-assisted exposure was 4.11 sessions ( $SD = 1.24$ ); i.e., patients who received this treatment concluded before the six pre-established sessions were over.

As mentioned earlier, previous work on the effectiveness of computer-assisted exposure (Bornas et al., 2002) attempted to evaluate its usefulness when conducted by non-expert therapists in open clinical contexts. We were also interested in ascertaining whether the CAFFT's application in less immersive conditions and without the use of a LCD projector (something that would make it easier to use in ordinary clinical practice) would affect the results. The study was made up of two coordinated studies: one conducted by our team at Son Sant Joan Airport's Fear of Flying Unit (Palma, Majorca) and the other led by a German research group at the University of Tübingen's University Clinic of Psychiatry and

Psychotherapy, which did not participate in developing the CAFFT, although it was experienced in virtual reality. Treatment was applied in both cases by psychologists with less than a year of clinical experience who were only briefly trained in the use of the software.

The results (see table 2) show that the reduction in fear of flying and effective exposure time are very similar to the results from the other studies on the CAFFT in which treatment was applied by expert therapists in more strictly controlled surroundings; they also show that there were no significant differences between the applications at the airport in Majorca and at the Swabian research centre.

#### *Predictive variables of the therapeutic outcomes*

Fear of flying is not a unitary fear, but rather is considered the expression of different underlying components, such as the phobic fear of accidents, heights and closed places, etc. (Howard, Murphy, & Clarke, 1983; van Gerwen, Spinhoven, Diekstra, & Dyck, 1997) or the expression of other non-situational phobias or panic-agoraphobia problems (McNally & Louro, 1992; Wilhelm & Roth, 1997). Therefore, we deemed appropriate to analyse whether this aspect, along with other variables (socio-demographic characteristics, phobia severity, associated anxiety-depressive symptoms, etc.), had any relevant relationship to the results of the CAFFT treatment.

Fullana and Tortella-Feliu (2001) found that only the fear of instability and fear of heights – some of the less frequent components of the fear of flying - were associated with less optimal results at the end of the treatment. However, the regression analysis reveals that only the fear of instability was capable of predicting the severity of fear of flying once the intervention had been concluded, explaining 40% of the variance. At the one-year follow-up, only the fear of flying once the treatment had been concluded was capable of predicting subsequent scores in self-reported fear. In relation to this, it was also observed that the higher the level of pre-treatment fear of pre-flight conditions (trip preparations, trip to the airport, check-in, etc.), the lower the level of self-reported fear in the follow-up. The CAFFT specifically addresses that kind of situation and interventions may be more effective in people who experience this kind of fear than in subjects who only display high levels of anxiety during the flight itself.

In exploring treatment outcome predictors, our group has worked in recent years on the psychophysiological responses of people who fear flying within the framework of the dynamic systems of emotion regulation model (Bornas, Llabrés et al., 2006; Bornas et al., 2004, 2005). Bornas et al. (2004) found significant differences in involvement during exposure to flight-related sounds among people with low and high heart rate variability (HRV). It has also been shown that flying phobics with low HRV are more anxious during simulated exposure than phobics with high HRV (Bornas et al., 2005). These results indicate that it may be relevant to distinguish between people with high and low HRV to optimise the use of computer-assisted exposure treatments and, in general, any type of exposure intervention, which is why we are currently analysing changes in HRV patterns throughout the entire CAFFT treatment process.

#### *The future of research on the CAFFT*

As we said before, we want to further study predictive factors (Bornas et al. 2007) and those involved in the process of therapeutic change, largely on the basis of data from our second controlled study, in which a brief multi-component program without exposure obtained the same results as the exposure treatment, a fact already noted in several other studies (Marks & Dar, 2000; Schneider et al., 2005). The therapeutic change within the dynamic systems framework cannot be exclusively attributed to one sole psychological intervention, but rather it depends on the interaction between this intervention and the system and its dynamics. Thus, the crucial question is: Which interactions between techniques and subjects led to the emergence of more adaptive behavioural patterns or more effective self-organisation patterns? We believe that the analysis of psychophysiological response patterns may shed light on this

question. In a recent study (Bornas et al. 2007), we compared two heart rate measures, variability and entropy, and tried to evaluate their significance as predictors of treatment outcome in flight phobia patients. Despite some limitations, our results suggest that heart rate entropy may have a role in the prediction of outcome and further research in this area seems warranted.

Furthermore, we are still awaiting a study of the CAFFT's efficacy in its totally self-administrated version (at the patient's home without any direct therapeutic contact whatsoever). One of our main objectives when we began developing the CAFFT in the mid-1990s was, and still is, to devise a brief, effective, and efficient treatment for the fear of flying. We now have some anecdotal evidence that shows that the CAFFT is equally effective with total self-application and the second controlled study shows that the program achieves equivalent levels of effectiveness without constant therapeutic attention. In any case, a controlled study is required to evaluate the effectiveness of self-application, our project's last goal.

Lastly, the results of our studies indicate that the CAFFT's clinical improvement rates are equivalent to those achieved in virtual reality treatments for fear of flying. It would be interesting to directly contrast the differential efficacy of these two exposure variants and analyse their cost-efficiency, which would contribute relevant information on the greater or lesser need for highly immersive systems in achieving a heightened sense of presence and how they are related to interventions' therapeutic potential, since some data provide a glimpse of how the relationship is not always the one we intuitively assume it to be (e.g., Mühlberger et al., 2003, 2006).

The questions have now been raised. Time and dedication, perhaps, will provide some responses and undoubtedly raise new questions.

### References

- Baer, L., Minichello, W. E., & Jenicke, M. A. (1987). Use of a portable-computer program in behavioral treatment of obsessive-compulsive disorder. *American Journal of Psychiatry*, *144*, 1101.
- Baer, L., Minichello, W. E., Jenicke, M. A., & Holland, A. (1988). Use of a portable-computer program to assist behavioral treatment in a case of obsessive-compulsive disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, *19*, 237-240.
- Bornas, X., Fullana, M. A., Tortella-Feliu, M., Llabrés, J., & García de la Banda, G. (2001). Computer-assisted therapy in the treatment of flight phobia: a case report. *Cognitive and Behavioral Practice*, *8*, 234-240.
- Bornas, X., Llabrés, J., Noguera, M., & López, A. M. (2006). Sample entropy of ECG time series of fearful flyers. *Nonlinear Dynamics, Psychology, and Life Sciences*, *10*, 301-318.
- Bornas, X., Llabrés, J., Fullana, M.A., Montoya, P., López, A., Noguera, M., Tortella, M., & Gelabert, J.M. (2007) Vagally mediated heart rate variability and heart rate entropy as predictors of treatment outcome in flight phobia. *Biological Psychology*, in press.
- Bornas, X., Llabrés, J., Noguera, M., López, A. M., Barceló, F., Tortella -Feliu, M., et al. (2004). Self-implication and heart rate variability during simulated exposure to flight-related stimuli. *Anxiety, Stress, and Coping*, *17*, 331-339.
- Bornas, X., Llabrés, J., Noguera, M., López, A. M., Barceló, F., Tortella -Feliu, M., et al. (2005). Looking at the heart of low and high heart rate variability fearful flyers: self-reported anxiety when confronting feared stimuli. *Biological Psychology*, *70*, 182-187.

- Bornas, X., & Tortella-Feliu, M. (1995). Descripción y análisis psicométrico de un instrumento de autoinforme para la evaluación del miedo a volar. *Psicología Conductual*, 3, 67-86.
- Bornas, X., Tortella-Feliu, M., Fullana, M. A., & Llabrés, J. (2001). Computer-assisted treatment of flight phobia: a controlled study. *Psychotherapy Research*, 11, 259-273.
- Bornas, X., Tortella-Feliu, M., García de la Banda, G., Fullana, M. A., & Llabrés, J. (1999). Validación factorial del Cuestionario de Miedo a Volar. *Análisis y Modificación de Conducta*, 25, 885-907.
- Bornas, X., Tortella-Feliu, M., & Llabrés, J. (2003). *Computer-Assisted Fear of Flying Treatment, CAFFT2.2*. Palma: AFUNTAP (ISBN-84-607-6175-4).
- Bornas, X., Tortella-Feliu, M., & Llabrés, J. (2006). Do all treatments work for flight phobia? Computer-assisted exposure versus a brief multicomponent non-exposure treatment. *Psychotherapy Research*, 16, 41-50 .
- Bornas, X., Tortella-Feliu, M., Llabrés, J., Barceló, F., Pauli, P., & Mühlberger, A. (2002). Clinical usefulness of a simulated exposure treatment for fear of flying. *International Journal of Clinical and Health Psychology*, 2, 247-262.
- Botella, C., Baños, R. M., Perpiñà, C., & Ballester, R. (1998). Realidad virtual y tratamientos psicológicos. *Análisis y Modificación de Conducta*, 24, 5-26.
- Botella, C., Osma, J. García-Palacios, A., Quero, S., & Baños, R.M. (2004). Treatment of flying phobia using virtual reality: data from a 1-year follow-up using a multiple baseline design. *Clinical Psychology & Psychotherapy*, 11, 311-323.
- Coldwell, S. E., Getz, T., Milgrom, P., Prall, C. W., Spadafora, A., & Ramsay, D. (1998). CARL: A LabVIEW 3 computer program for conducting exposure therapy for the treatment of dental injection fear. *Behaviour Research and Therapy*, 36, 429-441.
- Denholtz, M. S., & Mann, E. T. (1975). An automated audiovisual treatment of phobias administered by non-professional. *Journal of Behavior Therapy and Experimental Psychiatry*, 6, 111-115.
- Fullana, M. A., & Tortella-Feliu, M. (2000). Relaciones entre la sensibilidad a la ansiedad y el miedo a volar en avión. *Psicología Conductual*, 8, 5-25.
- Fullana, M. A., & Tortella-Feliu, M. (2001). Variables predictoras del éxito terapéutico en el tratamiento de exposición del miedo a volar. *Psicothema*, 13, 642-646.
- Fullana, M.A. & Tortella-Feliu, M. (2002). El miedo a volar y su tratamiento: aspectos históricos. *Revista de Historia de la Psicología*, 23, 85-96.
- Gruber, K., Moran, P. J., Roth, W. T., & Taylor, C. B. (2001). Computer-assisted cognitive behavioral group therapy for social phobia. *Behavior Therapy*, 32, 155-166.
- Gruber, K., Taylor, C. B., & Roth, W. T. (1996). Pocket computer-assisted therapy for social phobia. *AABT meeting, Nova York, november 1996*.

- Hazlett-Stevens, H., & Craske, M. G. (2002). Brief cognitive-behavioral therapy: Definition and scientific foundations. A F. W. Bond & W. Dryden (Eds.), *Handbook of brief cognitive behaviour therapy* (pp. 1-20). Chichester: Wiley.
- Howard, W. A., Murphy, S. M., & Clarke, J. C. (1983). The nature and treatment of fear of flying: a controlled investigation. *Behavior Therapy, 14*, 567-587.
- Maltby, N., Kirsch, I., Mayeres, M., & Allen, G. J. (2002). Virtual reality exposure therapy for the treatment of fear of flying: a controlled investigation. *Journal of Consulting and Clinical Psychology, 70*, 1112-1118.
- Marks, I., Mataix-Cols, D., Kenwright, M., Cameron, R., Hirsch, S., & Gega, L. (2003). Pragmatic evaluation of computer-aided self help for anxiety and depression. *British Journal of Psychiatry, 183*, 57-65.
- Marks, I. M., Baer, L., Greist, J. H., Park, J.-M., Bachofen, M., Nakagawa, A., et al. (1998). Home self-assessment and self-treatment of obsessive compulsive disorder using a manual a computer-conductues telephone interview: Two UK-US studies. *British Journal of Psychiatry, 172*, 406-412.
- Marks, I. M., & Dar, R. (2000). Fear reduction by psychotherapies. Recent findings, future directions. *British Journal of Psychiatry, 176*, 507-511.
- Marks, I. M., Kenwright, M., McDonough, M., Whittaker, M., & Mataix-Cols, D. (2004). Saving clinicians' time by delegating routine aspects of therapy to a computer: a randomised controlled trial in phobia/panic disorder. *Psychological Medicine, 34*, 1-10.
- McMinn, M. R. (1998). Technology in practice. A A. S. Bellack & M. Hersen (Eds.), *Comprehensive Clinical Psychology* (Vol. Volum 2. Professional Issues (Editor del volum: A.N. Wiens)). pp. 363-375). Amsterdam: Pergamon.
- McNally, R. J., & Louro, C. E. (1992). Fear of flying in agoraphobia and simple phobia: distinguishing features. *Journal of Anxiety Disorders, 6*, 319-324.
- Mühlberger, A., Herrmann, M., Wiedemann, G., Ellgring, H., & Pauli, P. (2001). Treatment of fear of flying with exposure therapy in virtual reality. *Behaviour Research and Therapy, 39*, 1033-1050.
- Mühlberger, A., Weik, A., Pauli, P., & Wiedemann, G. (2006). One-sessions virtual reality exposure treatment for fear of flying: 1-year follow-up and graduation flight accompaniment effects. *Psychotherapy Research, 16*, 26-40.
- Mühlberger, A., Wiedemann, G., & Pauli, P. (2003). Efficacy of a one-session virtual reality exposure treatment for fear of flying. *Psychotherapy Research, 13*, 323-336.
- Nelissen, I., Muris, P., & Merckelbach, H. (1995). Computerized exposure and in vivo exposure tratments of spider fear in children: Two case reports. *Journal of Behaviour Therapy and Experimental Psychiatry, 26*, 153-156.
- Newman, M. G., Consoli, A., & Taylor, C. B. (1997). Computers in the assessment and cognitive behavior treatment of clinical disorders: Anxiety as the case in point. *Behavior Therapy, 28*, 211-235.

- Newman, M. G., Consoli, A., & Taylor, C. B. (1999). A palmtop computer program for the treatment of generalized anxiety disorder. *Behavior Modification, 23*, 597-619.
- Newman, M. G., Kenardy, J., Herman, S., & Taylor, C. B. (1996). The use of hand-held computers as an adjunct to cognitive-behavior therapy. *Computers in Human Behavior, 12*, 135-143.
- Newman, M. G., Kenardy, J., Herman, S., & Taylor, C. B. (1997). Comparison of cognitive-behavioral treatment of panic disorder with computer assisted brief cognitive behavioral treatment. *Journal of Consulting and Clinical Psychology, 65*, 178-183.
- Norton, P. J., Asmundson, G. J. P., Cox, B. J., & Norton, G. R. (2000). Future directions in anxiety disorders: profiles and perspectives of leading contributors. *Journal of Anxiety Disorders, 14*, 69-95.
- Osgood-Hynes, D. J., Greist, M. D., Marks, I. M., Baer, L., Heneman, S. W., Wenzel, K. W., et al. (1998). Self-administered psychotherapy for depression using a telephone-accessed computer system plus booklets: An open U.S.-U.K. study. *Journal of Clinical Psychiatry, 59*, 358-365.
- Öst, L.-G., Brandberg, M., & Alm, T. (1997). One versus five sessions of exposure in the treatment of flying phobia. *Behaviour Research and Therapy, 35*, 987-996.
- Riley, S., & Veale, D. (1999). The internet and its relevance to cognitive behavioural psychotherapists. *Behavioural and Cognitive Psychotherapy, 27*, 37-46.
- Rothbaum, B. O., Hodges, L., Smith, S., Lee, J. H., & Price, L. (2000). A controlled study of virtual reality exposure therapy for the fear of flying. *Journal of Consulting and Clinical Psychology, 68*, 1020-1026.
- Salkovskis, P. M. (1995). Demonstrating specific effects in cognitive and behavioral therapy. A M. Aveline & D. Shapiro (Eds.), *Research foundations for psychotherapy practice*. Chichester: Wiley.
- Schneider, A. J., Mataix-Cols, D., Marks, I. M., & Bachofen, M. (2005). Internet-guided self-help with or without exposure therapy for phobic and panic disorders - A randomised controlled trial. *Psychotherapy and Psychosomatics, 74*, 154-164.
- Solyom, L., Shugar, R., Bryntwick, S., & Solyom, C. (1973). Treatment of fear of flying. *American Journal of Psychiatry, 130*, 423-427.
- Tortella-Feliu, M., & Fullana, M. A. (2000). Prevalencia, dimensiones y vías de adquisición en el miedo a volar en avión. *Revista de Psicopatología y Psicología Clínica, 5*, 13-26.
- Tortella-Feliu, M. & Fullana, M.A. (2001). El tratamiento del miedo a volar: una revisión. *Revista Internacional de Psicología Clínica y de la Salud, 1*, 547-569
- Tortella-Feliu, M., & Fullana, M. A. (2006). Características clínicas y tratamiento de la fobia a volar. *JANO Medicina y Humanidades, núm. 1615*, 32-36.
- Tortella-Feliu, M., Fullana, M. A., & Bornas, X. (2000). Miedo a volar. Características clínicas de la fobia a volar y estrategias de intervención. *Revista de Medicina Aeroespacial y Ambiental, III*, 26-35

- Tortella-Feliu, M., Fullana, M. A., & Bornas, X. (2001). Características clínicas del miedo fóbico a volar en avión. *Psicología Conductual*, 9, 63-78.
- Tortella-Feliu, M., & Rubí, A. (2000). Las expectativas de peligro como componente del miedo a volar. *Anuario de Psicología*, 31, 3-18.
- van Gerwen, L. (2003). Multi-component standardised cognitive-behavioural group treatment programme for fear of flying. En R. Bor & L. van Gerwen, *Psychological Perspectives on Fear of Flying*. (pp 143-167). Hant: Ashgate.
- van Gerwen, L., Spinhoven, P., Diekstra, R. F., & van Dyck, R. (1997). People who seek help for fear of flying: typology of flying phobics. *Behavior Therapy*, 28, 237-251.
- Wilhelm, F. H., & Roth, W. T. (1997). Clinical characteristics of flight phobia. *Journal of Anxiety Disorders*, 11, 241-261

#### Authors' Note

Miquel Tortella-Feliu, Xavier Bornas and Jordi Llabrés, Department of Psychology, Neurodynamic and Clinical Psychology Research Group, University of the Balearic Islands –University Institute of Research in Health Sciences.

Declaration of interest: the three authors of this revision share the author's rights to the CAFFT2.2 program.

This study has been supported by the Spanish Government's General Research Directorate (Project SEJ2005-00899/PSI).

#### Author Contact Information:

Miquel Tortella-Feliu.  
Department de Psychology, Ed.  
Guillem Cifre de Colonya,  
Carretera de Valldemossa km.7.5,  
Universitat de les Illes Balears,  
07122 Palma (Mallorca),  
E-mail: miquel@ndpc.cat

## Behavioral Interventions in the Treatment of Pathological Gambling: A Review of Activity Scheduling and Desensitization

Nicki Dowling, Alun C. Jackson & Shane A. Thomas

### Abstract

Cognitive and behavioral interventions have been cautiously recommended as “best practice” in the treatment of pathological gambling. Behavioral interventions, using a range of techniques, have been the most commonly evaluated approach to the psychological treatment of pathological gambling. The recent literature evaluating behavioral treatments has shifted from aversive therapy to alternative behavioral techniques such as interventions based on desensitization and exposure procedures. A range of other behavioral techniques, such as alternative activity scheduling, problem solving training, financial planning and limit setting, social skills training, and relapse prevention, have been included as treatment components of standardized cognitive-behavioral programs. This paper reviews the published empirical literature investigating the efficacy of the behavioral intervention strategies of activity scheduling and desensitization in the treatment of pathological gambling. Although the findings for both intervention strategies are promising, they must be interpreted with caution given the methodological difficulties inherent in the pathological gambling treatment outcome literature.

*Keywords:* gambling, pathological gambling, activity scheduling, behavioral activation, desensitization, exposure, behavior therapy.

---

### Introduction

The higher availability of legalised gambling opportunities in most western countries has generally stimulated higher rates of gambling participation and problem gambling activity in these countries (Productivity Commission, 1999). The prevalence of problem gambling behavior in various communities has been studied extensively in the US, UK, and Australia. The Californian Prevalence study found prevalence of lifetime problem or pathological gambling in California to be 3.7% (Volberg, Nysse-Carris, & Gerstein, 2006). The 2007 British Gambling Prevalence Survey found that 0.5% of the adult population had a gambling problem in the previous 12 months (Wardle et al., 2007). In Australia, the Productivity Commission (1999) national study of gambling found that the prevalence of problem gambling approximates to 2.1 per cent of the community. Pathological gambling is defined in the Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition, Text Revision) (DSM-IV-TR) as “a persistent and recurrent maladaptive gambling behavior that disrupts personal, family or vocational pursuits” (American Psychiatric Association [APA], 2000, p. 671). Classified as an impulse control disorder, the diagnosis is characterised by preoccupation with gambling, repeated unsuccessful efforts to control gambling, gambling as a way of escaping from problems, chasing losses (i.e., the effort to win back lost money), deception about the extent of involvement with gambling, and committing illegal acts to finance gambling (APA, 2000). Pathological gambling has been associated with significant financial consequences, psychological and social impairment, and health difficulties (Productivity Commission, 1999; National Research Council, 1999) and is now recognised as a significant public and mental health problem (Shaffer & Korn, 2002).

Various theoretical models attempt to account for the acquisition and maintenance of pathological gambling. Among the most comprehensive of these models is that offered by Sharpe (2002), which adopts a diathesis-stress perspective, whereby particular life circumstances are instrumental in stimulating loss of control. This model proposes that a genetic vulnerability to pathological gambling can be conferred through biological changes in neurotransmitters or through psychological traits such as impulsivity, and that this genetic vulnerability is likely to be compounded by early experiences that result in a psychological vulnerability in the form of positive gambling attitudes, impulsivity, and poor coping skills. It is postulated that membership in gambling subcultures and a pattern of early wins combine to

produce a perceptual filter through which wins and losses are interpreted in maladaptive ways, and that these factors contribute to the development of cognitive biases, and to the association between gambling and arousal. The model argues that as the frequency of gambling increases, the association between gambling, cognitive biases, and arousal becomes more automatic. According to the model offered by Sharpe, electronic gambling machine gamblers begin to gamble to escape from life problems and the high levels of arousal associated with stress are reinterpreted as excitement within the gambling environment. In contrast, horse race and/or casino gamblers gamble to replace the low levels of arousal associated with boredom with an optimal level of arousal in the form of excitement. Accordingly, internal states (e.g., boredom and stress) and external triggers (e.g., gambling-related stimuli) act to elicit an automatic response of increased autonomic arousal accompanied by gambling-related cognitions. The arousal and cognitions combine to produce a physiological state, which constitutes an urge. It is postulated that the probability of gambling is determined by the availability of effective coping skills, and that the combination of cognitive biases and autonomic arousal result in continued gambling, regardless of whether the gambler is winning or losing. It is argued that continued play is therefore mediated by level of arousal, degree of cognitive bias, and availability of coping strategies, and that problems consequent to the gambling behavior serve to maintain problem gambling by contributing to disturbed mood, high levels of arousal, and lower availability of coping resources.

Although such theories for pathological gambling appear to have some empirical support, the evaluation of psychological interventions for pathological gambling is limited and is only recently establishing even basic methodologies. A recent review indicated that although there has been improvement in the evidence base for pathological gambling treatment in recent years, no treatment satisfies the current standards for evidence of efficacy (Westphal, 2007a, 2007b). Despite these considerations, the literature investigating the efficacy of psychological interventions for pathological gambling provides some limited evidence that this disorder is amenable to psychological treatment, with approximate overall success rates for psychological treatments estimated at 70% at six months follow-up, 50% at one-year follow-up, and 30% at two-year follow-up (López Viets & Miller, 1997; Walker, 1992). These improvements in gambling behavior are also often associated with notable improvements in psychological functioning (López Viets & Miller, 1997). A recent meta-analysis revealed that psychological treatments were more effective than no treatment at post-treatment and follow-up, and that the magnitude of effect sizes were lower in studies including clients with a diagnosis of pathological gambling and higher in randomized controlled trials, within subjects designs and in studies trialling programs with a higher number of therapy sessions (Pallesen, Mitsem, Kvale, Johnsen, & Molde, 2005).

A number of psychological interventions have been described for treating pathological gambling, including psychodynamic interventions, Gamblers Anonymous, inpatient rehabilitation programs, behavioral interventions, cognitive interventions, and cognitive-behavioral interventions (Jackson, Thomas, & Blaszczynski, 2003). It has been argued that the treatment outcome literature does not provide a strong basis for differentiation of the available treatment options (National Centre for Education and Training on Addiction [NCETA], 2000) and that the treatment outcome literature is still attempting to address the issue of whether therapy is effective, rather than the degree of effectiveness, or which therapies are most effective (Ladouceur et al., 2003). However, cognitive and behavioral models, which have been particularly influential in the theoretical explanation of pathological gambling, have resulted in the most extensive treatment outcome literature relative to other etiological formulations. Moreover, all of the available methodologically robust studies have been conducted using cognitive and behavioral techniques. Given the infancy of the gambling treatment outcome literature, this improved methodology coupled with the consistency of findings allows the generation of cautious service delivery recommendations regarding these treatment approaches as 'best practice' for the treatment of pathological gambling (Jackson et al., 2003; López Viets & Miller, 1997; NCETA, 2000; Westphal, 2007a).

Behavioral interventions, using a range of techniques, have been the most common approach to the psychological treatment of pathological gambling. In accordance with learning principles, behavioral approaches to the treatment of pathological gambling have commonly applied classical and operant conditioning techniques in order to reduce the arousal and excitement associated with gambling. The earliest form of behavioral treatment reported in the literature is aversive therapy, which is based on the assumption that gambling can be unlearned through classical conditioning (Blaszczynski, 1985). Aversive therapy involves the subject experiencing unpleasant stimulation, usually in the form of electric shock, while engaging in some aspect of gambling behavior (Walker, 1992). Many studies have evaluated aversive techniques either in isolation (Barker & Miller, 1968; Goorney, 1968; Koller, 1972; McConaghy, Armstrong, Blaszczynski, & Allcock, 1983; McConaghy, Blaszczynski, & Frankova, 1991; Salzman, 1982), or in combination with other behavioral procedures such as supportive therapy, covert sensitization, positive reinforcement, exposure techniques, and stimulus control techniques (Cotler, 1971; Greenberg & Marks, 1982; Greenberg & Rankin, 1982; Seager, 1970). Although these studies indicate that aversive therapy, both alone and in combination with other techniques, generally produce moderate improvements in gambling behavior, it is argued that it is difficult to ethically justify the use of a procedure that has been criticised as an intrusive, unpleasant, and dehumanising procedure that causes undue emotional distress (Blaszczynski, 1985; NCETA, 2000).

For this reason, literature evaluating behavioral treatment shifted from aversive therapy to alternative behavioral techniques such as behavioral counselling (Dickerson & Weeks, 1979; Rankin, 1982), imaginal relaxation (McConaghy, Armstrong, Blaszczynski, & Allcock, 1988; McConaghy et al., 1991), and desensitization and exposure techniques (Blaszczynski, Drobny, & Steel, 2005; Echeburúa, Báez, & Fernández-Montalvo, 1996; Echeburúa & Fernández-Montalvo, 2002; Echeburúa, Fernández-Montalvo, & Báez, 2000; Kraft, 1970; McConaghy, 1991; McConaghy et al., 1983, 1988, 1991; Symes & Nicki, 1997; Tolchard, Thomas, & Battersby, 2006). Behavioral techniques that have been employed as treatment components of standardised treatment programs for pathological gambling include alternative activity planning, problem solving training, financial planning and limit setting, social skills and communication training, relapse prevention, stimulus control, in-vivo exposure, and imaginal desensitization (Bujold, Ladouceur, Sylvain, & Boisvert, 1994; Dowling, Smith, & Thomas, 2006, 2007; Ladouceur, Boisvert, & Dumont, 1994; Milton, Crino, Hunt, & Prosser, 2002; Petry et al., 2006; Sharpe & Tarrier, 1992; Sylvain, Ladouceur, & Boisvert, 1997; Tolchard & Battersby, 2000).

This invited paper for the *International Journal of Behavioral Consultation and Therapy* will review the empirical research on the intervention strategies of activity scheduling and desensitization in the treatment of pathological gambling.

### **Activity Scheduling in the Treatment of Pathological Gambling**

It has been argued that it is during leisure that personally destructive activities such as pathological gambling occur (Leitner & Leitner, 2005). Pathological gamblers tend to participate in few recreational activities other than gambling as their gambling behavior becomes all consuming (Petry, 2005; Jackson et al., 1997; Jackson, Thomason, Ryan, & Smith, 1996). They often consider that gambling is the only pleasurable activity in which they participate (Petry, 2005), and have minimal social contact with others (Bergh & Kühlnhorn, 1994). Moreover, a reduction in gambling behavior during recovery attempts often results in pathological gamblers experiencing a substantial amount of unstructured time (Hodgins, 2001; Hodgins & el-Guebaly, 2000; Walters, 1994).

It is generally agreed that pathological gamblers must fill this spare time with productive activity (Walters, 1994) and that they can promote their physical and psychological well-being by participating in leisure activities (Petry, 2005). Participation in non-gambling activities may also enhance the development of a non-gambling social support network (Petry, 2005). It has therefore been suggested that

pathological gamblers will benefit from the identification and participation in alternative leisure activities to replace gambling behaviors, whereby effective substitution of the gambling behavior involves the identification of hobbies and leisure activities tailored to the individual and the development of a network of supportive non-gambling relationships (Dowling et al., 2006; Petry et al., 2006; Walters, 1994).

These arguments are supported by evidence from the literature examining the recovery process for pathological gambling. Hodgins (Hodgins, 2001; Hodgins & el-Guebaly, 2000) has found that the primary change strategy reported by recovered gamblers is stimulus control (i.e., curtailing exposure to gambling opportunities and cues) but that the second most common change strategy was the development of activities incompatible with gambling. In recognition of the time-consuming nature of problematic gambling behavior, recovered gamblers reported that they specifically planned to fill the time by engaging in alternative activities, such as starting an exercise program, taking on a new work project, and spending more time reading or with family.

In behavioral terms, a reduction in the positive reinforcement derived from not participating in pleasant activities results in a downward spiral in which the individual experiences even fewer positive reinforcers (Persons, Davidson, & Tompkins, 2001). Activity scheduling interventions (e.g., activity scheduling, pleasant activity scheduling, and behavioral activation) are interventions that were developed in response to the literature indicating that there is a significant relationship between mood and pleasant activities and that depressed individuals are less likely to engage in pleasant activities and experience positive reinforcement than non-depressed individuals (Cuijpers, van Straten, & Warmerdam, 2007; Dimidjian et al., 2006; Hopko, Lejuez, Ruggiero, & Eifert, 2003; Persons et al., 2001). Activation strategies typically include self-monitoring of daily activities, structuring and scheduling daily activities, rating the degree of pleasure and mastery experienced during engagement in specific daily activities, exploring alternative behaviours related to achieving goals, and planning ahead for potential obstacles (for step-by-step protocols, see Lejuez, Hopko, & Hopko, 2001 and Persons et al., 2001). Activity scheduling interventions typically attempt to optimize the chances of success by involving graded task assignments to assist in breaking down large, challenging tasks into smaller, more realistic tasks (Hopko, Lejuez, LePage, et al., 2003; Persons et al., 2001). In selecting activities, there is often a particular emphasis on activities that will enhance positive interactions with their environment, such as pleasant activities, mastery activities, and social interactions (Cuijpers et al., 2007; Hopko, Lejuez, LePage, et al., 2003; Persons et al., 2001). In addition to increasing positive reinforcement, activity scheduling interventions are often also placed within a cognitive framework, whereby it is argued that the interventions serve to provide direct evidence to challenge maladaptive cognitions (see Hopko, Lejuez, Ruggiero, et al., 2003 for a discussion of the change processes involved in activity scheduling interventions). While activity scheduling treatments can be employed as sole interventions, they are often included as a key component of cognitive-behavioural treatment programs (Persons et al., 2001). Although originally developed for the treatment of depression, there is evidence that activity scheduling interventions are effective in the treatment of a range of disorders (Cuijpers et al., 2007; Hopko, Lejuez, LePage, et al., 2003).

Despite its demonstrated efficacy with a range of other disorders, activity scheduling has not been extensively examined in the treatment of pathological gambling. However, it has been employed as a supplemental technique in several studies examining the efficacy of cognitive-behavioral treatment programs (Bujold et al., 1994; Dowling et al., 2006, 2007; Ladouceur et al., 1994; Petry et al., 2006; Sharpe & Tarrier, 1992; Sylvain et al., 1997). These studies are described in Table 1.

**Table 1 Activity Scheduling as Component of Cognitive-Behavioral Treatment Program**

Study	Treatment description	No. of sessions	N	Type of study	Follow-up period (mths)	Outcomes
-------	-----------------------	-----------------	---	---------------	-------------------------	----------

Sharpe & Tarrier (1992)	Stabilization (financial limit setting, avoidance of gambling-related stimuli, alternative behavioral repertoires), awareness (self-monitoring, rationale), applied relaxation training, imaginal exposure, in-vivo exposure, cognitive restructuring	Unknown	1	Case study	Un-known	Reduced gambling behavior and anxiety
Bujold et al. (1994)	Cognitive correction, problem solving training (incl. financial planning & alternative activity	Treated until gambling ceased & an	3	Multiple baseline	9	Improvement on multiple indices of gambling behaviour
Ladouceur et al. (1997)	planning, social skills training, relapse prevention	'adequate' perception of chance	4	Multiple baseline	6	Abstinence at follow-up evaluation
Sylvain et al. (1997)		developed	29	Comp-arative	12	Improvement on multiple indices of gambling behaviour
Petry et al. (2006)	Discovering triggers, functional analysis, increasing pleasant activity, self-management planning, coping with urges, assertiveness training, changing irrational thinking, coping with lapses	8	231	Comp-arative	12	CB treatment reduced gambling relative to GA referral alone; clinically significant improvements
Dowling et al. (2006)	Financial limit setting, alternative activity planning, cognitive correction, problem solving, communication training, relapse prevention, imaginal desensitization	12		Comp-arative	6	Significant improvement on gambling behaviour and psychological functioning
Dowling et al. (2007)			56	Comp-arative	6	Group treatment failed to produce superior outcomes to control group on several measures

For example, the 12-session cognitive-behavioral treatment program developed by Dowling and colleagues (Dowling et al., 2006, 2007) for female pathological gamblers with electronic gaming machine gambling problems comprised modules on financial limit setting, alternative activity planning, cognitive correction, problem solving, communication training, relapse prevention, and imaginal desensitization. The alternative activity planning component of this intervention program comprised one session requiring the identification and participation in alternative leisure activities to replace gambling behaviors, with an emphasis on inexpensive, pleasurable, or social activities. The program employed a pleasurable activities list to identify possible alternative leisure activities and participants were required to schedule the replacement activities into daily life in order to structure their time and to achieve a routine. This session required participants to identify barriers to participating in these activities and to begin implementing these activities into their daily lives. In a study designed to address the fundamental issue of whether cognitive-behavioral treatment is effective for female pathological gamblers, Dowling et al. (2006) found that by the completion of the six-month follow-up period, participants treated with the program displayed significant improvement on gambling behavior and psychological functioning measures and that 89% of participants no longer met diagnostic criteria for pathological gambling. In a study designed to determine

the differential efficacy of the program delivered in an individual and group format, Dowling et al. (2007) found that group treatment failed to produce superior outcomes to the control group in relation to several measures of psychological functioning and that by the completion of the six-month follow-up period, 92% of the gamblers allocated to individual treatment compared with 60% allocated to the group treatment no longer satisfied the diagnostic criteria for pathological gambling.

Petry (Petry, 2005; Petry et al., 2006) also developed a cognitive-behavioral program for the treatment of pathological gambling that includes an intervention component designed to increase pleasant activities. This 8-session program comprises discovering triggers, functional analysis, increasing pleasant activities, self-management planning, coping with urges to gambling, assertiveness training and gambling refusal skills, changing irrational thinking, and coping with lapses. In the session designed to establish other hobbies or recreational activities (Petry, 2005), treatment-seeking pathological gamblers are presented with a "leisure checklist" that contains a list of more than 50 activities or hobbies, with an emphasis on free, inexpensive, solo, and social activities. Using this list, pathological gamblers identify activities in which they once liked to participate or in which they would consider trying to participate, and are encouraged to attempt and record several of these activities in the upcoming week. Activities are also planned for high-risk times and pre-commitment strategies, such as telephoning a friend to arrange meeting for a coffee during the session, are employed to enhance the likelihood that the pathological gambler will participate in the leisure activity. A randomised evaluation of the cognitive-behavioral treatment program designed by Petry indicated that the treatment reduced gambling relative to Gamblers Anonymous referral alone during the treatment period and resulted in clinically significant improvements, with some effects maintained throughout the 12 month follow-up period (Petry et al., 2006).

Petry (2005, p. 239) provides a case study illustrating this session of the program. The client in the case study (p. 12), Mary, is a 53-year-old divorced woman with three grown children who recently lost her job. Although Mary's social activities used to consist of spending time with family members, she was less available to her children since she started gambling at the casino. In the session designed to increase her pleasant activities, Mary identified "sewing, reading, watching sporting events, gardening, spending time with children, arts and crafts, movies, theatre, eating out, journaling, travel, and church" as appealing on the leisure checklist. Mary selected attending her grandson's soccer game as an activity in which she could participate during the following week. Mary identified "sewing, reading, gardening, and journaling" as activities that she could participate in spontaneously and without preparation. There was a need, however, to find some alternative activities as she did not have some of the materials she required at home and did not have any money. Mary identified going to dinner at an old friend's house as a planned activity. Mary was encouraged to record at least one pleasant activity that she participated in each day.

Taken together, the findings of these studies evaluating cognitive-behavioral programs indicate that the combination of several techniques is effective in the treatment of pathological gambling. However, interventions that are comprised of a combination of therapeutic components make it difficult to elucidate their relative contribution (Bujold et al., 1984; Jackson et al., 2003; López Viets & Miller, 1997; NCETA, 2000). Given the relatively uncomplicated, time-efficient, and cost-effective nature of activity scheduling (Cuijpers et al., 2007; Hopko, Lejuez, LePage, et al., 2003; Lejuez et al., 2001), the field may benefit from further research designed to determine the degree to which this approach is effective as a sole therapy in treating pathological gambling using measures that directly evaluate change in activity engagement.

The efficacy of interventions related to activity scheduling and behavioral activation, such as leisure counseling, a helping process designed to facilitate maximal leisure wellbeing, in the treatment of pathological gambling have also yet to be explored (Leitner & Leitner, 2005). The therapeutic-remedial approach to leisure counseling is a direct and in-depth approach most appropriate for individuals with specific leisure-related behavioral problems, such as problematic gambling behavior. This approach

examines leisure attitudes and self-concept, coping skills, behavioral problems and impairments, and support systems. Some important objectives of the therapeutic-remedial approaches to leisure counseling are 1) identification of leisure-related behavioral problems and their causes; 2) identification of the desired changes in leisure attitudes and behavior to alleviate the behavioral problems; 3) development of an individualized program of recreational activities that will facilitate the integration into leisure living in the community, 4) initiation of involvement in activities, with supervision; and 5) development of community contacts that will enable the client to participate in community activities without supervision. This approach has the potential to be implemented as a therapeutic technique in the treatment of pathological gambling.

### Desensitization in the Treatment of Pathological Gambling

Desensitization and exposure techniques, which are based on the principles of classical conditioning, aim to modify the conditioned response of arousal or excitement by pairing the stimulus cues for gambling with no gambling or a competing response such as boredom or relaxation (Walker, 1992). Desensitization in the treatment of pathological gambling has comprised both imaginal procedures (Blaszczynski et al., 2005; McConaghy, 1991; McConaghy et al., 1983, 1988, 1991), in-vivo procedures (Echeburúa et al., 1996, 2000; Echeburúa & Fernández-Montalvo, 2002; Greenberg & Rankin, 1982; McConaghy et al., 1991; Symes & Nicki, 1997), and gradual (systematic) procedures involving both imaginal and in-vivo gambling-related cues (Greenberg & Marks, 1982; Tolchard et al., 2006). In-vivo desensitization involves real cues for gambling, while imaginal desensitization involves imagined cues for gambling (Walker, 1992). Exposure to the gambling cues either in-vivo or in imagination, followed by response prevention or relaxation until the urge is reduced, results in deconditioning of the stimulus cues for gambling and the gambling urge (Tolchard et al., 2006).

The studies investigating the efficacy of desensitization and exposure techniques in the treatment of pathological gambling are described in Table 2. Although this literature has typically relied on case studies or small uncontrolled designs (Echeburúa & Fernández-Montalvo, 2002; Greenberg & Marks, 1982; Greenberg & Rankin, 1982; Kraft, 1970; McConaghy, 1991; Symes & Nicki, 1997; Tolchard et al., 2006), there is emerging evidence of their efficacy using larger samples, controlled designs, or comparative designs (Blaszczynski et al., 2005; Echeburúa et al., 1996, 2000; McConaghy et al., 1983, 1988, 1991).

**Table 2: Desensitization and Exposure Interventions**

Study	Treatment description	No. of sessions	N	Type of study	Follow-up period (mths)	Outcomes
Kraft (1970)	Systematic desensitization + relaxation induced by hypnosis or methohexitone sodium	Unknown	1	Case study	12	'No change'
Greenberg & Marks (1982)	Gradual exposure (imaginal + in-vivo), covert sensitization, aversive therapy	Unknown	5	Case study	6	Results 'unimpressive'; gambling 'unresponsive' condition
Greenberg &	Gradual in-vivo	Average	26	Non-	Average	Five 'maintained'

Rankin (1982)	exposure, aversive therapy, & covert sensitization	of 6 sessions (range of 1-25)		comparative	of 8.5 (range 0-2.5 years)	control' over their gambling, 7 'lapsed intermittently', and remainder gambling
McConaghy et al. (1983)	Imaginal desensitization (inpatient)	14 sessions over 5 days	20	Comparative	12	Reduction: imaginal desensitization (70%), aversive therapy (30%)
McConaghy et al. (1988)	Imaginal desensitization (inpatient)	14 sessions over 5 days	20	Comparative	12	Reduction: imaginal desensitization (50%), imaginal relaxation (70%)
McConaghy et al. (1991)	Imaginal desensitization (inpatient)	14 sessions over 5 days		Comparative	24-108	Cessation or control: imaginal desensitization (78%), aversive therapy (33%), imaginal relaxation (57%), in-vivo exposure (60%)
McConaghy (1991)	Imaginal desensitization (inpatient)	14 sessions over 5 days	1	Case study	12	'Unstable' recovery
Echeburúa et al. (1996)	Individual stimulus control and gradual in-vivo exposure with response prevention	6	64	Comparative	12	Abstinence or only 1-2 episodes: 69% for individual exposure compared with 38% for group cognitive & combined treatment
Symes & Nicki (1997)	Gradual in-vivo cue-exposure with response prevention	Unknown (69 days)	2	Case study	0	Abstinence period of one-month as final outcome
Echeburúa et al. (2000)	Individual stimulus control and gradual in-vivo exposure with response prevention (initial treatment) <i>then</i> individual versus group relapse prevention	Unknown	69	Comparative	12	All subjects gave up gambling after receiving initial treatment; both relapse prevention groups higher rates of abstinence than control group
Echeburúa & Fernández-Montalvo (2002)	Stimulus control, gradual in-vivo exposure with response prevention, & relapse prevention	9	1	Case study	12	Improvement in multiple gambling and psychological measures
Blaszczynski et	Home-based imaginal	1	47	Non-	2	Significant

al. (2005)	desensitization			comp- arative		reduction in multiple gambling and psychological measures; control or cessation in 79%
Tolchard et al. (2006)	Graded exposure (imaginal + in-vivo) with response prevention	1	1	Case study	6	Significant reduction in gambling behaviour, urge intensity and frequency

McConaghy and colleagues (McConaghy et al., 1983, 1988, 1991) conducted a series of comparative outcome studies evaluating imaginal desensitization as a cue-exposure technique in the treatment of pathological gambling. These studies were designed to test the validity of the behavioral completion mechanism (BCM) hypothesis advanced by McConaghy (1980). This drive-reduction theory posits that avoidance or reduction of aversive physiological states acts as reinforcement for gambling behavior and that a BCM is established in the cortex when a behavior is habitually performed. When a compulsive behavior such as gambling is stimulated (e.g., by gambling-related situations) but not actually completed either through internal or external prevention, the BCM produces increases in arousal and subjective tension. This tension becomes noxious and sufficiently aversive for the subject to be compelled to complete the behavior to its conclusion. The rationale proposed by McConaghy (1980) was that the imaginal desensitization procedure would allow pathological gamblers to control their gambling behaviors by reducing their general level of arousal so the BCM could no longer provoke such an uncontrollable state of tension.

The imaginal desensitization procedure employed by McConaghy and colleagues requires pathological gamblers to provide detailed scenes that stimulate gambling responses, but in which they leave without gambling. A typical scene is:

*“You have had a stressful day where nothing has gone right for you. You feel tense and angry. On the way home you decide to drive to the casino to play the slot machines. As you are walking toward the entrance of the casino you start to feel bored with the idea of spending your time and money gambling. You decide not to enter, but turn around and decide to return home without having gambled.”* (Blaszczynski et al., 2005, p. 16).

In the imaginal desensitization procedure, pathological gamblers are trained in a brief progressive muscle relaxation procedure, and maintain that state of relaxation while visualising themselves performing the behaviors in the scenes. Pathological gamblers are asked to recall specific feelings of arousal and emotions while visualising these scenes. When relaxation is achieved, therapy proceeds to another scene and the process is repeated. Approximately four scenes are administered within each 20-minute session. It is argued that a minimum of ten 20-minute sessions is required to achieve a therapeutic result (Blaszczynski et al., 2005). Interestingly, the scenes are not placed in a hierarchical sequence of increasing arousal levels as would occur in systematic desensitization (Walker, 1992).

The studies conducted by McConaghy and colleagues applied a standard inpatient treatment protocol in which pathological gamblers in each comparative group received fourteen 20-minute treatment sessions over a five-day period. The first study in this series compared the imaginal desensitization procedure with aversive therapy for 20 predominantly male pathological gamblers (McConaghy et al., 1983), while the second report compared imaginal desensitization with imaginal relaxation for 20 predominantly male pathological gamblers (McConaghy et al., 1988). McConaghy and

colleagues (1991) further extended this treatment protocol to produce a comprehensive systematic treatment outcome study for predominantly male pathological gamblers comparing imaginal desensitization with other behavioral procedures, including aversive therapy (electric shocks to the fingers after reading a series of phrases describing their gambling), imaginal relaxation (visualisation of relaxing images without reference to previous gambling situations), and in-vivo exposure (observation of customary gambling situation with therapist). The two to nine year follow-up evaluation provided an indication of gambling behavior in the month prior to evaluation. Cessation or control was reported by 78% of the pathological gamblers who received imaginal desensitization ( $n = 33$ ), 33% of the pathological gamblers who received aversive therapy ( $n = 6$ ), 57% of the pathological gamblers who received imaginal relaxation ( $n = 14$ ), and 60% of the pathological gamblers who received in-vivo exposure ( $n = 10$ ). This series of reports concluded that the BCM hypothesis of pathological gambling is supported by the apparent superiority of the imaginal desensitization procedure (McConaghy et al., 1983, 1988, 1991).

The most recent evaluation of imaginal desensitization was conducted in 2005 in a pre-post design with 47 pathological gamblers receiving a pre-recorded audiotape version of the imaginal desensitization procedure that was designed for use at home (Blaszczynski et al., 2005) rather than an inpatient setting. In this study, treatment involved only one session that provided pathological gamblers with a copy of a pre-recorded audiocassette with two 20-minute imaginal desensitization set, and a set of printed instructions for use at home. Different imaginal desensitization scenes were available for electronic gaming machine gamblers and horse bettors. Pathological gamblers were instructed to practice the imaginal desensitization procedure three times per day for five days, with sessions held two to three hours apart. The findings indicated that significant improvements in urge ratings, preoccupation, perceived self-control over gambling, indices of actual gambling behavior, depression, anxiety, and impulsivity were achieved at 2 months following treatment. Nearly half (49%) of the sample reported abstinence and a further 30% reported controlled or markedly reduced gambling. The findings of this study demonstrate that home-based imaginal desensitization can be a cost-effective intervention for pathological gambling.

Researchers have also applied in-vivo exposure procedures with response prevention in the management of pathological gambling (Echeburúa et al., 1996, 2000, 2002; Greenberg & Rankin, 1982; McConaghy et al., 1991; Symes & Nicki, 1997). In a controlled evaluation, Echeburúa et al. (1996) compared the efficacy of individual stimulus control and gradual in-vivo exposure with response prevention, group cognitive therapy, and a combination of the two therapies (combined). Gradual in-vivo exposure with response prevention and stimulus control was designed to face the craving for gambling and to increase expectations of self-effectiveness regarding the capacity to control gambling. The individual in-vivo exposure with response prevention and stimulus control and group cognitive modalities required participants to attend weekly sessions conducted over a six-week period on an outpatient basis, while the combined treatment required participants to attend bi-weekly sessions over the same treatment period. Therapeutic success was stringently defined as abstinence or the occurrence of only one or two episodes of gambling during the 12 months following treatment completion, provided the amount of money spent was no greater than a week's worth of gambling prior to treatment. The 12-month follow-up evaluation revealed success rates of 69% for the individual in-vivo exposure with response prevention and stimulus control treatment, 38% for the group cognitive treatment, and 38% for the combined treatment. Thus, at the 12-month follow-up, the individual in-vivo exposure with response prevention and stimulus control treatment produced superior results to the group cognitive and combined treatments, which produced comparable results. Although this study is confounded in the specific investigation into the efficacy of behavioral and cognitive treatment strategies as the treatment groups also differed in terms of individual and group format, it suggests that in-vivo exposure is an effective approach in the treatment of pathological gambling.

Only a small number of reports describe interventions based on gradual exposure with response prevention, in which pathological gamblers are exposed to increasingly arousing imaginal and in-vivo gambling-related cues (Greenberg & Marks, 1982; Tolchard & Battersby, 2000; Tolchard et al., 2006). The use of single-session graded exposure comprising both in-vivo and imaginal procedures has been evaluated in a recent repeated measures single-case experimental study (Tolchard et al., 2006). The client was a 50-year old female pathological gambler with a three-year history of problematic electronic gaming machine gambling. Treatment involved attendance with her sister who was to act as co-therapist in the later stages of treatment. The single session comprised a series of five stages that involved gradual exposure: 1) imaginal exposure of being in a gaming venue, 2) walking to a gaming venue, 3) standing immediately outside the gaming room, 4) sitting in the gaming room within clear sight of the machines, and 5) a final stage culminating in the client being in the gaming room alone with money. Each stage was terminated on stabilization of urge rating and reduction in urge rating by at least 50% from the maximum level triggered by the stimulus. The client continued to practice the final step of exposure in the live setting on completion of the session. A six-month follow-up evaluation revealed a significant reduction in client-rated gambling severity, urge frequency and intensity, psychological symptoms, and depression. Although this appears to be a promising cost-effective intervention for the treatment of pathological gambling, the intervention may only be successfully applied to clients with relatively moderate gambling problems with low rates of comorbid conditions (Tolchard et al., 2006). Further research evaluating this graded and cost-effective intervention using a controlled and randomized design is necessary.

Taken together, the findings of the literature evaluating activity scheduling and interventions based on desensitization are promising. However, it remains unclear as to whether these interventions are more effective than other procedures as the validity of the findings is generally compromised by methodological considerations that make it difficult to elucidate the relative efficacy of the various approaches. For example, it is difficult to compare the treatment outcomes of therapies across studies that have variable follow-up evaluation periods, diversity in outcome measures of excessive gambling or associated difficulties, different definitions of outcome (e.g., definitions of 'treatment success', 'abstinence', and 'control') (e.g., Jackson et al., 2003; Walker, 2005; Walker et al., 2006). It is also difficult to compare findings for studies that only report outcomes for treatment completers as there are generally high and variable rates of attrition in the literature (Walker, 2005; Westphal, 2007a, 2007b). Walker (2005) argues that these are major methodological problems that must be overcome before strong statements about the relative efficacy of interventions for pathological gambling can be validly asserted. Recommendations for designing outcome studies and frameworks for reporting outcomes in treatment research have recently been published (e.g., Walker, 2005; Walker et al., 2006). It is evident that rigorous and comprehensive scientific research taking these recommendations into consideration is required to fully establish the efficacy of behavioral techniques such as activity scheduling and desensitization in the treatment of pathological gambling.

## Conclusion

In a limited literature characterised by methodological limitations, evaluations of behavioural treatments for pathological gambling are the most extensive and methodologically sound relative to other techniques. However, behavioural techniques such as alternative activity scheduling procedures are often employed as treatment components of standardised cognitive-behavioural intervention programs. Although it is generally agreed that pathological gamblers will benefit from the identification and participation in alternative leisure activities to replace gambling behaviours, the relative contribution of activity scheduling in the treatment of pathological gambling is difficult to elucidate. The pathological gambling treatment outcome literature may benefit from an evaluation of the sole application of activity scheduling or leisure counselling, a helping process designed to facilitate maximal leisure well-being. In contrast, behavioural techniques such as desensitization and exposure procedures have been evaluated as separate treatment modalities in managing pathological gambling behaviour. Although the early literature

focussed on the efficacy of imaginal desensitization, more recent literature has emphasised the application of in-vivo or gradual exposure procedures with response prevention. Importantly, researchers are now attempting to design cost-effective interventions based on desensitization procedures (Blaszczynski et al., 2005; Tolchard et al., 2006). Although the findings are promising, it remains unclear as to whether these interventions are more effective than other procedures given methodological considerations that make it difficult to elucidate the relative efficacy of different approaches. Further research evaluating these interventions using controlled and randomised designs is required.

### References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.
- Barker, J. C., & Miller, M. (1968). Aversion therapy for compulsive gambling. *Journal of Nervous and Mental Disease*, *146*, 285-302.
- Bergh, C., & Kuhlhorn, E. (1994a). Social, psychological and physical consequences of pathological gambling in Sweden. *Journal of Gambling Studies*, *10*, 275-285.
- Blaszczynski, A. (1985). A winning bet: Treatment for compulsive gambling. *Psychology Today*, *December*, 38-46.
- Blaszczynski, A., Drobny, J., & Steel, Z. (2005). Home-based imaginal desensitization in pathological gambling: Short-term outcomes. *Behaviour Change*, *22*, 13-21.
- Bujold, A., Ladouceur, R., Sylvain, C., & Boisvert, J. M. (1994). Treatment of pathological gamblers: An experimental study. *Journal of Behavior Therapy and Experimental Psychiatry*, *25*, 275-282.
- Cotler, S. B. (1971). The use of different behavioral techniques in treating a case of compulsive gambling. *Behavior Therapy*, *2*, 579-584.
- Cuijpers, P., van Straten, A., & Warmerdam, L. (2007). Behavioral activation treatments of depression: A meta-analysis. *Clinical Psychology Review*, *27*, 318-326.
- Dickerson, M. G., & Weeks, D. (1979). Controlled gambling as a therapeutic technique for compulsive gamblers. *Journal of Behavior Therapy and Experimental Psychiatry*, *10*, 139-141.
- Dimidjian, S., Hollon, S. D., Dobson, K. S., Schmaling, K. B., Kohlenberg, R. J., Addis, M. E. et al. (2006). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *Journal of Consulting and Clinical Psychology*, *74*, 658-670.
- Dowling, N., Smith, D., & Thomas, T. (2007). A comparison of individual and group cognitive-behavioral treatment for female pathological gambling. *Behaviour Research and Therapy*, *45*, 2192-2202.
- Dowling, N., Smith, D., & Thomas, T. (2006). Treatment of female pathological gambling: Efficacy of a cognitive-behavioural approach. *Journal of Gambling Studies*, *22*, 355-372.

- Echeburúa, E., Báez, C., & Fernández-Montalvo, J. (1996). Comparative effectiveness of three therapeutic modalities in the psychological treatment of pathological gambling: Long-term outcome. *Behavioural and Cognitive Psychotherapy, 24*, 51-72.
- Echeburúa, E., & Fernández-Montalvo, J. (2002). Psychological treatment of slot machine pathological gambling: A case study. *Clinical Case Studies, 1*, 240-253.
- Echeburúa, E., Fernández-Montalvo, J., & Báez, C. (2000). Relapse prevention in the treatment of slot-machine pathological gambling: Long-term outcome. *Behavior Therapy, 31*, 351-364.
- Gorney, A. B. (1968). Treatment of a compulsive horse race gambler by aversion therapy. *British Journal of Psychiatry, 114*, 329-333.
- Greenberg, D., & Marks, I. (1982). Behavioural psychotherapy of uncommon referrals. *British Journal of Psychiatry, 141*, 148-153.
- Greenberg, D., & Rankin, H. (1982). Compulsive gamblers in treatment. *British Journal of Psychiatry, 140*, 364-366.
- Hodgins, D. C. (2001). Processes of changing gambling behavior. *Addictive Behaviors, 26*, 121-128.
- Hodgins, D. C., & el-Guebały, N. (2000). Natural and treatment assisted recovery from gambling problems: Comparison of resolved and active gamblers. *Addiction, 95*, 777-789.
- Hopko, D. R., Lejuez, C. W., LePage, J. P., Hopko, S. D., & McNeil, D. W. (2003). A brief behavioral activation treatment for depression: A randomized pilot trial within an inpatient psychiatric hospital. *Behavior Modification, 27*, 458-469.
- Hopko, D. R., Lejuez, C. W., Ruggiero, K. J., & Eifert, G. H. (2003). Contemporary behavioral activation treatments for depression: Procedures, principles, and progress. *Clinical Psychology Review, 23*, 699-717.
- Jackson, A. C., Thomas, S. A., & Blaszczyński, A. (2003). *Best practice in problem gambling services*. Melbourne: Gambling Research Panel.
- Jackson, A. C., Thomas, S. A., Thomason, N., Crisp, B. R., Smith, S., Ho, W., & Borrell, J. (1997). *Analysis of clients presenting to problem gambling services from July 1 1996 to June 30 1997: Client and services analysis report no. 2*. Melbourne: Victorian Department of Human Services.
- Jackson, A. C., Thomason, N., Ryan, V., & Smith, S. (1996). *Analysis of clients presenting to problem gambling services from July 1 1995 to June 30, 1996: Client and service analysis report no. 1*. Melbourne: Victorian Department of Human Services.
- Koller, K. M. (1972). Treatment of poker-machine addicts by aversion therapy. *Medical Journal of Australia, 1*, 742-745.
- Kraft, T. (1970). A short note on forty patients treated by systematic desensitization. *Behaviour Research and Therapy, 1*, 219-220.
- Ladouceur, R., Boisvert, J. M., & Dumont, J. (1994). Cognitive-behavioral treatment for adolescent pathological gamblers. *Behavior Modification, 18*, 230-242.

- Ladouceur, R., Sylvain, C., Boutin, C., Lachance, S., Doucet, C., & Leblond, J. (2003). Group therapy for pathological gamblers: A cognitive approach. *Behaviour Research and Therapy, 41*, 587-596.
- Leitner, M. J., & Leitner, S. F. (2005). The use of leisure counseling as a therapeutic technique. *British Journal of Guidance and Counselling, 33*, 37-49.
- Lejuez, C. W., Hopko, D. R., & Hopko, S. D. (2001). A brief behavioral activation treatment for depression. *Behavior Modification, 25*, 255-286.
- López Viets, V. C., & Miller, W. R. (1997). Treatment approaches for pathological gamblers. *Clinical Psychology Review, 17*, 689-702.
- McConaghy, N. (1980). Behaviour completion mechanisms rather than primary drives maintain behavioural patterns. *Activitas Nervosa Superior (Praha), 22*, 138-151.
- McConaghy, N. (1991). A pathological or a compulsive gambler. *Journal of Gambling Studies, 7*, 55-64.
- McConaghy, N., Armstrong, M. S., Blaszczyński, A., & Allcock, C. (1983). Controlled comparison of aversive therapy and imaginal desensitization in compulsive gambling. *British Journal of Psychiatry, 142*, 366-372.
- McConaghy, N., Armstrong, M. S., Blaszczyński, A., & Allcock, C. (1988). Behavior completion versus stimulus control in compulsive gambling: Implications for behavioral assessment. *Behavior Modification, 12*, 371-384.
- McConaghy, N., Blaszczyński, A., & Frankova, A. (1991). Comparison of imaginal desensitization with other behavioural treatments of pathological gambling: A two- to nine-year follow-up. *British Journal of Psychiatry, 159*, 390-393.
- Milton, S., Crino, R., Hunt, C., & Prosser, E. (2002). The effect of compliance-improving interventions on the cognitive-behavioural treatment of pathological gambling. *Journal of Gambling Studies, 18*, 207-229.
- National Research Council (1999). *Pathological gambling: A critical review*. Washington, DC: National Academics Press.
- National Centre for Education and Training on Addiction. (2000). *Current 'best practice' interventions for gambling problems: A theoretical and empirical review*. Melbourne: Victorian Government Department of Human Services.
- Pallesen, S., Mitsem, M., Kvale, G., Johnsen, B., & Molde, H. (2005). Outcome of psychological treatments of pathological gambling: A review and meta-analysis. *Addiction, 100*, 1412-1422.
- Persons, J. B., Davidson, J., Tompkins, M. A. (2001). *Essential components of cognitive-behavior therapy for depression*. Washington, DC, US: American Psychological Association.
- Petry, N. M. (2005). *Pathological gambling: Etiology, comorbidity, and treatment*. Washington, DC, US: American Psychological Association.

- Petry, N. M., Ammerman, Y., Bohl, J., Doersch, A., Gay, H., Kadden, R., Molina, C., & Steinberg, K. (2006). Cognitive-behavioral therapy for pathological gamblers. *Journal of Consulting and Clinical Psychology, 74*, 555-567.
- Productivity Commission (1999). *Australia's gambling industries: Report no. 10*. Canberra, Aust: AusInfo.
- Rankin, H. (1982). Control rather than abstinence as a goal in the treatment of excessive gambling. *Behavior Research and Therapy, 20*, 185-187.
- Salzmann, M. M. (1982). Treatment of compulsive gambling. *British Journal of Psychiatry, 141*, 318-319.
- Seager, C. P. (1970). Treatment of compulsive gamblers by electrical aversion. *British Journal of Psychiatry, 117*, 545-553.
- Shaffer, H. J., & Korn, D. A. (2002). Gambling and related mental disorders: A public health analysis. *Annual Review of Public Health, 23*, 171-212.
- Sharpe, L. (2002). A reformulated cognitive-behavioral model of problem gambling: A biopsychosocial perspective. *Clinical Psychology Review, 22*, 1-25.
- Sharpe, L., & Tarrier, N. (1992). A cognitive-behavioral treatment approach for problem gambling. *Journal of Cognitive Psychotherapy, 6*, 193-203.
- Sylvain, C., Ladouceur, R., & Boisvert, J. M. (1997). Cognitive and behavioral treatment of pathological gambling: A controlled study. *Journal of Consulting and Clinical Psychology, 65*, 727-732.
- Symes, B. A., & Nicki, R. M. (1997). A preliminary consideration of cue-exposure, response-prevention treatment for pathological gambling behaviour: Two case studies. *Journal of Gambling Studies, 13*, 145-157.
- Tolchard, B., & Battersby, M. (2000). Nurse behavioural psychotherapy and pathological gambling: An Australian perspective. *Journal of Psychiatric and Mental Health Nursing, 7*, 335-342.
- Tolchard, B., Thomas, L., & Battersby, M. (2006). Single-session exposure therapy for problem gambling: A single-case experimental design. *Behaviour Change, 23*, 148-155.
- Volberg, R. A., Nysse-Carris, K. L., & Gerstein, D. R. (2006). *2006 California problem gambling prevalence survey*. Los Angeles: California Department of Alcohol and Drug Programs Office of Problem and Pathological Gambling.
- Walker, M. B. (1992). *The psychology of gambling*. Oxford: Permagon.
- Walker, M. B. (2005). Problems in measuring the effectiveness of cognitive therapy for pathological gambling. *Journal of Gambling Studies, 21*, 79-92.
- Walker, M., Toneatto, T., Potenza, M. N., Petry, N., Ladouceur, R., Hodgins, D. C., et al. (2006). A framework for reporting outcomes in problem gambling treatment research: The Banff, Alberta Consensus. *Addiction, 101*, 504-511.
- Walters, G. D. (1994). The gambling lifestyle: II. Treatment. *Journal of Gambling Studies, 10*, 219-235.

Wardle, H., Sproston, K., Orford, J., Erens, R., Griffiths, M., Constantine, R., et al. (2007). *British gambling prevalence survey 2007*. London: National Centre for Social Research.

Westphal, J.R. (2007a). How well are we helping problem gamblers? An update to the evidence base supporting problem gambling treatment. *International Journal of Mental Health and Addiction*. Available: <http://www.ijma-journal.com/journal.php>

Westphal, J.R. (2007b). Are the effects of gambling treatment overestimated? *International Journal of Mental Health and Addiction*, 5, 65-79.

### **Author Contact Information**

Nicki Dowling, PhD  
Problem Gambling Research and Treatment Centre  
University of Melbourne  
Parkville, Vic, 3010, AUSTRALIA  
Email: [n.dowling@unimelb.edu.au](mailto:n.dowling@unimelb.edu.au)  
Telephone: +61 3 8344 9435  
Fax: +61 3 9347 4375

Alun C. Jackson, PhD  
Problem Gambling Research and Treatment Centre  
University of Melbourne  
Parkville, Vic, 3010, AUSTRALIA  
Email: [aluncj@unimelb.edu.au](mailto:aluncj@unimelb.edu.au)  
Telephone: +61 3 8344 9402  
Fax: +61 3 9347 4375

Shane A. Thomas, PhD  
Problem Gambling Research and Treatment Centre  
Monash University  
Building 1, 270 Ferntree Gully Road  
Notting Hill, Vic, 3168, AUSTRALIA  
Email: [shane.thomas@med.monash.edu.au](mailto:shane.thomas@med.monash.edu.au)  
Telephone: +61 3 8575 2245  
Fax: +61 3 8575-2233

# Functional Analytic Psychotherapy for Interpersonal Process Groups: A Behavioral Application

*Renee Hoekstra*

## Abstract

This paper is an adaptation of Kohlenberg and Tsai's work, Functional Analytical Psychotherapy (1991), or FAP, to group psychotherapy. This author applied a behavioral rationale for interpersonal process groups by illustrating key points with a hypothetical client. Suggestions are also provided for starting groups, identifying goals, educating clients, and making use of FAP in beginning the group process.

*Key word descriptors: Group, interpersonal, behavioral, functional analytic, FAP*

---

There are a wide variety of cognitive behavioral and behavioral approaches to group psychotherapy. Cognitive-behavioral groups are often developed for skills training and utilize practical interventions focused on coping deficits and changes in thinking (Fisher, Masia-Warner, and Klein, 2004; James, Thorn, and Williams, 1993; Rittner and Smith, 2000; Rohde, Jorgensen, Seeley, and Mace, 2004; Wilson, Bouffard, and Mackenzie; 2005). In their overview on group psychotherapies, Vinogradov, Cox, and Yalom (2003) suggest that behaviorally oriented groups are generally time limited and are characterized by the use of behavior modification techniques.

Behavioral or cognitive behavioral group therapies for process-oriented groups that focus on interpersonal interactions as they occur in group appear to be less common. Several writers have addressed applied behaviorism in the context of interpersonal group psychotherapy. Rose (1977) offers mostly structural and applied approaches to group psychotherapy. Flowers and Upper (1994) identify behavioral interventions that can be integrated in groups, and Hollander and Kazaoka (1998) suggest that while behavioral approaches generally involve practical interventions, most often little or no attention is paid to theoretical or conceptual issues.

It is my goal is to introduce a behavioral theoretical approach for interpersonal process groups through the application of Functional Analytical Psychotherapy, or FAP (Kohlenberg and Tsai, 1991). In doing so, I hope to root technical and applied interventions in a more theoretical framework than is often found in the literature. In order to illustrate this application, I provide a conceptual overview by illustrating FAP with a hypothetical client in a group setting.

## The Application of FAP to a Hypothetical Group Member

The framework for FAP is formulated on three functional classes of behavior: problems, improvements, and verbal awareness of functional relationships. It is also formulated on Five Rules, which are considered to be "suggestions for therapist behavior" (p. 24).

In FAP, the functional classes of behavior are identified as Clinically Relevant Behaviors, or CRB's. Problem behaviors are classified as CRB1's, improvements in client behavior are classified as CRB2's, and verbal awareness of these functional relationships are classified as CRB3's.

CRB1's often interfere with clients' abilities to make meaningful connections and participate in intimate relationships. They are always related to the client's presenting issue, and are discreet, specific behavioral instances of the presenting problem occurring in session. CRB2's are in session improvements of

client behavior and may be successive approximations of desired adaptive responses. CRB3's are clients' interpretations, statements, and reasons for relevant behavior.

### *Identifying and Targeting Clinically Relevant Behaviors (CRB's) in Group Therapy*

In the following example I have identified a hypothetical female client and attempted to elucidate the FAP approach with this client in a group setting. Suppose this client reports being lonely. She also reports difficulty finding adult friends, finding meaningful connections, and being truly heard. This client will be used throughout this paper to help the reader understand the application of a behavioral conceptualization of group process.

*CRB1's:* In a group session, the client talks constantly. The content of her speech is focused on detail and is generally a description of what she has done throughout the day. This client may initiate all group sessions. This behavior could interfere with her relationships with others because group members might perceive her as long-winded or boring. Thus, for this client, one of her CRB1's can be identified as talking without pausing and keeping the content of her speech on detailed information about daily activities. It would be difficult for other group members to engage in dialogue with this client, and they may begin to feel as if they do not have the opportunity to respond to her. Further, they may be unable to interrupt and may feel hopeless about engaging in further conversation with her. The result could be annoyance and resentment by other members who believe she is taking up unnecessary time.

*CRB2's:* An example of a CRB2 may be difficult to identify during the early stages of treatment as they are "typically not observed or are of low strength at those times when the clinical problem, CRB1, has occurred" (p. 19). In the beginning stages of group, this client may never pause or wait to hear input from others. An accidental pause may yield an opportunity for therapist intervention, which would hopefully eventually encourage the client to pause on her own (CRB2). This nonverbal gesture would allow other group members to engage and interact with her. It elicits conversation and the potential for making connections with others. It also gives her the opportunity to see if others are receiving what she is saying. If she fails to do this in all of her relationships, she will most likely maintain her sense of isolation reported as her presenting concern. As group progresses, additional CRB2's for this client may include talking about things that matter, such as relationships, and taking into consideration positive feedback from the group.

*CRB3's:* CRB3's are essentially the reasons clients give for behavior. An example of a CRB3 might be a statement from the client: "People call me a leaky faucet and sometimes I don't know when to quit. I think sometimes I talk too much but I try not to do it on purpose". As the treatment progresses, the client may begin to verbalize functional relationships between events and behaviors. For example, she may state that she gets really worried that she won't have the time to talk in a group setting. Thus, she talks a lot. She may say that she feels pressured to talk because she believes that other group members don't have much to say, or what they have to say is somehow not very important. She may reflect that she is actually frightened that no one really wants to hear what she has to say, so she fails to attend (CRB1 avoidance) to the facial expressions or nonverbal behavior of other group members.

Yalom (1995) speaks to the significance of CRB3's by suggesting that reasons clients generate for their own behavior results in a sense of mastery and freedom. He suggests that generating reasons provides motivation for understanding, identifying, and controlling the unknown. He suggests it is an essential aspect of the change process because it moves people from a "passive, reactive posture to an active, acting, changing posture" (p. 171). If clients are able to articulate how their behavior functions in their life they can acknowledge areas in which change is needed and make necessary adjustments as group therapy progresses.

*Rule 1: The therapist watches for the client CRB's.* In group therapy, the therapist should attend to the many different ways that CRB1's and CRB2's can occur. Consider, for example, if our hypothetical

client suddenly started talking about her cat's behaviors. While this behavior may initially appear to be a CRB1 (talking in detail about non-important topics), it could be that this client's cat died recently and she is struggling to talk about something that matters to her. In which case, this behavior could be identified as a CRB2. Talking about things that matter is one way of making connections with others.

Rule 1 is the most important aspect of treatment. Watching the CRB1's and CRB2's will enable the therapist to identify what to block and what to elicit. This highlights the functional role of the therapist response in reinforcing or extinguishing client behavior. According to Kohlenberg and Tsai (1991), "the primary consequence of client behavior is the therapist's reaction. Without clear observation of the client's behavior by the therapist, reactions can be inconsistent or anti-therapeutic and progress will be compromised" (p. 24).

*Rule 2: The therapist evokes CRB's.* Group therapy is an environment in which CRB's are likely to occur. Groups provide benefits such as a sense of universality and cohesion and opportunities to give and to receive (Yalom, 1995). According to Rutan and Stone (2001), "The group...provides opportunities to evoke associations to current life relationships or to family of origin experiences" (p. 72). Thus, if a person has been unable to respond to opportunities to give and receive in life, to have a sense of connection and cohesion with others, and to relate skillfully with family members; group would be a perfect environment for them. Group provides an opportunity to make connections with others, and persons who have difficulty doing so generally engage in CRB1's without awareness that their behavior serves to isolate them from others. In the example given, the client begins to engage in relevant behavior targeted for treatment at the very beginning of the sessions. For instance, she begins the session by providing overly detailed information about her day, a CRB1. In this situation, the presence of group members alone elicits CRB's.

A female client who has difficulty talking to doctors may benefit from a process group if the therapist can elicit CRB's. For instance, this client might fail to make eye contact with doctors, mumble when asking them questions, or avoid attending physician appointments (CRB1's). If the client requests help with these problems, but her CRB1's do not occur when interacting with the group leader, the leader might evoke CRB1's by asking another member to play the role of the physician.

In another instance, a female client who has difficulty in intimate relationships with men but not with women may not receive the direct benefits of a women's process group that she might receive in a mixed-gender process group. For example, this client might withdraw from men who express caring (CRB1). If these behaviors occurred in a mixed-gender process group when a male client expressed caring, the identified client would have the opportunity to attend to her withdrawing behavior as it occurs in group.

*Rule 3: Reinforce CRB2's.* As stated previously, the most important rule is watching for CRB's. If the therapist fails to attend to client improvement when it occurs, the likelihood that the new behavior will be strengthened and grow closer to improvement is minimal. If the therapist is consistent about responding immediately to client improvements, however small, the relationship between the new behavior and the contingent response will be strengthened. A group leader who responds positively to a client in a warm and genuine manner when the client tries different behaviors may naturally increase the likelihood that the new behaviors will continue to occur. However, this type of response needs to be reinforcing for the client. According to Kohlenberg and Tsai (1991) "Reinforcement cannot be so defined because it is a process; an object becomes a reinforcer only in the context of the process and cannot be identified independent of it" (p. 8). Thus, thinking about the relationship between client behavior and naturally occurring consequences will help a therapist identify how client behavior can be reinforced.

From a behavioral perspective, group behavior is always reinforcing if a client returns to group. Clients who are starved for social contacts and genuine relationships will naturally be reinforced by a group that expresses a genuine interest in the client. On the other hand, a client who has a wide array of secure and

satisfying relationships may not be reinforced by an interested group, and may feel as if attending a group is exhausting due to the energy involved in keeping so many people informed of her progress.

Group leadership demands flexibility, genuineness, and the ability to shift with the group process. A therapist can make hypothesis about what is reinforcing based on the identification of CRB's (Rule 1), and can employ an array of natural responses that could be reinforcing to the client. Here are some examples of what a therapist might say to the client used in the example: "I like it when you pause and let the rest of the group catch up. It feels nice to be able to respond to what you're talking about." "There you are! I get so lost when you are talking. I feel like now we are getting to know the real you, the one behind all the words." "I want you to pay attention to the fact that others have some things to say that are positive and caring." In the third example, the therapist is increasing the client's contact with controlling contingencies (the interest of other group members).

Essentially, the leader fosters a relationship between the identified group member and the leader. The leader also fosters relationships between the identified client and other group members in order to reinforce CRB's. If the client is sorely lacking a connection with others, it is likely that the above statements will be welcomed by the client. It is more important that the therapist recognize and identify the occurrence of CRB's than for the therapist to worry about saying the right thing in response to client improvement. However, therapist statements that are intended to reinforce client behavior must actually be reinforcing to the client; thus the group leader's use of Rule 3 must be flexible and contingent on client improvement.

*Rule 4: Observe the potentially reinforcing effects of therapist behavior in relation to client CRB's.* The therapist must be aware of how his or her responses to clients impact, interfere with, or influence the therapy. If the therapist makes his or her response contingent upon client improvement, the therapist will have a powerful tool to facilitate and positively influence the outcome of treatment. If the therapist ignores how his or her behavior impacts the client or if the therapist is not aware that his or her response influences client behavior, the therapist will be without a way to facilitate behavior change.

Just as clients are reinforced by therapist behavior, therapists are also reinforced by client improvement. If a therapist is aware of times in which his or her CRB's will negatively influence treatment, the therapist can avoid taking on clients in which his or her own CRB's will inhibit positive treatment outcomes. For example, in the situation described above, the therapist may believe that interrupting the client would be rude or disrespectful. It is possible that the therapist comes from a background in which interrupting someone would seem rude or disrespectful. In this case, however, the therapist's unwillingness to make this intervention could interfere with his or her ability to intervene effectively. Other group members will likely become bored, frustrated, and agitated and may fail to return. These private experiences of other group members are naturally occurring consequences of the client behavior, and it may be necessary for the therapist to amplify such consequences with the hypothetical client in order to initiate behavior change and increase contact with controlling variables.

Rule 4 is especially significant because it requires the therapist to attend to private events and experiences. This can be a useful resource in helping the therapist identify client CRB's. In the above example, the identified client CRB1 is talking at length about details of what happened to her that day. It is likely that the therapist feels bored, frustrated, or unable to get through to her. As this experience can be lonely, the therapist may remember that the client's presenting concern was loneliness. This can enable the therapist to observe functional connections between the therapist's private experience, the client's presenting concern, and the client's CRB1.

The application of Rule 4 has received considerable attention from theorists that do not practice within a behavioral orientation. For instance, Gabbard and Wilkinson (1994), McCleary (1992), Ogden

(1979), Preston (1998), Sampson, (1991), and Solomon (1997) have written about the importance of the therapist's private experiences in understanding the therapeutic encounter. While therapist feelings and reactions to clients are often coined under terminology such as counter-transference or projective identification, these psychodynamic formulations are consistent with Rule 4 if the focus of therapist reactions is on the functional relationship between client behavior and therapist response.

*Rule 5: Give interpretations of variables that affect client behavior.* I have broken down this process into two aspects, and I have provided examples of how the therapist might use Rule 5 with the client described above. First, the therapist makes observing statements about the client's CRB1's. In this case the therapist might say: "I notice that you have been talking a lot about the details of your day, such as your laundry and your dishes." This is a result of observing Rule 1.

Second, the therapist makes statements or hypotheses about the function of the client's behavior. The therapist might state "Perhaps talking about non-important things is one way to avoid talking about the things that matter. When you don't have to risk telling people how you really feel about what's going on, you don't have to make yourself vulnerable". "Not letting others get a word in edgewise may be one way to avoid finding out if people really do care about what you have to say." "When you talk, other people might have difficulty interacting with you. It seems to me that would be very lonely. Can I offer a hypothesis? When you are around other people you tend to fear that no one in this group will really hear what you have to tell them. Is this the case?"

The group leader blocks avoidance (stops the client from providing details about her day for the entire group session) and increases the likelihood that the client will experience a felt connection with other group members. The group leader employs Rule 5 to make hypotheses about the function of the client's behavior and to elicit new responses from the client.

Rule 5 may also enable the group leader to apply Rule 3 by getting other group members involved in naturally reinforcing the client's behavior. For instance, the group leader may ask questions such as "Why do the rest of you think that she is talking so much about her laundry right now? Have other people ever rambled when they have been put on the spot? Does anyone have any ideas about why she is not talking about relationships with people?" As the group hypothesizes about the function of the client's behavior, the client will hopefully be able to make connections by relating and identifying with other group members. In addition, the leader can create a group norm in which functional statements about group members' behavior are reinforced.

It could be assumed that the client in question has a history in which her current behavior was functional in some way. Perhaps this client had many siblings who talked over her, inhibited her from speaking, or ignored her. Because her current group experience is similar to being around many siblings, the client may become anxious that she may never get an opportunity to speak. If she talks incessantly, she won't have to observe that others are not listening.

The therapist's job is to expose the client to a situation in which the immediate environment does not respond in a punitive fashion. Knowing the historical function of client behavior can help both the client and the group work with CRB's. In this situation, the therapist might say, "I don't hear anybody here in group treating you like your siblings used to treat you". The therapist elicits new responses by encouraging the client to consider positive feedback.

#### *Conceptual Summary of Identified Client*

This client's lack of attentiveness to her environment occurs in the presence of other group members. Group elicits a fear of not being heard, thus the client fails to attend to persons who could hear her. CRB1's include talking in too much detail, inattention, not hearing what others say, or talking over

other group members' responses. Essentially, the client's fear of not being heard interferes with her ability to consider an alternative possibility: People around her are interested in what she has to say. She speaks at length about unimportant things to avoid confirming her fear that no one really is listening. If she doesn't slow down and wait for group members' responses, she doesn't have to make herself vulnerable to ridicule, to interruptions, or to negative input. Ironically, her content-laden speech makes her vulnerable to the agitation and frustration of other group members. However, once the client is exposed to new responses contingent on her behavior, such as having positive input from others, change can occur.

#### Screening and Getting Started: Rule 1 in Beginning Group Process

The first part of screening a client and beginning a group is to get an agenda from each client. Knowing what the client would like from a group and why he or she is in services is the first part of identifying CRB's. The group leader can later articulate the client's presenting concern when CRB's occur in group as confirmation that both group leader and client are working towards the client's identified goals.

Below I have identified examples of reasons the client may give for wanting treatment. I then identified how CRB's show up in group. Finally, I provide examples of what the therapist might say to confirm congruency between targeted client behavior and the client's goals for treatment.

*Presenting reason for treatment:* "I can't find other partners who treat me respectfully."

*CRB:* Client agrees with another group member who offers makes condescending statements about the client.

*Therapist statement:* "Is this one of those times in which persons are not treating you respectfully?"

*Presenting reason for treatment:* "I tend to take on everyone else's problems and worry about them"

*CRB:* Client refrains from talking about his problems and is overly accommodating to other group members.

*Therapist statement:* "You've been pretty quiet. Are you taking on everyone else's problems right now?"

*Presenting reason for treatment:* "I can't hold down a job"

*CRB:* Client fails to inform leader of missed sessions and comes to group irregularly.

*Therapist statement:* "Now you say you have a hard time holding down a job because your work attendance is spotty. Twice you have failed to attend group and didn't inform me of your plan to miss group. Is this the kind of thing that happens with new jobs?"

When the client first comes to therapy, the client will likely not have a very comprehensive way of articulating the problem and observing its occurrence. There is data that suggests that therapist and client disagreement over goals may play a role in therapeutic impasses (Hill, Nutt-Williams, Heaton, Rhodes, and Thompson, 1996). Clients generally feel better understood and will have respect for the leader if the leader can accurately put a finger on the problem. Assessing this as fully as possible in conducting screenings and beginning groups with new members can serve to strengthen the therapeutic alliance with the group leader and stop further misunderstandings from occurring later on. It is ideal for the client to recognize and talk about his or her presenting concerns and to express willingness to identify when the behaviors occur.

It is important for the therapist to have a working formulation of group members' CRB's. This is necessary for communication with the client, supervision, case formulation, and consultation. Additionally, being able to recognize the occurrence of CRB's for all group members will provide the therapist with a framework for effective in-group interventions. If nothing else, the therapist should obtain as much clarity as possible about the presenting concern. It is possible that the client's CRB's will not be obvious until the group begins or until the therapist has engaged in individual work with the client. For instance, it is difficult

to know why a very engaging and intelligent client would have difficulty holding down a job, but the therapist might not find out that attendance is poor until therapy has progressed. It is also possible that the client's presenting problem is too vague and offers little information about what to target. Generally, some hypothesis can be formed and discussed with the client in a screening session prior to bringing the client into the group.

While process groups may frequently evoke client CRB's, the behavioral repertoire of the group members should be considered when screening clients or formulating new groups. For instance, a group culture that encourages clients to relate directly and immediately to each other in an emotionally charged atmosphere may not be a good fit for a client who dissociates frequently. Attending to emotional overtones and commenting on them as they occur may not be within the incoming client's repertoire. The other group members may also find that working with such a group member is too tedious. For instance, the incoming member may dissociate when another member is crying, but the group may be too invested in the group conflict to attend to the new member. The new member, then, may not have the opportunity to engage in CRB2's (such as observing and describing what is going on in group) without being reinforced by the group.

Observing Rule 1 can not only help the leader identify the repertoires of incoming clients, but can additionally help the leader identify potential conflicts that may occur among group members. Being able to hypothesize as much as possible about CRB's prior to group formation should help the therapist in making screening decisions, matching clients to groups, and formatting new groups.

#### *Identifying the Occurrence of CRB's*

A questionnaire can also be provided to the client at the beginning of the group (See Appendix A). The more the client is able to accurately fill this out, the more information the leader will have in making decisions about the group screening. In addition, I have listed examples of client behaviors that may appear as CRB1's or CRB2's in order to help group leaders identify how CRB's may occur in group settings.

*Presenting concern:* "No one listens to anything I have to say."

*CRB1:* Talking in loud, overbearing tones.

*CRB2:* Speaking softly.

*Presenting concern:* "No one listens to anything I have to say."

*CRB1:* Client speaks in inaudible tones.

*CRB2:* Client speaks loudly.

*Presenting concern:* "Everyone rejects me all the time."

*CRB1:* Client insists the group leader is doing a poor job and demands the leader change the purpose or format of the group.

*CRB2:* Client helps leader to facilitate group process.

*Presenting concern:* "No one wants to hang out with me."

*CRB1:* Client is overly agreeable, compliant, and refrains from offering alternate opinions or disagreeing with the leader.

*CRB2:* Client suggests the group leader is not doing a good job.

Consider how the following behaviors may show up in group settings and may appear as CRB1's or CRB2's:

- Interrupting
- Speaking rapidly
- Sitting apart from group
- Expressing strong opinions
- Taking care of other group members

### *Introducing and Educating Clients about Goals*

This section will focus on the general goals that I have outlined for process groups. Again, informing the client of the purpose of the group will give both the leader and the group members a working framework of what will be occurring in group.

Some interpersonal process group leaders may consider clear, specified, behaviorally defined goals antithetical to process, exploration, and existential issues. However, I counter this belief by suggesting just the opposite: It is possible to have interpersonal process group goals that embrace clients' need for meaning, authenticity, and existential concerns. I further propose that failing to provide clients with group goals or failing to articulate a group purpose may increase the therapists' vulnerability to confusion and client CRB1's. I have proposed a list of group goals and I have divided them into "what" and "how" goals:

#### *What Goals:*

- Communicate effectively about how and where we get "stuck"
- Maintain a sense of connection and understanding with other group members
- Decrease behaviors that are hurtful or isolating towards self or others

#### *How Goals*

- Identify relevant behavior (where we get stuck)
- Identify when relevant behavior occurs in group
- Identify function of relevant behavior
- Identify ways relevant behaviors can be changed

When screening, it is important to educate the client about these goals. The goals are ways in which the general idea behind interpersonal process groups can be put into language that is accessible and understandable to clients. They can be introduced when the client identifies his or her reason for coming to treatment, and should be consistent with what the client would like from group therapy. If the client attempts to change the agenda of the group at a later point (CRB1 or CRB2), the group leader can negotiate the client's request while maintaining the rationale and group goals.

Because clients who are in group for interpersonal difficulties may engage in behaviors that threaten to destroy group, the energy of the group, or the potential progress of other group members, it is important not to underestimate the need to identify client goals and elicit commitment to work on them. Difficult behaviors such as personal attacks, criticism, verbal assaults, condescending or punitive language, or withdrawing can be challenging for any group. If the therapist elicits client commitment and identification of goals, there will be less opportunity for the clients to negate group process or interfere with the progress of other group members.

Used appropriately, the leader can emphasize the group goals to motivate change by bringing such goals into awareness. For example, a client who insists that the world is out to get him may experience that group members are out to get him as well. It is apparent that this worldview can be painful and diminish connections with others. The therapist might make a statement such as this: "That sounds like it is a pretty painful place to be. Thus, we've got to figure out what is going on in group that's keeping you isolated. I know that you came in here wanting to figure out how to maintain a sense of connection with other people." The therapist might then follow with a group intervention that requires the client to attend to the group members he is shutting out in making such a statement.

The how goals are consistent with Rules 1-3 and with Rule 5 of FAP. By introducing the how goals, the leader is informing the client about the ways in which the what goals will be accomplished. It may be useful to engage group members in articulating the CRB1's of other group members. While this

might happen naturally without introducing a client to the how goals, having a format initiates a forum for clients to articulate their CRB1's and the CRB1's of other group members. It may not be necessary to introduce the clients to the language of CRB's, but the group leader may use the term *relevant behavior* to encourage clients to identify target behaviors and stop them from thinking about what they do in a pejorative or shaming manner.

### *Making Use of Goals for Interventions: Helping Members Identify CRB's*

Getting clear on the client's CRB's, tying the client's agenda to the group goals, and getting the client to articulate what needs to be worked on in group should be the agenda for the beginning stages of group process. Below is an example of how these things are accomplished in concert with what has been discussed so far.

The group leader might use the how goals to encourage group members to articulate the CRB1's of other group members. For example, Client A pays little attention to facial expressions and emotional responses of others. As a result, Client A tends to make blunt statements that are irrelevant to what is going on in the group (CRB1). Client B cries constantly and reports that no one seems to listen or hear what she has to say (CRB1). Requesting Client A to articulate and attend to Client B's affective expressions may serve to elicit new responses from Client A and to meet Client B's request by attending to what she is saying.

Dialogue:

Client A: I have to run some errands today (Off topic statement-CRB1).

Client B: (crying). It just seems that no one is listening to anything I have to say. (CRB1).

Therapist: (to Client A). What do you suppose is going on with her right now? (Engages Rule 3 by blocking CRB1 of Client B and eliciting new response from Client A).

Client A. I don't know.

Therapist: Do you want to find out?

Client A. Huh?

Therapist: Well, she looks pretty upset right now. Do you want to find out what she might be feeling?

Client A. Okay. (Looks at client A expectantly- CRB2).

Client B. (sniff). I'm just really sad.

Therapist. (To client B). I am noticing that someone else in group is paying attention to what you are feeling. How are you taking this?

Client B: Well, it's nice that he actually paid attention.(CRB2)

Therapist: (To Client A). Did you notice that she just gave you some positive feedback?

Client A: Yeah, okay. I guess so. (CRB2)

Therapist: (to Client A). You came in here stating that the world is generally out to get you. Here is an example of another group member who just told you it was really nice that you noticed she was crying. Because you've talked about how isolating it is to have the world out to get you, I want you to see if you can guess what she might be feeling when she is crying like this. You were just able to foster some kind of connection here in group. (Rule 3- Reinforce CRB2). What do you think?

In this dialogue, the group leader introduced the group how goals of identifying what group members do that get them stuck (CRB1). The group leader is doing this by encouraging cross communication of group members. The leader is also making verbal statements about in-session behavior that are consistent with the client's goals of decreasing isolation and identifying times in which the world is not out to get him.

### *Summary*

A therapy group can become part of a client's direct and immediately experienced environment. Having a coherent conceptual framework with a basis in applied behaviorism can help group clinicians to format, develop, and lead interpersonal process groups. Hopefully this paper has provided clinicians with an understanding of how to identify and target which behaviors to attend to in group, as well as a consistent way of articulating and changing such behaviors within a group of clients.

### References

- Fisher, P., Masia-Wartner, C., & Klein, R. G. (2004). Skills for social and academic success: A school-based intervention for social anxiety disorder in adolescents. *Clinical Child and Family Psychology Review, 7*, 241-249.
- Gabbard, G., & Wilkinson, S. M. (1994). *Management of transference with borderline patients*. Washington D.C.: American Psychiatric Press.
- Hill, C. E., Nutt-Williams, E., Heaton, K., Rhodes, R. H., Thompson, B. J. (1996). Therapist retrospective recall of impasses in long-term psychotherapy: A qualitative analysis. *Journal of Counseling Psychology, 43*. 207-217.
- Hollander, M., Kazaoka, K. (1998). Behavior therapy groups. Long, S. (Ed.). *Six group therapies*. (pp. 257-342). NY: Plenum Press.
- James, L.D., Thorn, B.E., Williams, D.A. (1993). Goal specification in cognitive-behavioral therapy for chronic headache pain. *Behavior Therapy, 24*, 305-320.
- Kohlenberg, R. J., Tsai, M. (1991). *Functional analytic psychotherapy: Creating intense and curative therapeutic relationships*. New York: Plenum Press.
- McCleary, R.W. (1992). *Conversing with uncertainty*. Hillsdale, NJ: Analytic Press.
- Ogden, T. (1979). On projective identification. *International Journal of Psychoanalysis, 60*, 357-372.
- Preston, L. (1998). Expressive relating: The intentional use of the analyst's subjectivity. In A. Goldberg (Ed.), *The world of self-psychology*. (pp. 203-218). Hillsdale, NJ: Analytic Press.
- Rhode, P., Jorgensen, J. S., Seeley, J.R., Mace, D. E. (2004). A cognitive-behavioral intervention to enhance coping skills in incarcerated youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*, 669-676.
- Rittner, B., Smyth, N.J. (2000). Time-limited cognitive-behavioral group interventions with suicidal adolescents. *Social Work with Groups, 22*, 55-75.
- Rose, S. (1977). *Group therapy: A behavioral approach*. Englewood Cliffs, NJ: Prentice- Hall.
- Rutan, J. S., Stone, W. N. (2001). *Psychodynamic group psychotherapy*. NY: Guilford Press.
- Sampson, H. (1991). Experience and insight in the resolution of transferences. *Contemporary Psychoanalysis, 27*, 200-207.

- Solomon, M. (1997). On love and lust in the counter-transference. *Journal of the American Academy of Psychoanalysis*, 25, 71-90.
- Upper, D., Flowers, J. (1994). Behavioral group therapy in rehabilitation settings. In Bedell, J.R. (Ed.). *Psychological assessment and treatment of persons with severe mental disorders*. (pp. 191-214). Washington, DC: Taylor and Francis.
- Wilson, D.B., Bouffard, L. A., Mackenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice and Behavior*, 32, 172-204.
- Yalom, I. (1995). *The theory and practice of group psychotherapy*. NY: Basic Books.
- Vinagrov, S., Co, P., Yalom, I. (2003). Group therapy. In Hales, R.E. & Yudofsky, S.C. (Eds.). *Textbook of clinical psychiatry*. (4<sup>th</sup> Edition, pp. 1333-1371). Washington D.C.: American Psychiatric Publishing.

**Author Contact Information:**

Renee Hoekstra  
37 Sheridan St., Apt 1  
Jamaica Plain, MA 02130  
216-538-3747  
Email: [Pharlap14@yahoo.com](mailto:Pharlap14@yahoo.com)  
[Renee\\_Hoekstra@yahoo.com](mailto:Renee_Hoekstra@yahoo.com)

## Appendix A

**Screening questionnaire for group members**

What do you do that keeps you from making connections with other people? Please be as specific and clear as you can.  
How do these behaviors serve to protect you, keep you sane, or keep you safe?  
How would we observe these occurring in group?  
Is there anything the group can do to help you observe when these behaviors occur in group? Please explain.  
Are there things you do that keep you from making connections with other people that we would not be able to observe? Please identify them here.  
Please identify anything you would like from other people in group that will allow you to work on your concerns.  
Please identify what you would like from the group leader that will allow you to work on your concerns.  
How will the group or group leader know when what we ask is too much for you?  
If you were upset with another group member, what would you do?  
If you were thinking about leaving group, what would you do to let us know?

## Consulting with Teachers Regarding Academic Skills: Problem Solving for Basic Skills

Kristin A Gansle & George H. Noell

### Abstract

A number of issues must be addressed in order to intervene with academic problems within classrooms. These issues include screening, problem specification, problem function, solving the problem, and subsequent problem evaluation. Although the addition of a consultant will allow services to be delivered to greater numbers of children than could be affected through direct service by the consultant, indirect service delivery creates issues that will have to be addressed in order for services to be effective. These issues are discussed in terms of assessment as well as the determination of curriculum levels within classrooms in consultation with the classroom teacher.

Key Words: Academic Skills, Screening, Problem Solving, Problem Specification, Problem Function

---

Current models of school consultation are largely an outgrowth of Caplan's mental health consultation model, which began in Israel in 1949. In response to an enormous caseload of 16,000 immigrant children in more than 100 residential institutions, child psychiatrist Gerald Caplan realized that a traditional refer/diagnose/provide therapy model would not work in the face of the 1,000 referrals received per year within the limited resources that were available using a traditional direct service model (Caplan, Caplan, & Erchul, 1995). An alternative, indirect model of service delivery was developed, in which caregivers or consultees and referred children met with staff members at their institutions with the goal of improving caregivers' functioning (Caplan et al.), and consequently, children's functioning. This indirect service format allowed staff the capacity to have a positive effect on a far greater number of children than if direct service delivery had been the only option.

Subsequent to the genesis of consultation in the mental health field, major changes in the role of school psychologists have been called for: from that of assessment and primary gatekeeper for special education eligibility determination toward that of solving problems and meeting students' needs (Bradley-Johnson & Dean, 2000). Some of the changes that have been recommended to effect this major alteration in job responsibilities include an emphasis on preventing problems before they start and the application of scientific principles to problems encountered in schools (Dwyer & Bernstein, 1998). Indeed, this era of increasing accountability and school reform has led to a focus on providing as much individualized service as needed not only to students with disabilities through the Individuals with Disabilities Education Improvement Act (IDEA, 2004), but to *all* students based on the demands of No Child Left Behind Act (NCLB, 2001), by requiring that schools demonstrate *adequate yearly progress* (AYP) in the achievement of *all* students (Shippen, Houchins, Calhoon, Furlow, & Sartor, 2006). This is a challenging goal for schools whose resources are often stretched thin by the myriad requirements of accountability systems. As a result, schools are more interested than ever in improving the efficiency and effectiveness of the professional practices of the educators they employ. There are just too many students in need of services for each to have direct service from a school psychologist (Bradley-Johnson & Dean, 2000), especially given projected shortages of school psychologists (Curtis, Grier, & Hunley, 2004; Curtis, Hunley, & Grier, 2004). Consultation is a model that permits services to be provided to many students with the goal of enhancing the effectiveness of the services students already receive and that has amassed a considerable supportive literature in schools (Gutkin, 1996; Sheridan, Welch, & Orme, 1996). We use some of the same principles that guided Caplan almost 60 years ago to improve outcomes for a greater number of students than we might otherwise be able to affect using direct service delivery.

As the role of the school psychologist has changed over the past half century, indirect service has come to include a variety of activities in addition to consultation that are undertaken in an effort to improve children's outcomes: research, the development of systems change programs, and professional development (Bradley-Johnson & Dean, 2000). Indeed, school psychologists report that consultation is a preferred service and that they would prefer to increase the amount of time they spend providing the service (Cherame & Sutter, 1993; Costenbader, Swartz, & Petrix, 1992; Hatzichristou, 1998; Kratochwill & Stoiber, 2000; Reschly & Wilson, 1995; Roberts & Rust, 1994; Stewart, 1986), as the systemic implementation of such services can be a practical method for meeting the needs of students and teachers (e.g., Ikeda, Tilly, Stumme, Volmer, & Allison, 1996). A vulnerability of this service delivery model is that it presumes that teachers have access to the resources needed to implement interventions developed in a consultation. These include skills, time, space, and material resources. If teachers do not possess those fundamental skills, the intervention is unlikely to be implemented as designed and will lead to no positive outcome for the student due to a lack of procedural or treatment integrity (Sechrest, 1982; Yeaton & Sechrest, 1981). The development and maintenance of system supports to bolster teachers' ability to manage their teaching *and* service provision responsibilities is a critical function performed by school psychologists. In addition, it is important that school psychologists provide instruction and feedback to the teacher regarding assessment, intervention, and evaluation for student concerns when those activities are essential to the success of the intervention designed in consultation.

### *Academic Skills and Social Behavior*

Nearly every imaginable concern about students and schools could potentially be addressed in consultation with teachers. A survey of 391 school psychologists published in 2002 indicated that reading problems were the cause of their most common referrals at 57%, followed by written expression at 43%, task completion at 39%, mathematics at 27%, conduct at 26%, and motivation at 24% (Bramlett, Murphy, Johnson, Wallingsford, & Hall, 2002). In a study of interventions developed in consultation with teachers, reading skills, attention to task, and noncompliance, respectively, were the most frequent primary concerns (Noell, Gansle, & Allison, 1999). Concerns in reading are common with those who are identified for special services as well. It is very common for special education identification of students with mild mental retardation to occur in the second or third grade, when academic work becomes more difficult (Heward, 2006), especially in reading. Indeed, 90% of children identified as learning disabled are referred for reading problems (Kavale & Forness, 2000).

Despite the apparent clarity of these referral concerns, it often seems that concerns presented in consultation sessions are not that simple; behavior, of course, does not exist in a vacuum. When a referral concern is brought up in consultation, it is not always possible to know immediately why that problem occurs; the reasons why students do not achieve certainly are multifaceted (Daly, Witt, Martens, & Dool, 1997). It may be critical to clarify the external forces that interact with the primary presenting problem before it is wise or perhaps even possible to design a plan of quality sufficient to ameliorate it.

### *The Big Questions of School Consultation*

Once the teacher has brought a concern to the attention of a consultant, several questions are wont to be answered, usually in sequence, with the answer to the earlier questions guiding the direction of the activities related to later questions. First: Is there student centered problem? This suggests that information must be gathered to describe group level functioning (i.e., the classroom) and describe the extent to which the concern is evident in the student and/or the class as a group. Additionally, some consideration of more general expectations can be helpful. For example, if a student is the lowest performing reader in his class, but is still above reasonable instructional criterion benchmarks, intervention may not be warranted. Second: What are the details that are relevant to the concern? We may know that the child is failing English-language arts, but this level of information is insufficient to

design an intervention. Third: What should be done about the problem? For example, noncompliance may have been the presenting concern. However, noncompliance may allow escape from a demand for the student to finish assignments that she does not have the skills to accurately complete. Academic skills would be indicated as the logical target for remediation using instruction, rather than a consequent-based intervention for acting out. Fourth: We've decided what to do, now how do we actually get it done? And fifth: How do we know whether we have achieved the goals we set in consultation?

It is important to be wary of making instructional decisions without rules to guide them (Demaray & Elliott, 1998; Hoge & Coladarci, 1989; VanDerHeyden & Witt, 2005), as human judgment certainly is fallible. And, despite the fact that a standardized, norm-referenced assessment of student achievement might seem as though it would yield data sufficient to inform intervention development, in reality, it will allow only comparison of students' skills to other students of similar age or grade. Due to the stability and reliability built into their design, the cost and length of time to administer, the limited number of items covering wide academic skill spans, and its lack of validity for treatment planning, these tests are inappropriate for monitoring progress over time (Cone, 1989; Hayes, Nelson, & Jarrett, 1987; Jenkins, Deno, & Mirkin, 1979). Although standardized achievement tests have several important valid uses, their utility for academic intervention planning is typically very limited.

The use of a broad family of validated curriculum-based tools is likely to substantively and suitably inform decisions made through consultation. These tools are particularly valuable because they are highly adaptable and materials can be developed to examine skills in as much detail as appears warranted. For each of the big consultation questions, data collected through curriculum-based measurement (CBM), curriculum-based assessment (CBA), or Curriculum-Based Evaluation (CBE, Howell & Nolet, 2000) are likely to provide consultants and consultees information that will allow for objectivity in verification of problems as well as monitoring of progress following intervention implementation.

In reading, three 1-min reading probes will provide a median words correct per minute measure, as well as an error count. If the student's oral reading fluency is low compared to established grade level standards or peers' measures, and/or accuracy is low, choices include interventions to enhance fluency and phonics or decoding instruction in appropriate level material (Shinn, 1989). In mathematics, CBM will provide digits correct per minute on either specific skill probes or mixed computation probes. For students who complete insufficient numbers of basic skill problems, or for whom accuracy is low, fluency building on those basic skills would be appropriate. For students who do not complete mixed computation probes at a level that is similar to their peers, additional assessment might be called for to determine whether the observed deficits result from inadequate basic skill attainment. Although written expression may be evaluated by having students write a short passage in response to a prompt, the utility of curriculum-based measures like total number of words written or correct word sequences is less obvious for intervention planning. They will suggest general areas for remediation, but will provide less specific information than is likely to be needed for an effective intervention. For written expression and for problems in reading and mathematics, Curriculum-Based Evaluation (CBE) may provide a framework through which specific skills may be addressed and remediated through a school-wide system of problem-solving and intervention (Howell, Kurns, & Antil, 2002; Howell & Nolet, 2000). CBE is a data-driven, systematic procedure for measuring what, specifically, is deficient in the basic skill areas. It then uses those data to make specific recommendations for teaching and remediating skills problems.

Research has demonstrated a strong link between academic achievement and classroom behavior (e.g., Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000; Malecki & Elliott, 2002; Wentzel, 1993). Although student behavior in and out of the classroom is clearly an important issue for success in school and may be the teacher's primary presenting concern during initial consultation, it may not be sensible to make student behavior the focus of intervention until it is determined that the problem

behavior does not occur as the result of an academic issue. In other words, academic deficits should be ruled out before addressing behavior alone. Asking a student to be still, to be quiet, and to engage in academic work when the student lacks the skills needed to complete the work successfully is certainly a formula for the reemergence of the concern that was initially addressed and has little instructional utility (Kelley, Reitman, & Noell, 2002). Evaluation of academic skills is inexorably tied to curriculum levels. It is impossible to judge how the student *is performing* without having some idea of the level at which the student is *supposed to be* performing. Curriculum-based methods can provide both of these kinds of data and can effectively inform decisions at each of the levels of big consultation questions.

*Problem screening.* Screening is conducted to determine if students need help to succeed in the general curriculum. Given the serious and often devastating consequences of waiting for students to fail before providing academic assistance (Donovan & Cross, 2002; Elliott, Huai, & Roach, 2007), good screening instruments are essential to providing proactive identification of students at risk for failure. Curriculum-based measurement (CBM) was designed to provide special education teachers with valid measurements of student performance that can be administered on a repeated basis for progress monitoring (Bradley & Ames, 1977; Christ & Silbergitt, 2007; Deno, Marston, & Tindal, 1985), but can also function effectively as a screening measure either alone or as part of a larger system (Elliott et al.; Shinn, 1988).

Screening may take the form of informal review of students' work, in which the teacher decides, using clinical judgment, whether the students' skills are in need of remediation. Although data suggest that when provided a structure for making judgments, teachers may provide accurate information about student skills compared to criterion measures, it is critical that this structure be part of their decision-making process (Elliott et al., 2007). It would, however, be unusual to find this kind of structure provided to teachers for screening. Alternatively, routinely administered group standardized achievement tests provide information regarding how student scores compare to those of students in similar grade or age ranges. Although they can provide information regarding these comparisons, they are limited in their capacity to provide valid recommendations for target skills or intervention procedures, or treatment validity (Cone, 1989; Hayes et al., 1987). They are primarily useful for identifying students whose skills and behavior warrant further assessment.

Data collected systematically within schools tend to have better demonstrated treatment validity and utility for monitoring the progress of intervention. Dynamic Indicators of Basic Early Literacy Skills (DIBELS, Good & Kaminski, 2002) is a series of brief probes in a number of early reading skill areas. They have been demonstrated to be linked to criterion measures of academic achievement. DIBELS provides benchmarks for progress for students at three to four points each year in kindergarten through the 6<sup>th</sup> grade year. The system is designed so that all students are regularly screened, and those whose scores do not fall in the acceptable range relative to benchmarks and/or other students' scores will naturally come to the attention of the school, either for further assessment or for intervention. Oral reading fluency, nonsense word fluency, and phoneme segmentation fluency are some of the measures that are available through DIBELS screening.

System to Enhance Educational Performance (STEEP) began as Screening to Enhance Equitable Placement or Performance, and provided a system to screen all students for academic deficits in basic skill areas, and provided decision rules for determining what intervention activities would be implemented at different stages in the process (VanDerHeyden, Witt, & Gilbertson, 2007). All students are screened using CBM probes, a smaller group is identified to participate in further intervention, and a still smaller group is identified for individual interventions. The predictive power estimates of STEEP have been found to be better than teacher nomination as a screening source (VanDerHeyden & Witt, 2005). The underlying model for STEEP is based on routinely screening all students, relying primarily on objective data in the form of brief class wide screening assessments to make decisions, and providing

progressively more intensive intervention to students who are at risk. STEEP also, places a major emphasis on differentiating between individual and class wide problems, with the goal of focusing on class wide level issues when that is appropriate.

In addition to formal screening packages, CBM probes may be administered to all of the students in a class, school, or district, and cut scores determined for further assessment and/or intervention. CBM was originally designed to provide special education teachers with a time-efficient assessment of student performance that could be administered repeatedly to quantify the effects of instruction (Bradley & Ames, 1977; Christ & Silbergitt, 2007; Deno, 1989; Deno et al., 1985). As it grew in popularity however, schools chose to gather data on larger groups like classrooms and schools so that the performance of those students who came to the attention of teachers because they were struggling in basic skill areas could be compared to the performance of those larger groups (Shinn, 1988). The data from the larger form norms for those buildings or classes, and provide a standard for evaluating individual students' performance (Stewart & Kaminski, 2002).

As skills-based data like CBM and DIBELS are collected for screening purposes, they may provide information regarding how the students' skills compare to those of their local peers, and therefore, may suggest curriculum that is appropriate to those students' levels of functioning. For example, a second grade student who reads 15 words correct per minute in second grade material at the start of the academic year is likely to fall far below his peers and below the DIBELS benchmark for second grade (< 26 would suggest that the student is at risk, Good & Kaminski, 2002). This would indicate further assessment and or curriculum modification.

*Problem specification in detail: What is the problem?* As suggested by screening data, more detailed assessment of the specific skills that support competent academic achievement must be completed. However, a quality evaluation will address factors other than academic skills in isolation, as the context of instruction is directly related to the student's success (Shapiro, 1989). Daly and colleagues (1997) suggest five reasonable hypotheses for academic deficits: they are functional explanations for why students fail, or suggest reasons for why for the observed behaviors occur. These hypotheses focus on factors that are external to the child and can be directly manipulated, and if confirmed, they direct resulting intervention toward better arrangement of the instructional environment, better sequencing of the delivery of instruction, better opportunities for responding to instruction, or better arrangement of contingencies (Daly et al.).

Curriculum-based assessment (CBA) is the collection of data that will allow consultants, together with consultees, to develop plausible hypotheses for why academic problems have occurred for a student. Data collected through CBA will describe skills, environment, and student behaviors that contribute to academic performance (Shapiro, 1989): specific antecedents and consequences of behavior, global details regarding daily events in classrooms (Sulzer-Azaroff & Mayer, 1991), and student performance within the specific curricula (Salvia, Ysseldyke, & Bolt, 2007).

*Teacher interviews* should address a variety of factors. Issues external to the student would include the curriculum in use in the classroom, performance of peers, instructional procedures, progress monitoring procedures, and contingencies for excellent, adequate, and poor performance. Student-centered issues would include student behavior during different kinds of instruction (small-group, large-group, independent seatwork), as well as behavior in response to common classroom contingencies. *Direct observation* of the student's work habits as well as of co-occurring conditions that may be relevant to demonstration of student skills may inform the development of hypotheses regarding skills problems. For example, if computation accuracy is a concern, observation of the student during independent seatwork in mathematics may be indicated to determine whether the student spends enough academic engaged time to sufficiently attend to the assignment and to accurately complete it. A description of

direct observation systems may be found in Salvia, Ysseldyke, and Bolt (2007) and McLoughlin and Lewis (2008). Cooper, Heron, and Heward (2007) provide a more detailed description of direct observation and behavior analysis. *Permanent products* are the raw data that are generated as a result of activities in the classroom. Review of permanent products will provide information such as whether the student completes assignments in the various content areas, follows directions, and has skills sufficient to competently complete academic tasks. Review of *curriculum-based measurement (CBM)* data will provide additional information regarding where the student's skills stand in relation to those of a group, class, school, or district.

Information collected through CBA will allow the consultant and consultee to determine how the student is functioning within the curriculum, relative to the teacher's expectations, and relative to other students. It may also suggest appropriate levels of curriculum for instructing the student, and/or procedures to follow that may ameliorate the problems that have been suggested by the CBA. However, it may also be the case that additional information is needed and must be collected before a decision can be made regarding an intervention with a high-probability for success.

*Problem function: What should be done about the problem?* Functional assessment procedures are generally used to determine the effects of environmental changes on behavior. Carr and Durand (1985) and Iwata and colleagues (1982) originally used these procedures with individuals with significant developmental disabilities and severe challenging behavior to investigate the impact of contingencies on these behaviors. However, these procedures have been shown useful in academic environments with the demonstration of the relationships between academic behaviors, antecedent instructional variables, and reinforcing consequences (Daly & Martens, 1994; Pereira & Winton, 1991).

In their discussion of functional assessment for academic performance, Daly and colleagues (1997) suggest five reasonable hypotheses for why students fail and what can be done about them. They include lack of motivation; insufficient responding in curricular materials; not enough help in the form of prompting and feedback, insufficient practice, or lack of generalization; instructional demands that do not align with mastery of the curriculum; and instruction at a level that is not matched to the student's skill. Although functional assessment is not always necessary for an effective intervention to be designed for academic deficits, it can clear up some of the confusion regarding why students do not perform up to teachers' expectations, and is another source of information that may directly inform the development of interventions (Noell & Gansle, in press).

A variety of assessments may be used to provide information relevant to functional hypotheses for academic behavior. First, it is possible that the academic difficulties the student is experiencing are a result of a skill deficit, a lack of skills, or a performance deficit, environmental contingencies insufficient to occasion performance (Noell et al., 1998). Duhon and colleagues (2004) demonstrated the use of brief functional analysis procedures with goal setting and rewards to determine if skill or performance deficits were responsible for observed academic problems in mathematics accuracy, reading fluency, or writing fluency. In assessment, a reward is determined that has a high probability of being a reinforcer for that student. Usually, the person doing the assessment will use a reward that has been effective in the past, or will ask the student what he or she might like to do or have consequent to excellent or adequate academic performance, from a short menu of choices. This is set as the reward for performance. Assessment of skills using this reward for performance at a particular curricular level then begins. If the student does not demonstrate adequate performance despite the presence of what has been determined to be one or more potent reinforcers, it is determined that the student has a skill deficit and cannot perform adequately in that level of curriculum. This suggests that either curriculum must be altered or instruction changed to meet that student's needs. If the student does demonstrate adequate performance in the presence of contingent reward but not without that reward, the student has a performance deficit. This suggests that contingencies for performance be put in place to support the demonstration of academic skills (Noell,

Freeland, Witt, & Gansle, 2001).

In consultation, the results of this kind of assessment can advise teachers regarding appropriate choice of curricula. Once a distinction is made between a skill and performance deficit, it is possible to determine whether the curriculum level is appropriate. If a performance deficit is evident, then the current curriculum or one that is more challenging would appear to be appropriate for instructing that student. Further assessment in the presence of a potent reward would allow the consultant and consultee to make decisions regarding the appropriate level of curriculum for the student. However, in the case of a skill deficit, additional information should be gathered before making decisions regarding intervention choices.

When it has been determined that the student does not have the basic academic skills in question, further assessment can be done to determine with more detail exactly which skills the student does and does not have. Are the observed problems the result of generalized poor performance or the result of specific skill deficits that could be remediated with individualized instruction? CBM can be used to begin to gather some of this information, and it is possible that if CBM was used for screening, this information is already in the possession of the consultant, consultee, or school.

It is possible that a problem that is judged to be a skill deficit may further be difficulty with engaging in sustained active accurate academic responding (AAA). AAA responding is important for increasing fluency, automaticity, and maintenance of academic skills (Skinner, Pappas, & Davis, 2005). Skinner et al. describe four reasons why students can't engage in the AAA responding which is so important for developing automaticity of skills: (a) they do not have the required materials, (b) they do not understand the assignment, (c) they do not have sufficient time to respond to prompts or instruction, and/or (d) they do not have the required skills. If the difficulties the students experience are the result of the first three, it is likely that this information would be made clear through CBA and appropriate interventions can be developed based on those target concerns. However, for students who have not been taught and/or who have not yet learned the required skills, additional assessment is likely to provide information relevant to intervention planning.

*We've decided what to do, now how do we actually get it done?*

Due to the nature of consultation and the fact that psychologists do not have sufficient time to provide direct services to all referred students, interventions are rarely designed to be implemented by the consultant who works with the consultee to design them. The consultant must be sufficiently skilled to influence the behavior of the *consultee* so that he can effectively implement the intervention with the student (Noell et al., 2005). Although a naïve observer might expect that teachers will implement interventions because they have been asked to, substantial literature exists that in reality, the many competing demands of teachers' environments can readily lead to poor implementation of even simple interventions (Noell et al., 2000; Noell et al., 2005). For example, Jones, Wickstrom, and Friman (1997) found that without intervention, teacher implementation of a reinforcement strategy for on-task behavior ranged between 9% and 37%. The effort that consultants and consultees must spend to design interventions for children in need should not be wasted by inadequate implementation. Indeed, different strategies have been used to improve teachers' implementation of interventions. One that has enjoyed substantial success is performance feedback.

*Performance feedback* in the context of consultation has commonly consisted of the consultant meeting with the consultee, reviewing intervention implementation, reviewing student behavior, graphing both outcomes, praising accurate implementation, discussing barriers to plan implementation, and planning for problems that have arisen (Mortenson & Witt, 1998; Noell et al., 2000). The consultant provides positive feedback regarding intervention steps completed correctly and identifies intervention steps that are missed or completed incorrectly (Noell et al., 2005). The consultant then discusses steps

that were not implemented or implemented incorrectly. This procedure has been demonstrated to be effective with teachers when implemented daily until the teacher implemented with 100% integrity, then thinned to two days, and then weekly (Noell et al.). There are other methods of improving consultees' implementation of interventions such as social influence, but to date, performance feedback has shown the best results, with positive effects on student behavior and teacher implementation when compared with procedures like checking in with the teacher to discuss implementation with no formal review of data.

*How do we determine whether we have achieved the goals set in consultation?*

CBM can provide both formative and summative data for the purposes of identification, problem definition, intervention design, and intervention evaluation. It is essential that the progress of interventions be monitored to determine whether they are working or if they need to be changed in some way to better meet students' needs. Response to Intervention (RtI) models are increasingly recommended as system-wide procedures for allocating the wide variety of resources available in schools to all of the students who need them (Jimerson, Burns, & VanDerHeyden, 2007). Unlike traditional systems in which students are only targeted for intervention when they have failed (Donovan & Cross, 2002), in RtI, students progress through a multi-tiered model of assessment and intervention. As students' needs demand, increasingly intense, explicit, frequent, or long-term services are provided (Fuchs, Mock, Morgan, & Young, 2003). The data collected through a RtI model can provide evidence to recommend additional assessment, to support the effectiveness of intervention, to indicate alternative intervention, and/or to establish eligibility for special services. CBM is uniquely situated to contribute to all of those decisions.

### *Summary and Conclusions*

Indirect service delivery through consultation allows many more students with special needs to receive services than if direct service delivery through a school psychologist were the only option available. School psychologists have risen to the challenge of providing services in such a manner, with many reporting that they would prefer to increase the amount of time they spend providing consultative services to teachers (Cheramie & Sutter, 1993; Costenbader et al. 1992; Hatzichristou, 1998; Kratochwill & Stoiber, 2000; Reschly & Wilson, 1995; Roberts & Rust, 1994; Stewart, 1986). Through consultation regarding academic issues, consultants and consultees may collect a variety of data that will inform screening, assessment, and intervention development. Many of these activities, especially when they provide skills information about the students who are assessed, will allow for decisions to be made regarding the appropriate level at which to instruct students. For intervention development, teachers are the direct agents of change for students with academic problems, and may need additional support to provide services. One of the biggest problems with implementing interventions for teachers is that there are too many competing demands on their time to allow them to implement with 100% integrity. Indeed, many may need assistance providing these services. One empirically supported method for increasing intervention integrity for those developed in consultation with teachers is performance feedback. When teachers are exposed to data-based evaluation of student progress as well as their own implementation of intervention components, their implementation tends to improve. Evaluation of intervention success through progress monitoring will allow the intervention team to determine success or failure, and whether to alter the intervention or focus on establishment of eligibility for special education services.

### References

- Bradley, M. M., & Ames, W. S. (1977). Readability parameters of basal readers. *Journal of Reading Behavior, 11*, 175-183.
- Bradley-Johnson, S., & Dean, V. J. (2000). Role change for school psychology: The challenge continues

- in the new millennium. *Psychology in the Schools*, 37, 1-5.
- Bramlett, R. K., Murphy, J. J., Johnson, J., Wallingsford, L., & Hall, J. D. (2002). Contemporary practices in school psychology: A national survey of roles and referral problems. *Psychology in the Schools*, 39, 327-335.
- Caplan, G., Caplan, R. B., & Erchul, W. P. (1995). A contemporary view of mental health consultation: Comments on "Types of Mental Health Consultation" by Gerald Caplan (1963). *Journal of Educational and Psychological Consultation*, 6, 23-30.
- Caprara, G., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. (2000). Prosocial foundations of children's academic achievement. *Psychological Science*, 11, 302-306.
- Carr, E. G., & Durand, V. M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis*, 18, 111-126.
- Cherame, G., & Sutter, E. (1993). Role expansion in school psychology: The need for primary and secondary prevention services. *Psychology in the Schools*, 30, 53-59.
- Christ, T. J., & Silbergliitt, B. (2007). Estimates of the standard error of measurement for curriculum-based measures of oral reading fluency. *School Psychology Review*, 36, 130-146.
- Cone, J. D. (1989). Is there utility for treatment utility? *American Psychologist*, 44, 1241-1242.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2<sup>nd</sup> ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Costenbader, V., Swartz, J., & Petrix, L. (1992). Consultation in the schools: The relationship between preservice training, perception of consultative skills, and actual time spent in consultation. *School Psychology Review*, 21, 95-108.
- Curtis, M. J., Grier, J. E. C., & Hunley, S. A. (2004). The changing face of school psychology: Trends in data and projections for the future. *School Psychology Review*, 33, 49-66.
- Curtis, M. J., Hunley, S. A., & Grier, E. C. (2004). The status of school psychology: Implications of a major personnel shortage. *Psychology in the Schools*, 41, 431-442.
- Daly, E. J. III, Witt, J. C., Martens, B. K., & Dool, E. J. (1997). A model for conducting a functional analysis of academic performance problems. *School Psychology Review*, 26, 554-574.
- Daly, E. J., III, & Martens, B. K. (1994). A comparison of three interventions for increasing oral reading performance: Application of the instructional hierarchy. *Journal of Applied Behavior Analysis*, 27, 459-469.
- Demaray, M. K., & Elliott, S. N. (1998). Teachers' judgments of students' academic functioning: A comparison of actual and predicted performances. *School Psychology Quarterly*, 13, 8-24.
- Deno, S. L. (1989). Curriculum-based measurement and special education services: A fundamental and direct relationship. In M. R. Shinn (Ed.), *Curriculum-based measurement: Assessing special children* (pp. 1-17). New York: Guilford Press.
- Deno, S. L., Marston, D., & Tindal, G. (1985). Direct and frequent curriculum-based measurement: An

- alternative for educational decision making. *Special Services in the Schools*, 2, 5-27.
- Donovan, M. S., & Cross, C. T. (Eds.). (2002). *Minority students in gifted and special education*. Washington, DC: National Academy Press.
- Duhon, G. J., Noell, G. H., Witt, J. C., Freeland, J. T., Dufrene, B. A., & Gilbertson, D. N. (2004). Identifying academic skill and performance deficits: The experimental analysis of brief assessments of academic skills. *School Psychology Review*, 33, 429-443.
- Dwyer, K. P., & Bernstein, R. (1998). Mental health in the schools: "Linking islands of hope in a sea of despair." *School Psychology Review*, 27, 277-286.
- Elliott, S. N., Huai, N., & Roach, A. T. (2007). Universal and early screening for educational difficulties: Current and future approaches. *Journal of School Psychology*, 45, 137-161.
- Fuchs, D., Mock, D., Morgan, P. L., & Young, C. L. (2003). Responsiveness-to-intervention: Definitions, evidence, and implications for the learning disabilities construct. *Learning Disabilities Research & Practice*, 18, 157-171.
- Good, R. H., & Kaminski, R. A. (2002). *Dynamic indicators of basic early literacy skills* (6<sup>th</sup> ed.). Longmont, CO: Sopris West.
- Gutkin, T. B. (1996). Patterns of consultant and consultee verbalizations: Examining communication leadership during initial consultation interviews. *Journal of School Psychology*, 34, 199-219.
- Hatzichristou, C. (1998). Alternative school psychological services: Development of a databased model. *School Psychology Review*, 27, 246-259.
- Hayes, S. C., Nelson, R. O., & Jarrett, R. B. (1987). The treatment utility of assessment: A functional approach to evaluating assessment quality. *American Psychologist*, 42, 963-974.
- Heward, W. L. (2006). *Exceptional children: An introduction to special education* (8th ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Hoge, R. D., & Coladarci, T. (1989). Teacher-based judgments of academic achievement: A review of the literature. *Review of Educational Research*, 76, 777-781.
- Howell, K. W. & Nolet, V. (2000). *Curriculum-based evaluation: Teaching and decision making* (3rd Ed.). Atlanta, GA: Wadsworth.
- Howell, K. W., Kurns, S. & Antil, L. (2002). Best practices in curriculum-based evaluation. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology IV* (pp. 753-772). Bethesda, MD: National Association of School Psychologists.
- Ikeda, M. J., Tilly, W. D., Stumme, J., Volmer, L., & Allison, R. (1996). Agency-wide implementation of problem solving consultation: Foundations, current implementation, and future directions. *School Psychology Quarterly*, 11, 228-243.
- Individuals with Disabilities Education Improvement Act of 2004 (IDEA), 118 Stat. 2647 (2004). [Amending 20 U.S.C. §§ 1400 *et seq.*].

- Iwata, B. A., Dorsey, M., Silfer, K., Bauman, K., & Richman, G. (1982). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis, 27*, 197-209.
- Jenkins, J. R., Deno, S. H., & Mirkin, P. K. (1979). Measuring pupil progress toward the least restrictive alternative. *Learning Disability Quarterly, 4*, 81-91.
- Jimerson, S. R., Burns, M. K., & VanDerHeyden, A. M. (2007). Response to intervention at school: The science and practice of assessment and intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden, (Eds.), *Handbook of response to intervention: The science and practice of assessment and intervention* (pp. 3-9). New York, NY: Springer.
- Jones, K. M., Wickstrom, K. F., & Friman, P. C. (1997). The effects of observational feedback on treatment integrity in school-based behavioral consultation. *School Psychology Quarterly, 12*, 316-326.
- Kavale, K. A., & Forness, S. R. (2000). History, rhetoric and reality: Analysis of the inclusion debate. *Remedial and Special Education, 21*, 279-296.
- Kelley, M. L., Reitman, D., & Noell, G. H. (2002). *Practitioner's guide to empirically based measures of school behavior*. New York: Kluwer Academic/Plenum Publishers.
- Kratochwill, T. R., & Stoiber, K. C. (2000). Uncovering critical research agendas for school psychology: Conceptual dimensions and future directions. *School Psychology Review, 29*, 591-603.
- Malecki, C. K., & Elliott, S. N. (2002). Children's social behaviors as predictors of academic achievement: A longitudinal analysis. *School Psychology Quarterly, 17*, 1-23.
- McLoughlin, J. A., & Lewis, R. B. (2008). *Assessing students with special needs* (7<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Mortenson, B. P., & Witt, J. C. (1998). The use of weekly performance feedback to increase teacher implementation of a prereferral academic intervention. *School Psychology Review, 27*, 613-627.
- No Child Left Behind Act of 2001, 20 U.S.C. 70 § 701 *et seq.*
- Noell, G. H., & Gansle, K. A. (in press). Introduction to functional behavioral assessment. In K. A. Akin-Little, S. G. Little, M. Bray, & T. Kehle (Eds.), *Handbook of behavioral interventions in schools*. Washington, DC: American Psychological Association.
- Noell, G. H., Freeland, J. T., Witt, J. C., & Gansle, K. A. (2001). Using brief assessments to identify effective interventions for individual students. *Journal of School Psychology, 39*, 335-355.
- Noell, G. H., Gansle, K. A., & Allison, R. (1999). Do you see what I see? Teachers' and school psychologists' evaluations of naturally occurring consultation cases. *Journal of Educational and Psychological Consultation, 10*, 107-128.
- Noell, G. H., Gansle, K. A., Witt, J. C., Whitmarsh, E. L., Freeland, J. T., LaFleur, L. H., Gilbertson, D. N., & Northup, J. (1998). Effects of contingent reward and instruction on oral reading performance at differing levels of passage difficulty. *Journal of Applied Behavior Analysis, 31*, 659-663.

- Noell, G. H., Witt, J. C., LaFleur, L. H., Mortenson, B. P., Ranier, D. D., & LeVelle, J. (2000). A comparison of two follow-up strategies to increase teacher intervention implementation in general education following consultation. *Journal of Applied Behavior Analysis, 33*, 271-284.
- Noell, G. H., Witt, J. C., Slider, N. J., Connell, J. E., Gatti, S. L., Williams, K. L., Koenig, J. L., Resetar, J. L., & Duhon, G. J. (2005). Treatment implementation following behavioral consultation in schools: A comparison of three follow-up strategies. *School Psychology Review, 34*, 87-106.
- Pereira, J. A., & Winton, A. S. W. (1991). Teaching and remediation of mathematics: A review of behavioral research. *Journal of Behavioral Education, 1*, 5-36.
- Reschly, D. J., & Wilson, M. S. (1995). School psychology practitioners and faculty: 1986 to 1991-92; Trends in demographics, roles, satisfaction, and system reform. *School Psychology Review, 24*, 62-80.
- Roberts, A. H., & Rust, J. O. (1994). Role and function of school psychologists, 1992-93: A comparative study. *Psychology in the Schools, 31*, 113-119.
- Salvia, J., Ysseldyke, J. E., & Bolt, S. (2007). *Assessment in special and inclusive education* (10<sup>th</sup> ed.). Boston, MA: Houghton Mifflin.
- Sechrest, L. (1982). Program evaluation: The independent and dependent variables. *The Counseling Psychologist, 10*, 73-74.
- Shapiro, E. S. (1989). *Academic skills problems: Direct assessment and intervention*. New York: Guilford.
- Sheridan, S., Welch, M., & Orme, S. (1996). Is consultation effective? A review of outcome research. *Remedial and Special Education, 17*, 341-354.
- Shinn, M. R. (1988). Development of curriculum-based local norms for use in special education decision-making. *School Psychology Review, 17*, 61-80.
- Shinn, M. R. (1989). *Curriculum-based measurement: Assessing special children*. New York: Guilford.
- Shippen, M. E., Houchins, D. E., Calhoon, M. B., Furlow, C. F., & Sartor, D. L. (2006). The effects of comprehensive school reform models in reading for urban middle school students with disabilities. *Remedial and Special Education, 27*, 322-328.
- Skinner, C. H., Pappas, D. N., & Davis, K. A. (2005). Enhancing academic engagement: Providing opportunities for responding and influencing students to choose to respond. *Psychology in the Schools, 42*, 389-403.
- Stewart, K. J. (1986). Innovative practice of indirect service delivery: Realities and idealities. *School Psychology Review, 15*, 466-478.
- Stewart, L. H., & Kaminski, R. (2002). Best practices in developing local norms for academic problem solving. In A. Thomas and J. Grimes (Eds.), *Best practices in school psychology IV* (pp. 737-752). Bethesda, MD: National Association of School Psychologists.
- Sulzer-Azaroff, B., & Mayer, G. R. (1991). *Behavior analysis for lasting change*. Fort Worth, TX: Holt,

Rinehart and Winston, Inc.

VanDerHeyden, A. M., & Witt, J. C. (2005). Quantifying context in assessment: Capturing the effect of base rates on teacher referral and a problem-solving model of identification. *School Psychology Review, 34*, 161-183.

VanDerHeyden, A. M., Witt, J. C., & Gilbertson, D. N. (2007). A multi-year evaluation of the effects of a Response to Intervention (RTI) model on identification of children for special education. *Journal of School Psychology, 45*, 225-256.

Wentzel, K. R. (1993). Does being good make the grade? Social behavior and academic competence in middle school. *Educational Psychology, 85*, 357-364.

Yeaton, W. H., & Sechrest, L. (1981). Critical dimensions in the choice and maintenance of successful treatments: Strength, integrity, and effectiveness. *Journal of Consulting and Clinical Psychology, 49*, 156-167.

**Author Contact Information:**

Kristin Gansle  
Louisiana State University  
Special Education Programs  
223 Peabody Hall  
Baton Rouge, Louisiana 70803  
E-mail: kgansle@lsu.edu

---

**ADVERTISING IN THE  
INTERNATIONAL JOURNAL OF BEHAVIORAL CONSULTATION AND THERAPY**

**The prices for advertising in one issue are as follows:**

**1/4 Page: \$50.00    1/2 Page: \$100.00    Full Page: \$200.00**

**If you wish to run the same ad in multiple issues for the year, you are eligible for the following discount:**

**1/4 Pg.: \$40 - per issue  
1/2 Pg.: \$75 - per issue  
Full Page: \$150.00-per issue**

**An additional one time layout/composition fee of \$25.00 is applicable**

**For more information, or place an ad, contact Halina Dziewolska by phone at (215) 462-6737 or e-mail at: halinadz@hotmail.com**

## Starting off on the Right Foot: One Year of Behavior Analysis in Practice and Relative Cost

*Jeremy H. Greenberg & Rosa C. Martinez*

### Abstract

Strong evidence exists for the efficacy of behavior analytic approaches with children on the autism spectrum (Carr & Firth, 2005; Weiss 2001, 2005). Many early childhood intervention studies report outcomes based on pre-school populations (Smith, 1999; Casto & Mastropieri, 1986) while outcome studies for younger populations are scarcer. We reviewed one year of instructional outcome data from an early intervention classroom that used applied behavior analysis in concert with verbal behavior. The population served was two and three year olds with pervasive developmental disorder (PDD). Special instruction was provided in individual and in group formats using learn units as the basic unit of instruction. Ninety-five percent of the children in this program progressed to lesser restrictive environments. A cost benefit analysis showed the relative dollar amounts of the learn unit, instructional sessions, and objectives met for one year.

Keywords: early intervention, applied behavior analysis, learn units, cost benefit analysis, pervasive developmental disorder, verbal behavior

---

Applied Behavior Analysis (ABA) program models have been effective in the remediation of learning problems for young children with pervasive developmental disorders (PDD) and language deficits for decades (Anderson & Romanczyk, 1999; Cooper, Heron, & Heward, 1987; Lovaas, 1987; Greer, McCorkle, & Williams, 1989; Twyman, 1998; Greer, 2002; Greer & Ross, 2008; Weiss 2001, 2005). Early intensive and behavioral interventions are generally accepted as one of the most effective treatments for children with an autistic spectrum disorder (ASD)<sup>1</sup>. Most public and private schools that serve students with PDD provide instruction in a one to one format which has been the hallmark of many traditional ABA programs. Under these conditions students with disabilities may have few, if any, opportunities to learn in a group setting with their peers. The Children's Center for Early Intervention, Inc. in Brooklyn, New York (CCEI) comprehensively aims to enhance language and communication, social/play, pre-academic skills of young children in one to one and group formats.

CCEI provides ABA services in an environment which combines discrete trial training and natural environment training by delivering learn units across these settings (McGee, Morrier, & Daly, 1999; Weiss, 2001; 2005). This allows each student to benefit from the one to one programming while also including group program instruction. All program intervention methodology is based on the science of the principles of ABA. Special instruction is the primary service that the children receive at CCEI. ABA is applied comprehensively throughout each daily session in concert with the curriculum objectives of verbal behavior (VB) (Greer & Ross, 2008; Kates-McElrath & Axelrod, 2007; Skinner, 1957). State mandated related services (e.g. speech and language therapy, occupational therapy, physical therapy) are provided outside of the classroom as a "pull-out" service. Inside the classroom, the daily ABA structure is two-fold.

---

<sup>1</sup> *Clinical Practice Guideline: Report of the Recommendations*. Autism/Pervasive Developmental Disorders, Assessment and Intervention for Young Children (Age 0-3 Years) New York State Department of Health. 5½" x 8½", 322 pages. 1999 Publication No. 4215

Within the classroom, children can receive ABA special instruction in the traditional format, from one teacher (e.g. one to one), or in a group setting. Group was considered a “group setting” referring to the students attending within a group of three or more peers, however, each child still continues to receive one to one individual consequences for all responses. Teachers at CCEI use the same ABA data based conventions when instructing one to one or in a group. One teacher reads a story, or sings a song with imitation opportunities to the group of children, while the assistant teachers will sit behind the children and prompt and reinforce as well as record data in real time. Furthermore, group instruction is individualized and data based in the same way that the one to one programs are applied. Progress is recorded immediately, and then graphed daily. Decisions are made on the graphs based on a data decision protocol (Greer, 2002; Keohane, 1997; Keohane & Greer, 2005), and research based tactics are applied as needed (Greenberg, 2007).

This paper presents a report of one year of data from a center-based early intervention (EI) class at CCEI. We will highlight the program’s behavior analytic components and include the results of the instruction expressed in a cost benefit analysis showing the relative cost in dollars.

### *Population*

The EI children enrolled in the center-based program for the given year ranged in age from twenty-three months to 42 months of age. The verbal behavior, social and cognitive repertoires of each child varied, however, all children had severe delays across these domains. Specifically, verbal behavior functioning ranged from pre-speaker and pre-listener to speaker and listener behaviors. Approximately 80% of the children had severely limited speaker as well as listener skills. Social skills were also severely delayed as is generally characteristic of children having PDD. All children in the center-based program were self-ambulatory. None of the children had serious medical conditions, although one child experienced seizures at the start of the center-based program. Of the 24 students, one child resided in foster care.

### *Interdisciplinary model*

CCEI provides services in an interdisciplinary model using ABA, speech and language therapy, occupational therapy, physical therapy, natural environment training, and family support. Our model of ABA is applied to young children with disabilities in an EI program by professional staff that collaborate about effective treatments on a daily basis. The teams work together with a focus on the individual child. Parents are a central part of our interdisciplinary team. We provide family training and family support groups monthly. Parents are encouraged to be active members of the treatment team. Their input is necessary with regard to individual child deficits, family situations, and cultural issues. In addition, parents receive training regarding specific behavioral techniques to foster the generalization of skills in their home and communities through a monthly support group meeting.

CCEI borrows many of the components from CABAS® schools, however the program is based on the that model and incorporated the following CABAS® components in its’ program: LUs<sup>2</sup>, PSI modules<sup>3</sup>, TPRA’s<sup>4</sup> and data decision analysis<sup>5</sup>.

---

<sup>2</sup> The Learn Unit, Greer (2002)

<sup>3</sup> PSI Modules are used in CABAS® Schools

<sup>4</sup> TPRA (Ingham & Greer, 1992)

<sup>5</sup> Data Decision Analysis (Keohane, 1997; Greer 2002; Keohane & Greer, 2005).

### *ABA special instruction*

CCEI provides home-based and center-based services. The data reported within this study are limited to the center-based program. Each of the 24 children targeted were enrolled in a 10-hour weekly ABA program. A majority of the children's programs were supplemented by ten hours of homebased ABA special instruction. The specific components of the center-based program were as follows.

#### *Discrete trial training and Learn Units*

Discrete trial training (DTT) using learn units (LU) is an intensive, structured teaching program. Each skill taught was broken down into its simplest elements and smallest step possible for initial acquisition. The skills taught follow a developmentally and behaviorally sequenced curriculum based on the child's Individualized Family Service Plan (IFSP) through the EI program. There is a strong emphasis on the generalization of skills to more natural learning environments. The child was presented with an antecedent stimulus. The child's response (correct) was reinforced by giving positive reinforcement (e.g. verbal praise, a book, toy, edible). The child's response (if incorrect) was given a correction, and appropriate responses were modeled or prompted. Prompt levels may have varied from verbal or physical guidance to repeat the instructional antecedent. Prompts were faded as correct responding increased. As new behaviors were taught to mastery, acquisition tasks were added to each individual child's programs.

DTT is generally therapist directed. Target goals will include attending skills, non-verbal and verbal imitation, self-help skills, academic and social skills. The LU is a three-term-contingency that may occur in a scripted, automated, discrete, captured, interspersed or massed form (Greer, 2002).

#### *Natural environment teaching*

The natural environment teaching (NET) component relies on naturally occurring opportunities in the environment (e.g., group instruction, captured learn units) to promote learning (McGee, et al., 1999; Greer, 2002). Addition of this component emphasized child-directed activities (choices) while still incorporating the stimulus-response-consequence paradigm. Target goals included language, play and social skills. During NET, antecedents that may be child initiated were paired with multiple cues interspersed by the therapists

(Weiss, 2001, 2005).

All goal directed attempts by the child were reinforced to strengthen appropriate responding. The reinforcers were the natural consequences of the desired behavior. This approach began as a small component of a given child's two hour session per day. NET was expanded as they mastered skills, and increased the generalization opportunities.

#### *Verbal behavior*

Skinner (1957) presented the framework for the functionally independent verbal operants which has proven to be invaluable to practitioners setting out to teach communication skills to early learners. VB is a focused approach on teaching the specific components of expressive language (e.g., echoic behavior, mands, tacts, intraverbals) by emphasizing the *function* of a word as opposed to the *form* of a word. This approach has been effective in rapid skill development, functional communication training and reduction of inappropriate behaviors (Kates-McElrath & Axelrod, 2007; Greer & Ross, 2008).

### *Group instruction*

DTT/LU delivery and NET procedures continued during group instruction. The main difference is that students were not isolated into specific one to one settings. A group program or group setting consisted of a child engaging with generally three or more of his or her peers during an instructional period (two hours). During the group instruction, teachers may have positioned the children to be seated in a semi-circle arrangement facing the teacher who led the group. Teacher assistants (TA) sat behind each child to prompt, praise, reinforce, and record data throughout the group activity. Group instruction formats may have also occurred in a rectangular seating arrangement around a table for art activities, or on the floor, for music activities using various instruments. Therefore, the children continued to receive LUs parallel to their peers in an approximation of a typical group setting.

### *Teacher training (PSI)*

Staff instruction consisted of personalized systems of instruction (PSI). Treatment packages with decision analysis protocols, direct instruction of research based tactics and frequent observations by the supervisors. Supervisors presented content and modules that were completed weekly which included reading specific chapters in assigned texts, passing written exams on the content of the reading, and the clinical application of the subject matter. Training sessions were scheduled weekly and consisted of the delivery of instruction. Staff also received formal observations of their teaching procedures using the TPRA observation procedures mentioned above.

### *Data decision protocol*

The data decision protocol allowed us to monitor student progress and to make timely data based decisions regarding the next step in instruction, by analyzing the trends in the child's data. Based on the landmark dissertation by Keohane (1997), and subsequent research in Keohane & Greer (2005), the decision analysis protocol enable teachers using ABA to teach 2-3 times more objectives. This is a critical component to best practice ABA programs because it enables teachers to act like strategic scientists of instruction.

Both instructional formats at CCEI are individualized and involve data collection, graphing, data decision analysis, and the application of scientifically based tactics to ensure optimum instructional effectiveness and efficiency (Greer, 2002; Keohane 1997; Keohane & Greer, 2005; Greenberg, 2007).

### *Supervision*

The instructional systems at CCEI are established and maintained using techniques from the science such as the Teacher Performance Rate Accuracy (TPRA) observation procedure (Ingham & Greer, 1992). Teacher performance/rate and accuracy (TPRA) measurements were administered through direct teacher and teacher assistant observation by supervisors who are board certified behavior analysts. The child's instruction was measured by dividing the number of three term contingency trials (learn units) by the rate of instruction in minutes. In addition correct responses and incorrect responses are monitored daily to measure response accuracy and learning. Teachers and assistants made graphic displays and analyzed the data daily using the Data Decision Analysis Protocol. Data decisions regarding interventions for decreasing trends or stable rates of responding were accordingly scripted. All data were graphed daily. An important feature of the TPRA is the interobserver agreement measure. This procedure ensures the direct observation and data collection recording techniques of the teachers are calibrated to those of the supervisor. Interobserver agreement ranged between 80% and 100% across all 183 observations.

Responsibilities of administrators included overseeing student data and implementation of student programs, monitoring staff performance, PSI module mastery, staff development sessions, and facilitating parent involvement. Overall administration of the program included maintaining interventions, utilizing the principles of applied behavior analysis, intensive direct instruction, curriculum development and implementation, and parent training and support group participation.

*Results*

Figure 1 presents the total number of learn units presented and the total number of correct learn units for 24 children, across the 44 weeks of classroom instruction. Visual graphic displays were established and maintained weekly and posted in the classroom each week. The total number of learn units presented was 490,807 and the total number of learn units correctly responded to by the students was 315,680. The mean number of correct learn units was 7175 with a range of 2871, 10904, while the mean number of presented learn units was 11155 with a range of 4413, 15281. The trends are highly variable due to the variation in the number of days per week of school. Most weeks of school were five days; however, due to holidays and the school calendar some were two, three, or four days.

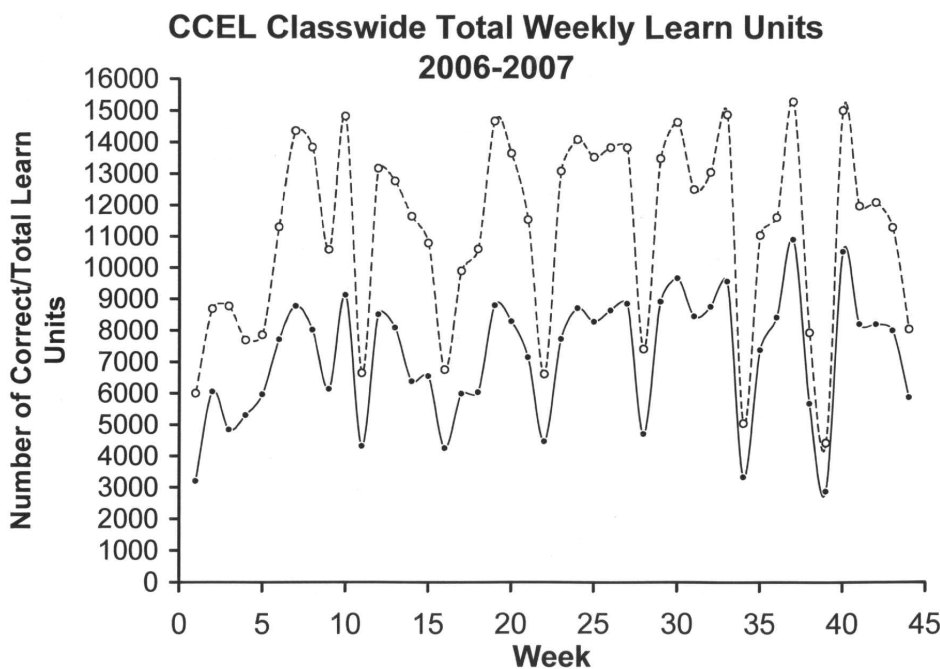
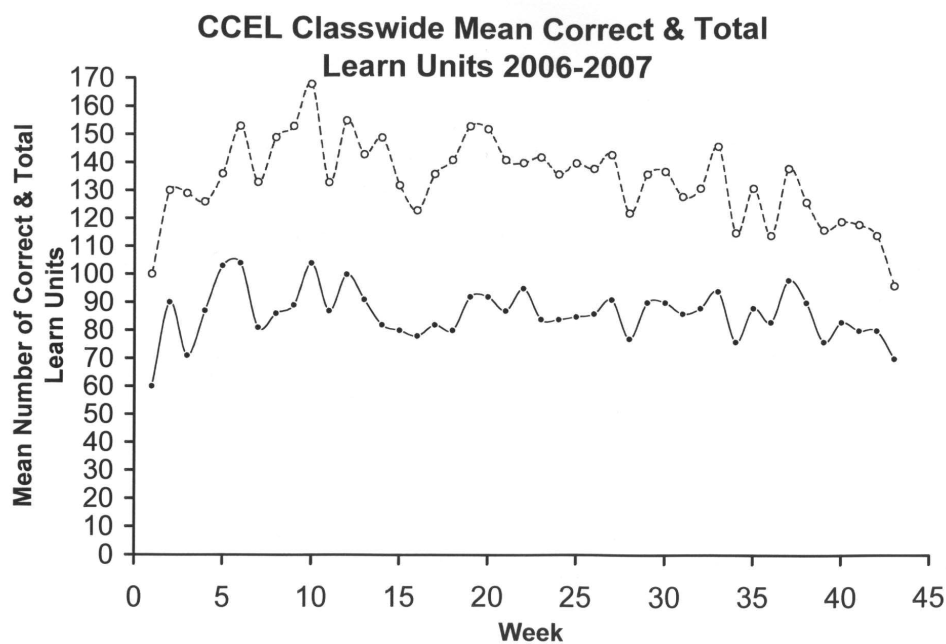


Figure 1. Total number of correct (closed circle) and presented (open circle) learn units class wide for each of 44 weeks of instruction (1 year) at The Children’s Center for Early Intervention. Instruction occurred across verbal behavior, academic, social, emotional/affective, self-help, and physical/motor areas.

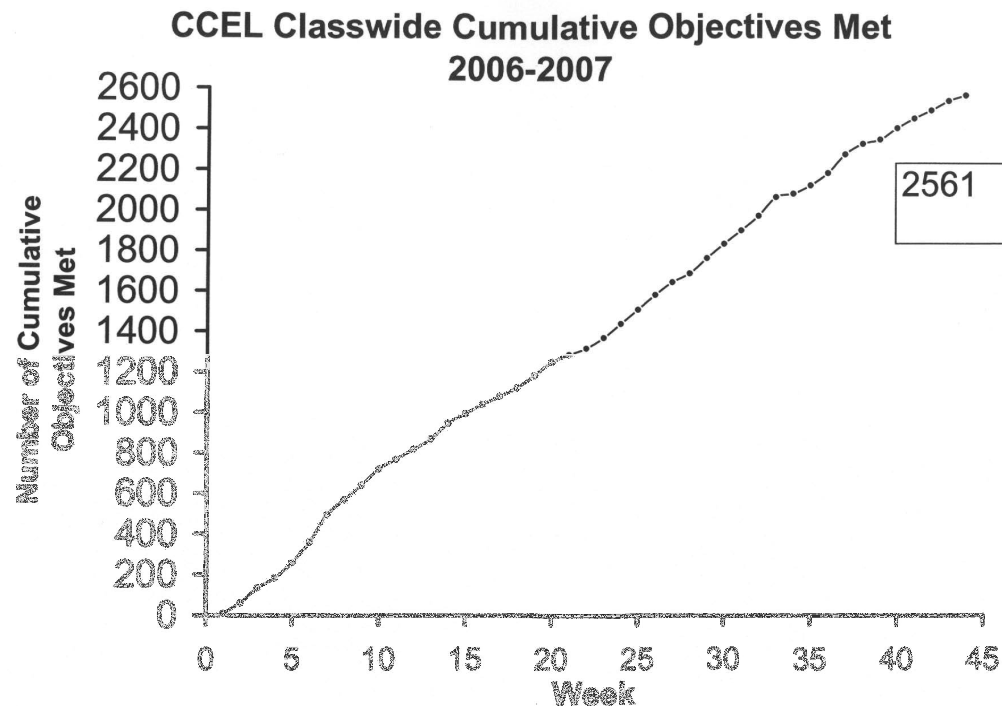
Figure 2 shows the mean number of learn units correct and presented for each child per day, across each of 44 weeks. The mean number of correct learn units per child per day across the year was 86

with a range of 60, 104. The mean number of learn units presented per child per day across the year was 134 with a range of 100, 168. The trends are variable due to the variation in allocated instruction time which ranged from 30 minutes per two-hour session (one day of school), to 90 minutes (based on related service delivery).



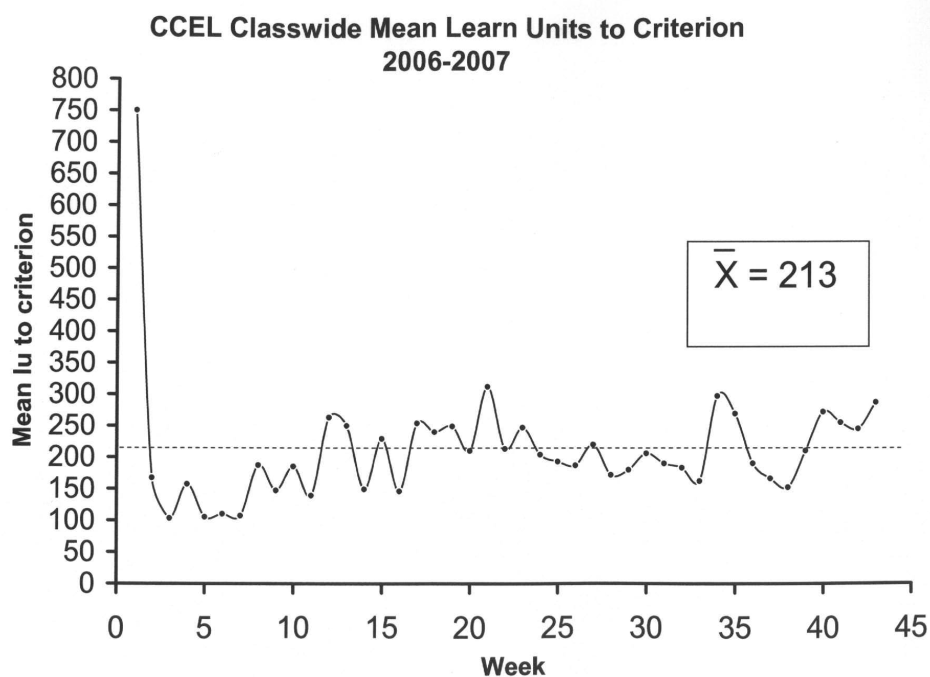
*Figure 2.* Mean correct (closed circle) and mean presented (open circle) learn units per day for each child for each of 44 weeks of instruction across all instructional areas.

Cumulative objectives met were counted weekly as the total number of programs that each student mastered (90% accuracy across two consecutive sessions). Instructional sessions were 20 LU each (see Figure 3). Objectives met were counted as the sum of all instructional programs across all instructional areas. The objectives met were counted as short term objectives and long term objectives. Prompted and unprompted responses resulted in the sum of all objectives met for each week. The total cumulative objectives mastered for all 24 children across the year was 2561. The average per child (N=24) resulted in 107 objectives met per child across the year.



*Figure 3.* Cumulative number of objective met, class wide for each of 44 instructional weeks across all instructional areas for 24 children. The total for the year was 2561 objectives taught. Each objective resulted from student responding to 90% accuracy (correct) across two consecutive 20 learn unit instructional sessions.

Learn units per objective were a measure of the average number of learn units needed to be presented by the teacher to move a child to perform at the predetermined level of mastery (90% accuracy across two consecutive sessions). The mean for the year resulted in 213 learn units per objective with a range of 103, 750. The trend started off high due to the nature of baseline conditions of instruction which occurs at the start of the new school year. The trend was relatively stable throughout the year (see Figure 4).



*Figure 4.* Mean number of learn units per objective met class wide ( $n=24$ ) for each week across 44 weeks of instruction. The overall mean across the year was 213 learn units per objective.

Supervisors conducted TPRA observations on the head teacher and teacher assistants each week. These observations resulted in a measure of interobserver agreement calculation (Cooper et al., 1987). The number of agreements was divided by the sum of the number of agreements and disagreements. Point to point correspondence of data collection procedures was used as a calibration technique through the TPRA. Vocal and written feedback resulted from each TPRA as well. The total number of TPRA observations conducted by one supervisor was 183. There were nine staff assigned to work in the EI class. The mean number of observations per staff was about 20 (see Figure 5). Results are summarized in Table 1.

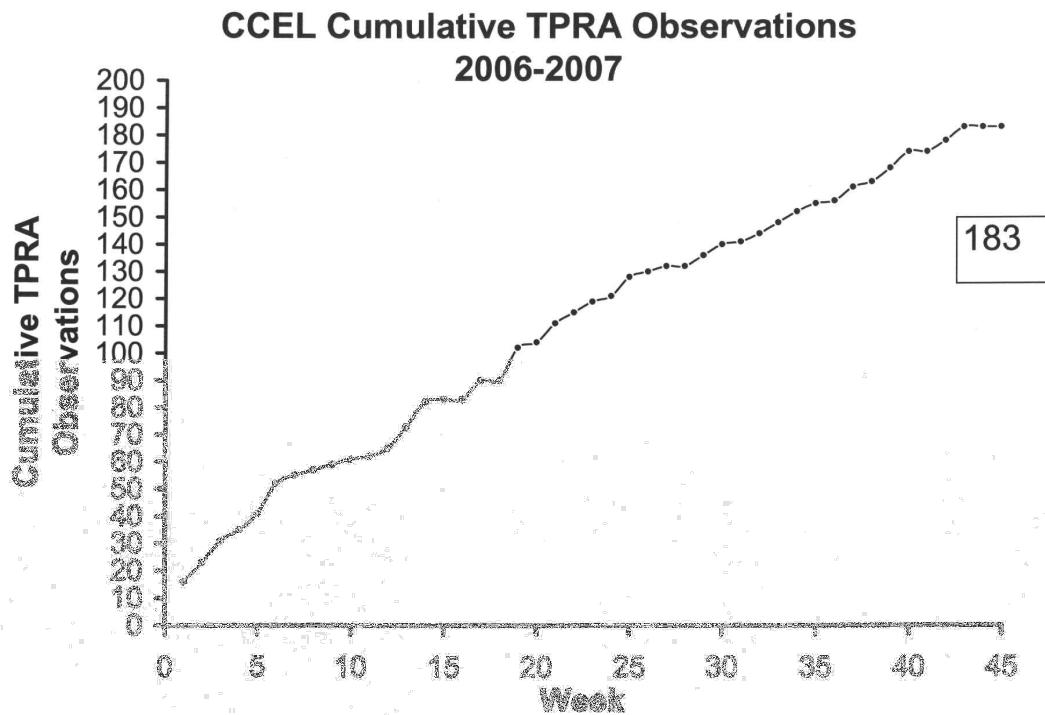


Figure 5. Cumulative number of TPRA observations by one supervisor class wide across one head teacher and eight teacher assistants for 44 instructional weeks.

Table 1: Results of 44 weeks of instruction at The Children’s Center for Early Intervention 2006-2007(N=24)

Figure	Variable	Total	Mean	Range
1	Class wide learn units correct	315680	7175	2871, 10904
	Class wide learn units presented	490807	11155	4413, 15281
2	Mean correct learn units per day		86	60, 104
	Mean presented learn units per day		134	100, 168
3	Cumulative objectives met per week	2561	58 (per week)	
4	Mean learn units per objective		213	103, 750
5	Cumulative TPRA observations	183	20 (per teacher)	

### *Cost Benefit Analysis*

Increasingly, school districts, municipalities, and private schools are being forced to look much more closely at their finances and need to consider the annual cost of educating a given child. As schools and their populations are growing, their budgets are shrinking in an inversely proportional direction. Some have proposed a cost benefit analysis of educational programs so that schools can be compared using a common measure (Greer, 2002; Greer, 1994). The learn unit lends itself appropriately to an analysis based on cost using dollars (e.g. tuition costs in dollars, fee for service contracts). The number of objectives met or taught by the teacher can be instrumental for comparison purposes to assess both the effectiveness and efficiency of an educational program.

More recently, cost-effective reports have been performed on interventions to treat conduct disorders in elementary students (Olchowski, Foster, & Webster-Stratton, 2007). Olchowski et al. (2007) provide a tiered analysis based on different hypothetical budgets to treat inappropriate behaviors, however, no measures of direct student academic responses were reported.

In the present study, the cost benefit analysis was based on a few constant variables. First, the 2006-2007 school years showed a gradual increase in the number of enrolled children in the EI classroom. There were three sessions of two hours each. Each two hour session had a maximum enrollment of eight children. After a few months, there were a total of 24 children in the EI classroom which was the maximum number of children. Each day that a given child attended there given session, it was billed at the constant rate from the New York City Department of Health Early Intervention Program. The daily session rate was \$107. The percentage of mandated sessions versus the number of billed sessions ranged from about 80% to 99% on a normal five day school week. That is, the attendance in the class was variable as might be expected with a young population of children.

The costs needed to be estimated due to that fact that related services were performed as a pull-out service. That is, in any given two hour session, a child was to be pulled out of their ABA instruction (e.g. one to one, group) for either one or two 30-minute therapy sessions. The therapy sessions did not contribute to the data collection and ABA instruction that the children received, so this time was excluded from the allocated instructional time. Allocated instructional time (Stallings, 1980) has been used to assess the difference between the time a child is in school compared to the time the child is being presented instruction in school. For the purposes of this study, 75 minutes was the duration of time used each day to present ABA instructional learn units. It was estimated that in any give two hour session (120 minutes), the child was out of the ABA room for an average of 45 minutes of that time. This equated to an estimated allocated ABA instructional time of 75 minutes per child per day, or 62.5% of the total 120 minutes.

From the time period of September 2006 through June 2007, inclusive, there were a total billable number of 3225 sessions. Each session cost \$107. The product of 3225 sessions multiplied by \$107 equals \$345,075. From the time period of July 2007 through August 2007, inclusive, there were a total number of 617 billable sessions. Each session cost \$107. The product of 617 sessions multiplied by \$107 equals \$66,019. Therefore, the sum of \$345,075 and \$66,019 is \$411,094. The total cost of tuition for all 24 children to have attended the EI classroom for one year was \$411,094.

Using the allocated time number from above, it was estimated that 62.5% of the total cost of \$411,094 is \$256,933.75. The cost per learn unit and the cost per objective and other variables is presented in Table 2.

Table 2 : *Cost benefit analysis for The Children's Center for Early Intervention 2006-2007 EI class based on an actual two hour session per diem cost of \$107 and estimated allocated instructional time of 62.5% of each two hour session (75 minutes of ABA per day and, N=24)*

Variables and projected (compounded) variables	Cost in dollars (2006-2007)
Total cost for each learn unit presented (490,807)	\$.52
Cost per 20 learn unit instructional session	\$10.40
Cost per objective (2561 total for year)	\$100.33
Cost per day of the mean number of learn units correct for one student	\$44.72
Cost per day of the mean number of learn units correct for 24 students	\$1073.28
Cost per day of the mean number of learn units presented for 24 students	\$69.68
Cost of the mean learn units per objective (213)	\$1672.32
Total cost (compounded) for all objectives (2561)	\$110.76
Total cost (compounded) for all learn units	\$283,656.36
Cost per supervisor TPRA observation	\$256,945.13
	\$1404.00

### *Discussion*

Much attention recently is being given to “best practices” in education (Prizant & Rubin, 1999; Steege, Mace, Perry, & Longenecker, 2007; Weiss, 2005). Using components from the research literature is a generally acceptable way of ensuring high quality service where children are learning consistently. The present report reviews various systems in a package format and the correlated outcomes across 24 children.

The package included PSI modules, the TPRA observation procedure, learn units, group instruction, data decision protocol, and direct instruction of research based tactics. Many of these components are found in CABAS® schools, however those schools have components that CCEI does not have. Significant gains in student learning can be found in many schools that apply behavioral components such as those mentioned above. Those components were included in this report.

For example, a CABAS® school will typically teach using about 100 (or fewer) learn units per objective. At CCEI over the past year, 213 (on average) learn units were needed to teach each objective. This difference equates to approximately 10 instructional sessions of 20 LU each to teach each objective, compared to 5 instructional sessions of 20 LU each to teach each objective. It is apparent that this difference, compounded across many months, adds up rapidly. These figures represent the difference between efficient instruction, as compared to best practice.

The reason for the disparity could be due to the limitations of CCEI and components not reported in the present study. Frequency of supervision meetings, number of TPRA observations, and training of staff issues, the university consultation component, and other unknown systems may be responsible for the difference in results. These differing components constitute the limitations of the data reported herein.

In another study using preschool aged students, Greenberg (2007) applied a teacher training package to teachers using ABA. The learn unit cost was calculated across three teachers of three separate classrooms. In that program, the cost per learn unit for Teacher 1 was successfully lowered after exposure to a treatment package, to \$1.70, Teacher 2 \$3.14, and Teacher 3 \$2.61. Costs per 20 learn unit instructional sessions were \$33.99 for Teacher 1, \$62.78 for Teacher 2, and \$52.36 for Teacher 3.

Greer (1994) calculated the cost of instruction and objectives for the Fred S. Keller preschool. Results found learn units to cost in the range of \$.60 to \$.70. Objectives had been calculated to cost in the range of \$55.58 to \$155.55. Over a five- year period, the cost per objective had decreased as instruction had become more efficient. The results of the present study were found to be relatively similar to that of Greer's, not withstanding monetary inflation adjustments.

In the present study the cost per learn unit were, \$.52, while the cost per 20 learn unit instructional session was \$10.40, and objectives were \$100.33. Instruction, then, was found to be slightly more efficient in the CCEI program than the instruction provided by the teachers in Greenberg's study, and similar to the data found by Greer (1994). This difference could possibly be explained by the frequency of supervision, or increased number of TPRA observations conducted, or the increased presence of the supervisor. Without the learn unit to be utilized in a cost benefit analysis, there are few, if any, ways to objectively compare and evaluate whole classrooms or whole schools. Table 3 shows these results for a comparison.

Table 3: *Comparison of relative cost of learn units and objectives from three ABA studies*

Research study	Cost per learn unit	Cost per objective
Greer (1994)	\$.84	\$55.58
Greenberg (2007)	\$1.70	---
Greenberg & Martinez	\$.52	\$69.68

Furthermore, when we tracked the 24 children in the EI program we found the following results. Four of the children continued in the EI class. Due to their age and EI regulations, they continue to be eligible for EI services. One student stayed in the same type of intensive one to one program, but at home as a preschooler. Ten children moved on to preschools having a ratio known in the Board of Education as 8:1:3 (students, teacher, teacher assistants), while seven moved on to 6:1:3 ratio classrooms. Out of the 24 children who attended the class, 20 moved on to other programs, 19 to lesser restrictive programs, and one to a similar one to one program, at home. Therefore, 95% of the children moved on to lesser restrictive environments. It is projected that a few of the 24 children will be able to move on to other lesser restrictive programs, or the general education setting.

In summary, it can be projected that the monetary savings observed will be exponential and are likely to reach hundreds of thousands of dollars when compounded across years. Given the number of students who remain eligible to receive special education until 21 years old in America, the savings can

be dramatic. Future research on the longitudinal effects and educational benefits of intensive ABA programs, and their cost effectiveness is warranted.

We advocate for an increase in the application of ABA systems to interdisciplinary programs and that the cost benefit analysis is used to compare outcomes using a similar unit of analysis. Future research should test for generality of treatments across settings (external validity) as well as generality of treatments across populations.

#### References

- Anderson, S. R., & Romanczyk, R. G. (1999). Early intervention for young children with autism: Continuum-Based behavioral models. *The Journal of the Association for Persons with severe handicaps*, 24, (3), 162-173
- Carr, J.E. & Firth, A.M. (2005). The verbal behavior approach to early and intensive behavioral intervention for autism: A call for additional empirical support. *The Journal of Early Intensive Behavior Intervention*, 2 (1). Retrieved September 18, 2007, from: <http://www.behavior-analyst-today.com/JEIBI-VOL-2/JEIBI-2-1.pdf>
- Casto, G. & Mastropieri, M.A. (1986). The efficacy of early intervention programs: A meta-analysis. *Exceptional Children*, 52 (5), 417-424.
- Cooper J. O., Heron, T. E., & Heward, W. L. (1987). *Applied Behavior Analysis*. Upper Saddle River, NJ: Merrill.
- Greenberg, J. H. (2007). Effects of teachers' verbal mastery and application of research based tactics on instruction and estimated costs to students with pervasive developmental disorders. *Dissertation Abstracts International*, 68 (06), (UMI No. 3266585)
- Greer, R. D., McCorkle, N., & Williams, G. (1989). A sustained analysis of the behaviors of schooling. *Behavioral Residential Treatment*, 4, 113-141.
- Greer R. D. (1994). The measure of a teacher. In R. Gardner III, D. M. Sainato, J. O. Cooper, T. E. Heron, W. L. Heward, J. Eshleman, & T. A. Grossi (Eds.), *Behavior analysis in education: Focus on measurably superior instruction*. (pp.283-320). Pacific Grove, CA: Brooks/Cole.
- Greer, R. D., (2002). *Designing Teaching Strategies*. New York: Academic Press.
- Greer, R.D., & Ross, D. E. (2008). *Verbal Behavior Analysis*. Boston, MA: Allyn and Bacon.
- Ingham, P., & Greer, R. D., (1992). Changes in student and teacher responses in observed and generalized settings as a function of supervisor observations. *Journal of Applied Behavior Analysis*, 25(1), 153-164.
- Kates-McElrath, K. & Axelrod, S. (2007). Behavioral intervention for autism: A distinction Between two behavior analytic approaches. *Behavior Analysis Review*, (2). Retrieved, December 5, 2007, from: <http://www.behavior-analyst-today.com/BAR2007/BAR-VOL-2.pdf>
- Keohane, D. (1997). *A functional relationship between teachers use of scientific rule*

- governed strategies and student learning*. Unpublished doctoral dissertation, Columbia University, New York.
- Keohane, D., & Greer, R.D. (2005). Teachers' use of a verbally governed algorithm and student learning. *International Journal of Behavioral Consultation and Therapy*, 1 (3), Retrieved September 17, 2007, from: <http://www.behavior-analyst-today.com/IJBCT-VOL-1/IJBCT-1-3.pdf>
- Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55, 3-9.
- McGee, G. G., Morrier, M. J., & Daly, T. (1999). An incidental teaching approach to early intervention for toddlers with autism. *The Journal of the Association for Persons with severe handicaps*, 24, (3), 133-146.
- Olchowski, A. E., Foster, M., & Webster-Stratton, C. H. (2007, January). Implementing Behavioral intervention components in a cost-effective manner: Analysis of the Incredible Years Program. *Journal of Early and Intensive Behavior Intervention*, 3.4 – 4.1, 284-304. Retrieved July 7, 2007, from <http://www.behavior-analyst-today.com/JEIBI-VOL-3/JEIBI-3-4.pdf>
- Prizant, B. M. & Rubin, E. (1999). Contemporary issues in interventions for autism spectrum disorders: A commentary. *The Journal of the Association for Persons with Severe Handicaps*, 24, (3), 199-208.
- Skinner, B. F. (1957). *Verbal Behavior*. New York: Prentice-Hall.
- Smith, T. (1999). Outcome of early intervention for children with autism. *Clinical Psychology: Science and Practice*, 6, 33-49.
- Steege, M.W., Mace, F. C., Perry, L., & Longenecker, H. (2007) Applied Behavior Analysis: Beyond Discrete Trial Teaching. In, *Psychology in the Schools*, 44, (1), 91-99.
- Stallings, J. (1980). Allocated academic time revisited, or beyond time on task. *Educational Researcher*, 9, 11-16.
- Twyman, J. S., (1998). The Fred S. Keller School. *Journal of Applied Behavior Analysis*, 31(4), 695-701.
- Weiss, M. J. (2005). Comprehensive ABA programs: Integrating and evaluating the implementation of varied instructional approaches. *The Behavior Analyst Today*, 6 (4). Retrieved September 17, 2007, from: <http://www.behavior-analyst-today.com/VOL-6/BAT-6-4.pdf>
- Weiss, M. J. (2001). Expanding ABA interventions in intensive programs for children with autism: The inclusion of natural environment training and fluency based instruction. *The Behavior Analyst Today*, 2(3). Retrieved September 17, 2007, from: <http://www.behavior-analyst-today.com/VOL-2/BAT-2-3.pdf>

**Author Contact Information:**

Jeremy H. Greenberg, Ph.D., BCBA  
Behavior Analyst Consultant  
The Children's Center for Early Intervention  
83 Marlborough Road  
Brooklyn, NY 11226  
Tel: 718.284.3110  
E-mail: drgreenberg@mac.com

Rosa C. Martinez, Ph.D., BCBA  
Senior Behavior Analyst  
The Children's Center for Early Intervention  
83 Marlborough Road  
Brooklyn, NY 11226  
Tel: 718.284.3110  
E-mail: drrosamartinez@schoolworksonline.org

---

Advertisement

**Behavior Analyst Online**  
**www.Behavior-Analyst-Online.org**

The Behavior Analyst Online organization (BAO) develops and deploys new resources for behavior analysts and makes them available on the Internet free of charge to the public. These resources are dedicated to educating the public about behavior analysis as well as serving as a resource for professionals involved in the field of behavior analysis.

The BAO organization is responsible to its membership to develop resources that the membership will find useful in everyday research, education, and application of the science of behavior analysis.

The BAO organization offers many perks to its members, including a Web Forum and the ABA-PRO Mailing List. In addition, the organization publishes several major free e-journals of interest to the behavior analysis community:

**The Behavior Analyst Today**  
**The Journal of Early and Intensive Behavior Intervention**  
**The International Journal of Behavioral Consultation and Therapy**  
**The Journal of Speech and Language Pathology - Applied Behavior Analysis**  
**The Behavioral Development Bulletin**

Membership in the BAO organization is free. For details, visit our website at

[www.behavior-analyst-today.org](http://www.behavior-analyst-today.org)

## A Behavioral Approach to Training Day Care Workers

*Jonathan W. Ivy & Kimberly A. Schreck*

### Abstract

Day care workers are not only responsible for meeting the needs of the children they care for but creating an enriched and friendly environment as well. Few daycare centers require any specific in-service training for their staff members. When provided, training typically occurs as a didactic workshop. For this study a multiple baseline design across participants was used to evaluate the effects of didactic training, goal setting, and feedback on day care staff members' (n=7) use of "quality" interactions with the children in their care. The results showed that although didactic training marginally increased the level of interactions, the day care workers' interactions were highly variable and susceptible to decay over time. For the majority of the participants individualized goal setting and feedback produced higher, more stable levels of interactions.

Keywords: Day care, adult-child interaction, staff training

---

Parents expect day care workers to engage in a wide range of child care behaviors. Day care workers must perform a variety of skills effortlessly and accurately, despite lack of formalized training. In quality day care centers, staff must provide general supervision and behavior management, care for children's daily health needs (e.g., diapering, feeding, etc.), provide safe environments, manage group behavior, teach language and preschool educational skills, and interact through play with the child.

Organizational Behavior Management (OBM) has provided research supporting the effectiveness of methods for training some of these skills in other settings, such as a) combinations of didactic staff training goal setting and performance feedback for safety (Alavorius, & Sulzer-Azaroff, 1986; Chhokar, & Wallin, 1984; Grindle, Dickinson, & Boettcher, 2000; Hickerman, & Geller, 2003; Reber, Wallin, & Chhokar, 1990; Reber, & Wallin, 1984; Sulzer-Azaroff, Loafman, Merante, & Hlavacek, 1990); b) increasing interactions and behavior support plans through performance feedback (Brown, & Sulzer-Azaroff, 1994; Coddling, Feinberg, Dunn, & Pace, 2005; Kelly, Wilder, Rodriguez, & Wine, 2005). Unfortunately, most day care centers do not implement these methods when training their staff. In fact, if training is provided, it typically takes the form of a didactic workshop sessions.

The purpose of this study was to evaluate the commonly used and possibly cost-effective didactic training model for teaching day care workers. OBM training techniques, didactic training, goalsetting, and performance feedback, were used to increase the level of verbal praise, individualized attention (i.e., "Hank, you are holding a red truck") and appropriate commands provided to students by day care staff.

### Method

#### *Participants*

Direct care workers were recruited through a non-profit day care. Participants received an informed consent document stating the general purpose of the study and a letter of invitation requesting their participation in the study. Seven day care staff met the following criteria to participate in the study: a) informed consent was signed and returned; b) primary job responsibility was the direct-care of children; and c) full-time employment hours occurred in the AM hours (8:00 A.M – 12:00 P.M). Five

participants completed the entire study; two participants left the center for personal reasons, providing only partial data.

Table 1 Demographic Information of Teachers

Participant	Age	Years of Experience	Education Level
1	21	1	Some College
2	21	1	Some College
3	23	4	Not Available
4	21	2	Some College
5	36	9	Not Available
6	56	2	Not Available
7	52	13	Some College

### *Day Care Settings*

All experimental conditions were conducted in the primary classrooms, gymnasium, outdoor playground, and all-purpose room of a non-profit day care. Primary classrooms were furnished with tables, chairs, toys, and any age-required furnishings such as cribs, changing tables, and high chairs. The sizes of the primary classrooms were 497 sq. ft. (3-12 month old room), 495 sq. ft. (12-24 month old room), 663 sq. ft. (2-3 years old room), 598 sq. ft. (3-4 years old room), 1,162 sq. ft., and 814 sq (6 years old and older room).

The outdoor playground was a fenced in 1,830 sq. ft. area equipped with two small slides, small riding vehicles, lawn furniture, a small picnic table, a small jungle gym, and outdoor toys (e.g., balls, trucks, and plastic food). The gymnasium was a full sized basketball court with 2 basketball hoops. The gymnasium was used when the weather prevented outside play. The all-purpose room contained several bean bag chairs, couches, tables, screen, and overhead projector.

### *Target Behaviors*

The targeted interactions were derived from the key components associated with quality adult-child interactions within the Child and Parent Game (McMahon & Forehand, 1983; 2003). These quality interactions were developed to decrease coercive interaction patterns by increasing attention and verbal praise and by decreasing indirect commands. Although The Child and Parent game were developed for children who engaged in problem behaviors, the following specialized forms of interactions can be generalized to an appropriate interaction style for day care workers:

*Attends.* An *attend* (i.e., “a high-rate form of positive attention in which the parent provides an ongoing verbal description of the child’s activity”, [McMahon & Forehand, 2003, p. 111]) was scored when day care staff were within 3 feet of a child and verbally imitated or specifically described the child’s observable play behavior; for example, “Tom you put the red block on top of the blue block and then knocked them all down”. Each verbal description of child behavior was scored separately. For example, in the statement “You put the corn in the pot, now your stirring the pot with a spoon”, two attends would be scored, one for the staff description of both putting the corn in the pot and another for stirring the pot with a spoon.

*Verbal praise.* *Verbal praise* (i.e., “praise statements that specifically describe the particular child behavior”, [McMahon & Forehand, 2003, p. 115]) was scored as a statement of praise such as, “good

job”, “way to go”, “you’re super”, and etc, used immediately before or after an attend (i.e., within 3 seconds) such as, “Greg, super job you tied your shoe laces.”

*Direct commands.* A *direct command* (i.e., observable discrete instructions, [McMahon & Forehand, 2003]) was scored when day care staff were within 3 feet of the child, said the child’s name, and gave a single observable behavior for the child to do such as, “Peggy, pick up the purple ball.”

*Indirect command.* An *indirect command* (i.e., unclear and ambiguous instruction, [McMahon & Forehand, 2003]) was scored when day care staff was greater than 3 feet from the child when requesting a verbal and/or motoric response or gave a command with any of the following characteristics:

1. A question command (e.g. “Do you want to clean up?”)
2. Vague command (“Be good”)
3. Chain command (e.g. “Pick up your shoe, your hat, clean your room, and then do the dishes”)
4. “Let’s” command (e.g. “Let’s line up”)
5. Rational command (e.g. “Keep your hands to yourself, when you touch other people you hurt their feelings”)
6. Global command (e.g. “Clean up the toys everybody”).

All requests for verbal and/or motoric behavior that did not meet the criteria for a direct command were scored as indirect commands.

All target vocalizations were measured using event recording. Data sheets contained labeled column headings in which each respective target response was tallied. Rate per minute was calculated by dividing the number of vocalizations per target by the session length.

### *Experimental Conditions*

A multiple baseline design across participants was used to examine the effects of training, goal setting, and feedback on target vocalizations.

*Baseline.* Data were collected by the first author after a one week habituation period, in which the primary observer spent 5-10 minutes per participant in each room for a period of a week with a clip board and stopwatch do reduce possible reactivity effects.

Data collection was conducted during scheduled free playtime when direct-care staff could interact with the children without need to instruct the entire group of children in an activity. Sessions ended once free time was over, typically signaled by day care staff instructing children to put toys away, or until 5-10 minutes of data collection. Data collection paused if day care staff left the room or transitioned the children from one area to another. Data collection was then resumed when staff returned to the room and free playtime continued. Data collection sessions occurred 1-5 times per day for each participant.

*Didactic Training.* Data collection sessions in the didactic phase were identical to that described above except at the start of the phase direct-care staff attended a 60-minute training session that was typical to the types of in-service/didactic training received in day care and educational settings. The training consisted of a) didactic 13-slide PowerPoint presentation illustrating attends, verbal praise, and commands (derived from McMahon & Forehand, 1983; 2003), b) role-playing of skills described in the presentation, and c) a question and answer session. Although not commonly implemented in in-service/didactic trainings, staff engaged in one role playing session to practice and simulate a typical play situation in their classrooms. Direct-care staff practiced the skills taught in the didactic training during simulated free time play situations in which one staff played the child and one the direct care staff. This

was done until all staff had at least one turn at each role. The primary and secondary author provided performance feedback to all direct care staff.

*Individualized goal setting and feedback probes.*

Individualized goal setting and feedback probes were conducted 4 weeks and 5 weeks after all participants finished the training condition. Sessions length and situation were identical to that described in baseline except the primary author set a behavioral goal for attends, verbal praise, and commands for each direct-care staff. This goal was calculated by determining the mean for attends and verbal praise during training phase and setting individualized goals at 75% above the mean for that day care worker. The goal for direct commands was set by calculating the mean of indirect commands and assigning a direct command goal lower than the level of indirect commands, based on each individual's data, to create the final behavioral goal. The goal for indirect commands was set using the identical method used for direct commands.

Prior to each individualized goal setting and feedback data collection probe, the primary author provided individualized graphical and verbal feedback of the staff member's previous performance and progress on the target behaviors toward the goals. The primary author verbally praised staff who met the behavioral goals, and provided a brief review of the training for any participants who did not meet the behavioral goal.

## Results

Figure 1 and 2 presents the rate of verbal praise and attends for all participants. The rate of indirect and direct commands for all participants is presented in Figure 3 and 4.

*Participant 1.* During baseline observations, rate per minute of attends and verbal praise remained stable at near zero levels ( $M = 0.45$ ). Following a 60-minute training session, rate per minute of attends and verbal praise increased ( $M = 1.25$ ) but remained highly variable throughout the phase. Individualized goal setting and feedback immediately increased the rate of attends and verbal praise ( $M = 3.9$ ).

The rate of direct commands remained stable at near zero levels throughout baseline ( $M = 0.22$ ), training ( $M = 0.12$ ), and only increased slightly during individualized goal setting and feedback ( $M = 0.65$ ).

Indirect command rates were highly variable throughout baseline ( $M = 2.09$ ), training ( $M = 1.20$ ), and individualized goal setting and feedback ( $M = 1.30$ ) phases. Levels of indirect commands decreased modestly following the training phase.

*Participant 2.* During baseline conditions, rates of attends and verbal praise were stable ( $M = 0.68$ ). After the 60-minute training, rates of attends and verbal praise immediately increased in level ( $M = 2.02$ ). Although attends and verbal praise increased in frequency above free operant level following training, response rates gradually decreased for 5 consecutive sessions. The implementation of individualized goal setting and feedback drastically increased the rate of attends and verbal praise ( $M = 4.43$ ).

The rate of direct commands remained stable during baseline sessions ( $M = 0.63$ ). Training was effective at decreasing the rate of direct commands, to near zero levels ( $M = 0.11$ ). Only with individualized goal setting and feedback did rates of direct commands ( $M = 0.73$ ) exceed indirect command rates.

During baseline sessions rates of indirect commands were highly variable ( $M = 3.18$ ). Following the 60-minute training, rates of indirect commands decreased and became more stable ( $M = 1.89$ ). Individualized goal setting and feedback was effective at decreasing the rate of indirect commands ( $M = .367$ ) below direct commands.

*Participant 3.* During baseline sessions rates of attends and verbal praise remained low and steady ( $M = .28$ ). Following the didactic training, rates of attends and verbal praise immediately increased ( $M = 2.86$ ). During the implementation of individualized goal setting and feedback the rates of attends and verbal praise immediately increased ( $M = 4.87$ ).

The rate of direct commands was stable at near zero levels throughout baseline ( $M = 0.18$ ), training ( $M = 0.0$ ), and individualized goal setting and feedback ( $M = .25$ ) sessions.

A gradual increasing trend was evident during baseline sessions for indirect commands ( $M = 4.01$ ). Training was effective at immediately decreasing the rates of indirect commands throughout training ( $M = 0.40$ ) and individualized goal setting and feedback ( $M = 0.62$ ) sessions.

*Participant 4.* Participant 4 had to drop out of the study due to change in scheduled work hours. Consequently, results only illustrate rates of behavior change after training without goal setting and performance feedback. The rate of attends and verbal praise remained stable during baseline sessions ( $M = .792$ ). Following training the rate of attends and verbal praise immediately increased but was highly variable ( $M = 1.87$ ).

The rate of direct commands remained stable at low levels during baseline ( $M = 0.43$ ) and near zero levels for training ( $M = 0.06$ ) sessions.

Indirect commands were highly variable throughout baseline sessions ( $M = 3.2$ ). Training immediately decreased the level of indirect commands ( $M = 1.26$ ). Near the end of the training sessions, a rapidly increasing trend was evident in rates of indirect commands.

*Participant 5.* Participant 5 dropped out of the study following the initiation of the training phase due to occupational relocation. During baseline sessions the rate of attends and verbal praise remained stable at near zero levels ( $M = 0.47$ ). The rate of attends and verbal praise immediately increased following a 60-minute staff training ( $M = 3.16$ ).

The rate of direct commands during baseline ( $M = 0.40$ ) and training ( $M = 0.06$ ) sessions remained stable at near zero levels.

During baseline sessions, the rate of indirect commands was highly variable ( $M = 3.95$ ). After a 60-minute training the rate of indirect commands immediately decreased ( $M = 1.63$ ).

*Participant 6.* The rate of attends and verbal praise during baseline session was stable at near zero levels ( $M = 0.03$ ). The rate of attends and verbal praise immediately increased following a 60-minute training but was highly variable ( $M = 1.13$ ). Individualized goal setting and feedback resulted in more stable rates of attends and verbal praise ( $M = 1.60$ ).

The rate of direct commands remained stable at near zero levels throughout baseline ( $M = 0.13$ ) and training ( $M = 0.20$ ) sessions. Following individualized goal setting and feedback the rate of direct commands immediately increased ( $M = 1.20$ ).

During baseline sessions the rate of indirect commands was highly variable ( $M = 2.92$ ). Following a 60-minute training the rate of indirect commands immediately decreased ( $M = 1.73$ ). Individualized goal setting and feedback increased the rate of indirect commands slightly ( $M = 2.10$ ).

*Participant 7.* During baseline session the rate of attends and verbal praise varied slightly but remained low ( $M = 0.129$ ). Following a 60-minute training attends and verbal praise immediately increased in rate but remained low ( $M = .655$ ). Individualized goal setting and feedback was effective at immediately increasing the rate of attends and verbal praise ( $M = 1.40$ ).

The rate of direct commands remained stable at near zero levels throughout baseline ( $M = 0.18$ ), training ( $M = 0.0$ ), and individualized goal setting and feedback ( $M = 0.20$ ).

An increasing trend was evident in the rate of indirect commands during baseline sessions ( $M = 2.60$ ). Following a 60-minute training the rate of indirect commands remained stable ( $M = 2.50$ ). The rate of indirect commands immediately decreased following individualized goal setting and feedback ( $M = 1.10$ ).

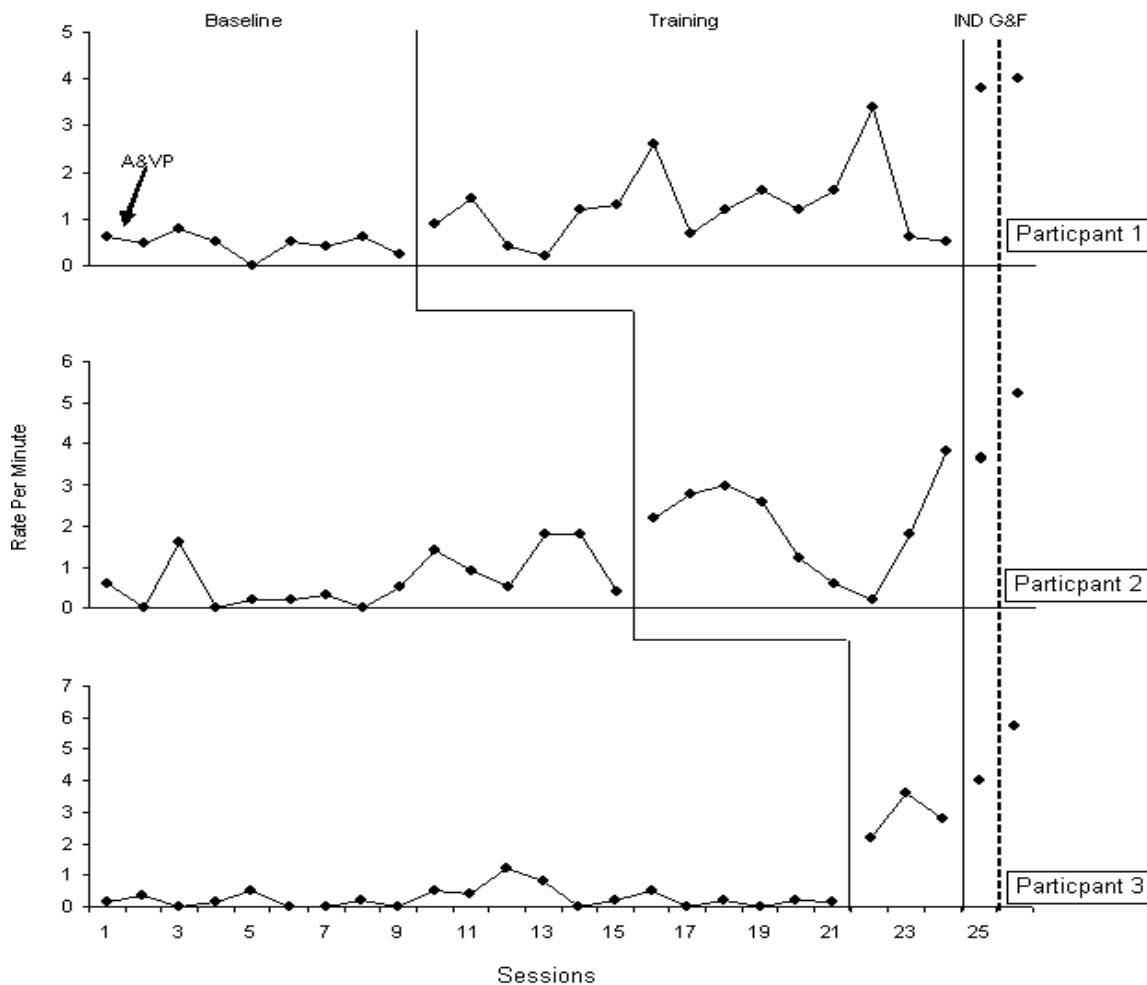


Figure 1. Rate per minute of attends (A) and verbal praise (VP) during baseline, training, and individualized goal setting & feedback (IND G&F) sessions for participants 1-3.

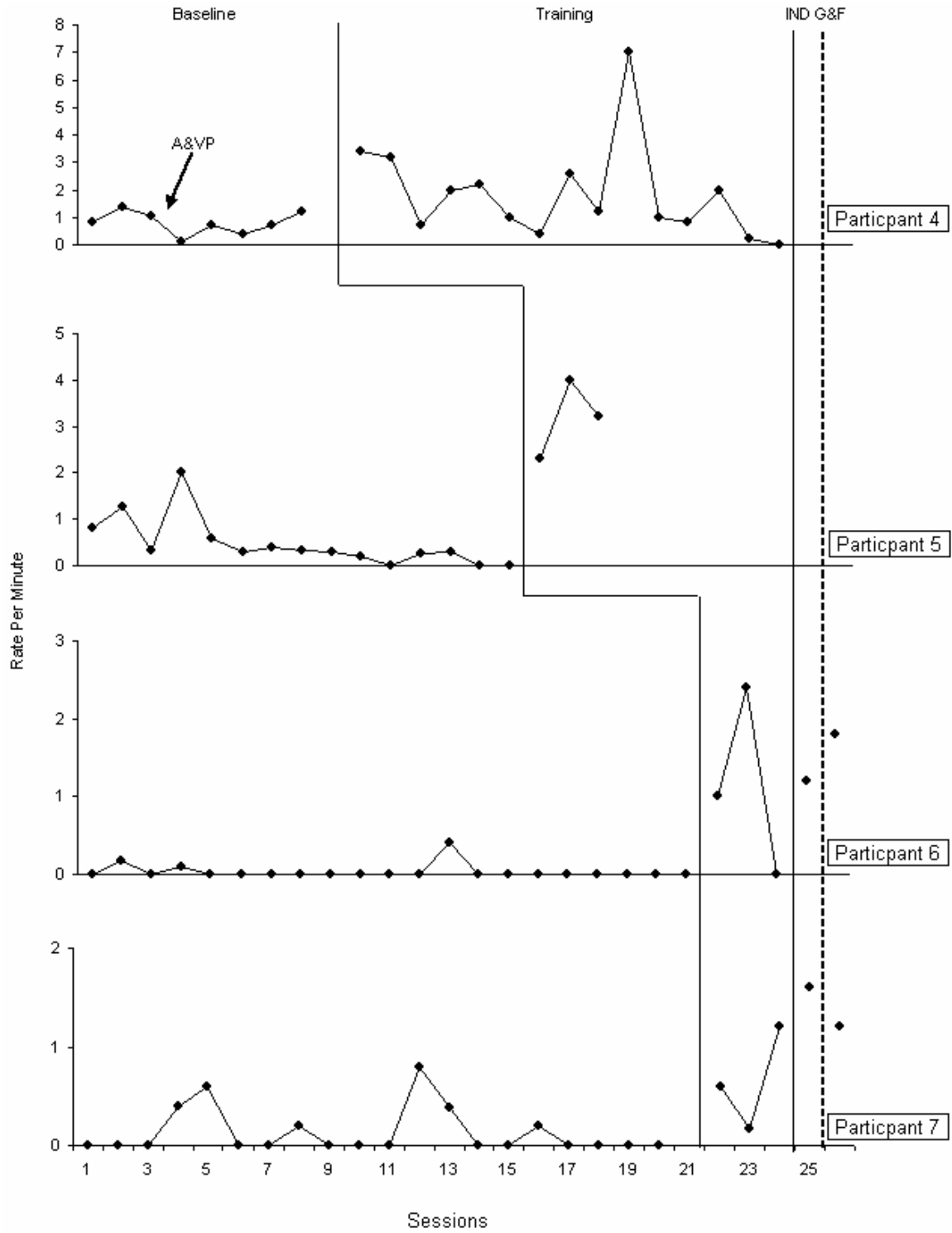


Figure 2. Rate per minute of attends (A) and verbal praise (VP) during baseline, training, and individualized goal setting & feedback (IND G&F) sessions for participants 4-7.

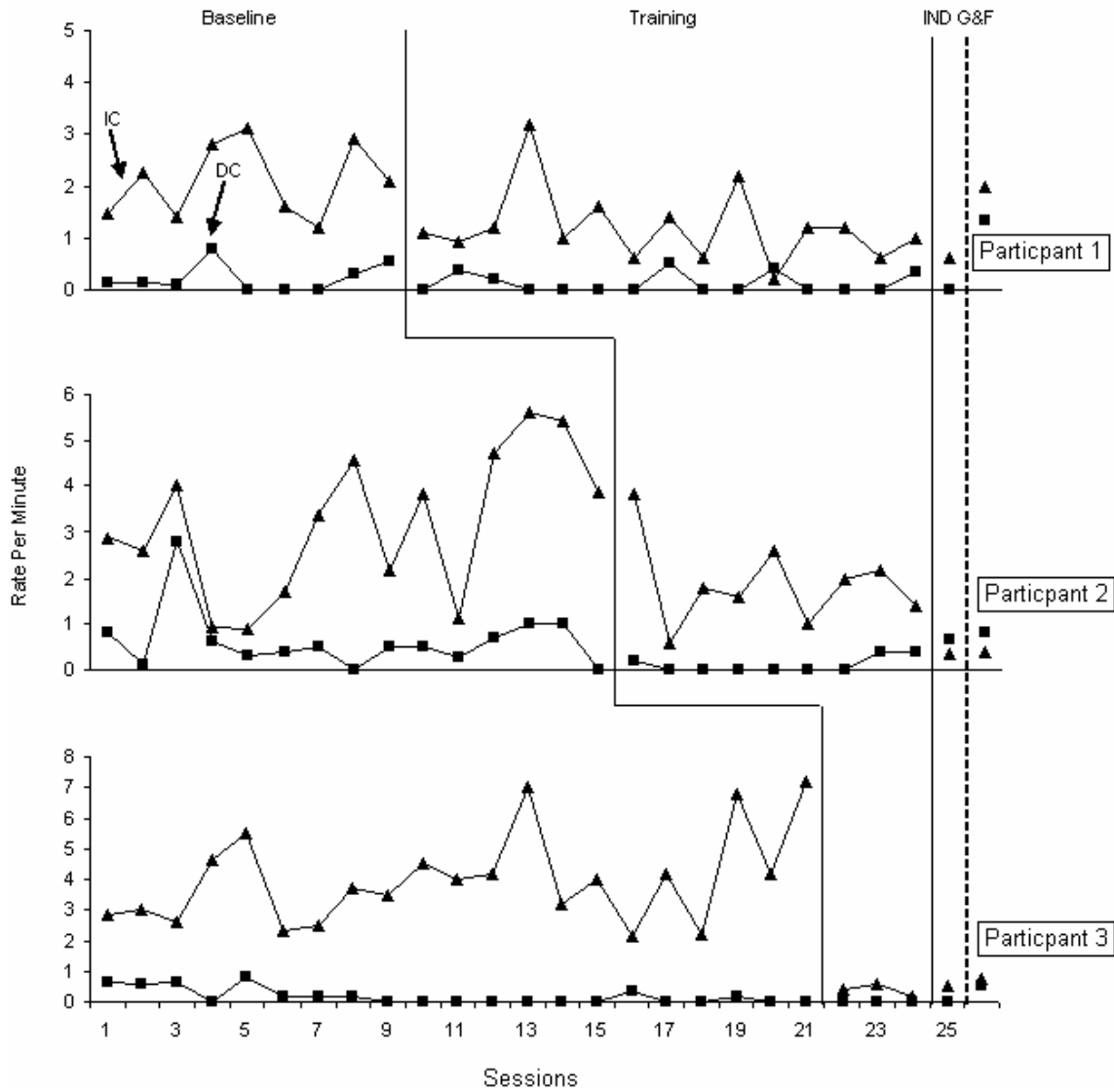


Figure 3. Rate per minute of direct (DC) and indirect commands (IC) during baseline, training, and individualized goal setting & feedback (IND G&F) sessions for participants 1-3.

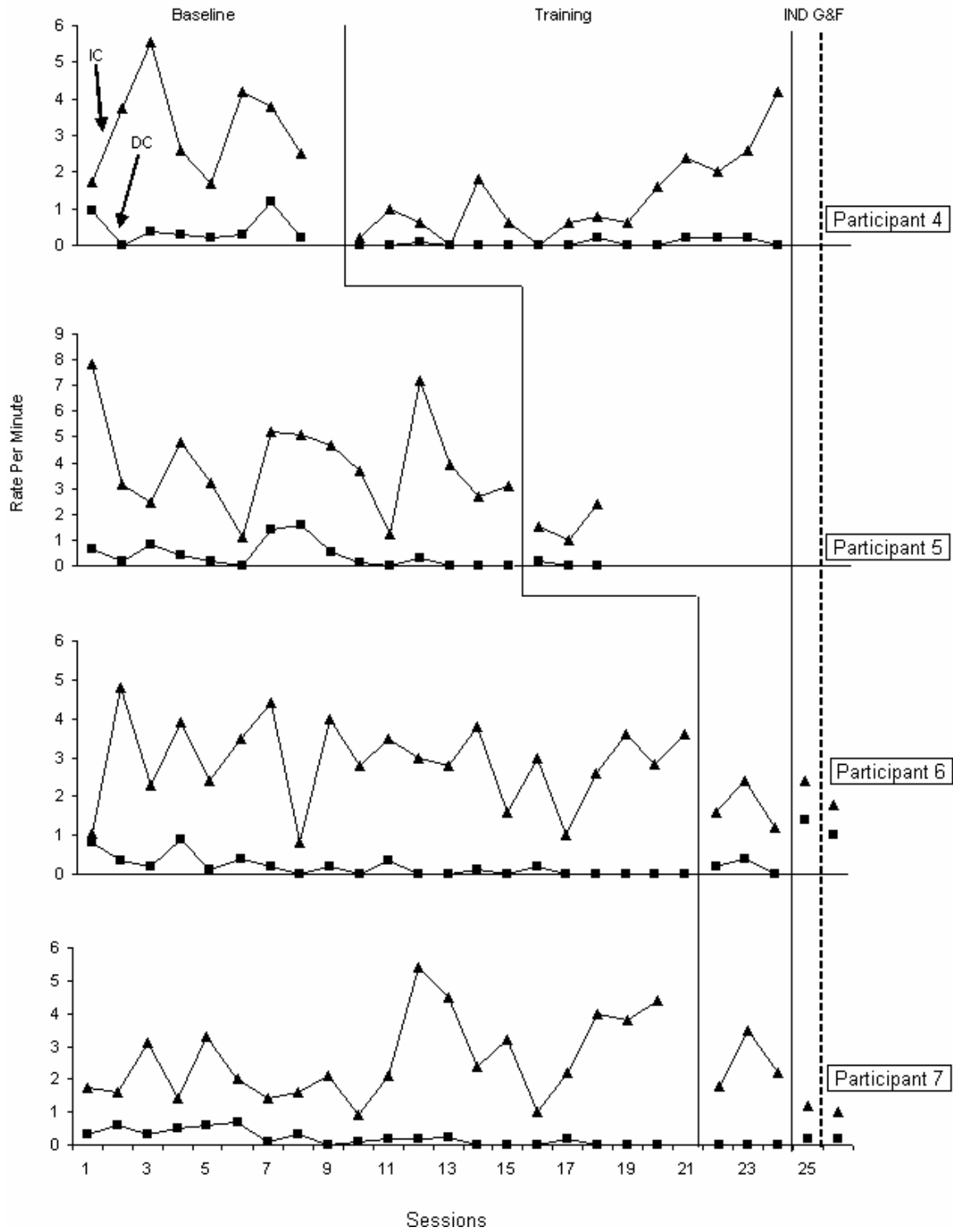


Figure 4. Rate per minute of direct (DC) and indirect commands (IC) during baseline, training, and individualized goal setting & feedback (IND G&F) sessions for participants 4-7.

## Discussion

The present study investigated the utility of training, individualized goal setting, and direct performance feedback, to change the rate of attention, verbal praise, and appropriate commands of day care workers. The results suggested that in-service/didactic training was minimally effective at teaching new behaviors. The didactic training resulted in nominally increased rates of attends and verbal praise, and decreased rates of direct and indirect commands. Without natural contingencies to reinforce appropriate adult-child interactions, the effects of training were transitory. This was evident in the high variability of target vocalizations observed following the training.

The highest rate of attends and verbal praise for the majority of the participants was obtained under the individualized goal setting and feedback conditions. The results suggested that goal setting and feedback were effective at not only immediately increasing the rate of attends and verbal praise above levels observed directly after the didactic training, but also in maintaining the rates of attends from week to week during probes. Rates of inappropriate commands were also influenced more directly by the use of goal setting and feedback. The gap between the rate of indirect and direct commands narrowed during individualized goal setting and feedback across most participants.

These results indicated that the typical methods of requiring teachers to attend didactic workshops did not directly relate to a generalization of the skills to the teachers' classrooms. Even with the addition of a role-playing practice session during the training, teachers only minimally implemented the instructed techniques. However, when over time goal setting and graphical feedback (with no additional training on techniques) were provided for the teachers, their use of the instructed techniques were observed more frequently than immediately after the didactic training. This phenomenon may indicate that the teachers learned the instructed techniques during the didactic training; however, they did not use the techniques.

Although the study indicated that the combination of training, goal setting, and performance feedback were effective at increasing appropriate staff-child interactions in a day care setting, several limitations to the study were worth noting. For example, the study's failure to show an increase in the use of direct commands over indirect commands following training maybe explained as a byproduct of discussions during training. During the training sessions, the authors suggested that direct commands should be reserved only for situations in which a child must perform a specific behavior. Situations in which a specific behavior must be performed could be subjectively interpreted by the participants.

The absence of inter-observer reliability (IOR) provides another significant limitation of the current study. Due to environmental limitations in the day care setting and guidelines set by the board of human regulatory compliance, the use of IOR data collection methods such as, videotape, audiotape, and independent observers, was prohibited. A possible solution for future researchers would be to recruit and train individuals working in the day care setting to collect IOR data. This would not only eliminate the ethical concern of unknown individuals entering the day care setting, but also provide a possible naturalistic reinforcer for the use of the techniques directly after didactic training.

One could also consider a limit to the study the possible re-activity during the goal setting and feedback phase. Participants were given graphical feedback pertaining to their performance just prior to the observation sessions. Although this may have maximize the effectiveness of individualized goal setting and feedback one should be cautious in interpreting these results. The presentation of individualized goal setting and feedback (not the feedback itself) just prior to observations may set the occasion for the targeted interactions to occur. Future research should evaluate the effectiveness of feedback on temporally distant observations.

Although the study had limitations, it provided preliminary information concerning the necessary procedures that behavior analysts should use when training day care and educational staff. As our field extends into day care and other educational environments, behavior analysts must consider that the education in-service training model of a workshop/didactic training may not be adequate for teachers' observable and maintained behavior change. Only when combined with goal setting and performance feedback will generalized and maintained behavior change be evident. If behavior analysts' didactic trainings fail to provide the behavior change that day care and school administrators expect, behavior analysts will not be invited back and children may suffer. Future researchers should expand and generalize this study to determine how the field of behavior analysis can train educators while providing acceptable rates of behavior change, generalization, and maintenance.

#### References

- Alavorius, M. P., & Sulzer-Azaroff, B. (1986). The effects of performance feedback on the safety of client lifting and transfer. *Journal of Applied Behavior Analysis, 19*, 261-267.
- Brown, C. S., & Sulzer-Azaroff, B. (1994). An assessment of the relationship between customer satisfaction and service friendliness. *Journal of Organizational Behavior Management, 14*(2), 55-75.
- Chhokar, J. S., & Wallin, J. A. (1984). A field study of the effect of feedback frequency on performance. *Journal of Applied Psychology, 69*(3), 524-530.
- Codding, R. J., Feinberg, A. B., Dunn, E. K., & Pace, G. M. (2005). Effects of immediate performance feedback on implementation of behavior support plans. *Journal of Applied Behavior Analysis, 38*, 205-219.
- Forehand, R. L., & McMahon, R. J. (1981). *Helping the noncompliant child: Family-based treatment for oppositional behavior (1st ed.)*. Guilford Press, New York, NY.
- Grindle, A. C., Dickinson, A. M., & Boettcher, W. (2000). Behavioral safety research in manufacturing settings: A review of the literature. *Journal of Organizational Behavior Management, 20*(1), 29-68.
- Hickerman, J. S., & Geller, S. E. (2003). A safety self-management intervention for mining operations. *Journal of Safety Research, 34*, 299-308.
- Kelly, T., Wilder, D. W., Rodriguez, M., & Wine, B. (2005). Preintervention analysis and improvement of customer greeting in a restaurant. *Journal of Applied Behavior Analysis, 38*(3), 411-415.
- McMahon, R. J., & Forehand, R. L. (2003). *Helping the noncompliant child: Family-based treatment for oppositional behavior (2nd ed.)*. Guilford Press, New York, NY.
- Reber, A. R., & Wallin, J. A. (1984) The effects of training, goal setting, and knowledge of results on safe behavior: A component analysis. *Academy of Management Journal, 27*(3), 544-560.
- Reber, A. R., Wallin, J. A., & Chhokar, J. S. (1990) Improving safety performance with goal setting and feedback. *Human Performance, 3*(1), 51-61.

Sulzer-Azaroff, B., Loafman, B., Merante, R. J., & Hlavacek, A. C. (1990). Improving occupational safety in a large industrial plant: A systematic replication. *Journal of Organizational Behavior Management*, 11(1), 99-120.

**Author Contact Information:**

**Jonathan W. Ivy, M.A., BCBA**  
148 East High St. Apt 3  
Elizabethtown PA, 17022  
Phone: (717) 367-8529  
Email: [Jonathan\\_ivy@iu13.org](mailto:Jonathan_ivy@iu13.org)

**Kimberly A. Schreck, Ph.D. BCBA**  
Penn State University - Harrisburg  
777 W. Harrisburg Pike  
W311 Olmsted Building  
Phone: (717) 948-6048  
Email: [Kas24@psu.edu](mailto:Kas24@psu.edu)

---

**ADVERTISING IN THE  
INTERNATIONAL JOURNAL OF BEHAVIORAL CONSULTATION AND THERAPY**

**The prices for advertising in one issue are as follows:**

**1/4 Page: \$50.00    1/2 Page: \$100.00    Full Page: \$200.00**

**If you wish to run the same ad in multiple issues for the year, you are eligible for the following discount:**

**1/4 Pg.: \$40 - per issue  
1/2 Pg.: \$75 - per issue  
Full Page: \$150.00-per issue**

**An additional one time layout/composition fee of \$25.00 is applicable**

**For more information, or place an ad, contact Halina Dziewolska by phone at (215) 462-6737 or e-mail at: [halinadz@hotmail.com](mailto:halinadz@hotmail.com)**

## Recent Studies in Functional Analytic Psychotherapy

Rafael Ferro García

### Abstract

Functional Analytic Psychotherapy (FAP), based on the principles of radical behaviorism, emphasizes the impact of eventualities that occur during therapeutic sessions, the therapist-client interaction context, functional equivalence between environments, natural reinforcement and shaping by the therapist. This paper reviews recent studies of FAP from the published literature and classifies them into different categories, i.e., 1) integration with other therapies, 2) supervision and improvement of therapeutic skills, 3) methods for evaluation and data recording in therapy, 4) effectiveness and efficacy, 5) the relationship between thoughts and emotions, and 6) application to clinical problems and new types of application.

Keywords: Functional analytic psychotherapy, Applications, Efficacy, Effectiveness

---

This article reviews recent studies that have appeared since the publication of Kohlenberg and Tsai's manual on Functional Analytic Psychotherapy (FAP) (Kohlenberg & Tsai, 1991). To date the manual has been translated into Portuguese, Japanese and Spanish, and a second edition is in preparation. Functional Analytic Psychotherapy forms part of what Hayes (2004) and O'Donohue (1998) have termed third-generation behavioral therapy, a group that includes Acceptance and Commitment Therapy (Hayes, Strosahl & Wilson, 1999), Behavioral Activation (Martell, Addis, & Jacobson, 2001) and Dialectic Behavior Therapy (Linehan, 1993).

As proposed by Kohlenberg and Tsai (1991, 1995a), FAP is an alternative to behavioral therapy that is based on principles of radical behaviorism, and which emphasizes the impact of contingencies arising during therapeutic sessions, the therapist-client interaction context, functional equivalence between environments, natural reinforcement and shaping by the therapist. Because the principle objective of FAP is a functional analysis of the client's behavior, it emphasizes the importance of what the client does and says during therapeutic sessions—the client's *clinically relevant behaviors* (CRB). Therapeutic interventions are developed from five *rules of therapy* in FAP (Kohlenberg & Tsai, 1991, 1994a, 1994b, 1995a).

Functional Analytic Psychotherapy is a type of therapy that can be used alone, or that can be integrated with any other type of therapy to obtain synergistic results (Kohlenberg, Tsai, Ferro, Valero, Fernández Parra, & Virués, 2005). Some examples below will illustrate how integration of FAP with other therapies has yielded good results. As Pérez Álvarez (2004) has explained, the main contribution of FAP to psychotherapy is that it turns the therapist-client relationship into a truly therapeutic relationship. Another contribution of FAP is the theory regarding formation of the self, which accounts for the appearance of personality disorders and suggests how they might be treated (Kohlenberg & Tsai, 1991, 1995b).

On the basis of their main objectives I have grouped the studies reviewed here into six different and not necessarily mutually exclusive areas of research. These areas are 1) integration with other psychotherapies, 2) supervision and improvement of therapeutic skills, 3) new developments in methods for evaluation and data recording, 4) studies of effectiveness and efficacy, 5) the relationship between thoughts and emotions, and 6) applications to clinical problems and new types of application.

### 1. Integration with other psychotherapies

The principles of FAP can enhance other therapies, and FAP has been used in this way with good results. Gaynor and Lawrence (2002) compared Beck's Cognitive Therapy with therapy based on the FAP principles in adolescents with depression. A group of 10 adolescents was divided into two groups depending on the severity of their depression (attempted suicide, medication, etc.). The authors used a protocol consisting of 16 sessions over a period of 8 months followed by 6 months of follow-up. The same therapist was responsible for all interventions. Sessions lasted for 2 hours; techniques commonly used in cognitive therapy were used during the first hour, and a FAP intervention was used during the second hour with in-vivo tasks. Weekly changes were evaluated with several questionnaires and self-reporting inventories. The results showed marked changes in depression-related problems in all participants, which were maintained during follow-up. In general, the percentage change according to several different measures was greater in participants with moderately severe depression than in those with severe depression.

Work underway at the University of Reno (Nevada, USA) combines FAP with *Acceptance and Commitment Therapy* (ACT) in a type of therapy called *Functional-analytic Acceptance and Commitment Therapy* (FACT) as part of a program to quit smoking (Callaghan, Gregg, Marx, Kohlenberg, & Gifford, 2004). To date only the features of this therapy and the population it is aimed at have been described; the data generated by this project are currently being analyzed. This type of integration involving two different therapeutic approaches is not new, as shown in an earlier study by Paul, Mark and Orsillo (1999) of acceptance-based psychotherapy in the treatment of an exhibitionist.

### 2. Supervision and improvement of therapeutic skills

To avoid the pitfalls involved in the use of FAP by inexperienced therapists, some studies have investigated the effect of supervision of therapists to improve their therapeutic skills. Callaghan (2006a) has analyzed the variables that affect the supervision of therapists and the skills a FAP therapist should have.

Some effectiveness and efficacy studies have incorporated therapist supervision and training, although these aspects were not the main topic of research (see, for example, Kohlenberg, Kanter, Bolling, Parker & Tsai, 2002). One outcome of these studies has been the creation of scales that can be used to evaluate therapeutic skills. An example is the *Therapist In-session Strategy Scale* (THISS), used to evaluate competence and adherence to therapy. This instrument has been shown to be reliable and useful in therapist training programs (Kohlenberg, Tsai, Parker, Bolling & Kanter, 1999).

Vandenberghe, Sousa and Oliveira (2005) used FAP strategies to enhance treatment for clients with borderline personality disorder. Six therapists were studied, and each participant was interviewed 4 times over a period of 6 months. Four participants also received supervisory sessions that centered on treating and analyzing the feelings that treatment sessions evoked. Preliminary results of this study indicated that treatment for this type of patient is a painful experience. Findings also suggested that supervision increased the therapist's ability to identify his or her feelings, relate them to the CRB that occurred during sessions and create new strategies for intervention. In summary, supervision was found to improve the use of the client-therapist relationship, and also helped the therapist to cope with the traumatic effects of working with this kind of patient.

Glenn M. Callaghan at the Research Center for Innovative Psychological Assessment and Treatment, San José State University (California, USA) has designed a program called *Functional Assessment of Skills for Interpersonal Therapists* (FASIT; Callaghan, 2006b). This program offers a way

to improve therapeutic skills by trying to evaluate and classify the problems a therapist may face during therapy. The program manual provides definitions and examples of problems in areas of interpersonal functioning: assertion of needs, bi-directional communication (providing and receiving feedback), problems with conflict resolution, disclosure skills related to developing interpersonally close relationships, and difficulties with the experience and expression of emotion. Several studies have found this system to be useful (Callaghan, Gregg, et al., 2004; Kohlenberg, Kanter, et al., 2002).

In a randomized controlled trials with 30 clinical graduate psychology students, JoAnne Dahl at Uppsala University in Sweden aimed to study the effect of training in FAP on improvements in the therapeutic alliance. The FAP group received 2 days of training in FAP and a group supervision session, whereas the control group received a short information day about the study and measurements, and the same amount of supervision characterized as reflective listening and supportive therapy. All students met with their clients for 4 sessions in each of the two parts of the study. Clients were student volunteers from other university departments. The dependent variable was the therapeutic alliance, measured with the Working Alliance Inventory Scale. At the time of writing this study was nearing conclusion, and the results are expected soon.

### 3. New developments in methods for evaluation and data recording

Several ways to obtain data from clinical cases have been used to record and code client-therapist interactions for analysis, and different approaches to the conceptualization of clinical cases have also been tried. One of the most interesting innovations is the *Experience of Self Scale* (EOSS) used to investigate hypotheses derived from the theory of formation of the self. According to this theory, persons differ in the degree of public versus private stimulus control in the formation of the self, and this may constitute a predictable difference between clinical populations (Kohlenberg, Tsai, Parker, et al., 1999). It has been hypothesized that evaluating the degree of stimulus control may be a useful indicator of strategies for intervention. A study by Kanter, Parker and Kohlenberg (2001) compared EOSS with the Self-Esteem Scale (SES) and the Dissociative Experiences Scale (DES) in a group of 284 students and a group of 14 patients with borderline personality disorder. The results indicated that the degree of public stimulus control of their self-experience covaried with self esteem and dissociation. The authors concluded that persons with this type of disorder exert excessive public control on their experience of self.

In another study Glenn Callaghan developed a coding system for client and therapist behaviors called the *Functional Analytic Psychotherapy Rating Scale* (FAPRS) (Callaghan, Summers & Weidman, 2003). This system makes it possible to obtain data on the changes that take place during sessions throughout therapy by coding events as in-session problems and improvements (CRB1s and CRB2s), outside problems and outside improvements (OP, OI), client session progression (CRR), therapist response to CRB (TCRB), therapist missing or otherwise failing to respond to a CRB (MCRB), evoking a CRB (ECRB), or therapist session progression (TPR). One of the advantages of this system is its ability to measure the mechanisms of change proposed by FAP. The application of this system in a case study of a client with personality disorder showed it to be reliable (Callaghan, Summers & Weidman, 2003). According to the authors, the FAPRS codes can be examined with lag-sequential analysis to determine the relationship between the therapist's and the client's behavior. Moreover, descriptive and basic nonparametric statistics can be used to compare the frequency of problems and improvements during sessions throughout the duration of treatment, in order to determine the effectiveness of therapy in a given clinical case.

Different approaches to case conceptualization have been used in FAP. The first approach, used in efficacy studies (Kohlenberg & Tsai, 2000; Kohlenberg, Kanter, et al., 2002), represents a way to analyze a case throughout therapy which therapists can use to focus on CRB. This system proposes the conceptualization of cases in the following categories: daily life problems, relevant history, corresponding

in-session problems (interpersonal/behavioral CRB), corresponding cognitive concepts (cognitive CRB: automatic thought, core beliefs, underlying assumptions), daily life goal, and in-session goal (CRB). This approach helps therapists to synthesize information, clarify their objectives and detect equivalences between what occurs in sessions and outside sessions. Therapists in Spain have used this system in clinical settings to supervise therapists who are not experts in FAP, with excellent results (Valero, Ferro & López, 2006).

Another way to analyze the client's CRB according to a different type of case conceptualization is the *Functional Idiographic Assessment Template* (FIAT) system (Callaghan, 2006c). This is an ideographic approach to evaluating types of interpersonal functioning that can be problematic during sessions. The categories on which the FIAT system is based are similar to those of the FASIT program, but refer to the client instead of the therapist: assertion of needs, bi-directional communication, conflict, disclosure and interpersonal closeness, emotional experience and expression. To arrive at a useful conceptualization of a case, the therapist answers a series of questions regarding each category. A study by Callaghan, Summers and Weidman (2003) documented the usefulness of the FIAT system in helping therapists with case conceptualization.

#### 4. Studies of effectiveness and efficacy

The effectiveness and efficacy of different therapies have been investigated by groups working at the University of Washington, the University of Wisconsin and San José State University (Bolling, Kohlenberg & Parker, 2000; Callaghan, Summers & Weidman, 2003; Kanter, Schildcrout & Kohlenberg, 2005; Kohlenberg, Kanter, et al., 2002; Kohlenberg, Kanter, Bolling, Wexner, Parker & Tsai, 2004). The most important clinical trial of FAP published to date (Kohlenberg, Kanter et al., 2002) involved 46 participants divided into two groups: one with 18 participants who received cognitive therapy and one with 28 participants who received FAP-enhanced cognitive therapy (FECT). The study ran for 3 years, and all three therapists who participated in both groups were experts in Beck's Cognitive Therapy. In the cognitive therapy group a standard procedure for Beck's therapy was used, and in the FECT group this therapy was expanded and enhanced to include a broader explanation of the ABC cognitive paradigm, and the use of client-therapist relationships. Seven specific techniques were used to apply these therapies: setting the scene early through a brief narrative produced by the patient, presenting the expanded rationale and eliciting feedback, using the case conceptualization form, noticing CRB that reflect both problems and improvements, asking questions to evoke CRBs, increasing therapist self-awareness as an aid to detecting and being aware of CRBs, and using the modified thought record of Beck. The results were evaluated with four questionnaires used before and after treatment. In the FECT group improvements were seen in 79% of the participants, compared to 60% in the group that received cognitive therapy alone.

A subsequent analysis of these results (Kanter, Schildcrout & Kohlenberg, 2005) with turn-by-turn process-coding of recordings of the therapy sessions examined the therapist's behavior to measure the frequency of in-vivo interventions. The findings indicated that interventions were more frequent by therapists in the FECT group than in the cognitive therapy group, and that this was associated with gains in variables such as closeness, adherence and satisfaction with the therapist. Participants reported greater improvements in their daily life after in-vivo interventions during therapy.

Callaghan, Summers & Weidman (2003) investigated effectiveness in a case study of a woman with histrionic and narcissistic personality disorder. The clinical sessions were videotaped for later analysis, and the Beck Depression Inventory (BDI) was used before and after treatment. Case conceptualization was based on the FIAT system (Callaghan, 2006c), and the target behaviors identified with this analysis were coded with the FAPRS. Four treatment sessions were taped, analyzed and coded, and the analysis showed statistically significant differences documenting positive changes in the client during therapy.

Kanter, Landes, Busch, Rusch, Brown, Baruch & Holman (2006) investigated efficacy in two case studies of clients, one with major depressive disorder and histrionic personality disorder, the other with personality disorder not otherwise specified. A single-subject A/A+B design was used for both clients. In phase A Beck's Cognitive-Behavioral Therapy was used, and in phase B this was complemented with FAP techniques described in the study by Kohlenberg, Kanter and colleagues (2002). At the start of therapy CRBs were identified with the FIAT system (Callaghan 2006c). The clients were asked to record whether or not each CRB occurred during therapy. The therapists reviewed these diary cards weekly to shape the correct reporting of CRBs. The results showed a clear improvement in one client after introduction of the FAP strategies, but no evident change in the other client, who stopped recording CRBs before the end of the study, and whose results immediately before drop-out were in the opposite direction to that expected. As the authors noted, this study needs to be replicated in a larger number of participants and with improved methods.

##### 5. Experimental studies of the relationship between thoughts and emotions

As noted above, the relationship between behaviors, thoughts and emotions forms part of FAP. Two experiments have investigated the sequence of automatic thoughts and emotions as a function of the instructions or conceptual explanations provided by the investigators. A study by Kanter, Kohlenberg and Loftus (2002) involved 120 university students divided into two experimental groups. All participants received written information about the cognitive model. One group received information about the ABC model (where A represents an event or stimulus, B represents cognition and C represents affect), and the other received information about the ACB model. Before and after reading the information all participants performed a computerized image-response task which required them to indicate whether the pictures shown led them to experience thoughts or emotions.

The results indicated that before they read the information, most of the participants in both groups responded to the pictures according to an ABC cognitive model. After they had read the information, however, the number of participants in the ACB group who responded according to the ABC model decreased significantly.

Another study (Kanter, Kohlenberg & Loftus, 2004) involved 198 university students divided randomly into two groups in which the experimental conditions were similar to those in the study summarized above, but which used images with different arousal levels. Immediately after viewing slides of low-arousal, high-arousal and neutral images, participants were asked to record whether they experienced automatic thoughts first or feelings first. Participants in both groups were given information with information about either the ABC or the ACB cognitive model. The results were similar to those of the 2002 study by the same authors. Before they were given written instructions, both groups tended to report more thoughts in response to the images. After they had read information about the ABC or ACB models, however, the former group reported more automatic thoughts whereas the latter reported more feelings. The difference was statistically significant within and between groups. There were also signs of a gender difference, with men more likely to be influenced by the ABC model than women. Responses to high-arousal images appeared to be influenced more by the ACB model than the ABC model. One possible conclusion is that participants changed their reactions to the images after receiving instruction. In other words, the type of explanation clients are given about the relationship between thoughts and feelings during therapy appears likely to influence how clients report their own behavior.

##### 6. Application to clinical problems and new types of application

Since its inception a variety of clinical applications of FAP have been used for different problems. The FAP manual (Kohlenberg & Tsai, 1991) gives examples of a number of such applications in patients with different problems. In addition, many published reports have appeared on applications in different

types of clinical cases. Functional Analytic Psychotherapy has been used successfully for patients with anxiety (Kohlenberg & Tsai, 1995a; López, Ferro & Calvillo, 2002) and obsessive-compulsive disorder (Kohlenberg & Vanderberghe, in press; Vanderberghe, 2007), a case of jealousy (Carrascoso, 2003), clients with depression (Dougher & Hackbert, 1994; Ferro, Valero & Vives, 2006; Gaynor & Lawrence, 2002; Kanter, Landes, et al., 2006; Kohlenberg, Kanter, et al., 2002; Kohlenberg & Tsai, 1994a) and persons who avoided intimate relationships (Cordova & Koerner, 1993). It has also been used for patients with personality disorders (Callaghan, Summers & Weidman, 2003; Koerner, Kohlenberg & Parker, 1996; Kohlenberg & Tsai, 1991), specifically borderline personality disorder (Kohlenberg & Tsai, 2000; Sousa, 2004). It has also been used for marital therapy (Kohlenberg & Tsai, 1995a; Rabin, Tsai & Kohlenberg, 1996), and has been applied in clients with sexual problems such as anorgasmia (Oliveira & Vandenberghe, 2005) and in a case of exhibitionism, together with ACT (Paul, Marx & Orsillo, 1999). Other successful applications have been reported in individuals who were sexually abused and who were suffering from post-traumatic stress disorder (Kohlenberg & Tsai, 1998; Prins & Callaghan, 2002). Other problems that have been treated with FAP include health problems such as chronic pain (Vandenberghe & Ferro, 2005; Vandenberghe, Ferro & Furtado, 2003; Vandenberghe, Furtado & Ferro, 2003) and fibromyalgia (Queiroz & Vanderberghe, 2006). In children FAP has been used as therapy in a boy with aggressive-defiant behavior (Gosch & Vandenberghe, 2004).

Other interesting applications have also been reported in other populations. Ongoing work at the University of Chicago involves institutionalized patients with chronic psychosis, major recurrent depression and borderline personality disorder (Holmes, Dykstra, Willians, Diwan & River, 2003). The program developed for these patients, termed *Functional Analytic Rehabilitation* (FAR), aims to create an institutional environment that is as life-like as possible. In other words, FAR incorporates many of the social stimuli that occur in real-life situations in order to favor generalization. Therapy proceeds through a hierarchy of progressively more complex and demanding behaviors according to the circumstances of each consumer. This system shapes the focus of both the staff and the consumers. In an environment with functional similarity to real-life settings, both staff and consumers can determine which behaviors are effective in that context. The 2003 article by Holmes and colleagues describes the program and its characteristics, and give examples of problem and target behaviors along with descriptions of cases and how they were managed. However, no effectiveness data have been published to date for FAR.

An important innovation is the use of FAP in group therapy for patients with chronic pain. This research has been led by Luc Vandenberghe at the Catholic University of Goiás in Brazil (Vandenberghe & Ferro, 2005; Vandenberghe, Ferro & Furtado, 2003; Vandenberghe, Furtado & Ferro, 2003). According to these authors, their application of FAP generates interpersonal situations that evoke CRBs related with the problems that arise in persons with chronic pain. A standard therapeutic setting lacks the contingencies that maintain pain in daily life, so the skills acquired in therapy are not generalized to real life situations. When pain occurs outside the therapeutic setting the natural contingencies override the therapist's instructions. The aim is to establish an environment as equivalent as possible to situations in which pain occurs outside therapy, in order to modify the patient's behavior during therapy through real-life interactions. Thus far FAP has been shown effective in several patients who had not obtained relief with other treatments, and published reports provide information on the characteristics of treatment and procedures they have used.

### Conclusions and future directions

Here I have attempted to review available publications and studies in progress that deal with the applications and contributions of different psychotherapies. Functional Analytic Psychotherapy is currently being studied from many angles to improve its performance and to integrate it with other therapies, with encouraging results. Research currently in progress is looking into therapist supervision and skill enhancement, and several evaluation systems have been described. Different options are now

available for data recording and coding to help measure the effectiveness of therapy. Several approaches to explaining the relationship between thought, emotion and behavior have been analyzed, and how these relationships explain clients' behavior has also been studied. New applications of therapy have appeared, as have studies of their efficacy and effectiveness.

One frequent criticism of FAP is the prolonged duration of treatment as presented in the manual and in published clinical cases. As we recently noted (Ferro, Valero & López, 2007), the duration of therapy is a reflection of the severity of the cases that have appeared in the literature, many of which involved a diagnosis of personality disorder requiring prolonged treatment. Other therapies for this type of disorder (such as the treatment developed by Linehan, 1993) are also lengthy, and in other clinical cases published to date, the duration of FAP is no longer than other types of therapy (see, for example, López, Ferro & Calvillo, 2002).

The most recent innovations in case conceptualization and therapeutic strategies represent advances with respect to the implementations described in the FAP manual. Studies are still lacking on the efficacy and effectiveness of FAP, although some such studies are now in progress. Coding systems for the therapist's as well as the client's behaviors may make it possible to measure the effects of interventions reliably.

As an earlier analysis of FAP suggested (Fernández & Ferro, 2006), two aspects that merit additional research seem to stand out: efficacy and integration. Studies of the efficacy of FAP will require solid experimental research designs able to generate quantitative data on the effects of therapeutic interventions. Research on ways to integrate FAP with other types of therapy should continue.

As of this writing, most of the reports of clinical cases in the literature provide no data or are based on examples of client-therapist interactions. The measures used for reporting case studies should be enhanced to include, at the very least, pre- and post-treatment data. Further improvements in the reporting of measures of effectiveness could be achieved by using single-subject evaluations, as noted by Kanter, Landes, and colleagues (2006). Additional studies patterned on the methods used by Callaghan, Summers and Weidman (2003), who solved the measurement problem with a coding system, may also help shed light on the effectiveness of FAP. A further methodological improvement worth investigating is the use of multiple baseline designs across behaviors with intervention for one behavior but not others (which serve as intrasubject controls), and replication in several participants.

Efficacy studies based on reliable group methods will be needed to compare FAP with other therapies known to be effective, with no therapy, and with placebo therapy. If these and other carefully-controlled and reported studies are carried out, I believe FAP will soon fulfill the criteria for being considered an empirically validated treatment.

#### References

- Bolling, M. Y., Kohlenberg, R. J. & Parker, C. R. (2000). Behavior Analysis and Depression. In M. J. Dougher (Ed.). *Clinical Behavior Analysis*. (pp.: 127-152). Reno: Context Press.
- Callaghan, G. M. (2006a). Functional Analytic Psychotherapy and Supervision. *International Journal of Behavioral and Consultation Therapy*, 2, 3, 416-431.
- Callaghan, G. M. (2006b). The Functional Assessment of Skills for Interpersonal Therapists: The FASIT System. *The Behavior Analyst Today*, 7, 399-433.

- Callaghan, G. M. (2006c). The Functional Idiographic Assessment Template (FIAT) System. *The Behavior Analyst Today*, 7, 357-398.
- Callaghan, G. M., Gregg, J. A., Marx, B. P., Kohlenberg, B. S. & Gifford, E. (2004). FACT: The utility of an integration of Functional Analytic Psychotherapy and Acceptance and Commitment Therapy to alleviate human suffering. *Psychotherapy: Theory, Research, Practice, Training*, 41, 195-207.
- Callaghan, G. M., Summers, C. J. & Weidman, M. (2003). The Treatment of Histrionic and Narcissistic Personality Disorder Behavior: A single-Subject Demonstration of Clinical Improvement Using Functional Analytic Psychotherapy. *Journal of Contemporary Psychotherapy*, 33, 4, 321-339.
- Carrascoso, F. J. (2003). Jealousy: A case of application of Functional Analytic Psychotherapy. *Psychology in Spain*, 7, 88-98.
- Cordova, J. V. & Koerner; K. (1993). Persuasion criteria in research and practice: gathering more meaningful psychotherapy data. *The Behavior Analyst*, 16, 317-330.
- Dougher, M. J. & Hackbert, L. (1994). A behavior-analytic account of depression and a case report using acceptance-based procedures. *The Behavior Analyst*, 17, 321-334.
- Fernandez Parra, A. & Ferro García, R. (2006). La Psicoterapia Analítico-Funcional una aproximación contextual funcional al tratamiento psicológico. *Edupsykhe*, 5, 2, 203-229.
- Ferro García, R., Valero Aguayo, L. & López Bermúdez, M. A. (2007). Novedades y aportaciones desde la Psicoterapia Analítica Funcional. *Psicothema*, 19, 3, 452-458.
- Ferro, R., Valero, L. & Vives, M. C. (2006). Application of Functional Analytic Psychotherapy: Clinical Analysis of a patient with Depressive Disorder. *The Behavior Analyst Today*, 7, 1-18.
- Gaynor, S. T. & Lawrence, P. S. (2002). Complementing CBT for depressed adolescents with learning through in vivo experience (LIVE): Conceptual Analysis, Treatment description, and feasibility study. *Behavioral and Cognitive Psychotherapy*, 30, 79-101.
- Gosch, C. S. & Vandenberghe, L. (2004). Behavior analysis and the therapist-child relationship in the treatment of an aggressive-defiant pattern. *Revista Brasileira de Terapia Comportamental e Cognitiva*, 6, 173-182.
- Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and third wave of behavioral and cognitive therapies. *Behavior Therapy*, 35, 639-665.
- Hayes, S. C., Strosahl, K. D. & Wilson, K. G. (1999). *Acceptance and Commitment Therapy. An Experiential Approach to Behavior Change*. New York: The Guilford Press.
- Holmes, E. P., Dykstra, T. A., Williams, P., Diwan, S. & River, L. P. (2003). Functional analytic rehabilitation: A contextual behavioral approach to chronic distress. *The Behavior Analyst Today*, 4, 34-46.
- Kanter, J. W., Kohlenberg, R. J., & Loftus, E. F. (2002). Demand characteristics, treatment rationales, and cognitive therapy for depression. *Prevention & Treatment*, 5, Article 41.

- Kanter, J. W., Kohlenberg, R. J. & Loftus, E. F. (2004). Experimental and psychotherapeutic demand characteristics and the cognitive therapy rationale: An analogue study. *Cognitive Therapy and Research*, 28, 2, 229-239.
- Kanter, J. W., Landes, S. J., Busch, A. M., Rusch, L. C., Brown, K. R., Baruch, D. E. & Holman, G. (2006). The Effect of Contingent Reinforcement on Target Variables in Outpatient Psychotherapy for Depression: A Successful and Unsuccessful Case Using Functional Analytic Psychotherapy. *Journal of Applied Behavior Analysis*, 39, 463-467.
- Kanter, J. W., Parker, C. & Kohlenberg, R. J. (2001). Finding the self: A behavioral measure and its clinical implications. *Psychotherapy: Theory, Research and Practice*, 38, 198-211.
- Kanter, J. W., Schildcrout, J.S., & Kohlenberg, R. J. (2005). In vivo processes in cognitive therapy for depression: Frequency and benefits. *Psychotherapy Research*, 15, 4, 366-373.
- Koerner, K., Kohlenberg, R. J. & Parker, R. (1996). Diagnosis of Personality Disorder: A Radical Behavioral alternative. *Journal of Consulting and Clinical Psychology*, 64, 1169-1176.
- Kohlenberg, R. J., Kanter, J. W., Bolling, M.Y., Parker, C. R. & Tsai, M. (2002). Enhancing Cognitive Therapy for Depression with Functional Analytic Psychotherapy: Treatment Guidelines and Empirical Findings. *Cognitive and Behavioral Practice*, 9, 213-229.
- Kohlenberg, R. J., Kanter, J. W., Bolling, M., Wexner, R., Parker, C. & Tsai, M. (2004). Functional Analytic Psychotherapy, Cognitive Therapy, and Acceptance. In S. C. Hayes, V. M. Follette & M. M. Linehan (Eds.). *Mindfulness and Acceptance. Expanding the Cognitive-Behavioral Tradition*. (pp.: 96-119). New York: Guilford Press.
- Kohlenberg, R. J. & Tsai, M. (1991). *Functional Analytic Psychotherapy. Creating intense and curative therapeutic relationship*. New York: Plenum Press.
- Kohlenberg, R. J. & Tsai, M. (1994a). Improving cognitive therapy for depression with functional analytic psychotherapy: Theory and case study. *The Behavior Analyst*, 17, 305-319.
- Kohlenberg, R. J. & Tsai, M. (1994b) Functional Analytic Psychotherapy: A Radical Behavioral Approach to Treatment and Integration. *Journal of Psychotherapy Integration*, 4, 174-201.
- Kohlenberg, R. J. & Tsai, M. (1995a). Functional analytic psychotherapy: a behavioral approach to intensive treatment. In W. O'Donohue y L. Krasner (Eds.), *Theories of behavior therapy. Exploring behavior change*, (pp.: 637-658). Washington: APA.
- Kohlenberg, R. J. & Tsai, M. (1995b). I speak, therefore I am: A behavioral approach to understanding the self. *The Behavior Therapist*, 18, 113-116 .
- Kohlenberg, R. J. & Tsai, M.. (1998). Healing interpersonal trauma with the intimacy of the relationship. In V. M. Follette, J. I. Ruzeg y F. R. Abueg (Eds.). *Cognitive-Behavioral Therapies for Trauma*. (pp.: 305-320). New York: Guilford.
- Kohlenberg, R. J. & Tsai, M.. (2000). Radical Behavioral Help for Katrina. *Cognitive and Behavioral Practice*, 7, 500-505.

- Kohlenberg, R. J., Tsai, M., Ferro García, R., Valero, L., Fernández Parra, A., & Virués-Ortega, J. (2005). Psicoterapia analítico-funcional y Terapia de aceptación y compromiso: Teoría, aplicaciones y continuidad con el análisis del comportamiento. *International Journal of Clinical and Health Psychology, 5*, 2, 37-67.
- Kohlenberg, R. J., Tsai, M., Parker, C. R., Bolling, M. Y. & Kanter, J. W. (1999). Focusing on the Client-Therapist Interaction. Functional Analytic Psychotherapy: A Behavioral Approach. *European Psychotherapy, 1*, 15-25.
- Kohlenberg, R. J. & Vandenberghe, L. (in press). Treatment resistant OCD, and the therapeutic relationship: Two case examples. *The Behavior Therapist*.
- Linehan, M. M. (1993). *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York: The Guilford Press.
- López Bermúdez, M. A., Ferro, R., & Calvillo, M. (2002). Una aplicación de la Psicoterapia Analítica Funcional en un trastorno de angustia sin agorafobia. *Análisis y Modificación de Conducta, 28*, 553-583.
- Martell, C. R., Addis, M. E. & Jacobson, N. S. (2001). *Depression in context, strategies for guided action*. New York: Norton.
- O'Donohue, W. (1998). Conditioning and third-generation behavior therapy. In W. O'Donohue (Ed.). *Learning and behavior therapy* (pp.: 1-14). Needham Heights: Allyn and Bacon.
- Oliveira, K. C. F. & Vandenberghe, L. (2005). Anorgasmia e esquiva experiencial, um estudo de caso. *Psicologia Clínica, 17*, 1, 162-176.
- Paul, R. H., Marx, B. P. & Orsillo, S. M. (1999). Acceptance-based psychotherapy in the treatment of an adjudicated exhibitionist: a case example. *Behavior Therapy, 30*, 149-162.
- Pérez Álvarez, M. (2004). *Contingencia y drama. La psicología según el conductismo*. Madrid: Minerva Ediciones.
- Prins, A. & Callaghan, G. M. (2002). *Functional Analytic Psychotherapy on an adjunctive treatment for a client meeting criteria for PTSD*. Poster presented at the 36 Annual Meeting of the Association for the Advancement of Behavior Therapy, Reno, November.
- Queiroz, M. A. M., & Vandenberghe, L. (2006). Psychotherapy in the treatment of fibromialgia: Interweaving FAP and ACT. In H. J. Guilhardi & N. Aguire. (Eds.). *Sobre Comportamento e Cognição*. (pp.: 238-248). Santo André: ESETec.
- Rabin, C., Tsai, M. & Kohlenberg, R. J. (1996). Targeting sex-role and power issues with a functional analytic approach: Gender patterns in behavioral marital therapy. *Journal of Feminist Family Therapy, 8*, 1-24.
- Sousa, A. C. A. (2004). Borderline personality disorder from a functional analytic perspective. *Revista Brasileira de Terapia Comportamental e Cognitiva, 5*, 121-137.

- Valero, L. Ferro, R. & López, M. A. (2006). El Análisis Funcional desde FAP: La conceptualización de tres casos clínicos. Communication presented at the 8th International Congress on Behavior Studies (CIEC-2006). Santiago de Compostela. Spain.
- Vandenberghe, L. (2007). Functional analytic psychotherapy and the treatment of obsessive compulsive disorder. *Counselling Psychology Quarterly*, 20, 105-114.
- Vandenberghe, L., Sousa, A. C. A. & Oliveira, J. A. (2005). Treating clientes with Borderline Personality Disorder: The impact on the therapist. Communication presented at the 9th European Congress of Psychology. Granada. Spain.
- Vandenberghe, L., & Ferro, C. L. B. (2005). Terapia de grupo baseada em FAP como abordagem terapêutica para dor crônica: Possibilidades e perspectivas. *Psicologia: Teoria e prática*, 7, 137-152.
- Vandenberghe, L., Ferro, C. L. B., & Furtado da Cruz, A. C. (2003). FAP-enhanced group therapy for chronic pain. *The Behavior Analyst Today*, 4, 369-375.
- Vandenberghe, L., Furtado da Cruz, A. C. & Ferro, C. L. B., (2003). Terapia de grupo para pacientes com dor cronica orofacial. *Revista Brasileira de Terapia Comportamental e Cognitiva*, 5, 1, 31-40.

Author Note:

I thank K. Shashok for translating the manuscript into English.

Author Contact Information:

Rafael Ferro García  
Centro de Psicología Clínica CEDI  
Avda. Constitución 25, 7 Izda.  
18014 Granada  
Spain  
E-mail: [rferro@cop.es](mailto:rferro@cop.es).  
Web site: <http://www.cop.es/colegiados/GR00777>

# State of the Art Procedures for Assessment and Treatment of Learners With Behavioral Problems

*Robert H. LaRue Jr., Mary Jane Weiss & Suzannah J. Ferraioli*

## Abstract

Challenging behavior can create significant obstacles to academic and social progress for individuals in a school setting, particularly those with developmental disabilities. Functional assessments such as rating scales, ABC analyses, and functional analyses, are evidenced to be the most effective methods for identifying the maintaining variables of problem behavior and for informing efficient, function-based interventions. Although the empirical literature and federal mandates support the use of functional assessment, obstacles to the practical application of these procedures in school settings (e.g., training requirements, time constraints) may deter school staff from using them consistently. Recent research has addressed some of these concerns, and there is developing evidence for briefer, more user-friendly versions of functional assessment. Practitioners can maximize the effectiveness of the intervention process by linking treatment components to functional assessment results. Effective, function-based interventions are comprised of procedures designed to reduce target behavior prior to its occurrence, procedures to teach the learner to access the reinforcer (or an adaptive alternative) appropriately, and systematic procedures for responding to the behavior. Future studies should continue to refine these procedures and address the use of functional assessment with extended populations, including adults with disabilities and typically developing children.

Keywords: Developmental Disabilities, Functional Assessment, School Setting, Function Based Interventions

---

Addressing problem behavior in school settings poses a significant challenge to classroom teachers, school administrators, and consultants. The passage of the 1997 Individuals with Disabilities Education Act (IDEA) amendments have increased the pressure felt by school districts to use sound assessment procedures. One procedure commonly used to reconcile federal mandates with well-evidenced practice is the functional behavioral assessment (FBA). Functional assessment techniques have been shown to be effective for determining the underlying cause, or function, of challenging behavior (e.g. Hanley, Iwata, & McCord, 2003). From this causal information, practitioners are able to match interventions to the function of the behavior, thereby increasing the effectiveness and the efficiency of the intervention. Despite the established efficacy of FBA, there exists a gap between evidence and practice; some have questioned the applicability of this set of procedures in the general school system (Scott, Bucalos, Nelson, Liaupsin, Jolivette, & Deshea, 2004). In fact, although this literature is large, the focus of the literature rarely extends beyond developmentally disabled young learners. As a result, the literature has clearly documented what represents state-of-the-art assessment and intervention with a specific population (young, developmentally delayed individuals), while comparatively less research has documented what represents state-of-the-art in other populations (older learners, typically developing learners).

The purposes of the present manuscript are to identify what represents best practice for assessment and intervention, to identify areas in need of future research, and to propose suggestions for future research/system-wide interventions.

## An Overview of Functional Assessment

FBA's comprise a series of instruments for gathering information on problem behavior that can be used to maximize the efficiency of behavioral support (O'Neill, Horner, Albin, Storey, & Sprague, 1997). Specifically, an FBA thoroughly examines the maintaining factors (i.e., antecedents and consequences) of well-defined problem behavior. Rigorous analyses have yielded significant evidence for four maintaining

mechanisms of challenging behavior: attention (i.e., access to positive attention or reprimands), tangible (i.e., access to preferred items or activities), negative reinforcement (i.e., escape from an aversive task or sensation), and automatic reinforcement (i.e., the consequences of the behavior are intrinsically reinforcing).

Over the past decade FBA has been employed frequently by school psychologists and behavior analysts in school settings. The widespread use of these procedures is based upon hundreds of efficacy and effectiveness studies. The literature strongly suggests a viable link between an in-depth assessment of the functions of behavior and effective treatment planning. FBA particularly suits itself to this task by streamlining the assessment process. In narrowing down the number of potential interventions, treatment planners are better equipped to create function-based interventions to decrease problem behavior. Professional organizations, such as the Association for Behavior Analysis (ABA) and the National Institute of Health (NIH), have strongly endorsed the use of FBA in clinical practice. In 1997, the IDEA legally mandated that FBA be included in the process of creating behavior intervention plans to address challenging behavior (Dragow & Yell, 1997). However, a lack of clearly specified legal guidelines to stipulate a good definition of FBA and an applied hierarchy of its procedures has contributed to its inconsistent use in applied settings. Additionally, some professionals have argued that the applicability of FBA is limited, citing the need for extensive training and expertise (Sasso, Conroy, Peck-Sticher, & Fox, 2001; Scott et al., 2004). Considering all these factors, it is not surprising that FBAs are often implemented in an inconsistent, or sometimes, inappropriate manner. For example, school professionals who are not adequately trained in FBA may default to the most cost-effective assessment procedures, such as interviews and rating scales. Reliance on these methods may provide less accurate information, and resulting intervention plans may not adequately address the function of behavior. The following review of the hierarchy of FBA procedures will attempt to clarify some of these issues.

#### Indirect/Informant Methods of Functional Assessment

Indirect assessment includes interviews and rating scales. These procedures comprise the preliminary steps of problem solving in functional assessment. While these methods alone do not adequately address the functions of problem behavior, they provide necessary information for subsequent functional assessment procedures.

Clinical interviews with caregivers and teachers are generally used to gather detailed information regarding the nature of the target behavior. It is best to interview as many individuals as possible who have direct contact with the student and who are familiar with his/her behavior. By including individuals across common settings it is also more likely that the resulting intervention will be effective in many contexts. Examples of frequently used rating scales and structured interviews include the Setting Event Checklist (Gardner, Cole, Davidson, & Karan, 1986), the Motivator Assessment Scale (MAS; Durand & Crimmins, 1992), and the Functional Analysis Interview (FAI; O'Neill et al., 1997).

The purpose of an interview is to gather several critical pieces of information. First, an *operational definition* should be generated, in which the target behavior is described in ample detail. The hallmark of a sufficient operational definition is that any person involved with the student can reliably identify an occurrence of the behavior. Second, operational definitions should also be created for the events that precede the behavior (antecedents) and those that follow behavior (consequences). For example, problem behavior may frequently follow the presentation of an aversive task (antecedent) and result in access to a break from that task (consequence). As in this example, the relationship between antecedents, behavior, and consequences should be established through systematic interview. Lastly, information regarding the level of interference and prevalence of the behavior should be gathered. This information may advise whether a formal intervention is time and cost-effective.

The main benefit to indirect assessment is that it is a quick way to gather information that will be used to guide higher-order functional assessment procedures. Disadvantages arise when indirect methods are used

as a standalone measure. The information obtained from these assessments may not be reliable, as it is not based upon direct observation or manipulation of the behavior. Furthermore, subjective impressions can interfere with the way in which staff members report on behaviors, leading them to provide information that supports their impressions. Nevertheless, information obtained via indirect assessment can have utility. When used properly, interviews and rating scales represent a useful preliminary step in the assessment process.

### Descriptive Assessment

Descriptive assessment involves gathering detailed information on behavior observed in the natural environment. In one such method, informal direct observation, the observer uses information gathered from structured interviews to define a target behavior or set of behaviors. Data on the prevalence of the behavior are then collected *in vivo*. Another method, antecedent-behavior-consequence (ABC) analysis, involves the direct observation of the target behavior as well as the events that precede and follow it. In ABC analysis, every observation of the behavior is accompanied by an operationally defined antecedent and consequence. These data are then analyzed using conditional probabilities (i.e., the percentage of antecedents and consequences associated with the behavior are calculated as a function of the total behavior frequency). Patterns emerge through graphing these probabilities, provided a sufficient amount of data has been collected.

In contrast to indirect assessment, descriptive assessment is based upon actual observations of the behavior in the natural environment, so it generally provides information that is more accurate and socially valid. Observational data are also more objective and less susceptible to bias. However, descriptive assessment is limited in that it involves no experimental manipulations of the events surrounding problem behavior. The observed relationships are correlational, and a functional determination for problem behavior cannot be sufficiently demonstrated. Furthermore, there can be variability in the skill levels of persons completing the ABC forms, leading to incomplete or subjective descriptions of antecedents and consequences.

### Analogue Functional Analysis

The most sophisticated procedure in the functional assessment hierarchy is functional analysis. *Functional analysis* is often incorrectly equated with *functional assessment*; for the purposes of this paper, functional analysis will refer to a specific set of procedures designed to systematically manipulate the antecedents and consequences surrounding problem behavior. Functional analysis is the most rigorous approach to defining the factors maintaining problem behavior because it is based upon the use of environmental manipulations and the use of experimental designs to evaluate the function of behavior. The conceptual basis for functional analysis was proposed in a paper by Carr (1977), in which he suggested that problem behavior might be influenced by environmental factors. Models for clinical practice were later developed and refined (Carr & Durand, 1985; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994). The efficacy of functional analysis has been widely documented in the research literature (Hanley et al., 2003).

As mentioned above, functional analysis procedures stipulate that environmental stimuli are systematically manipulated to evoke problem behavior. A specific series of test conditions are designed to be representative of contingencies in the natural environment that may trigger and maintain the target behavior. Empirical evidence supports the use of five general test conditions: social attention, tangible/restricted access, escape/demand, alone/ignore, and toy play. Descriptions of each condition are provided below.

The first two conditions test to determine if problem behavior is maintained by positive reinforcement. In the social attention and tangible conditions, the stimuli are initially presented to establish a motivating operation for either attention or preferred items. This increases the likelihood of the individual engaging in problem behavior when the stimuli are withheld.

In the *social attention* condition, attention is provided noncontingently and then withheld. Further attention is provided contingently upon the occurrence of problem behavior (e.g., “Don’t hit your head!”). If the individual engages in high rates of the behavior in this condition, social attention is implicated as a viable reinforcer.

In the *tangible/restricted access* condition preferred items or activities are provided to the individual, withheld, and then represented contingent upon the target behavior. High rates of behavior in this condition indicate that problem behavior is maintained by access to tangible items.

The *escape/demand* condition is based upon the negative reinforcement paradigm; it determines if problem behavior is maintained by escape from an aversive stimulus. In this condition the individual is presented with a non-preferred stimulus (e.g., difficult task), and the task is removed for 20-30 seconds contingent upon problem behavior. High rates of problem behavior in this condition suggest that escape from demands functions as reinforcement for the target behavior.

The *alone/ignore* condition is designed to evaluate the automatically reinforcing nature of the target behavior. This condition does not include programmed antecedents or consequences for target behavior. Traditionally, this condition runs with the individual placed in an empty room (i.e., alone). If there are concerns that the behavior is dangerous and may require an intervention, the condition may be run where the examiner is present but does not interact with the learner (i.e., ignore). If the individual engages in high rates of behavior in this condition it is likely that the behavior is reinforced by the natural consequences that the behavior itself produces (e.g., sensory stimulation).

A *toy play/control* condition is the control to which all other conditions are compared. The individual is placed in an “enriched environment” in which he has access to preferred items, noncontingent attention, and an absence of demands/aversives. In this condition the examiner does not modify his behavior contingent upon the target behavior. If there is a clear external maintaining mechanism of problem behavior (i.e., attention, tangible, or escape) to problem behavior low rates are expected in this condition. High rates of problem behavior in the control condition lend support to an automatic function.

The functional analysis is advantageous in its sensitivity to the potential maintaining factors of problem behavior and its systematic approach to this evaluation. It is also the most efficacious assessment procedure documented in the literature (Hanley et al., 2003). However, certain limitations to the functional analysis may undermine its effectiveness, especially in school settings. Firstly, the procedures may be time-prohibitive. Several hours of analysis may be needed to ascertain a clear function for behavior, and this may be restrictive in many educational settings. Fortunately, modifications to functional analysis procedures may effectively alleviate these concerns. For example session lengths may be reduced to five without sacrificing the accuracy of the analysis (Northup Wacker, Sasso, Steege, Cigrand, Cook, & DeRaad, 1991; Wallace & Iwata, 1999). Another strategy is to present fewer overall conditions (Northup et al., 1991). A specific hypothesis for the function of problem behavior may be derived using information obtained from interviews and direct assessment. Conditions based upon the suspected function may be alternated with the control condition in a pairwise or hypothesis-driven functional analysis. Secondly, effective functional analyses require staff with a certain level of expertise in its procedures. Although this poses a slight challenge in school settings, research indicates that the required skills can be effectively disseminated (Iwata, Wallace, Kahng, Lindberg, Roscoe, Conners, Hanley, Thompson, & Worsdell, 2000; Moore, Edwards, Sterling-Turner, Riley, DuBard & McGeorge, 2002).

### **State of the Art Practices: Intervention Development**

After conducting a functional assessment, interventions are typically generated based on the results. Developing interventions based on the function of the behavior allows practitioners to be more efficient in the intervention process. A considerable amount of research has shown that behavioral interventions based on the function of behavior are consistently more effective than interventions that are based on topography (Carr & Durand, 1985; Paclawskyj, Kurtz, & Connor, 2004).

There are three broad categories of function-based intervention strategies, which include, a) strategies for preventing challenging behavior, or antecedent interventions, b) providing alternative strategies to access the reinforcer (or an adaptive alternative) using appropriate behavior, and c) planned strategies for reacting to the occurrence of maladaptive behavior (extinction or punishment).

*Prevention/Antecedent Strategies:* Antecedent strategies generally involve taking measures to prevent the target behavior from occurring. Commonly used antecedent strategies include the use of school-wide behavioral intervention, general classroom management, fading procedures, and noncontingent reinforcement.

There has been a substantial amount of literature supporting the use of school-wide interventions to prevent challenging behavior (Horner & Sugai, 2000; George, White, & Schlaffer, 2007; Lewis, Sugai, & Colvin, 1998; Sugai & Horner, 2002). School-wide models generally have three levels of intervention: primary (universal), secondary (selected/targeted) and tertiary. Primary intervention typically includes three to five positively stated school rules that are directly taught and reinforced with all students within a school setting. Primary interventions are often called “universal” interventions because they are applied across all students within the school environment (Walker, Horner, Sugai, Bullis, Sprague, Bricker, & Kaufman, 1996). Secondary intervention involves targeting students who display risk factors that require more specialized forms of support. Secondary intervention may include social skills training, tutoring and mentoring programs. Tertiary interventions target populations with persistent behavioral problems that have not responded to primary or secondary interventions. Learners in need of tertiary intervention require individualized intensive intervention to address challenging behavior.

Another type of antecedent intervention involves the effective use of classroom management procedures. These types of intervention may include making environmental and/or instructional adaptations to prevent challenging behavior from occurring. Environmental adaptations may include decreasing distractions or changing a student’s seating location (e.g., seated closer to the teacher). Instructional adaptations may include changing the way demands are presented (e.g., providing frequent breaks during tasks), providing clear expectations across settings, and ensuring that instructional materials or tasks presented are at an instructional level for the learner (e.g., with necessary prerequisite skills). Fading procedures represent another commonly used intervention component. Practitioners can use functional assessment procedures to identify aversive stimuli in the environment and use fading procedures to improve tolerance of these stimuli. For instance, if the presentation of a full math worksheet is aversive to a learner, practitioners may start by delivering math problems in smaller increments (4 to 5 problems at a time) and gradually increase the response requirement (e.g., 10 or 20 problems at a time). Such fading procedures have been used successfully with a variety of populations, including increasing food/liquid acceptance in learners with pediatric feeding disorders (Mueller, Piazza, Patel, Kelley, & Pruett, 2004; Patel, Piazza, Kelly, Ochsner, & Santana, 2001), treating phobias (Shabani & Fisher, 2007), sensitivity to noise (McCord, Iwata, Galensky, Ellingson, & Thomson, 2001) and to introduce academic tasks (Pace, Iwata, Cowdery, Adree, & McIntyre, 1993). Similarly, learners can also be taught to delay access to tangible items or attention by providing reinforcement for waiting increasing amounts of time. Researchers have used fading procedures to teach learners to delay access to edible reinforcement (Neef, Bicard, & Endo, 2001) and delayed access to social attention (Fyffe, Kahng, Fittro, & Russell, 2004).

Another commonly used antecedent intervention is noncontingent reinforcement. Noncontingent reinforcement involves the delivery of a reinforcer (usually the reinforcer identified in the functional

assessment) on a fixed time schedule (Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993), rather than contingent upon the learner's behavior. For instance, if an assessment identified escape from demands as a reinforcer for challenging behavior, practitioners may provide breaks on a time-based schedule (rather than contingent upon maladaptive behavior). Similarly, if a learner engages in disruptive behavior to access adult attention, practitioners may be able to deliver social attention on a time-based schedule to decrease the occurrence of the target behavior. The empirical literature has shown that noncontingent reinforcement can be very effective for reducing the occurrence of challenging behavior. There are two possible mechanisms through which noncontingent reinforcement exerts its effects. One reason for its effectiveness is that the relationship between the maladaptive behavior and reinforcement is disrupted. In other words, the reinforcer is being delivered independent of the behavior (and the target behavior is contacting extinction), which may make the target behavior irrelevant. Another possible reason is that by delivering the reinforcer on a schedule, it alters the motivation to engage in maladaptive behavior (Lalli, Casey, & Kates, 1997).

*Replacement Skills/Functional Communication Training:* Functional communication training (FCT) involves the identification of the function of challenging behavior and teaching an adaptive request to access the identified reinforcer (or an adaptive alternative) appropriately. Carr and Durand (1985) were the first to identify the importance of teaching replacement skills and how the important it was for practitioners to link the function of challenging behavior to the intervention process. First, the authors found that that challenging behavior decreased when a functional mand/request was taught. In addition, they found that challenging behavior did not decrease when a non-functional mand/request was taught. Many studies have since replicated these findings and shown the effectiveness of functional communication training to decrease a variety challenging behaviors (Fisher, Piazza, Cataldo, Harrell, Jefferson, & Conner, 1993; Hanley, Iwata, & Thompson, 2001; Kelley, Lerman, & Van Camp, 2002; Wacker, Steege, Northup, Sasso, Berg, Reimers, Cooper, Cigrand & Donn, 1990; Worsdell, Iwata, Hanley, Thompson, & Kahng, 2000).

The general procedure for FCT involves identifying the function of challenging behavior and teaching a request to access that reinforcer. For instance, if a learner engages in disruptive behavior to access attention, they could be taught to request attention appropriately (e.g., by raising their hand, exchanging a communication card, saying "Talk to me please"). Similarly, a learner who engages in escape maintained behavior can be taught to request breaks or help (e.g., signing "help", saying "Can I have a break?"). The topography of the response taught should be based on the communication repertoire of the learner and the likelihood of reinforcement for that response in the learner's environment.

*Reactive Measures/Consequences for Challenging Behavior:* In general, three events can occur contingent upon challenging behavior: it can be reinforced (producing an increase in the behavior), it can be punished (producing a decrease in the behavior), or, it can contact no differential consequence (producing a decrease in the behavior). Given that the goal for practitioners is to decrease the occurrence of challenging behavior, extinction and punishment are commonly used intervention components. Extinction occurs when reinforcement of a previously reinforced behavior is discontinued (Cooper, Heron, & Heward, 2007). Extinction involves the disruption of the relationship between the target behavior and reinforcement (Lerman & Iwata, 1996). For instance, if a learner engaged in disruptive behavior to access attention and attention was no longer delivered, disruptive behavior would subsequently decrease (or shift to another topography of disruptive behavior to access attention). To effectively use extinction, practitioners must know the function of challenging behavior because extinction is implemented differently depending on the maintaining factors (Iwata, Pace, Cowdery, & Miltenberger, 1994). For instance, when extinction is implemented for positively- reinforced behavior, a reinforcer is withheld contingent upon the occurrence of a target behavior (e.g., access to tangibles or attention is not delivered contingent upon maladaptive behavior). Negatively reinforced behavior is extinguished by not removing a stimulus contingent upon disruptive behavior (e.g., not removing a demand contingent upon aggression). Automatically reinforced behavior (which may be either positively or negatively reinforced) would be extinguished by blocking the sensory input obtained by engaging in the behavior (e.g., sensory blocking, response blocking).

Extinction is most effectively used as a component in an intervention, rather than as a stand-alone procedure. Unless the motivation for engaging in maladaptive behavior is addressed, it is likely that the topography of the behavior will change, but the overall rate of challenging behavior will persist. For instance, if a learner engages in maladaptive behavior (e.g., mild disruption) to access attention and caregivers do not attend to the behavior, the learner may shift to another, potentially more severe topography of behavior (e.g., aggression) unless another component is added (e.g., teaching the learner to access attention appropriately, providing attention on a fixed time schedule independent of the target behavior). In addition, it is important to note that extinction is generally not appropriate for immediately harmful behavior (e.g., severe aggression or self-injury).

Punishment involves either the contingent removal (negative punishment) or presentation (positive punishment) of a stimulus that *decreases* the future likelihood of a behavior. Negative punishment procedures include such procedures as time-out (removal from access to earn reinforcement) and response cost (removal of reinforcers). Positive punishment procedures include reprimands, overcorrection, and aversive stimulation. It is important to note that punishment is defined by its effect on behavior. It may be the case that punishment procedures are used inappropriately and do not have the intended effect on challenging behavior. The appropriate use of punishment requires knowledge of the function of behavior. For instance, providing reprimands for attention-maintained challenging behavior may actually increase the rate of the target behavior. Similarly, placing a learner in time-out contingent upon escape-maintained disruptive behavior may increase the rate of disruptive behavior as well. Although the use of punishment is often a controversial topic, the appropriate use of punishment can be beneficial to learners. A recent review by Lerman and Vorndran (2002) outlined best practices in the use of punishment procedures and other studies have shown how proper use of punishment can greatly enhance the effectiveness of interventions (e.g., Hagopian, Fisher, Sullivan, Acquistio, & LeBlanc, 1998).

### **Functional Assessment and Intervention: Areas in Need of Research**

*Typically Developing Children:* Although the assessment and intervention literature has clearly outlined a variety of empirically supported procedures, there are still many areas in need of research. Perhaps the most glaring area in need of research is the use of functional assessment with typically developing learners. Given the frequency of challenging behaviors exhibited by typically developing learners and the disruption that such behaviors cause in educational settings, the need to extend this line of research to typically developing learners is compelling. According to a review of the literature, only 9% of the functional analysis research through 2000 had been conducted on typically developing learners (Hanley et al., 2003). One possible reason for this discrepancy is that traditional models of functional analysis may be too artificial for practical use in typically developing learners (e.g., they may ask why the therapist is removing instructional items in a demand condition). The structured antecedent and consequence conditions may also be too contrived to derive valid results.

Another reason for this gap in the research is that functional analyses tend to target immediate antecedents and consequences. In populations with developmental disabilities, behavior may be governed by these immediate contingencies, which may result in comparatively more valid assessment results. The behavior of typically developing learners tends to be more complex. For typically developing learners, the antecedents that trigger challenging may occur hours, weeks or days in advance and the reinforcers for the behavior may be obtained well after the behavior has occurred. These complex relations between antecedents, the behavior and the consequences may limit the usefulness of traditional procedures in this population and may call for the development of assessment strategies that are better able to identify more remote antecedent conditions.

Another limiting factor is that maladaptive behavior in typically developing populations is often not readily observable. Covert behavior may include topographies such as bullying, self-cutting/mutilation, or illicit drug use. These behaviors may not be exhibited in readily observable settings, making assessment difficult.

Possible solutions for assessing the behavior of typically developing students may involve alternative functional analysis procedures. For instance, AB models of functional analysis have received empirical support and may be more naturalistic for use with typically developing learners. Also referred to as structured descriptive assessments, AB models involve manipulating the antecedents to challenging behavior (e.g., presentation of demands, no attention) and observing the effects on the occurrence of target behavior in the natural environment. These general procedures have been shown to be effective for evaluating the causes of challenging behavior (Anderson & Long, 2002; Freeman, Anderson, & Scotti, 2000). In addition, some recent research has suggested that these procedures are useful in typically developing populations (Anderson, English, & Hedrick, 2006).

Given the limitations of the more intrusive models of functional assessment in typically developing learners, practitioners often use indirect models of functional assessment, such as interviews and behavioral rating scales. Although some literature has been published comparing indirect measures with other measures (e.g., Sturmey, 1994), relatively little research has compared indirect measures with direct models of functional assessment. The general consensus is that these measures are not as accurate as more in-depth methods of assessment (i.e., descriptive assessment, functional analysis), and more research needs to be conducted to evaluate the relative accuracy of these indirect measures. Such research could be used to determine which questions or components of an interview/rating scale are the most important to ask and, therefore, lead to the development of more valid and reliable indirect measures.

*Adults with Disabilities:* Another area in need of future research involves the development of models of functional assessment for older learners. Comparatively speaking, most functional assessment research has focused on younger populations (Hanley et al., 2003). The principles that govern behavioral change apply across all populations and functioning levels; however, research has not addressed the implementation issues unique to adult populations with the same rigor that has been applied to younger age groups.

There are a number of factors that influence the use of functional assessment procedures in older populations. For instance, many people often avoid working with adults who exhibit challenging behavior for fear of injury (Hastings & Brown, 2000). Adults with autism or other developmental disabilities may engage in maladaptive behavior that is considerably more intense or severe as compared to younger children. These fears may understandably make staff less likely to use assessment procedures that increase the likelihood that challenging behavior occurs, even though such environmental manipulations have the most empirical support. Another issue that affects the use of functional assessments in adults is that fact intervention is often more labor-intensive for this population. Reasons for this may include a longer history of engaging in the behavior (Matson, 1988), multiple functions for the behavior (Rojahn & Schroeder, 1991), or multiple topographies of behavior to intervene with (Borthwick-Duffy, 1994). The difficulty and/or complexity of the intervention may make families and staff less likely to use empirically validated assessment instruments.

These factors have resulted in a relative dearth of functional assessment research in adult populations. The lack of research in adults is particularly problematic given that it clearly compromises the quality of life for the learners and their families. This is especially critical given that effective intervention is directly related to the level of restrictiveness of placement. Research has shown that the inability to control maladaptive behavior leads to more restrictive placements for older learners with developmental disabilities (Joyce, Ditchfield, & Harris, 2001). Not only are these settings more restrictive, but they are also considerably more expensive. Related to this point, the inability to effectively intervene with maladaptive behavior limits employment and community opportunities for adults with autism. These issues (restrictiveness, cost, lack of

community integration) lead to considerable family stress and have practical implications for the social development of these learners.

*Practical Implementation Issues:* Perhaps one of the most significant concerns about empirically supported models of functional analysis is that they are not consistently used in applied settings. The time required to conduct a functional assessment make their use prohibitive in applied settings, particularly schools. To address this, brief models of functional analysis have emerged. Models for outpatient clinics (e.g., Northup et al., 1991) and other brief variations of functional analysis procedures (Sigafoos & Sagers, 1995) have produced encouraging results.

Another limitation to the use of sound functional assessments in applied settings is the level of expertise required to implement the procedures. Many teachers are not equipped to conduct well-designed functional assessment in the classroom. Functional assessment is often only given cursory consideration in many training programs. They therefore require guidance regarding the use of FBA and education regarding the benefits of conducting such analyses. However, providing adequate training and support to a large profession is a significant challenge. One way to approach this problem is through more effective dissemination. A pyramidal training structure may offer a cost-effective model for training the large groups of professionals currently in the school system (Iwata et al., 2001; Moore et al., 2002, Wallace, Doney, Mintz-Resudek, & Tarbox, 2004). Another tactic is to focus research efforts on more “user-friendly” models of functional assessment. This objective strives to combat resistance to using the more complicated and time-consuming procedures described in this paper. However, until these procedures become a part of teacher training curricula, their widespread use will be limited.

Another area in which traditional models of assessment may be lacking is in its use for infrequent or intermittent challenging behavior. For instance, some learners may have behavioral outbursts that occur at a relatively low rate (e.g. once a week or less), yet may still require intervention due to its intensity (e.g., severe aggression or property destruction). Such infrequent behavior can be difficult to assess given the limited opportunities to observe the behavior. Similar to what was described above, empirically validated indirect measures may need to be developed to address the needs of these cases. Another option may be to conduct more structured analyses of *precursors* to the main target behavior (Smith & Churchill, 2002). It may be possible to identify other behaviors in the same response class that reliably precede more severe topographies of maladaptive behavior. For instance, descriptive data may indicate that a more frequent, less severe topography of behavior (e.g., cursing) reliably precedes a more severe topography of behavior (e.g., aggression), and it is possible to conduct the analysis for that less severe topography.

Another area in need of research is in the effective use of functional communication training. While functional communication has clearly been shown to be an effective intervention for challenging behavior, there may be circumstances in which the “replacement” of challenging behavior may not be warranted. For instance, a functional assessment may indicate that challenging behavior is maintained by escape from demands. A function-based intervention package may include teaching the learner to request a break as a component. Although teaching a break could be useful, in some circumstances, it may be more appropriate to teach a learner to request help, or to tolerate demands for longer periods of time. In other words, simple replacement may not be adequate for effective intervention. More research is warranted determine the circumstances when simple replacement is warranted or when another procedures (e.g., fading, teaching a different communication response) may be indicated.

Another general area of research involves treatment options when extinction or punishment is not a viable option. These concerns arise when behavior cannot be ignored (e.g., dangerous behavior) or cannot be followed through with (cannot physically guide a learner to complete a task, unable to physically follow through with a punishment procedure). If extinction is the procedure of choice, yet is contraindicated for clinical reasons (e.g., concerns regarding behavioral escalation or imitation by others in the environment),

viable alternatives must be identified. While several promising, alternate treatment paths have been suggested, more research is needed into the utility of various interventions, especially differential and noncontingent reinforcement procedures. Similarly, alternatives to punishment need to be more systematically explored, in terms of the differential impact of punitive vs. non-punitive consequences, particularly regarding the speed of behavioral response, and especially with dangerous behaviors.

### **Summary and Implications for the Future**

As the literature regarding functional behavior assessment evolves and becomes more refined, efforts to make these procedures viable in clinical settings are of paramount importance. Functional assessment has been shown to be a robust and important technology for understanding and intervening with challenging behaviors. In theory, its importance has been widely accepted, and it has been incorporated into educational service provision. However, the quality and depth of FA procedures as they are implemented in school settings vary widely. Many practitioners rely on rating scales or interview methods, which can yield biased or incomplete information. Direct observational measures are far superior to rating scales or interview formats. While this can lead to the identification of patterns that lead to effective treatment planning, it must also be done with objectivity and specificity. Functional analysis is the only method of functional assessment that involves actual manipulation of antecedents and consequences. It is the most controlled method of functional assessment, and yields the clearest data. Although the literature indicates that functional analyses are the most accurate procedures they are not commonly used in applied settings. In addition, the traditional functional assessment procedures may not be viable with certain populations (typically developing populations, older learners). In many cases, less intrusive models of assessment may be required. However, relatively little empirical research has evaluated the objectivity, reliability, and validity of these less intrusive alternatives (informant methods, descriptive analysis). If the most sophisticated and accurate procedures are not viable, alternatives need to be identified and tested.

Effective treatments for challenging behavior are generally comprised of proactive/antecedent interventions, teaching learners to access reinforcers appropriately (e.g., FCT) and having a systematic response to challenging behavior (i.e., extinction, punishment). Although these treatments are well-established and have garnered considerable empirical support, extension of these procedures to other populations is an area in need of sound research.

There is currently a significant gap between what constitutes best practice in assessment and treatment of challenging behavior and what is commonly implemented in applied settings. To effectively bridge this gap, researchers and practitioners must work from two ends of a continuum to ensure best practice. From a research standpoint, procedures need to be refined or developed to increase the likelihood that empirically sound procedures are used in applied settings. There is a need for the development of more “user-friendly” assessment and treatment procedures and developing variations of the procedures that are applicable to a variety of clinical populations. From a practitioner standpoint, training becomes an important strategy for bridging this gap. Training must occur for two different populations. First, practitioners who are currently in the field must be trained. This training can be accomplished through continuing education and workshops. Perhaps even more importantly, teacher training programs must be changed at the university level. Currently, teachers are infrequently trained in the principles of applied behavior analysis and are often ill prepared for intervening with challenging behavior (Shriver & Watson, 1999). Teachers need to be better equipped to conduct functional assessments and develop interventions upon coming out of training programs. Until these procedures are implemented as part of the teaching training curricula, the gap between best practice and clinical practice will remain.

### **References**

- Anderson, C. M., & Long, E. (2002). Evaluation of structured functional assessment methodology. *Journal of Applied Behavior Analysis*, 35, 137-154.
- Anderson, C. M., English, C. L. & Hedrick, T. M. (2006). Use of the structured descriptive assessment with typically developing children. *Behavior Modification*, 30, 352.
- Borthwick-Duffy, S. A. (1994). Epidemiology and prevalence of psychopathology in people with mental retardation. *Journal of Consulting and Clinical Psychology*, 62(1), 17-27.
- Carr, E. G. (1977). The motivation of self-injurious behavior: A review of some hypotheses. *Psychological Bulletin*, 84, 800-816.
- Carr E.G. & Durand V.M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis*, 18, 111-126.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Drasgow, E. & Yell, M. L. (2001). Functional behavioral assessments: Legal requirements and challenges. *School Psychology Review*, 30(2), 239-251.
- Durand, V. M., & Crimmins, D. B. (1992). The Motivation Assessment Scale (MAS) administration guide. Topeka, KS. Monaco and Associates.
- Fisher, W., Piazza, C., Cataldo, M., Harrell, R., Jefferson, G., & Conner, R. (1993). Functional communication training with and without extinction and punishment. *Journal of Applied Behavior Analysis*, 26, 23-36.
- Freeman, K. A., Anderson, C. M., & Scotti, J. R. (2000). A structured descriptive methodology: Increasing agreement between descriptive and experimental analyses. *Education and Training in Mental Retardation and Developmental Disabilities*, 35, 55-66.
- Fyffe, C. E., Kahng, S., Fittro, E. & Russell, D. (2004). Functional analysis and treatment of inappropriate sexual behavior. *Journal of Applied Behavior Analysis*, 37, 401-404.
- Gardner, W. I., Cole, C. L., Davidson, D. P., & Karan, O. C. (1986). Reducing aggression in individuals with developmental disabilities: An expanded stimulus control, assessment, and intervention model. *Education and Training of the Mentally Retarded*, 21, 7.
- George, M. P. White, G. P. & Schlaffer, J. J. (2007). Implementing school-wide behavior change: lessons from the field. *Psychology in the Schools*, Vol. 44(1).
- Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisti, J., & LeBlanc, L. A. (1998). Effectiveness of functional communication training with and without extinction and punishment: A summary of 21 inpatient cases. *Journal of Applied Behavior Analysis*, 31, 211-235.
- Hanley, G. P., Iwata, B. A., & McCord, B. E. (2003). Functional analysis of problem behavior: A review. *Journal of Applied Behavior Analysis*, 36, 147-185.
- Hanley, G. P., Iwata, B. A., & Thompson, R. H. (2001). Reinforcement schedule thinning following treatment with functional communication training. *Journal of Applied Behavior Analysis*, 34, 17-38.

- Hastings, R. P., & Brown, T. (2000). Functional assessment and challenging behaviors: Some future directions. *Journal of the Association for Persons with Severe Handicaps*, 25, 229–240.
- Horner, R.H., & Sugai, G. (2000). Schoolwide behavior support: An emerging initiative. *Journal of Positive Behavior Interventions*, 2, 231–232.
- Individuals with Disabilities Education Act Amendments of 1997. 20.U.S.C. Chapter 33, Sections 1400 *et seq.*
- Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis*, 27, 197-209.
- Iwata, B. A., Pace, G. M., Cowdery, G. E., & Miltenberger, R. G. (1994). What makes extinction work: An analysis of procedural form and function. *Journal of Applied Behavior Analysis*, 27, 131-144.
- Iwata, B. A., Wallace, M. D., Kahng, S., Lindberg, J. S., Roscoe, E. M., Conners, J., Hanley, G. P., Thompson, R. H., & Worsdell, A. S. (2000). Skill acquisition in the implementation of functional analysis methodology. *Journal of Applied Behavior Analysis*, 33, 181-194.
- Joyce, T, Ditchfield, H & Harris P. (2001). Challenging behaviour in community services. *Journal of Intellectual Disability Research*, 45(2), 130-138.  
javascript:PopUpMenu2\_Set(Menu11298252);
- Kelley, M. E., Lerman, D. C., & Van Camp, C. M. (2002). The effects of competing reinforcement schedules on the acquisition of functional communication. *Journal of Applied Behavior Analysis*, 35, 59-63
- Lalli, J. S., Casey, S. D., & Kates, K. (1997). Noncontingent reinforcement as treatment for severe problem behavior: Some procedural variations. *Journal of Applied Behavior Analysis*, 30, 127-137.
- Lerman, D. C., & Iwata, B. A. (1996). Developing a technology for the use of operant extinction in clinical settings: An examination of basic and applied research. *Journal of Applied Behavior Analysis*, 29, 345-382.
- Lerman, D. C., & Vorndran, C. M. (2002). On the status of knowledge for using punishment: Implications for treating behavior disorders. *Journal of Applied Behavior Analysis*, 35, 431-464.
- Lewis, T. J., Sugai, G. & Colvin, G. (1998). Reducing problem behavior through a school-wide system of effective behavioral support: Investigation of a school-wide social skills training program and contextual interventions. *School Psychology Review*, 27(3), 446-459.
- Matson, J.L., Bamberg, J.W., Cherry, K.E. & Paclawskyj, T.R. (1999). A validity study on the Questions About Behavioral Function (QABF) Scale: predicting treatment success for self-injury, aggression, and stereotypes. *Research in Developmental Disabilities*, 20(2), 163-75.
- McCord, B. E., Iwata, B. A., Galensky, T. L., Ellingson, S. A., & Thomson, R. J. (2001). Functional analysis and treatment of problem behavior evoked by noise. *Journal of Applied Behavior Analysis*, 34, 447-462.

- Moore, J. W., Edwards, R. P., Sterling-Turner, H. E., Riley, J., DuBard, M., & McGeorge, A. (2002). Teacher acquisition of functional analysis methodology. *Journal of Applied Behavior Analysis, 35*, 73-77.
- Mueller, M. M., Piazza, C. C., Patel, M. R., Kelley, M. E. & Pruett, A. (2004). Increasing variety of foods consumed by blending nonpreferred foods into preferred foods. *Journal of Applied Behavior Analysis, 37*, 159-170.
- Neef, N. A., Bicard, D. F., & Endo, S. (2001). Assessment of impulsivity and the development of self-control in students with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis, 34*, 397-408.
- Northup, J., Wacker, D., Sasso, G., Steege, M., Cigrand, K., Cook, J., & DeRaad, A. (1991). A brief functional analysis of aggressive and alternative behavior in an outclinic setting. *Journal of Applied Behavior Analysis, 24*, 509-522.
- O'Neill, R. E., Horner, R. H., Albin, R., Storey, K., & Sprague, J. (1997). *Functional assessment of problem behavior: A practical assessment guide*. Pacific Grove, CA: Brookes/Cole.
- Pace, G. M., Iwata, B. A., Cowdery, G. E., Adree, P. J., & McIntyre, T. (1993). Stimulus (instructional) fading during extinction of self-injurious escape behavior. *Journal of Applied Behavior Analysis, 26*, 205-212.
- Paclawskyj, T. R., Kurtz, P. F., O'Connor, J. T. (2004). Functional assessment of problem behaviors in adults with mental retardation. *Behavior Modification, 28*(5), 649-67.
- Patel, M. R., Piazza, C. C., Kelly, M. L., Ochsner, C. A., & Santana, C. M. (2001). Using a fading procedure to increase fluid consumption in a child with feeding problems. *Journal of Applied Behavior Analysis, 34*, 357-360.
- Rojahn, J., Schroeder, S. R. (1991). Behavioral Assessment. Matson, Johnny L (Ed); Mulick, James A (Ed). *Handbook of Mental Retardation* (2nd ed.). 240-259. Elmsford, NY, US: Pergamon Press.
- Sasso, G. M., Conroy M. A., Peck-Sticher, J., Fox, J. J. (2001). Slowing down the bandwagon: The misapplication of functional assessment for students with emotional or behavioral disorders. *Behavior Disorders, 26*, 282-296.
- Scott, T. M., Bucalos, A. , Nelson, C. M., Liaupsin, C., Jolivet, K., & Deshea, L. (2004). Using functional assessment in general education settings: Making a case for effectiveness and efficiency. *Behavioral Disorders, 29*, 190-203.
- Shabani, D. B. & Fisher, W. W. (2006). Stimulus fading and differential reinforcement for the treatment of needle phobia in a youth with autism. *Journal of Applied Behavior Analysis, 39*, 449-452.
- Shriver, M. D., & Watson T. S. (1999). A survey of behavior analysis and behavioral consultation courses in school psychology: Implications for training school psychologists. *Journal of Behavioral Education, 9*, 211-221.

- Sigafoos, J., & Sagers, E. (1995). A discrete-trial approach to the functional analysis of aggressive behavior in two boys with autism. *Australia & New Zealand Journal of Developmental Disabilities, 20*, 287-297.
- Smith, R. G., & Churchill, R. M. (2002). Identification of environmental determinants of behavior disorders through functional analysis of precursor behaviors. *Journal of Applied Behavior Analysis, 35*, 125-136.
- Sturme, P. (1994). Assessing the functions of aberrant behaviors: A review of psychometric instruments. *Journal of Autism and Developmental Disorders, 24*(3), 293-304.
- Sugai, G., & Horner, R. (2002). The evolution of discipline practices: Schoolwide positive behavior supports. *Child and Family Behavior Therapy, 24*, 23-50.
- Vollmer, T. R., Iwata, B. A., Zarcone, J. R., Smith, R. G., & Mazaleski, J. L. (1993). The role of attention in the treatment of attention-maintained self-injurious behavior: Noncontingent reinforcement and differential reinforcement of other behavior. *Journal of Applied Behavior Analysis, 26*, 9-21.
- Wacker, D. P., Steege, M. W., Northup, J., Sasso, G., Berg, W., Reimers, T., Cooper, L., Cigrand, topographies of severe behavior problems. *Journal of Applied Behavior Analysis, 23*, 417-429.
- Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*, 194-209.
- Wallace, M. D., Doney, J. K., Mintz-Resudek, C. M. & Tarbox, R. S. F. (2004). Training educators to implement functional analyses. *Journal of Applied Behavior Analysis, 37*, 89-92.
- Wallace, M. D., & Iwata, B. A. (1999). Effects of session duration on functional analysis outcomes. *Journal of Applied Behavior Analysis, 32*, 175-183.
- Worsdell, A. S., Iwata, B. A., Hanley, G. P., Thompson, R. H., & Kahng, S. (2000). Effects of continuous and intermittent reinforcement for problem behavior during functional communication training. *Journal of Applied Behavior Analysis, 33*, 167-179.

**Author Contact Information:**

Robert H. LaRue Jr.  
Douglass Developmental Disabilities Center  
Rutgers, The State University of New Jersey  
151 Ryders Lane  
New Brunswick, NJ 08901  
Phone: (732) 932-3017  
Email: [larue@rci.rutgers.edu](mailto:larue@rci.rutgers.edu)

# Family Mode Deactivation Therapy as a Manualized Cognitive Behavioral Therapy Treatment

*Jack A. Apsche, Christopher K. Bass & Marsha-Ann Houston*

## Abstract

This article examines the effectiveness of Mode Deactivation Family Therapy (MDT) in an outpatient setting as compared to Treatment as Usual (TAU). MDT is an evidence-based psychotherapy and has been shown to be effective treating adolescents with a variety of problems involving emotional disorder, physical and sexual aggression, as well as behaviors associated with anxiety and trauma. In this study, MDT was shown to be superior to TAU in an outpatient setting with improving family relationships and reducing family disharmony of the previous described adolescents.

Keywords: Mode Deactivation Therapy (MDT), Treatment as Usual (TAU), MDT Family Therapy.

---

## Introduction

Mode Deactivation Therapy (MDT) has been shown to be an effective treatment for a variety of adolescent disorders (Apsche, Bass, & Siv, 2006). Disorders that MDT has been shown to be effective with include emotional (Apsche & Ward-Bailey, 2004) behavioral (Apsche, Bass, & Murphy, 2006), physical aggression (Apsche, Bass, & Houston, 2007), sexual aggression (Apsche, Bass, Jennings, Murphy, Hunter & Siv, 2005), and many harmful symptoms of anxiety and traumatic stress (Apsche & Bass, 2006).

MDT Family Therapy has been effective in reducing family disharmony in case studies, (Apsche & Ward, 2004) and has been shown to be efficacious, as compared to Treatment as Usual (TAU) in treating families with a variety of problem behaviors (Apsche & Bass, 2006) and in reducing and maintaining treatment effects thru 2 years of tracking recidivism rates (Apsche, Bass, & Houston, 2007).

Apsche, Bass and Siv, (2006) completed a Family MDT clinical study of 14 adolescents with problems with sexual and physical aggression and oppositional behaviors, such as not following parent's direction, oppositional and verbal aggression. The results suggest that MDT out-performed Treatment As Usual (TAU); at the eighteenth month of observation, the MDT group had zero sexual recidivism, while the TAU group had 10 reported incidents or problems with sexual behavior. The MDT group reported 3 incidents of physical aggression while the TAU group reported 12 incidents.

The results were promising for MDT as a Family Therapy, but the small size of the group rendered the effects of the study as having some limitation, and in need of further study with a larger group; however, results are suggestive of a promising methodology.

Apsche, Bass, and Houston (2007) completed a study of Family MDT with an additional 8 families in the community, as compared to a separate TAU group. The Apsche et. al. (2007), study examined physically aggressive youth with personality and conduct problems. The study had a total of 15 families, 8 in the MDT group and 7 in the TAU group. MDT out-performed TAU at the twenty week interval of treatment. The most compelling point of data was that the MDT group had zero referrals for "out-of-home placements", while the TAU group had referrals for FOUR out-of-home placements. The results are promising, yet the small number of participants limits the claims of the effects of Family MDT.

A major problem of treatment research is that large adequate sample sizes are not always available. Referred clients and families are “sent” for treatment. The “sent” client or families, by nature, usually enter treatment with a level of resistance. The resistance is based on the issue that someone else determined that there are problems within the family. The sources of these referrals are typically a court or department of Children and Youth. The clinician or researcher has to find a strategy to motivate the family to work hard to address their issues and problems.

MDT, both in individual and family work, offers the therapist and client(s) the ability to collaborate and learn; structure, measure and track progress in treatment in the Family Manual (Apsche & Apsche, 2007).

MDT is an individual and family manualized treatment that incorporates treatment strategies from behavioral, cognitive, dialectical, and other supportive psychotherapy approaches. It is administered according to the MDT Clinicians Manual. MDT includes weekly individual and group therapy sessions, provided on an average of 8 to 12 months, depending upon the level of cooperation and amenability to treatment of the individual and families.

MDT individual or family treatment process starts with an exhaustive case conceptualization. Tools used in the individual and family case conceptualization include a diagnostic interview, behavioral history and complete family history, identified as the typology survey. Following the typology survey, the individual and family assessments are determined by responses and the level of conduct issues of the adolescent. MDT uses a continuum from reactive to proactive as a successive scale of 1 to 10. The adolescent and/or family that score a 3 and above is considered to be proactive and needs the specific assessments that apply.

The Fear Assessment is the basic assessment that addresses the individual’s issues of anxiety, fear, and posttraumatic stress. There are five different assessments to choose from. The particular fear assessment chosen is based on the openness of the adolescent and his family. If they are not amenable to treatment and have multiple antisocial beliefs there is the “other” series of assessments. For more anxious and traumatic stressed families there is the “Fear-R.” assessment, the Fear- Pro, Fear- Difficulty and Pro-R and other assessments to suit the particular adolescent and his family.

The next assessment is the Compound Core Beliefs Questionnaire (CCBQ). The CCBQ is a 109 question assessment of the adolescent’s beliefs as they relate to personality traits based on the work of Beck, Freeman, Davis & Associates (2004).

Assessments are scored and used in the development of a thorough case conceptualization that includes a Functional Behavioral Analysis. This methodology is based on the Functional Analytic Psychotherapy methodology (Kohlenberg & Tsai, 1993).

From the case conceptualization, the adolescent’s treatment is determined. Similarly, the family case conceptualization is developed through assessments given to family treatment participants to determine the family’s conglomerate of fears and beliefs.

The Functional Treatment Form is the framework of treatment. The validation → clarification → redirection process is the basic therapeutic methodology of MDT. The method validates “the grain of truth” in everything that the adolescent believes. His perception is then clarified. This is to help the client accept his beliefs and yet be more receptive to exploring another way of ultimately behaving by examining beliefs, in case there are other beliefs that might be possible. The redirection is actually a refrain and reinforcement for the adolescent to accept for that one moment, or that time only, there would be an alternative explanation or belief. For example, if a client has difficulty trusting others, and endorses

this belief 100%, “Everyone betrays my trust, I cannot trust anyone,” he could be queried about his trust level for a particular person. If he trusts the identified person at a 2 or 3 out of a possible 10, then he can easily be helped to see and agree that the person in question, at a 2 rating did not betray his trust for that moment. Therefore, it may be possible for him to trust that person at a level of 3 in the moment. Consequently, he can be helped to balance his belief and conclude: “sometimes I can trust some people a little in the moment.” In balancing his beliefs, the adolescent must be assisted to adapt alternative beliefs “sometimes.”

### **Control Group: Treatment as Usual (TAU)**

The TAU group methodology involved a collection of eclectic treatments implemented by doctorate level licensed psychologists in the geographical area. This area included, but was not limited to Philadelphia, PA and its surrounding counties. It is important to remember that individuals and families in this treatment-research were “sent.” They were required to seek treatment as a result of Children and Youth investigators or court and legal demands.

Unlike many University and Grant founded research samples, where they can reject individuals there were “no” rejections of individuals or families permitting. Psychologists and therapists in both the MDT and TAU group were required to treat all individuals and their family that were referred. There was a “no reject” or “eject” policy in place for the entire length of treatment for both groups.

Often grant funded university based researchers have the opportunity to “select” subjects based on a extremely narrow set of diagnostic and selection criteria. Their narrow selection criteria might boost their effects and results as compared to treatment research studies (Kazdin & Weisz, 2003).

### **Method**

Clients were randomly assigned to the MDT (20) and TAU (20) groups by Children and Youth Services. Assignments were made on a rotating basis, for all participants, randomly. Psychologists of each group had no access to the trial participants prior to assignment and referral. No client or family was selected by the therapist or the participants.

All participants were informed that they were participants in a treatment research study and they all individually consented to actively participate in this study. American Psychological Association guidelines were adhered to for protection of subjects. Clients and all family members agreed to participate, with assurances that their anonymity would be preserved.

MDT Family Therapy also examines the “process” of family interactions (Apsche & Bass, 2006; Apsche & Ward, 2003). MDT attempts to move the family to use a new script, based on the collective case conceptualization process (Apsche & Bass 2006; Apsche & Ward, 2003).

Unlike Multisystematic Therapy (MST), as delineated by Henggeler et al., (1998) which would focus on the youth as embedded in multiple systems that have basic direct and indirect influences on his or her behavior, MDT focuses on the system of family beliefs and modes based on the collective and individual modes of family members. MDT is more of a psychotherapeutic intervention rather than a system of treatments. One therapist is central to the individual, group and family process. The therapist is the team captain and coordinates individual, family, and group psychotherapy.

Most Cognitive Behavioral treatment has a focus on the individual client, who in this case, is the adolescent (Apsche & Jennings, 2007). The MDT process focuses first on assessment and case conceptualization of the adolescent, followed by the completion of the family case conceptualization. MDT includes a family workbook (Apsche & Apsche, 2007) and exercises which help to reintegrate the troubled youth and his/her family and extended family.

To avoid individualized stigma (Apsche & Apsche, 2007; Apsche & Bass, 2006; Apsche & Ward, 2004) the MDT Family Fear and Belief Assessments were created. These assessments determine the collective family case conceptualization. This allows the MDT therapist to interpret his/her treatment approach as stemming from an empirically derived methodology.

MDT Family Therapy is designed as an extension of the MDT methodology for adolescents (Apsche & Bass 2006; Apsche & Ward, 2004). This approach is not designed for implementation as a separate methodology but is to be implemented as part of MDT treatment for adolescents.

MDT Family Therapy was initiated in this study, by accomplishing the Family MDT assessments. The Family MDT assessments resemble the individual MDT assessments. The Family MDT methodology includes a Family MDT Workbook. This workbook is derived to structure the Family Therapy, following an MDT methodology. The workbook is designed to provide a collaborative effect for all family members. The Family MDT Manual addresses the following topics:

- Family Commitment to Treatment
- Responsibility for The Family
- Family Belief Analysis (Compound Core Beliefs)
- Modes of the Family
- MDT and Reactive Anger, Aggression, and Impulse Control
- Your Family's Beliefs and Problem Behaviors
- Problem Behaviors and MDT
- Substance Abuse in Your Family
- Empathy for the Family
- Becoming Survivors

1) **The Fear-Family assessment** is an assessment of 60 items that identifies basic difficulties, anxieties, or fears of the family. Each family member completed the assessment, and the scores were totaled and a mean score was determined across each item.

2) **The Family Core Belief Assessment** is an inventory of 96 questions related to the familiar belief systems. The Family Core Belief Assessment was scored in the same manner as the Family Fear Assessment.

3) **The Functionally Based Treatment Development Form** is a form that addresses the collective family beliefs and supplies the family a specific methodology to develop and maintain more functional family beliefs.

The families were taught how to balance their beliefs with the V-C-R method. V-C-R is a methodology of *validation*, *clarifying*, and *redirecting* the belief of the family. While there may be some identification of opposing beliefs, this method attempts to expose the irrational, illogical beliefs deeply held by families in crisis. The individual components of the V-C-R method included:

**Validation.** Each family member's thoughts and beliefs were validated initially. Therapists searched for grains of truth in each family member's responses. It was important to assure each member that his/her responses were accurate as far as his/her interpretation of his/her perceptions. Each member was given appropriate reinforcement that (s)he was certain that (s)he fully understood and believed.

**Clarification.** Therapists clarified the content of responses. Therapists also clarified the beliefs that were activated. It was important that clinicians understand and agreed with the content of the clarification. The Clarification step was crucial in understanding the long held thinking schemas. This was clarification of the member's perspective or reality and beliefs.

**Redirection.** Therapists redirected responses, to view other possibilities or the continuum of held beliefs. The goal of this step was to help the family member find the exception in the belief system. The redirection involved examining the opposite side of the dichotomous or dialectical thinking. It was crucial to partner with the member to see the "grain of truth" in each of the dichotomous situations presented.

**Chart 1: Diagram of the Dysregulation Process**

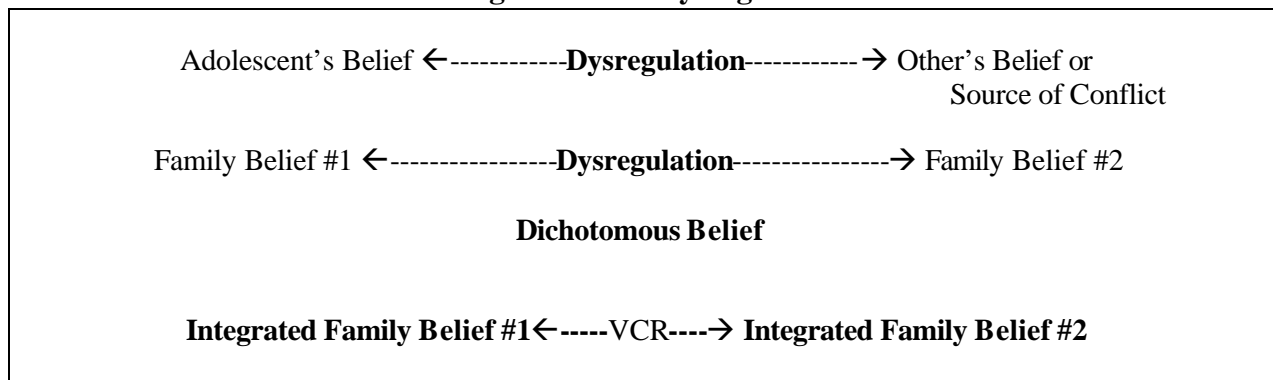


Chart 1 highlights the direction of the deregulated belief system. The redirection was an attempt to aid the youth and family member in seeing both sides of the dichotomous belief(s). Also important was to look for the truth in each and compromise in understanding the truth in both beliefs. The use of a continuum of belief was implemented to examine the individual's belief of truth in both of the dichotomous beliefs and situation.

Each individual in the family, as well as the family collectively completed the Conglomerate of Beliefs and Behaviors (COBB). The COBB examined each individual's belief as well as their corresponding behaviors. Once the family's Beliefs and Behaviors were determined, they were compared to each individual's beliefs and behaviors.

These methodologies addressed the specific behaviors of each family member and contrasted it to the families score. The behaviors were explained and understood as the individual integrated their beliefs and behaviors within the family system at large.

**Timing Assessments**

Assessment were timed prior to pre-treatment and at end point 8 months, and at 2 years post-treatment. All individual participants were tracked with behavior report sheets in school and at home measures. All adolescents were administered the Child Behavioral Checklist (CBCL) parent form.

Families were assessed by behavior report sheets that measured verbal and physical aggression, arguments, and “not attending behavior.” These home attending behaviors were defined as any behaviors by the parent or adolescents that would prohibit verbal engagement, such as non-compliance, walking away, or not responding to requests.

**Chart 2: Pre-Treatment Beliefs**

Adolescent’s Beliefs	Behavior	Feeling	Mother’s Beliefs	Emotion	Behavior	Sibling’s Beliefs	Behavior	Pre-Treatment
Life at times feels like an endless series of disappointments followed by pain.	Isolation (physical & verbal withdrawal)	Pain	Whenever I get angry my emotions go from annoyed to furious.	Feels hurt failure and rejection.	Screams that he is a freak and ruining his/her life.	Whenever I hope, I will be disappointed	Tell mother he smokes pot and drinks.  Fxxx off.	Whenever we feel in this family it is a problem.  Family is splintered.

The beliefs of this family, including individual and family beliefs, are reinforced by the feelings and behaviors of the individuals and the family. The family is so emotionally fragile that one negative belief, feelings, or behaviors sets a chain of negativity for the individuals and the family as a group.

The MDT therapist validates the beliefs as the individual’s and family’s reality. This is the radical acceptance of the beliefs as real as they exist in their world(s).

The search for clarification for the alternative belief that might be possible in this situation, “It might be possible in a situation, even for a moment, that life might not be a disappointment, followed by pain. Given that you (the adolescent) said when you paint you are “OK at that moment,” on a scale of 1 to 10, how much could that be possible, given that you are in therapy and able to express that (“at times”) you feel like you are OK and actually might for a moment love your family. The adolescent responded that when he paints he is “OK at that moment.” On a scale of 1 to 10 he is at a 7 when he paints. The MDT therapists then suggests, “If that is a 7 then you might not feel you ‘always’ feel like life is a series of disappointments followed by pain as a 4 or always every moment. He agreed that is true when he is practicing his art.

Once the adolescent responds a 2 or better, you have “redirected and reinforced” a possible alternative belief. The collective family beliefs addressed their Conglomerate of Beliefs and Behaviors (COBB). The family process is examining the family belief, “When we feel, it will be unpleasant.”

The family V-C-R process looks at the collective belief on a scale of 1 to 10 that there, “could be a time, a moment, that the family might experience a ‘positive feeling’ for a moment.” They talked about how, on the recent birthday of the sibling, they went to a theme park and all “had a ball” together. The collective scale of 1-10, was a 4 that at times the family can feel that it is positive, been a good feelings collectively. The MDT therapists helped the family address a belief and synthesize agreement that “At times we can feel as a family and it can be pleasant.” The V-C-R allowed the family to accept their beliefs as their reality, clarify how the belief translates to them individually and as a family, and redirected them to an alternative belief they might be real; four (4) out of 10 times, in this session. The collective experience of the family can slowly begin to move to healthier, collective beliefs to balance the family’s belief systems.

**Chart 3: Balanced Beliefs**

<b>Adolescents Balanced Beliefs</b>	<b>Mother</b>	<b>Sibling</b>	<b>Family</b>
At times life can be OK and not painful.	Whenever I get angry I can balance my anger at times.	I can hope sometimes and be satisfied.	The family out of 4-10 times is positive. Can feel OK 3 out of 10 times with my family.

### Results

The results of this study suggest that MDT was more effective than TAU with adolescents and their families in reducing arguing, displays of anger, physical and sexual aggression and placement in more restrictive, long term, out-of-home settings. MDT also out- performed TAU in recidivism for two (2) years post-treatment.

Important and revealing data is the fact that the number of referrals for out-of-home placements for a 2-year post-treatment for the MDT group was one (1), as opposed to the TAU group which was 14.

The MDT group had one (1) adolescent referral to a group home and another adolescent referral to an acute care placement in a psychiatric facility. The TAU group had 4 adolescent referrals and placements in group homes, 8 referrals and placements in residential treatment facilities, and 2 referrals in acute psychiatric facilities.

**Chart 4: Placement in Higher Level Care in a Two (2) Year Post-Treatment**

	<b>MDT</b>	<b>TAU</b>
<b>Group Homes</b>	<b>1</b>	<b>4</b>
<b>Residential</b>	<b>0</b>	<b>8</b>
<b>Inpatient hospitalizations for emotional issues</b>	<b>0</b>	<b>2</b>

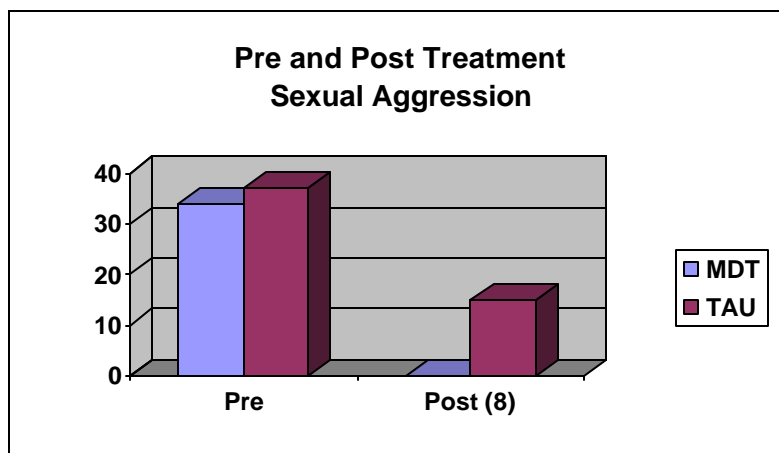
Sexual and aggressive behaviors, as defined and including, fondling, fellacio, deviant sexual intercourse and any other sexual behavior determined by the Children and Youth and/or the Court as illegal or problematic, or a charged defense.

Both Family MDT and TAU reduced the sexual behaviors. MDT reduced the sexually aggressive behaviors to zero and maintained zero (0) % recidivism for two years post-treatment while TAU had 50 % recidivism rate for sexually aggressive behaviors.

**Chart 5: Pre-Sexual Aggression**

	<b>MDT</b>	<b>TAU</b>
Behaviors	34	37
Post-8 Month Treatment	0	15
<b>Adolescents who engaged in sexual behavior.</b>		
2 Year Post-Treatment	0	10

Physical Aggression was the next targeted behavior for the adolescent. Family MDT helped reduce physical aggression more than 50% in 8 months and 21% of baseline the 2 year post-treatment date. Physical aggression remained relatively unchanged in the TAU group from 10 to 14 at the eight (8) month period and a fifteen (15) at the two (2) year eight (8) post treatments.



**Figure 1: Pre and Post Treatment (Sexual Aggression)**

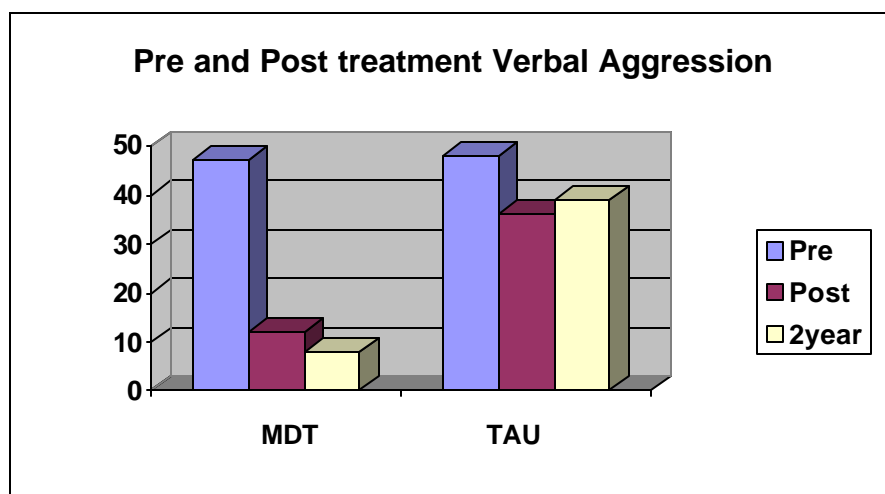
**Chart 6: Ages 15-16 Physical Aggression**

MDT		TAU
School Pre week	17	16
Post	6	14
Year	4	15

Verbal aggression or violent arguments were considered a clear antecedent of the physical aggression and other oppositional behaviors.

**Chart 7: Weekly Verbal Aggression**

	MDT	TAU
Pre	47	48
Post	12	36
2 Year Follow-up	8	39



**Figure 2: Pre and Post Treatment results (Verbal Aggression)**

Both MDT and TAU reduced sexual aggression at the eight (8) month of treatment. MDT's results reduced verbal aggression 77% from baseline; TAU reduced verbal aggression 24% from baseline. The 2 year post-treatment results show a continued decrease in the MDT group to 85% of baseline while the TAU group had a slight increase to 25% of baseline.

**Chart: 8 CBCL**

Measure	Scale	TAU	MDT
Child Behavior Checklist (CBCL) Pre-Treatment	Internal	72.27 (Range=68 – 84)	73.10 (Range= 66 – 86)
	External	72.65 (Range=68 – 86)	72.58 (Range= 64- 86)
	Total	72.46	72.84
Child Behavior Checklist (CBCL) Post-Treatment	Internal	62.64 (Range= 55 – 80) SD= 10.04	56.58 (Range= 39- 71) SD = 12.10
	External	68.25 (Range= 52 -2 82) SD 1.76	50.25 (Range= 37 – 69) SD = 11.74
	Total	65.45 (Range= 52-84) SD = 9.24	50.17 (Range = 40 – 61) SD + 10.28
Post- Treatment	Internal	69.34	47.86
	External	66.34	46.38
	Total	67.59	46.92

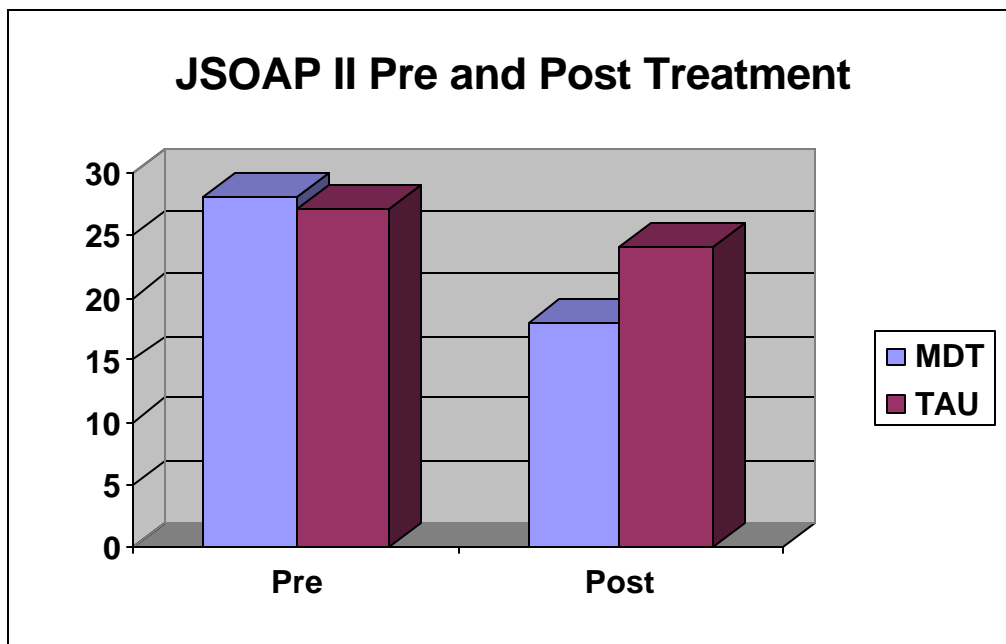
The CBCL is a multi-axial assessment designed to obtain reports regarding the behaviors and competencies of 11 to 18 year olds. The means and standards are divided into three categories: internalizing (which measures withdrawn behaviors, somatic complaints, anxiety and depression), externalizing (which measures delinquent behavior and aggressive behavior), and total problems (which represent the conglomerate of total problems and symptoms, both internal and external). The results on the CBCL suggested that MDT was about 2 SDs more effective than TAU on Internal and External scales. MDT also showed a slight improvement at the two (2) year time frames, while TAU showed a slight increase. The final measure of this study based on the Juvenile Sex Offending Adolescent Protocol .II (Prentky & Righthand, 2003).

The original version of this risk assessment scale for juvenile sex offenders was developed at Joseph J. Peters Institute (JJPI) in Philadelphia in 1994 (Prentky, Harris, Frizzell, & Righthand, 2000). The risk assessment variables were developed after reviews of the literature that covered five areas: (1) clinical studies of juvenile sex offenders, (2) risk assessment/outcome studies of juvenile sex offenders, (3) risk assessment/outcome studies of adult sex offenders, (4) risk assessment/outcome studies from the general juvenile delinquency literature, and (5) risk assessment studies on mixed populations of adult sex offenders.

The results of the J-SOAP II suggested that Family MDT decreased the adolescents scores more than 1 SD more that TAU. The reduction of MDT was significant, whereas the TAU was a slight reduction of the J-SOAP II score.

**Chart 9: JSOAP-II Scores**

<b>PRE</b>	
<b>MDT</b> 28.	<b>TAU</b> 27.
<b>POST</b>	
<b>MDT</b> 18	<b>TAU</b> 24



**Figure 3. JSOAP II Pre and Post Treatment**

**Discussion**

This study adhered to strict ethical, clinical, and research standards to treat and protect each participant with integrity and assurance of anonymity. Both the TAU and MDT groups were treated with dignity, respect, and assurance of ethical and clinical services. Through the comparison of Family MDT with Treatment As Usual in the community, five major results appeared.

First, we found significant results post-treatment for the MDT group to not be placed in a “higher level of care,” or out-of-the-home. These results are significant on several levels. The adolescent was able to remain home and enrolled in school and receive adequate treatment. Second, Family MDT treatment saved the agencies hundreds of thousands of dollars for costly long term residential placement. At the minimal cost of \$100,000 per year, per adolescent, the savings might have been millions of dollars.

Third the MDT group had no sexual aggression recidivism for two years post-treatment. The JSOAP-II scores were significantly reduced by the MDT group as well as, the sexually aggressive behavior.

Fourth, MDT appears to reduce internalizing and externalizing scores on the CBCL. This suggests that MDT/MDT Family might be effective in reducing both external behaviors, as well as symptoms of psychological distress. The games made by the adolescent on the CBCL appeared to generalize for two years post-treatment. The total scores were reduced and maintained their reduction for a two year period. This suggests the MDT had an effect on reducing behavior and psychological symptoms on “at risk” adolescents. They completed the CBCL for a post-treatment follow-up. They were prompted by telephone calls and emails (from one of the MDT team) to complete the forms.

Fifth, MDT Family decreased both verbal and physical aggression and maintained the decrease at an 85% reduction of baseline behavior.

The absence of significant pre-treatment differences between subjects who received MDT and control subjects on the same measures, together with the random assignment to condition, rules out interpretation of these results bound on known pre-existing differences.

This study suggests that a manualized CBT Family Therapy Methodology might be effective for “at risk” adolescents and their “family.” Family might be defined as the adolescents’ caregiver, and this might include biological parents, grandparents, relatives, and/or foster parent.

The underlying MDT methodology addresses the family’s collective beliefs and thru V-C-R attempts to synthesize these beliefs into a collective agreement of more functional positive possibilities. Family MDT implements the radical acceptance of the individual and family belief as “their reality.”

The results of this study are promising and suggest that the MDT Family methodology can be included with accepted, evidence-based psychotherapies for “at risk” adolescents and their families.

There were limits to this study as there are in all clinical “real world” studies. The sample size was small, there were 40 participants, and therefore claims of the efficiency of Family MDT must be made with caution.

Having stated these cautions, it is fair to suggest that MDT collectively has been shown to be an effective methodology for treating “at risk” youth in a variety of settings. The authors are currently preparing a summary article on MDT; the population of all MDT studies now is nearing 250 participants. Because of the on-going nature of MDT research, MDT might be considered as a possible effective treatment for “at risk” youth, as described in each study.

Family MDT has been effective in limited studies thus far, (Apsche, Bass, & Houston, 2007; Apsche, Bass, & Siv, 2006). This study further suggests the possible effectiveness of MDT as a manualized CBT for families of “at risk” adolescents.

The analysis in this article, though a small study group was involved, gives information that shows the MDT approach to be useful in an outpatient setting. The approach treats the individual and family using various tools of assessment and therapeutic interaction, in concert with each other. MDT has efficacy in decreasing negative behaviors in the adolescent and family members. Clinical limitations regarding research of this kind would be lessened with a larger target population. However, it is

significant that the outcome of this study was encouraging, although not all participants were internally motivated. For a comprehensive review of literature on MDT see Houston, Apsche, & Bass (2007).

### References

- Apsche, J. A. & Apsche, M. B. (2007). *Mode Deactivation Therapy family manual*. Unpublished clinical manual
- Apsche J. A. & Bass, C. K. (2006). A review and empirical comparison of three treatments for adolescent males with conduct and personality disorder: Mode Deactivation Therapy, Cognitive Behavior Therapy and Social Skills Training. *International Journal of Behavioral Consultation and Therapy*, 2(2), 382-398.
- Apsche J. A. Bass, C. K., & Siv, A. M. (2006). A treatment study of suicidal adolescent with personality disorder or traits: Mode Deactivation Therapy as compared to Treatment as Usual. *International Journal of Behavioral Consultation and Therapy*, 2(2), 215- 223.
- Apsche J. A., Bass, C. K., & Houston, M. A. (2007). Family MDT vs. Treatment as Usual in a community setting. *International Journal of Behavioral Consultation and Therapy*, 3(1), 145-153.
- Apsche, J. A., Bass, C. K., Jennings, J. L., Murphy, C. J., Hunter, L. A., & Siv, A. M. (2005). Empirical comparison of three treatments for adolescent males with physical and sexual aggression: Mode Deactivation Therapy, Cognitive Behavior Therapy and Social Skills Training. *International Journal of Behavioral Consultation and Therapy*, 1(2), 101-113.
- Apsche, J. A., Bass, C. K., & Murphy, C. J. (2004). A comparison of two treatment studies: CBT and MDT with adolescent male sex offenders with reactive conduct disorder and/or personality traits. *Journal of Early and Intensive Behavior Intervention*, 1(2), 179-190.
- Apsche, J. A., Bass, C. K., & Siv, A. M. (2005). A review and empirical comparison of three treatments for adolescent males with conduct and personality disorder: Mode Deactivation Therapy, Cognitive Behavior Therapy and Social Skills Training, *International Journal of Behavioral Consultation and Therapy*, 1(4), 371-381.
- Apsche, J. A., Bass, C. K., & Siv, A. M. (2006). Summary of Mode Deactivation Therapy, Cognitive Behavior Therapy and Social Skills Training with two year post treatment results. *International Journal of Behavioral Consultation and Therapy*, 2(1) 29-44.
- Apsche, J. A. & Jennings, J. L. (2007). *Responsibility and self-management*. Holyoke, MA: Neari Press.
- Apsche, J. A., & Ward, S. R. (2003). Mode Deactivation: A functionally based treatment, theoretical constructs. *The Behavior Analyst Today*, 4 (1), 47-58.
- Apsche, J. A., & Ward Bailey, S. R. (2004). Mode Deactivation Therapy: Cognitive-Behavioural Therapy for young people with reactive conduct disorders or personality disorders or traits who sexually abuse. In M.C. Calder (Ed.), *Children and young people who sexually abuse. New theory, research and practice developments*, (pp. 263-287). Lyme Regis, UK: Russell House Publishing.

- Apsche, J. A. & Ward Bailey, S. R. (2004). Mode Deactivation Therapy (MDT) Family Therapy: A theoretical case analysis. *Journal of Early and Intensive Behavior Intervention*, 1 (2), 191-217.
- Beck, A. T., Freeman, A., Davis, D.D., & Associates. (2004). *Cognitive therapy of personality disorders* (2nd ed.). New York: Guilford Press.
- Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford Press.
- Houston, M. A., Apsche, J. A., & Bass, C. K. (2007). A comprehensive literature review of Mode Deactivation Therapy. *International Journal of Behavioral Consultation and Therapy*, 3 (2), 271-309.
- Kazdin, A. E. & Weisz, J. R. (2003). *Evidenced based psychotherapies for children and adolescents*. New York: Guilford Press.
- Kohlenberg, R. J. & Tsai, M. (1993). Functional Analytic Psychotherapy: A behavioral approach to intensive treatment. In O'Donohue, W., & Krasner, L., (Ed.), *Theories of behavior therapy: Exploring behavior change* (pp. 638-640). Washington, DC: American Psychological Association.
- Prentky, R. A., Harris, B., Frizzell, K., & Righthand, S. (2000). An actuarial procedure for assessing risk with juvenile sex offenders. *Sexual Abuse: A Journal of Research and Treatment* 12 (2), 71-93.
- Prentky, R. A., & Righthand, S., (2003). Juvenile sex offender assessment protocol – II (J-SOAP-II). Manual. Retrieved September 11, 2007, from <http://www.csom.org/pubs/JSOAP.pdf>.

Author's Note: This article originally was published in *The Behavior Analyst Today*, Volume 8, No. 3

#### **Author Contact Information:**

**Jack A. Apsche, Ed.D., ABPP.**  
**The Apsche Center for Evidenced Based Psychotherapy**  
**E - Mail: Jackmdt@aol.com**  
**Phone: 215-321-4072**

**Christopher K. Bass, Ph.D.,**  
**Dept. of Psychology**  
**207 Knowles Hall**  
**Clark Atlanta University**  
**Atlanta, GA 30313**  
**E - Mail: CBass@cau.edu**

**Marsha-Ann Houston, MHS**  
**E - Mail: Mhouston1957@hotmail.com**