Annotation Supplement to the BASC–3 Behavior Intervention Guide

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This supplement contains brief research summaries (i.e., annotations) supporting the use of the interventions discussed in the BASC–3 Behavior Intervention Guide. Article abstracts were initially reviewed for the following criteria: evidence of treatment effect, age of study participants (2–21 years), and evidence of treatment fidelity; a few meta-analyses or critical studies include adult populations. The annotations provide an overview of each article. Readers should consult the original articles for in-depth information. It is important to know that the chapter numbers in this supplement correspond to the same chapter numbers in the BASC–3 Behavior Intervention Guide.
Chapter 2

Interventions for Aggression:
Evidence for Use Annotations

Bully Prevention


Bully Busters Abbreviated, an abbreviated version of the Bully Busters program (described later), seeks to reduce aggression in schools by training teachers to intervene in bullying and was developed to address time concerns. It still provides teacher training and support groups but includes fewer activities. This year-long study evaluated the abbreviated version in a public middle school, with 52 teachers and 488 students participating. Results indicated that teachers felt more effective intervening in “typical” situations, but less so in situations involving students with ADHD or conduct disorders. Students reported both increases and decreases in bullying.


According to this study, one in four students is bullied, and one in five define themselves as a bully. Effective bullying prevention includes (1) school-level interventions to change the overall school culture, (2) classroom-level interventions to train teachers and other adults to identify and prevent bullying, and (3) student-level intervention to promote social skills and reduce aggression. Intervention should begin in elementary school and be reinforced over multiple years. Bullying prevention programs should be selected based on empirically documented results and must be carried out as designed; most programs fail due to apathetic application, a lack of funding or interest, and staff turnover.

Bully Busters is an intervention program that focuses on training teachers on how to prevent and deal with bullying so they can facilitate a safe learning environment for students. The intervention involves 3 weeks of psychoeducational training for teachers, followed up by 8 weeks participation in collegial support teams. In a public middle school, 15 teachers participated in the program and were compared against 15 teachers in a control group who received no training. The training and support teams were facilitated by instructors to maintain the integrity of the program. Bully Busters increased the teachers’ knowledge of bullying intervention skills, increased intervention by the teachers, increased the teachers’ self-efficacy, and reduced the need for disciplinary referrals.


Using a random-control design, this study examined the impact of a multi-component violence prevention program aimed at reducing aggression. The study included 2,246 students in eight middle schools. The program used Social Cognitive theory, peer mediators, conflict resolution, and a newsletter for parents. Measures of aggressive behavior included self-report on surveys in the fall of three consecutive years. The aggression measure has 11 items on a scale of 0–6. Two measures of school safety (i.e., environment and aggressive behavior) were used as outcome indicators. Academic performance (i.e., grades) was the strongest predictor of violence and victimization. Violence in 6th grade was a predictor of violence in 8th grade. Significant community violence negated effects of intervention, and parent communication regarding fighting explained one third of the differences in violence. Good and improving parent relationships predicted decreases in aggression.

Child-Centered Play Therapy (CCPT)


This study examined if group activity play therapy (GAPT) was an effective intervention for displaced Ugandan orphans, a large population with little to no access to mental healthcare. It included 60 participants (ages 10–12) living permanently in an orphanage. All participants were identified by teachers to be at the borderline level of
behavioral concern, but none had received treatment. Groups were stratified by gender and assigned to either the GAPT group or a reading mentoring (RM) control group. The GAPT intervention involved semi-structured self-directed and group-directed activities, with 10 minutes of closure and sharing time at the end. There was a statistically significant decrease in the problem behavior of the children in the GAPT group compared to the RM group.


The effects of CCPT were evaluated in the Southwestern U.S. with 54 low-income preschool children (ages 3–4) who were identified by classroom teachers as having disruptive behaviors. In this study 27 children were assigned to 30-minute CCPT sessions twice a week for 17 to 21 sessions. The other 27 children were placed in the active control, reading mentoring, where children worked with mentors for 30 minutes twice a week, for 16 to 20 sessions. Teachers assessed each child’s behavior at the beginning of the study, midway through the study, and within a week after the intervention and control were completed. The teachers did not know which children received therapy. Children in the CCPT group showed a decrease in aggression when compared to children in the control group.


This study monitored 2 boys (age 6) in the 1st grade who were referred for aggression difficulties. CCPT was provided twice a week in 30-minute sessions. To establish a baseline for comparison, 1 boy had a waiting period before treatment, but the other boy did not. Their behavior was rated by their teachers using the Teacher Rating Form. Both boys showed significant improvement on the rating scale after treatment, and anecdotal reports from adults were also positive. One of the boys moved from clinical to borderline in aggression syndrome scale scores. The other boy remained at borderline before and after treatment.


This review included 93 studies that met specific inclusion criteria. The review concluded that these studies supported the efficacy of play therapy across modalities. The mean effect of treatment overall was large ($d = .80 [+/- .04]$). Treatment effects
varied by treatment characteristics, ranging between .69 for treatment in a school setting to 1.15 when parents are trained providers in treatment.


This article summarizes 82 published experimental case studies on play therapy from the 1940s through the 1990s. The studies assessed maladaptive school behavior variables along with others—many of the terms changed across the 5 decades, so descriptions are general. The studies ranged in duration from 8 weeks to 6 months with a range of 6–20 sessions. A descriptive summary of the results across studies indicates that 100% (8 of 8) of the studies examining aggression noted decreases in the problem and/or increases in adaptive behavior. For those which examined behavioral disturbances in school, 100% (6 of 6) of the studies reported decreased behavioral disturbances in school. Some improvement in social maladjustment was found in 86% (12 of 14) of the studies.

**Classroom Social Dynamics**


This study examined the rates of aggression, as determined by teacher ratings, for 4,179 children. Classroom climate was assessed by outside observers in 214 first-grade classrooms from 27 schools in Durham, NC; Nashville, TN; Seattle, WA; and rural central Pennsylvania. The mean age was 6.4 years, with a range of 5–8 years. Most were Caucasian (56%), and 35% were African American. Findings indicate that classroom climate has a strong effect on aggression development and that the influence of pre-existing aggression is not as strong as is classroom influence.


A study of 820 classrooms from 700 schools across 32 states was used to identify classroom environment attributes related to children’s social development. A total of 946 students were included in the analysis. Data were accessed from the *National Institute for Child Health and Human Development Study of Early Child Care and Youth Development*. Four clusters of “classroom type” were previously identified using a 7-item scale called the Classroom Observation System (COS). The classrooms varied according to the quality of emotional and instructional climate. High-quality classrooms had high levels of evaluative feedback or positive emotional support. Mediocre quality,
or overall low quality, had low levels of evaluative feedback and high levels of negativity and overcontrol. Observation ratings on the COS occurred during two 44-minute observation cycles. Social competence was measured using the Unstructured Peer Observation System (UPOS), where each child was observed for 20 minutes in 30-second observe, 30-second record intervals. Negative aggressive play was a composite on this scale. Classroom emotional support and classroom instructional supports were measured and found to be moderators of social competence. Classrooms with evaluative feedback and high-quality emotional supports had significantly better social competency. Significant effects in negative or disruptive behavior were found, indicating high-quality classrooms produced fewer problems while low-quality classrooms produced more.


This study examined 11 students in an experimental control, posttest design. Direct observation measures (2.5 to 3 hours per session) of aggression, as well as play, recess interaction, and out-of-seat behaviors were documented. The social dynamics were changed through a point/token system, a level system, increased communication between home and school, social skills and peer tutoring, teacher training, teacher mentoring, and feedback. The trend in aggression decreased for students with Emotional/Behavioral Disorders. Academic compliance and on-task behavior increased.

Cognitive Restructuring


An attributional intervention program was developed to study peer-directed aggression in African-American boys. Approximately 100 aggressive and nonaggressive boys (ages 10–12) were randomly assigned to the attributional intervention, attention training, or no-treatment conditions. Pretesting and posttesting assessed the boys’ judgment of intent, feelings of anger, and aggressive behavior in response to hypothetical and actual peer provocation. Teacher ratings and disciplinary referrals were additional sources of data. Results showed that aggressive children’s tendencies toward biased attributions are amenable to retraining, and that such retraining can significantly reduce aggressive behavior.

To determine whether cognitive mediation training could alter the social-cognitive basis for aggressive behavior, this study divided 120 juveniles incarcerated for aggressive offenses into a cognitive mediation training group, an attention control group, or a no-treatment group. In contrast to the control group, the juveniles given short-term cognitive mediation training showed increased social problem solving skills and reduced endorsement of beliefs supporting aggression and less aggressive, impulsive, and inflexible behavior. Recidivism appeared less likely in the cognitive mediation training group, although group differences were not significant.

**Counseling Groups**


This study analyzed the effectiveness of school counseling interventions. It involved a meta-analysis of traditional treatment-control group comparisons and a meta-analysis of pretest-posttest comparisons. The first meta-analysis included 117 studies involving 16,296 students; the second analysis included 31 studies involving 2,015 students. Results suggest that school counseling interventions have a significant effect across all grade levels (i.e., K–12), both in supporting students’ positive outcomes and in reducing discipline problems. Interventions seemed most effective at the middle-school level. Small-group interventions showed positive effects; however, the popularity of mentoring programs needs to be more strongly research-based.


This study analyzed the effects of class intervention and small group counseling intervention on highly aggressive children. The sample consisted of 904 students in grades 5–8 from 13 schools in Israel. Of these students, 166 were classified as highly aggressive based on scores from the Peer Nomination Instrument (completed by teachers) and The Aggression Questionnaire. The students were randomly assigned either to an intervention (i.e., psychoeducational class intervention or small group counseling) or to a control group. Interventions were carried out for 4 months. Children identified as aggressive who were exposed to interventions saw lower scores in total aggression on The Aggression Questionnaire. Both the small-group counseling intervention and the class intervention groups had reduced incidents of aggression.
The Good Behavior Game (GBG) has been used as a group school-based intervention strategy for aggression and other disruptive behavior for over 40 years. This meta-analysis synthesized data from 21 studies of the effectiveness of GBG to reduce emotional and behavioral disorder (EBD), student risk, and other target behaviors. The TauU effect size across 137 phase contrasts was .82 with a confidence interval of CI95 = .78 to .87, suggesting the intervention mitigated problematic behavior and promoted prosocial actions by students in the studies.

This article is a literature review of studies of the Good Behavior Game (GBG) to determine how the GBG affects aggressive behavior in a school setting, and if differences in the implementation of the GBG impact its effectiveness. The review comprised 22 articles including data for extraction, published 1970 onward, from 14 peer-reviewed journals. The analysis showed that GBG has a moderate to large effect on challenging behaviors, including aggression. The authors concluded that GBG has an immediate and significant change in the level of such behaviors. They also concluded that accurate implementation of the reward procedures in the GBG are key for the intervention to be effective.

The purpose of this study was to determine if GBG could be effectively adapted for use with kindergarten students. The game was implemented in five kindergarten classrooms with a total of 98 students. The results suggest that the GBG is an effective, easy-to-administer, classroom-wide assessment for kindergarten, just as it is in older grades.

This article reports on a long-term follow-up study of GBG impact. Young adults ages 19–21 who had participated in a 2-year-long intervention in grade school were interviewed. Compared to control groups the young adults from the GBG program had lower levels of drug and alcohol abuse/dependence disorders, smoking, and antisocial personality disorder. There was also a higher rate of high school graduation in the GBG group versus the control group. Results show that the GBG had the strongest effect on males with high aggression.


This study evaluated the outcomes of the GBG by comparing 2,311 developmental trajectories of students in five urban public schools in Baltimore. Antisocial behavior and violent and criminal behavior were significantly lower in young adults who were exposed to the GBG. These outcomes differed across trajectories of aggression for males and females. For example, trajectories with low but stable levels of aggression did not appear to change long term, compared to trajectories with higher or higher and escalating rates.


This study is a follow-up of how use of the GBG by 1st and 2nd grade teachers affected the later use of public services by students from those classrooms. Overall, youth (ages 19–21) who participated in GBG in grade school had a lower rate of using public services (21%) compared to the control group (31%). There was a lower rate of use of mental or medical health providers, school-based services, and services from the juvenile or adult justice system. Service from drug treatment providers were not significantly lower, and social service use by young adults were only marginally lower.
Incremental Change Theory Training


Three longitudinal studies of first-year high school students demonstrated that a brief incremental change intervention reduced hostile attributions, negative reactions to social adversity, and long-term levels of stress and physical illness. Three randomized and double-blind studies were included in this research. The first study taught an entity theory of personality, an implicit view that teaches students to see social adversity as a consequence of traits that are unchangeable. The students were exposed to this theory and immediate reactions to a social exclusion event were measured. The results indicated that students in the intervention group reacted more negatively to an experience of social adversity than did those in the control group. The second and third studies administered an incremental theory intervention during the first month of high school. Both studies taught a malleable theory of personality (i.e., the belief that people can change). The results indicated that the intervention group showed reduced negative reactions to an experience of social adversity (i.e., exclusion from a game) when compared to the control group. The positive impact of learning an incremental theory of personality was maintained at an 8-month follow-up. The students reported lower overall stress and illness than did the control group. Further, they also achieved better academic success during the year post intervention.


This article presents three studies regarding the effect of implicit theories on hostile attributional bias: a meta-analysis, an experiment, and a longitudinal intervention. Hostile attributional bias is the tendency to view others’ negative actions as purposeful and hostile, even though others’ intentions may be ambiguous. The authors purport that this bias can emerge from one’s implicit theory that people’s personality traits are unchangeable, emanating from fixed traits rather than being a product of circumstance. In Study 1, a meta-analysis summarized 1,659 observations from 11 studies about adolescent personality traits, hostile attributions, and aggression. The results showed that among adolescents ages 13–16, those who held more of a fixed personality theory were more likely to interpret ambiguous provocations as arising from hostile intent. Study 2 was an experiment that attempted to change adolescents’ implicit personality theories toward a more incremental view. The experimental group, which learned a malleable theory of personality, exhibited fewer attributions of hostile
intent following an ambiguous provocation scenario. Study 3 was a longitudinal intervention that delivered an incremental theory intervention. The intervention group showed reduced hostile intent attributions and aggressive desires over an 8-month period. Study 3 provided causal evidence for Study 1’s correlation between implicit theories and hostile attributional bias. Further, Study 3 replicated Study 2’s findings over the course of an entire school year. These results offer early evidence for a new method to assist with the reduction of hostile attribution bias in real-world settings.


The authors of this article discuss two implicit theories of personality: (1) entity theory, where personality is fixed; and (2) incremental theory, where people have the capacity to change. The authors suggest an adolescent’s likelihood to aggressively retaliate to exclusion and victimization is influenced by his or her belief that people have the capacity to change. In this study, 246 diverse, low-income public school students, ages 14–16, were assigned randomly to an intervention group that taught incremental theory, to a control group that taught social coping skills, or to a control group with no treatment. Results were evaluated through pre- and post-treatment surveys and teacher feedback. Overall, the incremental theory intervention was successful in reducing aggression, conduct problems, and depression. Positive effects were seen in both victimized and non-victimized students and in students with varying levels of aggression.

**Mindfulness Training**


A critical review evaluated current research supporting the use of mindfulness-based treatments (MBTs) when treating aggressive behavior problems in adolescents and adults. The authors examined 11 studies, grouping them based on research design (group vs. single-subject). A summary of the group design studies \((n = 4)\) concluded that due to methodological flaws, the reviewed studies provided minimal support for the use of MBTs in reducing aggressive behavior. Results of studies using the single subject design \((n = 7)\) were more promising. Six of the single-subject studies displayed consistent reductions in aggressive behavior. These studies support the use of MBTs for reducing aggression, demonstrating that aggressive behavior levels were reduced and generally maintained over an extended period of time.
This study analyzed the mindfulness technique of Meditation on the Soles of the Feet as a method to control physical and verbal aggression. The 34 individuals in the study were referred by physicians, parents, guardians, and support staff. Referral criteria specified that physical aggression must be a participant’s most significant behavioral complaint and that intellectual level must be mild to borderline. Participants were 17–34 years old, and they were randomly assigned to the experimental group or to the control group. The study took place over 48 weeks, and both groups underwent 12 weeks of mindfulness training; however, the experimental group and control group followed different schedules. The experimental group experienced two 12-week follow-up phases while the control group was limited to one. Mindfulness training consisted of recalling an experience that made participants angry and then focusing on the soles of their feet until they felt calm. Participants were instructed to perform mindfulness training whenever they felt angry. Results indicated that the mean number of occurrences of physical aggression was lower for the experimental group. Effect sizes were $d = 1.43$ for Phase 2 (weeks 13–24); $d = 1.54$ for Phase 3 (weeks 25–36); and $d = 1.50$ for Phase 4 (weeks 37–48). The mean number of occurrences of verbal aggression was also lower almost every week for the experimental group with effect sizes of $d= 1.35$ for Phase 2, $d = 2.16$ for Phase 3, and $d = 1.26$ for Phase 4.

Three adolescents (2 male, 1 female) with conduct disorders (ages 13–14) at risk for school expulsion participated in a mindfulness meditation intervention for this study. Meditation training was administered individually in 12 sessions over a 4-week period, followed by a 25-week follow-up phase during which meditation was practiced. The results indicated that the number of self-reported aggressive and non-compliant behaviors showed a minimal decrease during the training period and a more substantial decrease (up to 52%) during the follow-up period. All 3 students were able to complete middle school without further risk of expulsion.
Peer-Mediated Conflict Resolution and Negotiation


This 4-year study in three middle schools consisted of a school-wide conflict resolution curriculum and peer mediation training of 25–30 students per school. To evaluate the curriculum and peer mediation approach, the authors gathered school climate ratings from teachers and students, tracked disciplinary incidents, collected mediation data, and compared mediators with a matched sample to measure changes in attitude. Results showed no evidence of school-wide change in student attitudes or teacher views of school climate. However, a promising downward trend in disciplinary incidents was noted at two of the three schools, and both the trained mediators and those who had been referred for mediation were highly satisfied with the mediation process.


In this study, two of four social studies classes from a California high school received conflict resolution and peer mediation training as part of their class curriculum over a 5-week period. The other two classes served as controls. Results showed training to be effective in reducing conflict and in promoting academic achievement. Compared to controls, trained students were more successful in learning integrative negotiation and peer mediation procedures, applying these procedures, choosing an integrative approach to negotiation over a distributive one, and developing positive attitudes toward conflict. In addition, they showed greater long-term retention of academic learning and greater transfer of learning from social studies to language arts.


The author of this study evaluated the effectiveness of conflict resolution and peer mediation programs in 14 elementary, middle, and high schools. Data from these schools were compared to a control sample of three schools that did not offer similar programs. Interviews and surveys of teachers and other school personnel provided both qualitative and quantitative data. Perception of the effect of these programs on discipline and curriculum was generally positive. Of questionnaire respondents, 38% believed fighting at their school decreased, and 53% believed their school was safer. Respondents also perceived a positive effect on school culture in terms of students
taking responsibility for their actions. The two problems that were mentioned most often about teaching conflict resolution concerned time constraints and influence of family and society.


In this study of an underperforming inner-city elementary school, 47 boys and girls in 3rd and 4th grade volunteered to participate in a peer mediation program and received 1.5 days of training in communication, assertiveness, and mediation skills. They mediated conflicts in pairs and completed a mediation report form that provided data on the types of conflict, resolution strategies, agreements resulting from mediation, and the sex of the disputants. Over the school year, the pairs mediated 343 conflicts and were successful 98% of the time. Most conflicts (87%) arose from relationship issues that led to physical or verbal aggression. Physical or verbal force was the strategy most commonly used to resolve conflict (91%), and agreement to avoid each other was the most common solution (84%).


This study examined conflict types and resolution strategies used at school and at home in a sample of students from a suburban Midwestern elementary school. A group of 144 students received 9 hours of peer mediation training; 83 students served as controls. Data were obtained from student-completed conflict report forms regarding conflicts students experienced at school or home. Of the 783 conflicts reported, 209 occurred at school and 574 at home. The majority of conflicts (74%) arose over preferences and possession/access, although these types were more frequent at school than at home. Compared to the control group, trained students were more likely to use negotiation instead of force as a strategy and to achieve integrative agreement.

**Problem-Solving Training**


This study investigated the efficacy of a newly developed cognitive–behavioral social problem-solving curriculum, *Tools for Getting Along: Teaching Students to Problem Solve*. The curriculum, implemented by classroom teachers in 4th and 5th grade, produced
positive outcomes in 165 target students at risk for disruptive and/or aggressive behavior, including increased problem-solving knowledge and improved teacher ratings of reactive and proactive aggression. Improvements were maintained over several months.


This randomized pilot study compared two modules of anger control training in 26 boys (mean age = 9.6) with excessive anger, aggression, and disruptive behavior. Results showed social problem-solving and social skills training to be equally effective in reducing aggression, conduct problems, and frequency of anger expression. Likewise, improvements were similar for relationships with parents and responses to peer provocation. However, social problem solving was more effective in reducing hostile attribution bias, whereas social skills training was more effective in improving anger control skills.


This study of the effectiveness of the PATHS® (Promoting Alternative THinking Strategies) component of the Fast Track prevention model compared 198 intervention and 180 nonintervention classrooms in four U.S. neighborhoods that experienced higher-than-average crime levels. The intervention consisted of a 57-item social-competence curriculum implemented by 1st grade teachers that focused on self-control, emotional awareness, peer relations, and problem solving. Results indicated that PATHS can positively impact aggression and peer relations. This study is significant for its use of the classroom, rather than the student, as the unit of analysis.


A randomized study of 97 children (ages 7–13) evaluated problem-solving skills training (PSST) and parent management training (PMT) (each separately and combined) to determine which combination was more effective. Although PSST, PMT, and PSST + PMT each improved children’s functioning, the combined treatment produced more marked, pervasive, and durable changes in children’s functioning and greater changes in parental functioning posttreatment and at 1-year follow-up. A larger proportion of children receiving combination treatment reached normal levels of functioning.
The purpose of this study was to examine the efficacy of treatment programs that include social problem-solving and goal-setting components, alone or in combination. The comparison involved 76 boys (ages 9–12) who were identified as aggressive. They were randomly assigned to one of four treatment conditions: anger-coping, goal-setting, anger-coping plus goal-setting, and a no-treatment condition. Conditions with anger-coping interventions consisted of 12 weekly sessions focused on improving social problem-solving skills. The 8-week goal-setting component consisted of weekly goal setting with daily monitoring by teachers and contingent reinforcement. At 1-month follow-up, the students in groups containing anger-coping components (i.e., focused on social problem-solving) showed less aggressive behavior and a tendency toward improved self-esteem, both at school and home. However, teacher and peer perceptions of the boys’ behavior did not change significantly, indicating either a steadfast perception of the boys’ reputations or a limit to the treatment effects.

**Replacement Behavior Training**


The two experiments described in this article were part of a preliminary evaluation of whether magnitude of reinforcement alters response to treatment with differential reinforcement of alternative behavior (DRA). The first experiment evaluated the effects of two reinforcement magnitudes (e.g., being allowed to play with an object for 20 seconds vs. 60 seconds) on resistance to extinction by reinforcing and extinguishing communication responses after the responses had been acquired in treatment. In the second experiment, the effects of reinforcement magnitude on characteristics of responding were evaluated during the maintenance of communication responses. Results in the 3 patients studied indicated that reinforcement magnitude provided some resistance to extinction.


This study examined the effects of noncontingent reinforcement (NCR) in reducing the frequency of self-injurious behavior (SIB) in individuals with developmental disabilities. A functional analysis was done to determine which reinforcers could serve as arbitrary or
direct reinforcers. These two types of reinforcers were then presented either contingently or noncontingently. The results of this study demonstrated that noncontingent delivery of the arbitrary reinforcers was effective in reducing incidences of SIB. The authors conclude that arbitrary, noncontingent reinforcers can be useful when reinforcers cannot be identified, as might be the case for behavior that is maintained by automatic reinforcement (i.e., situations in which behavior is maintained by operant mechanisms independent of the social environment).


This study examined the effects of using DRO (differential reinforcement of other behavior) and DRI (differential reinforcement of incompatible behavior) to decrease aggressive pinching in a child with severe mental retardation. In the DRO condition, a reinforcer was given for each interval in which no pinching occurred. This reinforcement decreased pinching from 50% of the intervals to near zero. The DRI condition involved reinforcement with food and drink at mealtime whenever the child’s hands were in a position that was incompatible with pinching. Use of DRI also reduced instances of pinching to near zero. This study demonstrated that use of reinforcement-based behavioral procedures can decrease aggressive behavior in both a home and school setting.


This study sought to determine whether combining the differential reinforcement of other behavior (DRO) procedure with other techniques would make it more successful in reducing aggressive and self-injurious behaviors in children with mental retardation. In the 4 children studied, the DRO procedure was combined with mild verbal punishment, a brief timeout, instructions, or response cost, resulting in a reduction in aggressive responses.

**Social Skills Training**


This 3-year study taught social skills through the Second Step curriculum as part of a School-Wide Positive Behavior Support (SWPBS). As one outcome measurement, staff members recorded serious incidents in which they were obligated to use physical management to maintain safety. The number of serious incidents per month were
calculated by dividing the total number of serious incidents by the number of days in a month. Analysis showed that serious incidents varied during baseline and then climbed from less than .01 to .04. After implementation, serious incidents dropped, decreasing from a high of .05 to below .01.


See annotation in the Problem-Solving Training section.


A meta-analysis of 35 studies of social skill interventions in students with emotional or behavioral disorders resulted in a pooled mean effect size of 0.199. This indicated that the expected gain from training was a modest 8 percentile ranks for the average student. Interventions that focused on teaching and measuring specific social skills, such as cooperation or social problem solving, had slightly larger effect sizes than the more global interventions.


A meta-analysis of single-subject design methodology included 64 studies that investigated the efficacy of social skills instruction. The studies included 283 participants with an average age of about 10 years and an average IQ of 87; 72% of the participants were boys. Evaluation of the proportion of nonoverlapping data between baseline and treatment showed the effects of instruction to be modest, with 62% of data not overlapping.


In this study, 41 institutionalized aggressive children (ages 7–13) were randomly assigned to treatment that included cognitive–behavioral skill building or desensitization/imagery techniques. Role-play assessment showed that the skill-building group mastered 84% of their training objectives. Analysis of behavioral observations on the playground showed a significant reduction in aggression and a significant increase
in cooperative play for both groups. When difference scores were analyzed, reduction in aggression was significantly greater in the skill-building group, but gains in cooperative play were similar between groups.

Verbal Mediation


Multiple anger control techniques were combined in this study of 16 boys (ages 7–10) identified by teachers as having anger problems. The intervention included modeling, rehearsal with self-talk problem solving, daily report cards, and a praise phase, administered in two sessions per week for 3 weeks. Compared to controls, the boys who received training had significantly higher scores on the Aggression Control Factor of the Olweus Aggression Inventory and the Compliment observation category at posttesting. Scores were significantly higher for controls than for treated boys on the Dislike Factor of the Peer Status Rating Scale–Child Report Form and the Threat observation category.


This study evaluated the effects of anger control training in 12 adolescents who had a history of aggression and were residing at a treatment center. A multiple baseline design was partially controlled for the effect of the residential treatment program. Anger control training, conducted in six 1-hour sessions over 5 weeks, included thought stopping, relaxation training, and problem-solving self-talk. Houseparents logged incidents of verbal and physical aggression, which had good interobserver reliability. Of the 10 adolescents who completed the study, 9 reduced their rates of aggression according to both observational data and teacher reports; 1 adolescent’s aggression briefly increased but then decreased.


Based on the hypothesis that aggressive boys may have an ineffective linguistic control system, aggressive (n = 49) and non-aggressive (n = 46) 1st and 2nd grade boys were given tests of verbal ability, self-guiding speech, nonverbal intelligence, reading achievement, impulsivity, ability to inhibit responses, and response modulation after overt and covert commands. Discriminant function analysis showed 88% of cases to be classified correctly. Variables with high scores that contributed to the aggressive classification were vocabulary, immature and irrelevant private speech, fast reaction
times, baseline speed of finger tapping, inhibition errors, and speed of responding during covert commands for slowing. These results offered proof that self-speech could be a promising intervention.


This study tested whether “Think Aloud,” a program to foster verbal mediation skills, would improve test performance and teacher ratings of classroom behavior in hyperaggressive boys. The trained group consisted of 12 boys in 2nd grade who participated in daily 30-minute individual sessions for 6 weeks. The trained group and an aggressive control group had similar preintervention cognitive test scores. However, the postintervention cognitive scores of the trained group showed significant improvement, with a pattern resembling that of the normal control group rather than the aggressive control group. Both the trained and untrained groups received improved teacher ratings of aggression; however, teachers found improvement in a significantly larger number of prosocial factors in the trained group.
Chapter 3

Interventions for Conduct Problems: Evidence for Use Annotations

Anger Management Skills Training


This meta-analysis focused on studies of interventions for adolescents (ages 12–18) with severe aggression problems. To be included, the six studies had to have included an individual treatment component, cognitive behavioral treatment (CBT), a comparison control group, and enough data to calculate effect sizes. Although overall the effect size was large and homogeneous \(d = 1.139\), the analysis showed that there are not many studies about the effectiveness of individually focused CBT for adolescents. The majority of CBTs for aggression are group-based interventions. The results of this meta-analysis suggest that individually focused CBT could be beneficial, possibly in combination with a group intervention.


This meta-analysis included 60 studies (1979–2010) of preventative anger management and impulse-control-based interventions for at-risk students. Overall the interventions had a small to moderate beneficial effect in reducing students’ aggressive behaviors (effect size = −0.27). Incorporating role-play (modeling) showed no significant effect in anger management interventions, but otherwise all the types of interventions were statistically equal in improving at-risk students’ conduct. Also, there were no demonstrably different effects due to total treatment or treatment session length. The results showed that anger management programs were positively received by both the adults rating the children’s behavior and by the children themselves, who self-reported fewer instances of feeling angry.

This meta-analysis of 18 studies examined the effectiveness of cognitive-behavioral approach (CBA) interventions for high-school-age children with behavior or emotional disorders who were within a normal range of intelligence. The goal of the interventions was to positively impact three dimensions of anger: behavior, cognition, and emotion. The results suggest that CBA is moderately effective for promoting anger management in children with emotional and behavioral disorders.


This study examined the effects of an anger management program on the aggressive behavior of 7 students attending a day school for adolescents with emotional disturbance. The program included psychoeducation, anger discrimination training, logging incidents of anger, and training in prosocial responses to anger. Prior to participation in the program, the students’ mean score on the Conduct subscale of a behavior rating scale completed by teachers was 92.57. After participation, their mean score was 80.28. Individually, each student’s score either improved or stayed the same. Overall, the students’ improvement was statistically significant.


This study investigated the impact of anger management training on the aggressive behavior of 8 adolescent males living in a residential treatment facility. The subjects attended 12 one-hour group sessions biweekly with lessons that included concepts such as assertiveness, communication, and relaxation; and they completed homework that involved journaling about anger-producing situations, observing anger cues, and practicing skills learned during group sessions. Results indicated that the anger management training was effective in reducing aggressive behavior, evidenced by observations, interviews, and responses to items on both the Novaco Provocation Inventory and the State-Trait Anger Expression Inventory.


This study describes the effects of an anger control training (ACT) program instituted in a group home for adolescents in state custody for unruly and delinquent behavior. Comparisons were made between changes in antisocial behavior by adolescents who completed ACT and changes shown by comparable adolescents in state custody and
comparable adolescents in group homes. Results indicated that adolescents who received ACT showed greater improvement in reducing antisocial behavior than those in either comparison group. In addition, the longer the period in the ACT program, the more significant the effect on reducing the aggressive behaviors.


This study looked at the effectiveness of social cognitive treatment in reducing anger and aggressive behavior. Four adolescents with childhood-onset conduct disorder participated in 24 sessions of a social cognitive intervention. Each adolescent was paired with another adolescent and met with a therapist in Pair Therapy for 24 one-hour sessions over 12 weeks. All 4 students received fewer disciplinary referrals involving aggression during a 4-week period after treatment as compared to the 4-week period just prior to treatment.


Thirty-six junior-high school students attending a specialized program for disruptive students were selected for a group anger control training program based on their high rates of classroom and/or community disruption. The training program was conducted in 10 biweekly, 50-minute sessions and included teaching skills such as self-monitoring, self-evaluation, “thinking ahead,” and relaxation. The data provide modest support for the efficacy of anger control training in reducing incidences of aggressive behaviors. Results also indicate that anger control training has its greatest impact on low-frequency, high-severity, aggressive behaviors.

### Independent Group-Oriented Contingency Management


This meta-analysis examined 182 studies of group contingency interventions for children with conduct problems. The authors defined three types of *group contingencies* based on how the consequence/reward is meted out: one in which a common consequence is the result of the behavior of the whole (interdependent), one where the behavior of a specified subgroup of the whole (dependent) determines if the group is rewarded or not, and one in which each member of the group receives a consequence (or not) based on his/her own behavior (independent). To be included, studies had to include school-age children, be empirical, be single-subject design, and include enough
data to calculate effect size. The overall effect size of 3.41 strongly supports the effectiveness of group contingencies. This was found to be true for all three types of group contingencies and for a variety of target behaviors.


This study evaluated the effectiveness of a group contingency intervention for smokers ages 18–60. Individual intervention programs reward participants for their own abstinence. The authors wanted to observe if a group contingency would increase the rate of abstinence (as measured by participants’ breath carbon monoxide (CO) rating) through the support of team members. The 13 participants were split into teams and, through the Internet, were able to see each other’s progress and communicate with each other. Based on CO levels, teams received vouchers they could exchange for goods. A CO value of $\leq 4$ ppm was present in less than 1% of participants at the beginning of the intervention, and was present in 57% at the end. The majority (65%) of participants commented that the online support was a positive experience.


Although research confirms successful use of token economy systems for motivating behavioral change in individuals at residential treatment facilities, some children do not respond to such systems. In this study, investigators selected 3 such nonresponders and increased the frequency and immediacy of their access to the rewards earned with tokens. A treatment-withdrawal experimental design determined that the number of intense behavioral episodes each child exhibited decreased substantially as the rewards earned increased, providing evidence that token economies with an increased frequency and immediacy of rewards can be used successfully even with children who were nonresponsive to traditional token economies.


This 2-year case study of positive behavior support, the Key-to-Success project, was implemented in a culturally diverse, urban elementary school with increasing student behavior problems. Working with behavioral consultants, the school leadership team developed a positive approach to reduce disruptive behavior schoolwide and prevent future escalation of antisocial behaviors, including fighting. This approach included a token economy system in which students who followed the schoolwide rules were
provided with “keys” that could be exchanged weekly for rewards. After 2 years, the
number of office discipline referrals (ODR) per student decreased 46%. Fighting ODR,
among the most serious offenses, decreased 55%.


This report documents a methodology for evaluating and improving prevention programs using the Early Secondary Prevention Program in Monmouth County, New Jersey, as an example. This drug-abuse prevention program was simultaneously implemented at two middle schools. The program involved biweekly meetings with students, and appropriate behavior was rewarded through the use of a token economy system. Results were measured by student attendance, promptness, and achievement, as well as teacher ratings. At the end of the first year, statistically significant positive program effects were found at one school. Process improvements implemented at the second school improved the next year’s results.


This study of 3 extremely noncompliant preschool-age children investigated differential reinforcement as a technique for establishing instructional control. For all 3 children, compliance at least doubled from baseline when access to free playtime, materials, and a snack—mediated by a token economy system—was made contingent on following the teacher’s instructions to complete a specific academic task. For 2 of the children, who did not respond sufficiently to differential reinforcement alone, a timeout contingency was added, increasing compliance to nearly 100%.


This study investigated which contingency—individual or group—was more effective in decreasing students’ inappropriate behavior. After documenting baseline student behavior in a classroom for 15 days, students were given individual incentives. Each student who did not leave his or her seat or speak out of turn was given 30 minutes of free time. Then, researchers tested a group contingency. If five or fewer total rule violations were observed, the entire class was rewarded with free time. The study found that both contingencies were extremely effective in decreasing students’ inappropriate behavior; however, the majority of students preferred the individual contingency.

Eleven boys (6 of whom completed the study) in an institute for children with mild mental retardation were observed during differing periods of timeout and response cost to see which was most effective in lowering the rates of problem behavior. The timeouts and response costs used were 5 tokens, 30 tokens, 5 minutes, and 30 minutes. As anticipated, the higher cost reinforcements were more effective than the lower cost ones, which actually increased the occurrences of problem behavior. There was very little difference in the effectiveness of the 30-minute timeout and the 30-token response cost; both were equally effective. However, because of the amount of time wasted in multiple extended timeouts, response cost may be more desirable.


In this study, 8 particularly disruptive students were observed first in a base trial and then while participating in a token reinforcement program to determine whether the program could reduce inappropriate behavior. Initially, the students were individually rated each day based on their adherence to class rules. The students who rated high enough could select a small reward at the end of the day. Later, ratings accumulated for 2, 3, or 4 days before reinforcement was offered to discover if the delayed gratification produced the same effect. For all 8 students, disruptive behavior markedly decreased from 76% to 10% over the course of the study, continuing even when gratification was delayed.

**Interdependent Group-Oriented Contingency Management**


See annotation in the Independent Group-Oriented Contingency Management section.


The authors of this study conducted a meta-analysis of 16 studies and found results for the interdependent group contingency management (e.g., the Good Behavior Game) to be strong for a variety of conduct-type problems. Disruptive behavior was impacted for seven out of eight studies that examined the variable. Five studies demonstrated
interdependent group-oriented contingency management as having modest to highly effective results on aggression. Rule violation was quite responsive as was antisocial behavior.


This study evaluated the effectiveness of an intervention, called Class-Wide Function-related Intervention Teams (CW-FIT), to positively affect the behavior of 310 students in a 1st-grade classroom. CW-FIT is an interdependent group-contingency intervention. If students behave in a positive way, the teacher rewards their behavior with a predetermined item or activity. In this study, student teams could earn points by following the classroom standards of behavior (e.g., how to get the teacher’s attention, how to follow instructions, how to ignore inappropriate behavior), and the team with the most points was rewarded (e.g., extra minutes of recess). Students who did not earn points were not reprimanded, but they were reminded of the rules. The results of the study showed that students’ positive behavior did increase, including 3 students who had been identified as at-risk at the beginning of the study. Also, the teacher praised more and reprimanded less.


This study evaluated the Class-Wide Function-related Intervention Teams (CW-FIT) group-contingency intervention. The intervention was implemented in six classes across three schools, involving 107 students in grades K–5. Eight of the students were at risk for emotional/behavioral disorders (EBD). The CW-FIT program taught the students prosocial skills (e.g., appropriate ways to gain the teacher’s attention, following directions) and then reinforced the rules through a game format, in which all members of a group had to succeed to earn a reward. For example, if all students in one row were behaving according to the rules for a certain period of time, they were rewarded with tokens. Results from the study showed that use of the CW-FIT increased students’ on-task behavior, and teachers’ frequency of praise. Disruptive student behavior and teacher reprimands both decreased. This was seen across class levels and in students at risk for EBD.

This study evaluated an elementary-level preventative intervention that discourages problematic behaviors and promotes positive behaviors by introducing a positive peer reporting system, called “tootling.” Nineteen students in 3rd grade were instructed to write positive behaviors they saw their classmates perform (e.g., helping someone else, sharing) on a card and give it to their teachers. The classroom included 4 students with either specific learning disabilities and/or ADHD. Before the intervention was introduced, the class had a mean of 23.2 observed daily disruptive behaviors. During intervention, the mean was 8.4. The researchers withdrew the intervention and reintroduced it again in an A-B-A-B research design and saw similar trends in disruptive behavior. These results suggest “tootling” is a successful preventative intervention.


This study examined a group-contingency intervention that used a digital scoreboard as an automated feedback device. Three high school teachers set a countdown clock and for every 2 minutes where their instruction was not interrupted by disruptive student behavior, they awarded the students a point. If the class earned 17 points (that is, if there were 34 minutes of consecutive uninterrupted instruction) the students earned free time. Each teacher chose one of their 10th grade classes (23–32 students) that had disciplinary problems. Across the three classrooms, student engagement increased, the disruptive behavior decreased, and the teachers needed to give disciplinary feedback less often. The teachers reported that they were able to cover their instructional materials in less time, and they would recommend the intervention.


This is an A-B-A-B research design of a group-contingency intervention that promotes positive behavior through positive peer review (i.e., tootling). The participants of the study were 6 males (ages 12–16) from a residential treatment center who had a diagnosis of Conduct Disorder. They were taught to orally report prosocial behavior (e.g., displaying empathy, courtesy, or recognition of another’s opinion) they observed in their peers during aggression replacement training (ART). A certain number of “tootles” would garner the group a reward. After the baseline period, the intervention was implemented for 3 weeks, withdrawn, and then reimplemented for 3 weeks. Prosocial behaviors were observed to increase during the intervention periods. In addition, the author noted that participants discussed what constituted a prosocial
behavior as a result of the intervention and encouraged such behaviors among each other. However, 1 participant also used it as a way to punish the group in one session by refusing to contribute to the tootle quota. Prosocial behaviors decreased dramatically once the intervention was withdrawn, and they increased again when it was reimplemented.


This study individualized the good behavior game to address various types and frequencies of behavior exhibited by three classes of students with severe behavioral disturbance. The students were divided into groups based on the inappropriate behavior they most frequently performed. These behaviors included inappropriate verbalizations, touching, negative comments, cursing, and drumming/tapping. Data showed the individualized technique was effective in reducing these behaviors and was well received by both teachers and students.


For this study, good behavior was made into a game in a 2nd-grade classroom. The teacher in the observed classroom divided the students into two teams, assigning negative points whenever a student broke one of the five classroom rules. The winning team at the end of each 60 minute session went through the lunch line first, and each team member received a cookie. When the game was implemented, inappropriate behavior decreased significantly from an average of 34.2 rule-breaking behaviors per session to 6.3 per session, and it increased when the game was discontinued. In addition, the study found that students enjoyed the game and complained when the trial came to an end.


See annotation in the Independent Group-Oriented Contingency Management section.


In this replication of the good behavior game in a 5th- and a 6th-grade classroom, the technique was again found effective in significantly reducing disruptive talking and out-of-seat behavior. Several manipulations of the game in the 6th-grade classroom
determined that the following components influenced its effectiveness: division of the class into teams, positive consequences for a team winning the game, and criteria set for winning (i.e., number of points needed to achieve the reward). Whether or not students received direct feedback (i.e., marks on the blackboard) did not seem to affect disruptive behavior. Despite a marked reduction in disruptive behavior, little or no improvement occurred in academic performance.


A 5th-grade reading class of 28 students, divided into two groups of 14 students each, participated in this study of the good behavior game. Game components included presenting the classroom rules, providing response feedback (e.g., red and green lights for bad and good behavior, respectively), and implementing group contingencies (e.g., extra recess and extra free time) if criteria were met. The game effectively reduced talking out, disruptive behaviors, and out-of-seat behaviors. Rates for these behaviors dropped from their baseline measure in both groups, by almost 99% and 97%.


This study, conducted in a 4th-grade classroom of 24 students, investigated a technique designed to reduce disruptive behavior using a game involving privileges. The students were divided into two teams. During the game, when a student broke one of the rules for out-of-seat or talking-out behavior, that student’s team received a mark on the chalkboard that contributed to the team losing privileges (e.g., extra recess, first to go to lunch). Incidence of out-of-seat behavior decreased from 82% to 9% when the game was being played, and talking-out behavior decreased from 96% to 19%.

**Moral Motivation Training**


One hundred juvenile delinquents (ages 11–17) who were first-time shoplifting offenders were the subject of this study, which analyzed whether the collective factors of age group and levels of moral reasoning were a predictor of an intention to steal. The preteen and teen delinquents were given questionnaires that listed common reasons people steal and were told to rate them according to whether or not each was an acceptable reason to steal. Preteens were more likely than teens to have a positive attitude toward preconventional dimensions of moral reasoning (e.g., need) while teens were more likely to identify with conventional dimensions of moral reasoning.
(e.g., peers) for stealing. In addition, preteens were less likely than teens to consider the risks involved before stealing. The findings suggest that a developmental shift to a higher level of moral reasoning led to a decrease in intention to steal; furthermore, it seemed that age group was less of an indicator of behavioral intent than was level of moral reasoning.


This study investigated whether adolescents at risk for juvenile delinquency would benefit from an intervention designed to accelerate moral reasoning development. The 48 participants (ages 13–17) attended between 16 and 20 weekly moral-dilemma discussion sessions, each approximately 45 minutes in length. The sessions involved presenting an example of a moral dilemma and talking through it while the facilitator prompted the students with probing questions. Results showed advances in moral reasoning and significant reduction in school office referrals and other problem behaviors. A subgroup of 22 students provided 1-year follow-up data, which showed continued behavior improvement and progress in socio-moral reasoning.


This study examined how levels of moral reasoning affected the rate of conduct problems in the classroom for 60 students in 6th grade, based on Kohlberg’s Moral Judgment Interview. As predicted, it was determined that higher levels of moral reasoning correlated with a consistently low rate of conduct problems. Among students with lower levels of moral reasoning, there was a great degree of variance. However, moral reasoning accounted for only about 10% of the variance in conduct; academic performance, sex, and social status also accounted for some of it. Therefore, training in moral reasoning, while a worthwhile goal in itself, should be accompanied by behavioral intervention when more immediate or drastic changes in conduct are desired.


This study reported on the effects of moral education in schools, using Kohlberg’s index of moral thinking. In the first stage of the experiment, one Jewish Sunday School classroom was studied; in the second stage, four public school classrooms plus several control groups were studied. All participants were first given a pretest addressing moral dilemmas. The experimental group discussed moral problems for 12 hours over the course of 12 weeks. These discussions challenged students to think at a higher stage of
moral thinking. Posttesting, as well as 1-year follow-up testing, showed that the experimental group moved toward a higher level of moral thinking than the control groups.

**Multimodal Interventions**


This long-term randomized controlled trial reviewed the effectiveness of preventing adult psychopathology in children diagnosed with early-starting conduct problems through early intervention. The 10-year intervention consisted of social skills training for the children, behavior management training with home visits for their parents, peer coaching, tutoring, and social-emotional curricula in the classroom setting. The study screened 979 kindergarten students yielding 891 consents at the outset; 98% of these kids started in grade 1 and 80% of them continued through grade 10. Of those who participated, 92% did the follow-up interview/peer review at age 25. The analyses showed that 59% of the participants in the intervention had at least one type of psychiatric problem at the follow-up review, compared to 69% of the participants in the control group. This was true across type of problem and group cohort. Participants in the intervention also had lower crime convictions and risky sexual behavior scores, and higher well-being scores.


See annotation in the Parent Training section.


In this study, the investigators examined social skills, problem-solving, and anger management curriculum (Incredible Years: Dinosaur Curriculum) for long-term effectiveness and generalizability across settings. Children with early-onset conduct problems from 99 families were randomly assigned to receive this curriculum or to a control group. Compared with controls, the children who underwent intervention had statistically and clinically greater improvement in conduct problems and in cognitive social problem-solving strategies. These results occurred in both home and school
settings and were sustained at 1 year. The presence of ADHD or family stress did not affect a child’s ability to benefit from treatment, but negative parenting did emerge as a risk factor.


This article examines implementation of Fast Track, a long-term, multicomponent, multisite program designed to prevent antisocial behavior in high-risk children. Participants included 891 behaviorally disruptive kindergartners and their parents, divided into intervention and control groups. Intervention consisted of the PATHS® (Promoting Alternative Thinking Strategies) curriculum plus social skills training, academic tutoring, parent training, and home visiting. At the end of grade 1, children in the intervention group showed significantly more progress than those in the control group in acquiring emotional and social coping skills, which were accompanied by more positive peer relations. Compared with control parents, those in the intervention group showed more warmth and positive involvement, more appropriate and consistent discipline, more positive school involvement, and less harsh discipline.


See annotation in the Parent Training section.


This study of 97 families sought to determine whether child training or parent training is more effective in treating early-onset conduct problems. Each family received one or both of these interventions or no treatment. Interventions that involved child training were superior to those that involved parent training for improving problem-solving and conflict-management skills. Interventions that involved parent training were superior in terms of child behavior improvements (as reported by parents), parent behaviors, and consumer satisfaction. At a 1-year follow-up, all significant results of treatment were maintained and a positive “delayed effect” of combination therapy on deviance at home was noted.
This article reports on the cumulative effects of the Seattle Social Development Project, a 6-year, elementary school program of classroom, child, and parent interventions, designed to reduce the risk of school failure, drug use, and delinquency in low-income children. At the end of 6th grade, girls in the intervention group perceived more opportunities and reinforcements for involvement in the classroom and expressed stronger bonding to school than girls in the control group. They were also less likely to start using tobacco (significant difference), alcohol, or marijuana. Boys in the intervention group improved in social competencies and academic skills and efforts. In addition, they tended to become delinquent at lower rates than controls but had similar rates of drug initiation.


Equipping Youth to Help One Another (EQUIP), which incorporates social skills training, anger management, and moral education into a peer group format, was evaluated in this study of 57 adolescents in a medium-security correctional facility. Compared with two control groups, the EQUIP group showed substantial gains in social skills and behavior. Institutional conduct gains were highly significant in terms of self-reported misconduct, staff-filed incident reports, and unexcused absences from school. The program’s impact was sustained over time, as evidenced by a recidivism rate half that of controls at 6 months and one-third at 1 year.


A randomized study evaluated problem-solving skills training (PSST) and parent management training (PMT)—each separately and both combined—to determine which training was more effective in 97 children (ages 7–13). Although PSST, PMT, and PSST+PMT each improved children’s functioning, the combined treatment produced more marked, pervasive, and durable changes in children’s functioning and greater changes in parental functioning posttreatment and at a 1-year follow-up. A larger proportion of children receiving combination treatment reached normal levels of functioning.
Multisystemic Therapy


This randomized clinical study, the first to assess the effectiveness of multisystematic therapy (MST) in the United States without oversight of the model developers, sought to determine the effectiveness of MST on a broader basis among juvenile offenders. Pre- and posttreatment data showed that youths in traditional therapy were 3.2 times more likely to be re-arrested than youths who underwent MST. This community-based, independent study revealed substantial increases in the youths’ ability to function in the home, at school, and in the community, indicating that the primary goals of MST can be met without the management of the model’s developers.


In this study, youths with serious mental health disorders were randomly placed into either multisystemic therapy (MST) or the traditional therapy provided by the Hawaii Continuum of Care. Those who underwent MST experienced a significant decrease in self-reported minor criminal activity and a smaller decrease in arrests per month. Caregivers of those who underwent MST reported greater satisfaction with social support than did those of youths who underwent traditional therapy. Additionally, youths receiving MST spent more days per month in general education settings and fewer days in out-of-home placement than those who received traditional therapy.


This study sought to determine whether multisystemic therapy (MST) could have the same positive results as previously documented when conducted as normal clinical training without the oversight of an MST expert. After 155 adolescents participated in the therapy, it was discovered that MST did reduce the percentage of re-arrests and days incarcerated but not by as significant a percentage as previous data had shown, revealing the importance of treatment fidelity. The authors concluded that the costs of training facilitators properly to ensure strong adherence to therapy protocol outweigh the potential costs of ineffective therapy.

This study compared multisystemic therapy (MST), which focuses on the family, school, neighborhood, and other systems that affect adolescent behavior, with individual therapy. Participants were 140 families with a 12- to 17-year-old adolescent who had at least two arrests. Based on posttreatment evaluation and follow-up data gathered for 4 years after the treatment was completed, the results showed that adolescents receiving MST had significantly fewer behavioral problems and a lower probability of subsequent arrest, as well as more family cohesion and adaptability, than did those who received traditional therapy alone.


In comparing multisystemic therapy (MST) to the traditional therapy offered by South Carolina’s Department of Youth Services, this study found that 84 serious juvenile offenders responded better to MST than to traditional therapy. Pretreatment, posttreatment, and follow-up assessments showed that youths who underwent MST had fewer arrests and offenses, shorter incarcerations, and improved family relations. These results appeared to be consistent regardless of divergent backgrounds, strengths, and weaknesses.

### Parent Training


The authors interviewed 7 mothers who participated in the Incredible Years Programme (IYP), a training program for students, parents, and teachers. There was supporting evidence for the success of the intervention for children with early-onset Conduct Disorder, but little previous research on the outcomes for their parents. The mothers had to have completed the program 12 to 24 months before completing the questionnaire. The authors performed a thematic analysis of the seven questionnaires and found that “change in the mother” was the overarching theme. Other themes included “change in the child” and “change in approach to parenting.” The authors concluded from their review that IYP was a strong intervention for parents.

For this study, nine Head Start centers were randomly assigned to implement the Incredible Years Parent Training Program or to serve as the control group. Before intervention, all 882 participants were observed at home to determine baseline. Children were considered based on their rate of problem behavior, and mothers were considered if they made 10 or more critical statements to their children within the 30-minute observation. Results were tracked based on problem levels at baseline, whether the mothers attended training, and whether they improved. It was found that without parent training, children showed rapid increases in problem behavior. However, about two-thirds of the mothers made an effort to attend training, and for those who showed improvement (at least a 30% decrease in criticisms), child conduct problems decreased and prosocial behaviors increased, pointing to the validity of parent training programs as a method for improving the behavior of young children.


Detailing the implementation of a community-wide parenting program in South East Sydney (the Positive Parenting Project), this paper documents that an evidence-based program formerly utilized only in small, controlled settings can be successful as a broader, community-based program. Public health services and various government and community agencies, such as preschools and churches, collaborated to offer this program at a low cost to parents. Evaluations after the program’s completion and at 6- and 12-month follow-up dates revealed that improvements were sustained in parental mental health and in reduced disruptive child behavior, dysfunctional parenting, and conflict between parents.


Nine urban Head Start centers were chosen for this study and were randomly assigned to either the intervention or control group. In all, 542 families, with an average income of $10,000 and many other factors that put children at risk for conduct problems, participated in the study. In the centers chosen for the intervention group, 75% of families chose to participate in the 8-week PARTNERS parent training. At post-assessment, 65% of participant mothers who were considered high risk at pre-assessment showed at least a 30% reduction in critical statements, compared to only 52% in the control group. Significant improvements in children’s behavior in the
intervention group were also noted. Some improvements were maintained at 1-year follow-up, although some of the differences between groups were no longer clinically significant.


See annotation in the Multimodal Interventions section.


See annotation in the Problem-Solving Training section.


This study examined the effects of child management training (CMT) with and without adjunctive ally support training (AST). Participants were 22 disadvantaged single parents of children with conduct problems. Half of the participants selected allies, who were then given introductory training in supporting the single parents. The other half did not receive formal support. Pretreatment, posttreatment, and 6-month follow-up levels of parent behavior, child deviance, social support, and parental depression were evaluated in both groups. Results demonstrated that the formal adjunctive ally support did not make a significant difference; however, social support from friends was shown to be critical to the long-term success of the training.


See annotation in the Multimodal Interventions section.
Problem-Solving Training


This study of three successive classes of 3rd graders (N = 548) evaluated a school-based prevention program, Making Choices: Social Problem Solving Skills for Children (MC), which was designed to promote social competence and reduce aggression by strengthening skills in processing social information, solving social problems, and regulating emotions. The first class received the standard health curriculum; the second class, the MC program; and the third class, the MC program augmented with teacher and parent activities (MC Plus). The results showed that, compared with the standard curriculum class, students in both intervention groups demonstrated increases in social competence and decreases in social and physical aggression.


This study was one of the first to analyze adolescents with both conduct disorders and substance dependency. The adolescents were randomly assigned to either family-based therapy or independent cognitive problem-solving therapy, and results were monitored pretreatment, posttreatment, and at a 6-month follow-up. The study’s results showed little difference between the two groups, with both groups demonstrating a significant decrease in illicit drug use, as well as improvement in school performance, family relationships, mood, and overall satisfaction of both the youths and their parents.


This study examined the effects of parent-focused, child-focused, and materials-only interventions for reducing problem behaviors in high-risk youth. The study included 158 families with children between the ages of 10 and 14. Results showed that problem-solving skills increased and parent–child coercive interactions decreased significantly following both the parent-focused and teen-focused interventions, compared to subjects in the materials-only or the control group. This study also demonstrated that interventions grouping high-risk adolescents together on a regular
basis led to escalations in tobacco use and problem behavior at school, suggesting the need to re-evaluate strategies that aggregate high-risk adolescents into group intervention programs.


See annotation in the Multimodal Interventions section.


In this treatment comparison, 56 children (ages 7–13) hospitalized for antisocial behavior were randomly assigned to receive problem-solving skills training (PSST), nondirective relationship therapy (RT), or treatment contact only. Those receiving PSST showed significantly greater decreases in aggressive behaviors and overall behavior problems than those receiving RT or treatment contact. The between-group differences and within-group changes of PSST persisted up to a year after treatment. When normative data were used to evaluate the clinical impact of treatment, significantly more children in the PSST group than in the other groups fell within the normative range for prosocial behavior.

### Social Skills Training


This study evaluated the effectiveness of Early Risers (ER) “Skills for Success” Conduct Problems Prevention Program. ER is a comprehensive multicomponent intervention that targets elementary children who are displaying disruptive behavior in order to stop conduct problems early. The intervention promotes self-regulations of emotions and behaviors, as well as prosocial relationships with classmates. Participants in the study (245 kindergartners) had been evaluated as aggressive by their teachers and were either assigned to ER or a control group. By grade 3, the ER students had significantly fewer symptoms of the following than the control students: conduct disorder, oppositional defiant disorder, and major depressive disorder. The increasing social skills and effectiveness of parent discipline components of the intervention contributed most to these outcomes.

This meta-analysis evaluated the effectiveness of self-control improvement programs to reduce problem behaviors in students. The 34 studies included in the review focused on early intervention for young children (up to age 10), and followed a randomized-control comparison design. Overall, the results of the review suggest that this type of intervention is effective at improving a child’s self-control and reducing delinquency and other problem behaviors in children. These results were observed across variables and groupings, as well as by those who reported the results (e.g., parents, teachers, the children themselves). These results suggest that self-control can be improved and that it can affect the rate of negative conduct in children in a positive way.


This is a literature review of school-based interventions for children identified as aggressive or at risk for aggressiveness. The author’s reviewed results from 56 studies, and performed a meta-analysis of the 34 trials that had adequate data. Overall, the results showed that aggressive behavior was reduced in groups who received an intervention compared to groups who did not. In the 34 studies with data, the results were significant with a standardized mean difference of −0.04, and a 95% confidence interval of −0.5 to −0.26. This includes interventions across grade levels, contradicting some studies that say earlier intervention (elementary level) is more effective. Also mixed sex interventions were as effective as male only programs. Interventions that focus on relationship skills and social skills may be more effective than ones that encourage non-action in provocative situations.


See annotation in the Multimodal Interventions section.


This study of children in Head Start through 1st grade who were identified as at risk for behavioral problems assessed the effects of a social skills training intervention program. The program consisted of social skill lessons from an established curriculum 1 to 3 times per week, plus reinforcement, peer tutoring, and parent support. The results showed
that students who received the intervention displayed more positive peer interaction and fewer instances of problem behaviors than those in the control group. In addition, positive teacher reinforcement further improved student behavior.


This study compared the effects of instruction in social skills versus prohibitions for negative social behavior. Subjects included 32 boys in 2nd and 3rd grade with highly negative social behavior who had been rejected by their peers. The students were randomly assigned to receive instruction in social skills (e.g., sharing, helping, cooperating); prohibitions and response cost for negative behavior; a combination of instructions and prohibitions; or no treatment. Prohibitions with response cost for negative behavior reduced negative behaviors immediately and at a 6-week follow-up but increased positive responses from peers only temporarily. Social skills instruction and rewards for specific positive behaviors resulted in less immediate but more stable improvements.
Chapter 4
Interventions for Hyperactivity: Evidence for Use Annotations

Contingency Management


This meta-analysis involved 14 studies of behavioral treatments for ADHD, published after 1994, and included 625 participants. Overall, this analysis supports the use of nonpharmacological interventions (e.g., behavior modification, school-based programs, working memory training) to treat children 18 years or younger with ADHD. Neurofeedback treatment and behavior modification resulted in improvement most frequently across the studies. Neurofeedback treatment had the largest positive average weighted effect size. Benefits from memory training, school-based, parent training, self-monitoring, and multimodal interventions could not be considered statistically significant. There was no significant variation in results across ages, but females benefited more from psychological treatments than males.


The authors compiled data from 60 studies, from 1996–2010, that reviewed the use of interventions in classrooms for students with ADHD. Studies included in the meta-analysis covered grades K–12, and were classified into three categories. Academic interventions focused on the nature of instruction (e.g., computer-aided) and academic skills (e.g., organization); contingency management interventions used reinforcement and/or punishment to modify behaviors; and cognitive–behavioral interventions focused on developing students’ self-control skills. Overall results showed that school-based interventions yielded moderate to large effects for both academic and behavioral functions. Contingency interventions, used in isolation, were effective at improving behavior and engaging students in class activities. Self-regulation and academic strategies were best used as a preventive measure for behavior problems.

An 8-year-old boy in 3rd grade who had been diagnosed with ADHD was the subject of this case study. For the study, the boy’s behavior modification program was assessed and systematically modified to produce a more effective intervention, which was measured as improved student behavior. The participant and a comparison student were observed each school day during two 50-minute periods at 15-second and 6-second intervals. After baseline data (i.e., percentage of disruptive intervals and percentage of on-task intervals) were collected, changes were made to the intervention so that reinforcement was given for meeting 75% of behavior goals, and immediate feedback was used when disruptive behavior occurred. Additionally, the participant was allowed two reminders for each goal, meaning three violations of a goal needed to occur before he was recorded as failing to meet the goal. Results indicated that behavior improved to a level on par with other classmates, indicating that basing intervention modifications on student observation can be an effective tool in general education classrooms.


This study examined the impact of medication and a token economy system on the behavior of 3 children: 2 girls (ages 6 and 7) and 1 boy (age 6) attending a summer ADHD treatment program. The children were observed while participating in a kickball game that occurred during a 30-minute recess each day of the 4-week program. Each child received either a dose of medication or a placebo every morning. During each game, data on attentive and disruptive behavior were collected through direct observation and observer ratings. For baseline, no tokens were awarded. During the treatment phase, participants were awarded tokens for attentive behavior, and the tokens could then be exchanged for prizes. Results demonstrated that medication had a positive impact on behavior and that medication combined with the token economy produced the largest improvements in attentive behavior and decreases in disruptive behavior.


Four children (ages 4–5) participated in this study examining the effects of token reinforcement and response cost procedures on preschool children with ADHD. During the token reinforcement condition, buttons were earned for following classroom rules.
(e.g., staying on task, listening quietly), with reinforcers given based on the number of buttons earned. In the response-cost condition, each child began with a certain number of buttons and buttons were lost for breaking classroom rules. Both conditions decreased instances of inappropriate behavior markedly. Teachers preferred the response-cost procedure because they found it to be a consistent way to correct inappropriate behavior that was easier than “catching a child being good.” Teachers opted to continue using the system after completion of the study.


This study examined the effect of an electronic contingency management system, the Attention Training System (ATS), on the on-task behavior of two 6- and 7-year-old boys. The ATS is a device placed on the student’s desk that gives a point for each minute of sustained attention and deducts a point when the teacher activates a button that causes a red light to flash. The ATS was presented to the students during academic seatwork periods, and they received a small reinforcer for receiving 70% of the available points. During baseline conditions, the regular contingency management system in the classroom was still used. While baseline percentages of on-task behavior were variable and generally low for both boys, introduction of the ATS increased on-task behavior significantly.


This study measured the hyperactive behavior and academic performance of 3 students (ages 8–10) diagnosed with and receiving medication for chronic hyperactivity. The participants attended a class for students with learning disabilities at a private elementary school. Math and reading scores were analyzed, along with behavioral data obtained through direct observation. A token system was used to reward students for correct math and reading responses. Four phases were used in the study: on medication (17 days); off medication (3 days); no medication, reinforcement of math but not reading (6 days); and no medication, reinforcement of math and reading (6 days). Results showed that reinforcement of academic performance had comparable effects to medicine for suppressing hyperactive behavior (20% compared to 24%, respectively) and that reinforcement had a greater positive impact on academic progress than did medication (85% average correct for math and reading compared to 12%, respectively).

This investigation explored the relationship between academic performance and its effect on disruptive behavior for five boys in 5th grade in an urban public school. Teachers had identified these children as the most disruptive of their 38 classmates. Disruptive behavior was defined as out of seat without permission, talking out, and engaging in any motor behavior that interfered with another student’s studying. Behavior and academic performance were observed during daily 15-minute reading performance sessions, with data collected on the percentage of disruptive intervals and the percentage of correctly answered questions. A token economy system was employed in which participants earned points for completion and accuracy of academic performance. Results demonstrated that academic performance improved and disruptive behaviors declined with the use of reinforcers. Initial mean baseline disruptive behavior rates ranged from 40% to 50%, dropped to approximately 15% during the first reinforcement phase, jumped to about 40% during second baseline, and dropped to approximately 5% during the second reinforcement phase. Four of the 5 participants demonstrated noteworthy academic improvement over the course of the study.

### Daily Behavior Report Cards (DBRC)


In this study, teachers in an Ohio school program, used the daily report card over a 4-month period with 66 students in grades K–5 who demonstrated disruptive behavior, such as inattention. Seventy-two percent of the sample showed improvement in their target behaviors, suggesting the daily report card is a useful intervention.


This case study involved modifying an intervention program that had been ineffective for one 8-year-old student with ADHD and then measuring the effects of the modifications on his behavior. Observation of the student in class led the author to prescribe three modifications: offering small daily rewards for good behavior, providing immediate verbal feedback for unacceptable behavior, and withdrawing rewards when more than two reminders for target behaviors were required. As a result, the student’s disruptive behaviors decreased from about 30% of intervals to about 10% of intervals,
and on-task behaviors increased from about 62% to 84%. This case illustrated the benefit that minor changes to an existing behavior intervention plan can have for students with ADHD.


This study investigated the efficacy of school–home notes with and without response cost as a methodology for improving classroom behavior and academic achievement. Five elementary school-age children referred for disruptive behavior or low academic performance were monitored for on- or off-task or disruptive behavior. Parents delivered rewards or response-cost measures based on the day’s performance. Results demonstrated that classroom behavior and academic performance improved with use of school–home notes; for many participants, the added measure of response cost resulted in even further improvement. Teacher, parent, and student ratings were obtained before and after treatment; all groups preferred notes plus response cost over notes alone.


This case study examined the effect of a daily behavior report card on the classroom behavior of a preschool boy diagnosed with ADHD. A developmentally appropriate note was constructed, making use of symbols (e.g., sad and happy faces). For each target behavior (e.g., “used class time well”), the student helped to monitor his progress by coloring in the appropriate symbol. Based on predefined criteria, reinforcers were given. Compared to baseline, on-task behavior increased from 57% to 85% when the note was used. Additionally, instances of disruptive behavior decreased from an average of 29% to 7%, and his average number of activity changes during play fell from 8 to 2.


This study assessed the effectiveness of a daily report card procedure in increasing assignment completion and accuracy in 2 elementary school boys who had a history of not completing assignments. Teachers gave daily reports to parents indicating whether or not the students had completed at least 76% of math problems correctly. Performance below this percentage was penalized by withdrawal of a privilege at home that evening. Completion and accuracy both improved dramatically when the intervention began, with baseline completion rates ranging from 0–56% and improving
to 100% on all days except one. Accuracy ranged from a baseline of 0–56% and improved to 70–100%. This study demonstrated that a report card procedure can significantly improve assignment completion and accuracy.


This experiment examined three approaches to instructing parents in employing contingency consequences for improving academic outcomes: a 15-minute conference, two 1-hour conferences, and a letter. Sixteen boys in 2nd grade completed daily in-class mathematics assignments for which report cards were sent to parents daily. A good grade was rewarded, while a poor grade received no reaction. Students in all conditions improved their mathematics performance, with no significant difference found based on the mode of instruction the parent received. However, parents who received the 2 hours of conference training indicated that they would use this type of contingency management technique on other behaviors.

### Functional Behavioral Assessment


This study involved conducting functional assessments on 2 students (ages 13 and 14) diagnosed with ADHD and oppositional defiant disorder (ODD). Hypotheses were formulated based on interviews with teachers and students as well as direct observations of classroom behavior. The first student showed an increase in off-task behaviors when engaged in long writing tasks. The potential intervention strategies tested included using a computer to write longer assignments and being given extra time to think by allowing the student to brainstorm with a peer prior to journal assignments. Results for the first method showed higher on-task behavior during long writing tasks (about 97% when using a computer vs. 65% when writing by hand). For the second method, on-task behavior increased to about 91% with peer brainstorming vs. 63% without intervention. The second student showed an increase in off-task behaviors following peer attention. Potential intervention strategies tested included self-evaluation procedures for peer-seeking behaviors and reducing social reinforcers from peers by implementing a classwide token system on peer relations. Results for the first intervention showed that self-evaluation led to a decrease in attention-seeking behaviors (about 92% with intervention vs. 63% without). In the second intervention, on-task behaviors were higher when students received consequences for responding to attention-seeking behaviors (about 78% with intervention vs. 58% without). In both cases, interventions derived from functional assessments led to significant decreases in off-task behavior.

In this study, functional assessments and analyses were conducted on 3 students (ages 6–9) in regular education classrooms who demonstrated frequent disruptive and off-task behaviors. Through classroom observations and interviews of teachers and students, hypotheses were developed regarding reinforcing behaviors that were maintaining the disruptive behaviors. These included teacher attention, peer attention, and escape from difficult academic tasks. These hypotheses were then tested by implementing contingency reversal (i.e., providing reinforcement in the form of attention/escape following positive and appropriate behavior) in order to decrease the amount of disruptive behavior. All 3 students demonstrated marked decreases in disruptive behavior as well as increases in work completion and accuracy.


One 8-year-old boy diagnosed with ADHD participated in this study about the effects of functional assessment–based interventions on disruptive behavior during academic instruction. Functional assessment involving interviews and structured observations led the researchers to hypothesize that peer attention and escape from task demands were possibly maintaining the disruptive and inattentive behavior. In the intervention condition, these hypotheses were tested by providing limited access to other children during independent work time as well as allowing the student to request a 1- to 2-minute break from the task. Results showed that disruptive behavior decreased from a baseline of 55% to 95% to virtually 0% with intervention.

**Multimodal Interventions**


This study alternated the application and removal of behavioral modification on 4 children with ADHD in a summer treatment program (STP). In an 8-week period, the children received constant behavioral feedback via a point system, timeouts, and praise during weeks 1, 2, 4, 6, 7, and 8. Behavior modification was withdrawn during weeks 3 and 5. Behavior during all weeks was monitored in classroom and recreational settings. For all 4 children, behavior generally improved during treatment conditions and deteriorated when treatment was withdrawn, although individual differences in improvement and decline were noted.

Forty-two male and female students (grades K–6) participated in this year-long study of the Youth Experiencing Success in School (Y.E.S.S.) Program, a mental health program utilizing evidence-based treatment in the form of daily report cards, parenting sessions, and teacher consultations. Thirty students received Y.E.S.S. Program services, while the control group of 12 students was allowed to receive any treatment services available. All students had diagnoses involving inattention, hyperactivity and impulsivity, oppositional or defiant behavior, and/or aggression. Treatment outcomes were assessed via rating scales completed by parents and teachers at three points during the year. Results showed that the Y.E.S.S. Program positively affected symptoms of ADHD, oppositional defiant disorder (ODD), and aggression, as well as academic and social functioning.


This study evaluated the effectiveness of a self-management/group contingency intervention in improving classroom behavior (i.e., reducing inappropriate verbalizations) for students diagnosed with ADHD. Four children diagnosed with ADHD and 4 matched-control peers from a 3rd-grade classroom of 30 students were observed during lesson or work time in the classroom. Baseline data on the targeted behavior (i.e., frequency counts of inappropriate verbalizations made by all 8 participants during a daily 30-minute period for 4 days) were collected, followed by intervention training in which the class was divided into groups and the students were taught how to define, monitor their groups for, and record the target behavior. Students were also taught how to evaluate and record their own behavior. Reinforcers were selected by the class and were earned for meeting set levels of appropriate behavior. Data were then collected, in the same manner as baseline data, for the intervention phase (12 days), second baseline (4 days), and second intervention phase (10 days). Results showed that rates of inappropriate verbalizations fell dramatically from baseline levels during both phases of the intervention for the students with ADHD and the matched-control students. Moreover, differences in talking-out behavior rates between students with ADHD and matched controls narrowed from the initial baseline (ranging from 2.5 to 22.5 for students with ADHD, and 0 to 15 for matched-control students) to nearly identical for the two sets of students during the second baseline.

Attempting to determine the long-term effectiveness of various treatment strategies on behaviors associated with ADHD, this investigation studied 579 children (ages 7–9) diagnosed with ADHD, who were randomly assigned to one of four treatment conditions: behavioral treatment, medication management, combined treatment (behavioral and medication), and community care. While the behavior of participants improved in all four conditions, results showed significant differences between the improvement levels of the groups. The combined treatment group and the medication management group showed the highest levels of improvement in the behavioral symptoms of ADHD, proving to be both clinically and statistically superior to the behavioral and community care treatments. While combined treatment did not offer significantly better results than medication management, the dosage level utilized to obtain these outcomes was much lower in the combined group than in the medication management group.


This study examined the effects of a self-evaluation procedure on the disruptive and aggressive behavior of three 9-year-olds in 4th grade who exhibited behaviors consistent with either ODD or ADHD and who were identified as at risk for later conduct disorder. To collect baseline data, the participants were observed during two academic classes and during recess (15-minute periods at 15-second intervals), as were 3 average students (matched for gender), to determine a typical level of disruptive behavior in the study setting. Data were then collected in the same manner during two additional phases: a teacher-evaluation phase (to teach the rating scale), in which students received verbal feedback and earned tokens for appropriate classroom behavior, and a self-evaluation phase (i.e., intervention phase), in which the participants received self-monitoring training, then self-evaluated with concurrent evaluation by teacher, and later, as teacher evaluation was faded, rated their own behavior. Results showed that self-evaluation effectively reduced the incidence of disruptive behavior in both academic and playground settings for all the participants, suggesting that self-management strategies are useful tools for combating this type of behavior across school settings.

Seeking to clarify the inconsistent results of previous studies on the subject, this 8-week study investigated the effects of behavior modification techniques and medication on the classroom behavior of 31 boys diagnosed with ADHD who were attending a summer treatment program. The study’s design allowed for two behavior conditions (behavior modification and no behavior modification) and three medication conditions (placebo, low dose, and high dose). The behavior conditions alternated on a weekly basis. Medication was introduced during week 3, with conditions changing daily and randomly and each condition occurring each week. Data were collected via observation (3 children per observer) on disruptive and on-task behavior during the first 50 minutes at 15-second intervals of daily 60-minute academic sessions. In addition, data were gathered on the participants’ accuracy and productivity on academic assignments, teacher ratings of the children, and the social validity of the intervention. Results demonstrated that behavior modification alone improved behavior but did not result in academic improvements, while medication alone improved both the behavior and academic performance of the participants. Furthermore, the combination of behavior modification and medication did not offer significant improvement in either area over the levels obtained with medication alone.


A total of 24 boys (ages 6–12) attending a summer treatment program for children with ADHD participated in this study that investigated the effects of a comprehensive behavior management system and medication on the participants’ behavior and academic performance. The behavior management system involved token reinforcement; classroom structure, rules, and feedback; timeouts; an honor roll system; and daily reports home. Two behavior conditions were studied: behavior management and regular classroom (i.e., removal of behavior management components). In addition, three medication conditions were compared: placebo, low dose, and high dose. The order of the medication conditions was random, with each student receiving each dose once over the course of 3 days. Data were collected during daily 60-minute classroom sessions for 6 days over the course of 2 weeks on occurrence of disruptive behavior, number of behavior points earned, and accuracy and percentage attempted of academic work. Results showed that classroom behavior improved with both the behavioral intervention condition and medication conditions alone, but only the medication conditions affected academic performance. Additionally, the combination of behavioral intervention and medication was found to be most effective for producing behavioral improvement.

This study investigated the effects of reinforcement and reinforced self-evaluation treatment conditions on the playground behavior of 24 boys who had been diagnosed with ADHD and were receiving medication. Hypothesizing that reinforced self-evaluation (RSE) would offer greater benefits (i.e., reduction of negative and an increase in positive social behaviors) than reinforcement alone (RA), the participants first received daily instruction for 3 weeks in self-instruction with regards to academic tasks, anger management with regards to peer pressure, and self-evaluation of behavior. During the fourth week, the participants’ playgroup behavior was observed over the course of 2 days. On day one, the children were randomly assigned to one of two cohorts: RSE or RA. Assignments were then reversed on day two. All participants were trying to earn swimming privileges. Observers were unaware of cohort assignments and collected data on appropriate social behavior, negative social behavior, and nonsocial behavior. The collected data revealed that RSE resulted in significantly better behavior than RA when the participants received a placebo in place of medication and that RSE plus medication resulted in the highest levels of appropriate behavior and lowest levels of negative and nonsocial behavior.


A 9-year-old boy diagnosed with ADHD and undersocialized conduct disorder was the single participant in this 10-week study to determine the independent and combined effects of medication and self-control training on behavior. A psychiatric inpatient in an intensive diagnostic and treatment program for children, the individual participated in academic classes held at the hospital housing the psychiatric program, during which his behavior was observed 3 times each week for 20-minute periods at 15-second intervals. No intervention took place during baseline, which was followed by phases of placebo, medication, placebo plus self-control training, and medication plus self-control training. In addition to the participant’s classroom behavior, data were collected using teacher ratings of the child’s behavior, academic performance (i.e., math and spelling problems, twice weekly), and measures of attention and impulse control. Results showed that medication plus self-control training was the most effective of the interventions at increasing on-task behavior and that none of the interventions improved academic performance for this individual.
Parent Training


This study added a mindfulness training component to a previously empirically-validated intervention called the Strengthening Families Program (SFP). The goal of SFP is to prevent children’s behavioral problems through parental training, and the authors hypothesized that increasing mindfulness in parents would help reach this goal. In a home-study control condition, the established SFP was compared to a mindfulness-enhanced version (MSFP). A total of 432 families participated. Results showed that both versions of the intervention had beneficial results immediately and at the 1-year follow-up. For some effects, MSFP results were more sustained, especially self-ratings of increased mindfulness for fathers. Though the MSFP results were not consistently better than the SFP, there is evidence to support continuing to include mindfulness in the intervention.


Twenty-three families participated in this study of the effectiveness of Barkley’s parent training program, which bears similarities to the Confucian values dominant in Chinese societies and has proven to be particularly effective in reducing the misbehavior of children with ADHD/ODD. Over the course of 9 weekly sessions and 1 follow-up session 4 weeks later, parents (22 mothers and 1 father) received instruction in the steps of Barkley’s training, which involve learning about the causes of misbehavior and concepts of behavior management, how to increase compliance through clear and direct commands and positive consequences, and how to decrease misbehavior through swift and appropriate negative consequences. Data were collected at five points in the study (weeks 1, 4, 6, 7, and 10) using the Disruptive Behavior Rating Scale–Parent Form (DBRS–PF), Child Attention Profile (CAP), and Home Situations Questionnaire (HSQ). Results showed that the children’s behaviors were positively influenced by their parents’ participation in Barkley’s training program, with mean scores of problem behaviors decreasing across all measures.

This study compared the established parent training intervention Positive Parenting Program (Triple P) to an enhanced version of Triple P and to a control group. Both versions of Triple P are behavioral family interventions and include parent training, but the enhanced version includes partner support training, and coping skills training as well. The subjects of the study were 87 preschoolers with co-occurring disruptive behavior and ADHD, and they were assessed postintervention and at a 1-year follow-up. At both points the subjects in the Triple P groups had demonstrated significantly less negative behavior than the control group. There was no significant difference in the standard intervention compared to the enhance version. In both versions of Triple P, 80% of the children showed clinically-reliable improvement at the time of the follow-up assessment.


Parent training (PT) and parent counseling and support (PC&S) were used in this study to determine the impact of parent-based therapies on the behavior of 3-year-olds diagnosed with ADHD. Families assigned to PT participated in eight 1-hour sessions in which the mothers received ADHD education and learned behavioral strategies for increasing attention and reducing difficult behavior. Families assigned to PC&S participated in eight 1-hour sessions in which mothers discussed feelings, issues, and concerns about their children. Regardless of intervention, each child was observed engaging in independent play for 10 minutes at the end of each 1-hour session. Data were collected on ADHD symptoms via observations of the children and clinical interviews with the mothers, as well as on maternal well-being. This information was gathered on the PT and PC&S groups and a waiting-list control group (WLC). Results showed that only the PT group reached a significant level of clinical change (53%, compared with 38% of PC&S and 25% of WLC). Moreover, PT dramatically increased maternal well-being when compared to PC&S and WLC, suggesting the excellent potential of parent training in behavior strategies as an early intervention for children with ADHD.


A comprehensive group training and education program for parents whose children were diagnosed with ADHD was the focus of this study, which sought to determine the impact of such group training on parent–child conflict, parenting skills, and child
behavior. The parents of 65 adolescents (ages 12–17) were divided into groups of 8 to 24 and attended 10 weekly group training sessions. The goals of the parent sessions were to increase the parents’ understanding of ADHD, help them manage their children’s problem behaviors, and improve their advocacy skills. Data were collected at preintervention and postintervention via a conflict behavior questionnaire and an issues checklist. Results showed that, from preintervention to postintervention, rates of parent—child conflict dropped from a mean of 10.9 to 8.2, the number of issues dropped from a mean of 23.7 to 20.1, and intensity of conflict dropped from a mean of 2.3 to 2.1. These data suggest that a group parent training approach may be an effective method of helping parents raise children with ADHD.


Twelve boys and 15 girls diagnosed with ADHD (ages 5–11) and their parents participated in this investigation of the Caregivers Skills Program (CSP), a parenting program that emphasizes enforcement of consequences for misbehavior and expects children to self-regulate and control behavior without medication and across settings. Parents received training on how to observe, evaluate, and record their children’s behavior. After a 4-week baseline phase, a 4-week cognitive treatment phase occurred in which each child learned how to identify problem situations and generate solutions while parents were taught parenting skills, such as social reinforcement techniques, activity reinforcement techniques, and timeouts. Next, parents collected behavioral data during a 4-week implementation phase, and follow-up data were collected for a 2-week period occurring 1 year after the last parenting session. Results showed that cognitive training alone did not improve the children’s behavior, but that the CSP had a significant positive effect on behavior and academic performance, with a 92% improvement rate on the targeted behaviors and 81% of the children improving academically.


This study examined the effects of a group parent-training program on compliance in children with ADHD. Baseline behavioral information was collected on 46 preschoolers diagnosed with ADHD through a comprehensive diagnostic interview with the parent who spent the most time with each child, as well as achievement and behavioral assessments administered to each child. Parents were then randomly assigned to one of two groups: immediate treatment (experimental group) or delayed treatment (control group). The training intervention was conducted over 12 weeks, with 10 group sessions and 2 individual sessions, during which the parents received instruction on ADHD, behavior management principles, and realistic expectations. Data were collected via behavior assessments and parent questionnaires at pretreatment, posttreatment, and
3-month follow-up. Results showed that compliance rates rose from about 42% to 58% for the experimental group and rates of noncompliance dropped from about 8% to just 3%, offering support for the efficacy of parent-mediated behavioral treatment of preschoolers with ADHD.

**Self-Management**


Handheld tablets were used for self-monitoring with 2 adolescent males—ages 14 (diagnosed with ADHD) and 15 (diagnosed with a learning disability)—in a general education classroom. The 14-year-old student was described as having difficulty with impulsivity resulting in off-task behavior and classroom work completion. Time on-task and disruptive behavior during 15-minute observation periods were measured and reported as a percent. Inter-observer agreement averaged 92%, and fidelity was assessed for all sessions. The students monitored their on/off task status using the handheld tablet, which prompted responding every 5 minutes. On-task behavior increased from an average of 18% to an average of 88%; and disruptive behavior averaged 4.3 without intervention and improved to 1.5.


Three boys with varying behavioral issues participated in this two-phase study of how self-management is related to functional analysis results. The functional analysis phase was conducted in a hospital facility where all the participants had been admitted for the treatment of their respective problem behaviors. Descriptive analyses of the events that directly preceded and followed problem behaviors were developed based on observations of each child interacting with his mother. During the self-management phase, the participants learned how to record and manage their own behavior, with rewards earned for appropriate behavior. Data were collected on rates of inappropriate behavior during two baseline and two self-management periods. Results demonstrated that the self-management intervention decreased problem behaviors for all of the participants. Moreover, the 3 students demonstrated the ability to choose appropriate alternative behaviors.

Three elementary school-aged boys, none of whom were taking medication, participated in this study of the impact of a self-recording system on classroom behavior. Each participant’s typical classroom behavior was videotaped and then used to teach the students how to effectively identify and classify their own behavior. Data were collected daily on percentages of inattentive, inappropriate, and on-task behavior during eight 15-minute observation intervals. The teachers collected baseline data for 1 week, followed by a 2-week treatment phase, during which both the teachers and the participants recorded behavior. One participant and teacher pairing continued to participate in the study after the initial 3-week period, allowing a 1-week reversal phase and a second 2-week treatment phase to be conducted. Results showed self-recording to be an effective strategy for improving classroom behavior, with inattentive and inappropriate behavior decreasing over the course of the study and mean percentages of on-task behavior increasing about 42%, 51%, 53%, and 65% during baseline, treatment, reversal, and second treatment, respectively.


See annotation in the Multimodal Interventions section.


This investigation studied the effects of a self-regulation intervention package on the academic performance and behavior of 3 boys diagnosed with hyperactivity. After baseline, the self-regulation behaviors were taught in succession: first self-instructional, then self-monitoring, followed by self-reinforcement. The children were observed in both clinical and school settings, with data being collected during all phases of the study on math and reading performance (i.e., number of problems completed and percentage of accuracy) and rates of off-task behavior. The data were recorded 5 days a week during periods of 15 minutes in the clinic and 20 minutes in the classroom. Results showed that the self-instructional phase had no effect on behavior and the self-monitoring phase had only minimal effects on behavior in both the clinic and school settings. In contrast, all 3 children showed marked academic and behavioral improvement during the self-reinforcement phase; however, the researchers noted that improvement was not consistent over the course of the phase. Rather, the children had high-performance days as well as days during which performance regressed to baseline levels. This variance was attributed to the choice given to the participants throughout the study of whether or not to work on any given day.
This investigation consisted of two studies to evaluate the effects of choice making on the classroom behavior of 3 children with emotional and behavioral disorders. Two 11-year-old boys enrolled in a special education classroom for students diagnosed as emotionally handicapped participated in Study 1. Two conditions were employed: no choice, in which assignments were selected by the teacher, and choice, in which the students were allowed to select assignments from a list generated by the teacher. Results demonstrated that disruptive behavior decreased for both students under the choice condition as compared to under the no-choice condition. In Study 2, data were collected during story time on the on-task and disruptive behavior of a 5-year-old boy attending a class for students with severe emotional disturbances. Choice (student-selected books) and no-choice (teacher-selected) conditions were again employed. Results of Study 2 showed that the participant displayed high levels of on-task behavior during the choice condition phases and very low levels during the no-choice condition phases. The results of these two studies demonstrated the effectiveness of choice making in reducing disruptive behavior and increasing on-task behavior of students with emotional and behavioral disorders.


This study utilized the Matching Familiar Figures Test-20 (MFFT-20), a measure of impulsivity, to examine the impact of color on the behavior of 12 children diagnosed as hyperactive and 12 normally functioning children. The MFFT-20 form was divided into two equivalent halves—form A and form B—and each form was produced in a black and white version (low stimulation condition) and a color version (high stimulation condition). The participants were randomly assigned to complete one version of the forms. One month later, participants completed the opposite form and version (e.g., color form A followed by black and white form B). Data were collected on performance including latency to the first choice, total errors, and time required and activity level via an actometer (i.e., a motion recorder). Results showed that participants diagnosed as hyperactive were more active only during the low stimulation condition and that the presence of color slowed these children down, relative to the control group, but did not improve performance.

The effects of self-regulation of stimulation on socially disruptive classroom behavior was the focus of this study involving 47 children (ages 6–12; 22 with ADHD and 25 control). Two repetitive tasks—an auditory vigilance task and a word decoding task—were given during two different stimulation conditions: low-stimulation passive response (LS-P) and high-stimulation active response (HS-A). Behavior data were collected via observation and an actometer (i.e., a motion recorder attached to a wrist and ankle of each participant). Results demonstrated that impulsive activity in the children with hyperactivity was comparable to that of their control group peers during the active condition. However, while behavior activity improved for both tasks during the active condition, performance only improved for the vigilance task. The findings suggested that the attraction to novel stimuli and the excessive activity of children with ADHD can be channeled to prompt appropriate behaviors.


Fifteen boys (ages 8–12) diagnosed as hyperactive and 16 normally functioning boys participated in this study that examined the effects of structure on behavior and performance levels. The children participated in two separate art projects, one with a high level of structure (replication of a design presented by the instructor) and one with a low level of structure (students created their own design). The children were divided into two groups each with equal numbers of hyperactive and normally functioning boys. Group 1 first completed the low-structure activity followed by the high-structure activity, and Group 2 reversed the order of activities. Results showed that physical activity diminished during the high-structure assignment for both groups, and activity levels were comparable regardless of the structure level ($M = 653.1$ activity units and $M = 657.3$ activity units for the hyperactive and control groups, respectively). The authors suggested that, based on the results, the addition of response requirements (i.e., structure) in task-oriented settings can reduce activity levels in hyperactive children and further suggested that differences between hyperactive and normally functioning children in structured settings may be more a factor of task difficulty than of an applied structure.


This study, involving two experiments, investigated the effects of different levels of classroom noise on the behavior and academic performance of 48 students in 2nd grade (24 students with hyperactivity and 24 control students). In Experiment 1,
the participants completed a familiar task (i.e., math problems) while being subjected via headphones to high and low levels of classroom noise. The order of noise level experienced by the students was randomly assigned for the two sessions. Results of Experiment 1 showed that students diagnosed with hyperactivity had greater difficulty coping with classroom noise, as evidenced by lower percentages of correct responses and higher levels of activity during the sessions. In Experiment 2, high and low levels of classroom noise were presented via speakers to groups of 8 participants each (4 students with hyperactivity and 4 control students) during new tasks (i.e., reading lessons). The order of presentation (high or low) was randomly assigned to the groups. Results of Experiment 2 showed that while all participants committed more errors under high-level noise conditions as compared to low-level conditions, the children with hyperactivity made more errors than their control group peers under both conditions. Overall the data seems to indicate that high levels of classroom noise have a diminishing effect, especially when the task at hand is new (i.e., more difficult).
Classwide Peer Tutoring


This study examined 3 students in 3rd and 4th grade diagnosed with ADHD and social skills deficits to determine whether classwide peer tutoring (CWPT) and peer coaching would positively affect their social interactions. Observers noted the number of positive social interactions each student had during recess and lunch. In the CWPT stage, pairs of students took turns tutoring each other in spelling. In the next stage, the target students were each assigned a peer coach to help them set a social goal each day, remind them of the goal, and give feedback afterward. Results showed that CWPT alone produced increased positive social interactions, but CWPT combined with peer coaching brought each participant near the level of typically functioning students.


This study examined the effect of classwide peer tutoring on the behavior of 18 elementary school students with ADHD and 10 peer-comparison students in 2 school districts. During the intervention, average on-task behaviors among children with ADHD rose and off-task behaviors fell to almost the same level as peer-comparison students not receiving the intervention. Half of the children with ADHD improved their posttest scores by 10% or more. The study showed that peer tutoring can increase engagement and decrease off-task behavior in children with ADHD without having a negative impact on their peers.

This study examined the effects of classwide peer tutoring (CWPT) on classroom behavior and academic performance of students diagnosed with ADHD. A case study of 1 student, Don, was used to illustrate the effectiveness of a classwide peer tutoring program implemented in a 2nd grade math classroom. A baseline of Don’s behavior during teacher-mediated instruction was measured, followed by similar observations during peer tutoring, then for a second baseline and peer-tutoring condition. For each peer-tutoring condition, Don was paired with another boy (without behavior problems and doing well in math), and the remaining 28 students were randomly placed in tutoring pairs. The results of the case study indicated that the frequency of Don’s attention to instruction improved from the first baseline to second peer-tutoring condition (39% to 90%, respectively). Additionally, the consistency of his attention and his academic performance improved. The results indicate that CWPT benefits children with ADHD by offering more opportunities to actively respond, more prompts to attend to tasks, and more immediate feedback on performance.

**Computer-Assisted Instruction**


This single case study was implemented in an ongoing elementary-level reading course. The subject was a boy in 5th grade, diagnosed with attention deficit hyperactivity disorder (ADHD). The tutor working with him was encouraged to use a tablet for delivering intervention strategies, and pre- and post-assessments were administered for comparisons. The assessment outcomes showed that in a 6-week period, the student demonstrated 1 year’s growth in reading. These results, coupled with the qualitative observation that the boy exhibited more confidence in reading, suggest further research into the use of tablet devices for interventions for children with ADHD is warranted.


Deficits in verbal and visuo-spatial working memory may be an underlying problem encountered by children with ADHD. The purpose of this small pilot study was to examine the viability of working memory training as an intervention for disadvantaged children with attention problems or hyperactivity. Eight students (ages 8–10) from the
same public school in Boston used a computer program to train working memory every day for 5 weeks. The results suggest that the training helped children with attention problems; for 7 of the 8, teachers rated overall ADHD symptoms improved.


This study evaluated the effectiveness of the Headsprout reading software program on 3 boys with ADHD. The subjects, in kindergarten and 1st grade, were at risk for reading difficulties. They worked with the program 3 days a week, generally completing one episode per session. Each student demonstrated higher average levels of oral reading fluency and greater rates of reading skill growth during the intervention, while off-task behaviors decreased immediately and dramatically compared to former levels. The study showed computerized instruction in reading can help children with ADHD stay on task and accelerate growth in reading skill.


This study examined the effect of computer-assisted instruction (CAI) on the mathematics performance and on-task behavior of 3 male students in 2nd through 4th grade with ADHD. Public school students used a math program for 10 to 15 minutes, 2 to 3 times a week. In response, mathematic performance improved and off-task behavior decreased in all 3 students. The teachers and 2 of the students found CAI to be highly acceptable.


This study examined the effect of computer-mediated academic tasks on performance and behavior of children with ADHD. Forty students (ages 7–12) read information and answered science questions presented in four formats: a pen-and-paper workbook, a workbook with a colorful cartoon character, a computer-based workbook presenting text in a simple word processing format, and a computer-based workbook with animation. The 20 students with ADHD significantly increased their on-task time and correct responses when using computerized workbooks, and they answered the greatest number of questions correctly when using the computer workbook without animation. The study showed that basic-format computerized presentation can help children with ADHD stay on task and better learn science-related content.

Information and Communication Technologies (ICT) are increasingly being used in the educational field, and it is often proposed as a solution for students who are at risk of behavioral and academic problems. This Greek study sought to observe the effects of ICT on children diagnosed with ADHD symptoms. Once a week for 6 weeks, 9 students with ADHD and 4 students without completed activities using educational software. The researchers observed significant differences in the way the ADHD students responded to different types of ICT activities in both individual and group activities. Particularly, the ADHD students demonstrated a preference for short texts, videos, and narrations while working on the computer.


This study examined the effect of math instruction software with a game format (Math Blaster™) on the attention and academic performance of 3 male private-school students, 4th through 6th grade, with ADHD. Using the software for 20 minutes, 3 to 4 times per week, each student increased his active engaged time and decreased his off-task behaviors. Although math performance increased only slightly, the study showed that using math software with a game format promotes attention among children with ADHD.


This study examined the effect of different software programs on the attention of elementary school children with frequent non-attending behaviors and/or formal diagnosis of ADHD. Four commercial software packages in reading or math were used by 21 children in 3rd and 4th grade with ADHD once a week for 4 weeks each. Results showed that programs in a game format without excessive animation received increased attention, and programs with games held attention better than tutorials with animation but no games. Software package characteristics such as difficulty, format, animation, and content appear to influence attention behaviors of children with ADHD.
Contingency Management


This experiment investigated the influence of reward and response-cost contingencies on the academic performance and motivation of children with ADHD. Two groups of forty children (ages 8–12), one group with ADHD and one a control group, were assigned to one of three conditions: reward (tokens received for correctly completing problems), response cost (tokens lost for problems incorrectly completed), or none (no tokens earned or lost). Children completed math problems before and after they rated themselves on performance and motivation. Then, the children completed a free-choice task as a measure of intrinsic motivation. Results for children with ADHD showed that performance and intrinsic motivation increased with a response-cost contingency as compared to reward, but reward had a positive effect on self-rated motivation.


This study examined the effects of varying reinforcement on a word recall task for boys with ADHD; 45 of the 90 boys in the study had been diagnosed with ADHD. The students were asked to recall both easy and difficult sets of paired words. Three reinforcement schedules were utilized: continuous (reinforcer earned upon every correct answer), partial (reinforcer earned upon some correct answers), and never (no reinforcers earned). Results showed that, regardless of ADHD diagnosis, the boys had lower performance when partially reinforced than when either continuously or never reinforced ($p < .01$). Among the boys with ADHD, those given the easier sets first performed significantly better than those initially given the more difficult sets, suggesting students with ADHD may benefit from being presented with a less-demanding task first.


This study explored changes in attentiveness and task persistence in children with ADHD who participated in a response-cost contingency management program. Six children (ages 6–9) participated in nine classroom sessions in which each child sat in front of an electronic module called “Mr. Attention.” The module flashed when the child was off task (a signal generated by an observer via a one-way mirror) and visibly deducted points from a total later used to purchase rewards. Five out of six children exhibited markedly fewer off-task behaviors during sessions with the module compared
to baseline. However, when the modules were removed in later sessions, off-task behavior returned to baseline levels, indicating the need for continuous reinforcement and response cost.


This study examined the efficacy of verbal reprimands and response cost, implemented either continuously or intermittently, to decrease off-task behavior. Participants were 2 females and 3 males enrolled in either 2nd or 3rd grade at a school for children with behavioral problems. After a 5-day baseline condition, students were assigned for 10 days each to four conditions: continuous response cost, intermittent response cost, continuous verbal reprimands, and intermittent verbal reprimands. Response cost consisted of minutes taken off of recess time. All four conditions produced decreases in off-task behavior, with the continuous response-cost condition yielding the most significant decrease.


This study investigated the efficacy of a token economy reinforcement system on the reading achievement of a large group of children with hyperactivity and low reading ability. Eighteen boys in 3rd grade identified as hyperactive and performing below grade reading level participated. Tokens were awarded for learning a reading unit or teaching a unit to another student and were redeemed for time spent playing a video game or pinball. Students completed nine times as many reading assignments during the token-economy condition as during the reversal period, when the tokens were removed (*p* < .05). Students also passed more standardized level tests required by the district during the token-economy condition.


This study examined the impact of a response-cost system on the off-task behavior of children diagnosed with hyperactivity. In Experiment 1, a 7-year-old male was observed for 1 hour a day for 36 days. For every time he was off task, he lost 1 minute of free time. This response-cost method decreased his percentage of off-task behavior from 73% at baseline to 6% during intervention. In Experiment 2, an 8-year-old female was observed for 30 minutes a day for 30 days under four treatment conditions: baseline, medication only, medication plus response cost, and response cost only. Results showed that the medication plus response-cost condition had the greatest effect on off-task behavior, decreasing it from an average of 69% during baseline to 9%.
Daily Behavior Report Cards


In this study, teachers in an Ohio school program, used the daily report card over a 4-month period with 66 students in grades K–5 who demonstrated disruptive behavior, such as inattention. Seventy-two percent of the sample showed improvement in their target behaviors, suggesting the daily report card is a useful intervention.


This case study involved modifying an intervention program that had been ineffective for one 8-year-old student with ADHD and then measuring the effects of the modifications on his behavior. Observation of the student in class led the author to prescribe 3 modifications: offering small daily rewards for good behavior, providing immediate verbal feedback for unacceptable behavior, and withdrawing rewards when more than two reminders for target behaviors were required. As a result, the student’s disruptive behaviors decreased from about 30% of intervals to about 10% of intervals, and on-task behaviors increased from about 62% to 84%. This case illustrated the benefit that minor changes to an existing behavior intervention plan can have for students with ADHD.


This study investigated the efficacy of school–home notes with and without response cost as a methodology for improving classroom behavior and academic achievement. Five elementary school-age children referred for disruptive behavior or low academic performance were monitored for on- or off-task or disruptive behavior. Parents delivered rewards or response-cost measures based on the day’s performance. Results demonstrated that classroom behavior and academic performance improved with use of school–home notes; for many participants, the added measure of response cost resulted in even further improvement. Teacher, parent, and student ratings were obtained before and after treatment; all groups preferred notes plus response cost over notes alone.

This case study examined the effect of a daily behavior report card on the classroom behavior of a preschool boy diagnosed with ADHD. A developmentally appropriate note was constructed, making use of symbols (e.g., sad and happy faces). For each target behavior (e.g., “used class time well”), the student helped to monitor his progress by coloring in the appropriate symbol. Based on predefined criteria, reinforcers were given. Compared to baseline, on-task behavior increased from 57% to 85% when the note was used. Additionally, instances of disruptive behavior decreased from an average of 29% to 7%, and his average number of activity changes during play fell from 8 to 2.


This study assessed the effectiveness of a daily report card procedure in increasing assignment completion and accuracy in 2 elementary school boys who had a history of not completing assignments. Teachers gave daily reports to parents indicating whether or not the students had completed at least 76% of math problems correctly. Performance below this percentage was penalized by withdrawal of a privilege at home that evening. Completion and accuracy both improved dramatically when the intervention began, with baseline completion rates ranging from 0–56% and improving to 100% on all days except 1. Accuracy ranged from a baseline of 0–56% and improved to 70–100%. This study demonstrated that a report card procedure can significantly improve assignment completion and accuracy.


This experiment examined 3 approaches to instructing parents in employing contingency consequences for improving academic outcomes: a 15-minute conference, two 1-hour conferences, and a letter. Sixteen boys in 2nd grade completed daily in-class mathematics assignments for which report cards were sent to parents daily. A good grade was rewarded, while a poor grade received no reaction. Students in all conditions improved their mathematics performance, with no significant difference found based on the mode of instruction the parent received. However, parents who received the 2 hours of conference training indicated that they would use this type of contingency management technique on other behaviors.
Modified Task-Presentation Strategies


This study examined the effect of offering increased opportunities to respond (OTR) during instructional time. In a classroom for students with emotional and behavioral disorders (EBD), 9 elementary school students were observed for correct responses, disruptive behaviors, and on-task behaviors. During intervention phases, the teacher initiated more opportunities for students to respond. Results showed that when the students received more OTR they displayed fewer disruptive behaviors, provided more correct responses, and increased their percentage of on-task intervals.


This study examined the effect of including high-interest activities and student choice on students’ engagement and classroom behavior. Participants were 6 students (ages 13–14) with varied behavioral and emotional diagnoses who had difficulty attending to class activities and often displayed destructive behaviors (4 of the 6 were diagnosed with ADHD). With the introduction of high-interest activities (e.g., hands-on experiments) and student voting on choice of activity, materials, or task sequence, engagement rose from a baseline mean of 57% to 87% and 89% during two intervention periods; destructive behavior fell from a baseline mean of 8% to 1% and 0%. This study demonstrated that positive behavior gains can result from fairly simple curricular modifications.


This study measured the effect of tailored interventions for 2 adolescents with both ADHD and oppositional defiant disorder. Results of the functional assessment for Student 1 demonstrated he was often off task during pencil-and-paper writing tasks; during the intervention phase, he was allowed to write on a computer instead. Student 2’s off-task behavior was often reinforced by peer attention. In the intervention phase, he was taught to self-manage his attention to tasks, and his entire class was put on a point system that penalized them for responding to attention-getting behaviors. During intervention phases, both students improved in time spent on task.

This study examined the effect of allowing a 2nd grade boy with ADHD to make choices about academic assignments. In the choice condition, the student was allowed to choose from three different assignments, all on the same topic and all of approximately equal length and difficulty. When allowed to choose a task to complete, his incidence of off-task behaviors decreased dramatically, demonstrating that students with ADHD can benefit from a choice of tasks.


This study evaluated the impact of stimulating, extraneous factors, such as music and speech, on the academic task performance of children with ADHD and children without disabilities. Forty children in grades 2–6, half with ADHD, worked math problems while exposed to counterbalanced sequences of speech, silence, and music. Results showed that children with ADHD completed more problems correctly in the music condition than during either the speech or silence conditions. These results demonstrated that speech and music do not impede academic performance and the latter may actually enhance the attention of students with ADHD.


This study examined the effect of adding color to reading tasks for boys with ADHD who also had learning disabilities (LD). Three boys were presented with a sight-word reading task with the words either in black and white or color. There were no significant effects of the color on this initial task. The boys then read stories in black and white and in color. Results showed that they correctly answered more comprehension questions on the stories that were printed in color. These results demonstrated that adding color to more lengthy tasks may help maintain the attention of students with ADHD and LD.


This study examined the effect of individualized curricular modifications based on personal preferences of 4 male elementary students with a history of behavior problems. Their diagnoses ranged from autism to severe emotional disturbance to ADHD, and all attended special education classes. After each child identified his most
disliked academic task, elements from a favorite interest were integrated into the task, such as an alphabet drill being illustrated with cars and motorcycles. The children showed reductions in disruptive behavior, increases in productivity, and increases in desirable behaviors. The results confirmed the value of curriculum adjustments and the importance of designing curriculum with individual behavior goals in mind.


This study examined the effect that taking structured notes and reviewing them has on comprehension and classroom behavior in adolescents with ADHD. After a pilot study demonstrated that young adolescents with ADHD could improve their note-taking skills through specific instruction, 14 adolescents received this instruction daily for 3 weeks. Following the instruction period, students were assigned to either take notes or not take notes in class and to review or not review notes during a study hall. Results showed time on task increased significantly in conditions in which the students took notes, and assignment scores were greater in conditions where the students either took or reviewed notes.


This study examined the effects of two modeling interventions: fast-taped words (FTW; one word per second) and slow-taped words (STW; one word every 5 seconds) on word-list reading. Participants were 3 elementary students with ADHD and difficulty learning new words. During daily sessions, students were randomly presented with the lists of FTW, STW, and a control list with no tape. With the taped lists, students read the words along with the corresponding tape; with the control, students read the word list on their own. All students read more words correctly and more words correctly per minute with the tapes, and 1 student did better with the FTW, while the other 2 did better with the STW.


This investigation consisted of two studies to evaluate the effects of choice making on the classroom behavior of 3 children with emotional and behavioral disorders. Two 11-year-old boys enrolled in a special education classroom for students diagnosed as emotionally handicapped participated in Study 1. Two conditions were employed: no choice, in which assignments were selected by the teacher, and choice, in which the
students were allowed to select assignments from a list generated by the teacher. Results demonstrated that disruptive behavior decreased for both students under the choice condition as compared to under the no-choice condition. In Study 2, data were collected during story time on the on-task and disruptive behavior of a 5-year-old boy attending a class for students with severe emotional disturbances. Choice (student-selected books) and no-choice (teacher-selected) conditions were again employed. Results of Study 2 showed that the participant displayed high levels of on-task behavior during the choice condition phases and very low levels during the no-choice condition phases. The results of these two studies demonstrated the effectiveness of choice making in reducing disruptive behavior and increasing on-task behavior of students with emotional and behavioral disorders.


This study examined the effects of curricular modifications on the on-task behavior and assignment completion of an 11-year-old boy. Based on the results of a functional assessment, the student received individualized changes in curriculum that included alternatives to pencil-and-paper writing, a higher ratio of problem-solving to rote tasks, multiple short tasks substituted for long tasks, self-monitoring, and completing work in a study carrel away from visual distraction. In response, the student’s on-task behavior improved from 62% to 89%, and his work completion improved from 14% of assignments to 62%.


This study tested the effect of adding color to letters in a copying task. Participants were 17 elementary-age boys identified as having attention problems by Abbreviated Teacher Rating Scale scores; and 17 peers who scored within normal ranges served as a control group. The groups were matched on handwriting (as measured by the Test of Written Language). The use of color was both relevant (added to the parts of letters that most often lead to copying errors) and nonrelevant (randomly added to 50% of the total number of letters). Results showed that the attention-problem group benefited more from use of color, particularly relevant color, than the controls, demonstrating that color can successfully highlight relevant task details for children with attention problems.

This study examined the effect of color on performance of a computer-based visual search task. Seventy children (ages 5–13; 35 identified as hyperactive and 35 acting as a control group) pressed a button if a dot appeared in a square of a matrix. Children identified as hyperactive made significantly more errors with a gray matrix than controls; however, they performed as well as controls when a colored matrix was used. This performance level held true until later trials, when children identified as hyperactive made significantly more errors, even with the colored matrix. This study showed that adding color to tasks requiring sustained attention may improve attention performance in children with hyperactivity, but these effects may wear off rapidly, especially in tasks that require a very narrow attention focus.


This study examined the effect of color stimulation on handwriting performance of males (ages 14–18). Sixteen males with attention problems and 16 controls copied the contents of low-stimulation booklets (letters in black and white) and high-stimulation booklets (both black and white and colored letters). Half of each group received high-stimulation booklets with relevant letter information colored or high-stimulation booklets with letters randomly colored. The group with attention problems made significantly fewer errors when using colored booklets. The study showed that color-added stimulation reduced errors in adolescent males with attention problems but made no difference in controls.

**Multimodal Interventions**


This pilot study of the Summer Treatment Program for Adolescents (STP-A) involved 19 students (ages 11–16). The intervention was an 8-week intensive program adapted for adolescents from an established clinical treatment for children. The day-long treatment is built to reflect a block schedule system and develop skills in academics, vocational training, and social relations. Interventions used included daily report cards, behavior tracking, and reinforcement via privileges and by parents at home. Most of the participating adolescents improved somewhat (in areas such as attention, mood, social functioning, and conduct) after participating in the STP-A, and the majority of parents reported being satisfied with the results of the program. There was improvement in all domains except Science/Health.

This is part 1 of a review of the Multimodal Treatment study of ADHD (MTA). The controversial results of the MTA study were released in multiple articles over a decade and the authors’ goal is to clarify those findings. In part 1 (Executive Summary), the authors describe the study’s vigorous clinical review methods and discuss the confusion created by the complexity of the long-term study. In particular, they address the results of the medication management protocol. Over the course of the study, findings from this cohort seemed to contradict one another. The authors state that these are the results of a long-term treatment and reveal how its effectiveness is affected by time, and do not represent contradictions in data. The authors use part 2 of this article to address details about the MTA study.


In part 2 of the review of the Multimodal Treatment study of ADHD (MTA), the authors described the detailed data results of the different facets of the study. The MTA used a randomized clinical trial to compare four treatment methods: medication management (MedMgt), behavior therapy (Beh), combination of medication and behavior therapy (Comb), and the control of “treatment as usual.” The results from the study were presented in three types of articles: (1) primary articles that provide evidence from the MTA in a narrowly focused format, (2) secondary articles that provide a broader interpretation of the evidence meant to supplement the primary articles, and (3) several additional articles meant to be exploratory for future hypotheses and not examples of definitive evidence. The authors’ goal with this article is to integrate the findings and purposes of the multiple previous articles from the various time points in the MTA study to facilitate interpretation and qualification of their plethora of findings.


This study alternated the application and removal of behavioral modification on 4 children with ADHD in a summer treatment program (STP). In an 8-week period, the children received constant behavioral feedback via a point system, timeouts, and praise during weeks 1, 2, 4, 6, 7, and 8. Behavior modification was withdrawn during
weeks 3 and 5. Behavior during all weeks was monitored in classroom and recreational settings. For all 4 children, behavior generally improved during treatment conditions and deteriorated when treatment was withdrawn, although individual differences in improvement and decline were noted.


This study, which focused specifically on young adolescents with ADHD, examined the effects of the Challenging Horizons Program (CHP), a school-based after-school treatment program that incorporated multiple intervention methods. Two stages were reviewed in this study: the first compared students in the CHP to those from schools that did not offer a similar program, and the second tracked the academic and social progress of students in the CHP over 2 years. Results showed that improvements made by students in the CHP, while not dramatic, were greater than those of students not involved in such a program.


Forty-two male and female students (grades K–6) participated in this year-long study of the Youth Experiencing Success in School (Y.E.S.S.) Program, a mental health program utilizing evidence-based treatment in the form of daily report cards, parenting sessions, and teacher consultations. Thirty students received Y.E.S.S. Program services, while the control group of 12 students was allowed to receive any treatment services available. All students had diagnoses involving inattention, hyperactivity and impulsivity, oppositional or defiant behavior, and/or aggression. Treatment outcomes were assessed via rating scales completed by parents and teachers at three points during the year. Results showed that the Y.E.S.S. Program positively affected symptoms of ADHD, oppositional defiant disorder (ODD), and aggression, as well as academic and social functioning.


Seven students (grades 6–8) who had been diagnosed with ADHD participated in the Challenging Horizons Program (CHP), a behavioral and educational school-based treatment program. The adolescents attended the program for 130 minutes, 3 days each week. During each session, the students met with their primary counselors to identify and prioritize goals and to discuss and implement interventions. Next, the students received Interpersonal Skills Training to learn and role-play social and
problem-solving skills. Then, the students participated in recreational activities to practice these skills. Finally, the adolescents attended the education group, designed to help improve their academic performance. Additionally, parent training and family counseling were utilized. As assessed by student grades, ADHD Rating Scale–IV scores, and Children’s Impairment Scale scores, the results of this study showed that CHP may be an effective psychosocial treatment program for adolescents with ADHD.


This study compared the effects of a behavior therapy program, a medication management strategy, a combination of the two treatments, and community care resources on 579 children with ADHD (ages 7–9). Re-analysis of data from the NIMH Collaborative Multisite Multimodal Treatment Study of Children with Attention-Deficit/Hyperactivity Disorder revealed that combination therapy was significantly better than the other three treatments. In particular, its effects were seen to be better, rather than equivalent to, that of medication management only.


This discussion of The ADHD Classroom Kit: An Inclusive Approach to Behavior Management (Kit) includes a case study demonstrating the Kit’s effectiveness in diminishing disruptive classroom behavior of a 6-year-old girl with ADHD. Classroom behavior was observed during baseline, treatment, and reversal phases. The baseline and reversal phases utilized the school’s current discipline program, while the treatment phase utilized the Kit. Results showed that the child’s behavior improved when the Kit was in use, with mean frequencies of on-task behavior and appropriate behavior at about 76% and 61% (baseline), 88% and 79% (treatment), and 83% and 71% (reversal).


This study assessed the effects of a combined intervention of self-monitoring with medication on 3 boys with ADHD who were already taking regular pharmacological treatments. After tracking behavior during a baseline stage, the general education teachers led these students in recording whether they were paying attention when cued at random intervals of 45 seconds to 20 minutes. Students’ attentive behavior increased...
drastically during treatment—from 37–40% on-task behavior to 87–97%—showing that a combination of medical and self-monitoring interventions can be successful in increasing on-task behavior of students with ADHD.


Twenty-two students (ages 6–10) participated in this study involving four treatment conditions combining drug and behavioral interventions: methylphenidate (MPH) plus auditory feedback, MPH plus auditory feedback with contingencies, placebo plus auditory feedback, and placebo plus auditory feedback with contingencies. Each student participated in each treatment condition and was tested during each condition using a modified continuous performance test (CPT). Treatment conditions with contingencies involved the students selecting desirable toys, earning pennies for correct answers, and using the pennies to buy a toy at the end of the testing session. Results showed that MPH had varied effects; for example, a positive effect was observed on stimulus evaluation processes and accuracy and reaction time improved, while no effect was seen on response bias or false alarm rates. Contingencies were shown to be less effective than MPH, as they did not increase performance.


Seeking to clarify the inconsistent results of previous studies on the subject, this 8-week study investigated the effects of behavior modification techniques and medication on the classroom behavior of 31 boys diagnosed with ADHD who were attending a summer treatment program. The study’s design allowed for 2 behavior conditions (behavior modification and no behavior modification) and three medication conditions (placebo, low dose, and high dose). The behavior conditions alternated on a weekly basis. Medication was introduced during week 3, with conditions changing daily and randomly and each condition occurring each week. Data were collected via observation (3 children per observer) on disruptive and on-task behavior during the first 50 minutes at 15-second intervals of daily 60-minute academic sessions. In addition, data were gathered on the participants’ accuracy and productivity on academic assignments, teacher ratings of the children, and the social validity of the intervention. Results demonstrated that behavior modification alone improved behavior but did not result in academic improvements, while medication alone improved both the behavior and academic performance of the participants. Furthermore, the combination of behavior modification and medication did not offer significant improvement in either area over the levels obtained with medication alone.
This study examined individualized interventions when treating the school behavior problems of children with ADHD, including varying levels of drug dosage, behavioral modification, and intensity. Participants were 2 adolescent boys with ADHD who attended the Western Psychiatric Institute and Clinic’s Children’s Summer Day Treatment Program (STP) for children diagnosed with behavioral problems. Data were gathered over 8 weeks during daily 1-hour classroom sessions involving individualized assignments in each child’s areas of academic weakness. While standard STP classroom procedures were in place every week, contingencies varied from week to week. Results showed that, for Student 1, behavior therapy was comparable to a low dose of methylphenidate (MPH), and increased medication did not improve behavior or academic performance, suggesting that a low dose of medication in combination with behavior modification worked best for this individual. For Student 2, who had more significant behavior problems, data indicated that behavioral modification did not notably improve behavior or performance, while behavior therapy combined with a relatively high dose of MPH resulted in the greatest degree of positive change.
the study stopped medication, and no behaviors were targeted other than attending tutoring sessions and arriving on time. During the Ritalin condition, students were instructed to take their physician-prescribed dose of Ritalin before each session (confirmed by a parent’s note). During the self-reinforcement condition, students received instruction on self-reinforcement of their behavior and academic performance. Some students continued to receive Ritalin and others received a placebo. The Ritalin plus self-reinforcement condition was identical to the self-reinforcement condition, except that all students received Ritalin. Results indicated that Ritalin alone does not improve the academic performance of children with ADHD, self-reinforcement alone significantly improves academic performance, and Ritalin plus self-reinforcement greatly improves academic performance.

### Parent Training


This pilot studied a treatment program for 36 high school students with ADHD. The program emphasized students’ self-reliance, allowing them to set goals and choose interventions. It included evening training for parents and students, and coaching for students during school. Because training was voluntary and coaching was done as needed, the amount of participation (i.e., dosage) was factored into the results. Overall, the program group had more positive outcomes compared to a control group receiving “treatment-as-usual,” especially in maintaining results throughout the academic year. However, parents from both groups noted improvement in students’ inattention.


This study examined the effectiveness of the Family–School Success (FSS) program to improve family involvement and the academic success of children with ADHD. FSS is a 12-session intervention that seeks to improve school performance by strengthening family functioning. The sessions include group meetings with multiple families, individual family meetings, and school meetings. The participants in the FSS study were compared against a control group. Post-intervention results showed a significant decrease in homework inattention and task avoidance. Overall, the results were positive, but participants were highly motivated and most of the intervention took place in a clinic setting.

This study followed up on previous research judging the effectiveness of the Community University Initiative for the Development of Attention and Readiness (CUIDAR), a parent education program targeted at minority and lower income families. CUIDAR’s purpose is to improve child behavior by promoting positive parenting skills; punitive parenting styles have been linked to increased problem behaviors associated with ADHD. The study did not feature random assignments or control groups. The study’s findings suggest participation in the program led to significant and sustained improvement in positive parenting and a decrease in poor child behavior, including inattention.


The goal of this iterative study was to adapt the research-supported behavioral intervention Child Life and Attention Skills Program (CLAS) for use in an elementary school setting. The program involves collaborative behavioral therapy among parents, teachers, and children. It was implemented at five elementary schools in San Francisco that each had a half-time Learning Support Professional (LSP). Participating students were identified by the LSPs as having attention problems, and both their parents and teachers were compensated financially for participating. Results showed improvement in behavioral problems, including inattention, and the classroom treatment seemed to be at least as effective as the clinic version.


This pilot study combined behavioral parent training with child-focused intervention to address behavior problems in 21 children diagnosed with ADHD (ages 7–10). In 10 one-hour sessions, parents and children had their own training with a therapist for part of the time, and then a combined session at the end. Changes from pre- to post-treatment parent ratings using the BASC–2 and DBRS (Disruptive Behavior Rating Scale) showed clinically significant improvement of symptoms of inattention, in addition to other behaviors.

This study compared the established parent training intervention Positive Parenting Program (Triple P) to an enhanced version of Triple P and to a control group. Both versions of Triple P are behavioral family interventions and include parent training, but the enhanced version includes partner support training, and coping skills training as well. The subjects of the study were 87 preschoolers with co-occurring disruptive behavior and ADHD, and they were assessed postintervention and at a 1-year follow-up. At both points the subjects in the Triple P groups had demonstrated significantly less negative behavior than the control group. There was no significant difference in the standard intervention compared to the enhance version. In both versions of Triple P, 80% of the children showed clinically-reliable improvement at the time of the follow-up assessment.

### Self-Management


This study included 132 children (ages 7–15) who were randomly assigned to the intervention “Pay Attention!” group or a control group with no intervention. The intervention involves using visual and auditory stimuli for tasks that become progressively more difficult in order to train selective, alternating, and divided attention. (For example, a student must press a buzzer when one word is said on an audio track with distracting sounds.) The results of this study support similar ones that suggest executive function and behavior in children with ADHD can benefit from cognitive training. “Pay Attention!” improved the subjects’ attention and timing efficiency, as well as reduced symptoms of ADHD.


This study, which included 29 students with ADHD and LD, examined the effectiveness of planning-based strategy instruction on math learning compared against strictly behavioral intervention. Results were measured by in-class worksheets and by standardized math tests administered 1 year later. Both indicated that students in the experimental group improved significantly compared to the control group.

This study assessed the effect of a self-management program on the classroom preparation behaviors of 3 male students in 7th grade with ADHD. During their homeroom periods, students were trained in self-management and informed of their current performance in classroom preparation tasks. In regular meetings, they used logs and a daily self-monitoring checklist to review their progress and reflect on needed changes. The teachers reported that the 3 students, who exhibited target behaviors 50%, 53%, and 40% of the time during the baseline phase, all improved to 100% during the maintenance phase.


This study examined whether self-monitoring of attention (SMA) and self-monitoring of performance (SMP) had effects on the spelling study and on-task behavior of 6 elementary students with ADHD in the general education classroom. On-task behavior during baseline averaged 55% for the 6 participants. During the SMA phase, the students’ on-task behavior averaged 94%. In the SMP phase, the students’ on-task behavior averaged 92%. Results showed that self-monitoring interventions using both SMA and SMP had positive effects on each student’s on-task behavior.


Three male students, 1 in 6th grade and 2 in 7th grade, who had been diagnosed with a learning disability as well as ADD/ADHD were observed in this study. The students recorded their own academic accuracy (based on the number of items answered correctly) and academic productivity (based on the number of items completed), and their teachers recorded on-task behavior based on observations at 10-second intervals. The study showed gains in all three areas over three subjects (reading comprehension, math, and written expression) for all 3 students, although degree of improvement in each subject varied by student.


See annotation in the Multimodal Interventions section.

In a study that combined self-management with incentives, 3 elementary boys diagnosed with ADHD were asked to write a plus or minus sign indicating whether or not they were on task when cued. Points were earned based on the percentage of times students were on task, and these points could be exchanged for incentives, such as computer game time or treats. Throughout the study, reading comprehension and behavior were monitored, and regular improvement was shown in both areas during treatment. However, teachers found the point system to be time-consuming. Nevertheless, on-task behavior increased an average of 37.5% between the original baseline and the final stage.


Three elementary school-aged boys, none of whom were taking medication, participated in this study of the impact of a self-recording system on classroom behavior. Each participant’s typical classroom behavior was videotaped and then used to teach the students how to effectively identify and classify their own behavior. Data were collected daily on percentages of inattentive, inappropriate, and on-task behavior during eight 15-minute observation intervals. The teachers collected baseline data for 1 week, followed by a 2-week treatment phase, during which both the teachers and the participants recorded behavior. One participant and teacher pairing continued to participate in the study after the initial 3-week period, allowing a 1-week reversal phase and a second 2-week treatment phase to be conducted. Results showed self-recording to be an effective strategy for improving classroom behavior, with inattentive and inappropriate behavior decreasing over the course of the study and mean percentages of on-task behavior increasing about 42%, 51%, 53%, and 65% during baseline, treatment, reversal, and second treatment, respectively.
Chapter 6
Interventions for Academic Problems: Evidence for Use Annotations

Advance Organizers


A study of history vocabulary acquisition (WWI terms) for 279 urban high-school students (9th–12th grade) with \((n=30)\) and without learning disabilities connected to reading used random assignment to one of four conditions for a 3-week duration. Content acquisition podcasts (CAPs) were the instructional technology at the center of the study; these multimedia modules are created using design principles by Mayer and include attention to such details as pretraining via advance organizer, signaling of key points, delivery of information in shorter segments, use of both pictures and clearly narrated words, and a focus on select phrases to retain vs. large amounts of text. Such use of the most relevant content and clear cues regarding which concise points are significant has been found to aid learning. For students with and without disabilities, the condition that yielded the best learning was a CAP that included a keyword mnemonic strategy along with explicit instruction.


Chemistry classes with 13,036 high school students were sampled to derive a participant group of 161 to determine the effects of advance organizers on chemistry learning outcomes. These students were assigned to an experimental group using advance organizers or a control group who were exposed to instruction as usual. Statistically significant effects for learning outcomes on the Chemistry Achievement Test (CAT) were achieved after 8 weeks of using advance organizers.

This study was a meta-analysis of 93 group design studies that focused on the efficacy of various academic interventions for adolescents with learning disabilities (ages 12–18). Of the eight factors used to examine the intervention studies, the Organization/Explicit Practice factor was found to have the greatest impact on learning outcomes. The two instructional components that make up this factor are advance organizers (linking existing student knowledge to what will be learned in a lesson) and explicit practice (providing opportunities to apply newly acquired knowledge). The meta-analysis suggested that students, especially those with learning disabilities, require distributed practice to maximize long-term retention and that an intervention that includes an integrated combination of instructional methods, applied consistently, will significantly improve academic gains.


This study compared two methods for teaching comprehension to 24 high school students with learning disabilities (LD). The students were randomly assigned to one of two treatment groups: an advance organizer group and a basal discussion group. In the first group, students were presented with an advance organizer consisting of an outline/overview prior to reading from the text. The basal discussion group listened to a teacher’s lecture prior to reading from the text. The advance organizer group received an average of 75% correct on the posttest, compared to 53% for the basal group. The results showed that a structured, organized framework increases the likelihood that LD students will be successful in retaining unit concepts.

Cognitive Organizers


The authors conducted a meta-analysis of 16 articles published between 1975 and 2009 to determine the effects of graphic organizers for 808 participants (grades 4–12). The analysis produced 55 standardized mean effect sizes. The effects represented the use of graphic organizers for improving learning outcomes in content area courses such as English language arts, reading, science, social studies, and math. Moderate to large effects were reported for graphic organizers as defined or inclusive of cognitive mapping, semantic mapping, syntactic or semantic feature analysis, and visual displays. Research questions examined longitudinal impact and differential effects for subjects or types of graphic organizers. Effects appear to maintain across time and there were no statistically significant differences across types of graphic organizers.

This study evaluated the effect of using cognitive-mapping computer software on reading comprehension in students with behavior disorders. The participants were 3 students (age 15) who were identified as having emotional–behavioral disorders and reading difficulties that hindered their schoolwork. In the experimental phase, the students used the software to create concept maps while they read. Scores on daily quizzes and chapter tests showed an upward trend following this intervention, with all students eventually able to obtain passing grades on chapter tests. Students and teachers reported greater autonomy and academic success in general education coursework based on using this cognitive-mapping software.


Ten 10th-graders with mild to moderate disabilities participated in this pilot study to examine the effects of using computer-based cognitive organizers on social studies learning. The students were given a pretest and then instructed in using the software to create cognitive organizers. The students then completed a posttest and a delayed posttest 1 week later. The statistically significant differences indicated improved learning of the content using the computer-based cognitive organizer technique. Additionally, a satisfaction survey indicated that a majority of the students liked using the software and thought it helped them to remember important information.


The effect of story-mapping instruction on the reading comprehension of students with behavioral disorders (BD) was examined in this 6-week study. Participants were 4 students in 4th and 5th grade who were in a program for children with BD and poor reading scores. The students received story-mapping instruction, which included definition of story elements, assistance in identifying those elements, and guided practice. Following instruction, participants were asked to retell a story, answer comprehension questions, and identify the main idea. During guided and independent practice, participants exhibited higher percentages of correct responses to comprehension questions in comparison to their baseline percentages.

This study examined whether teaching the elements of story form to students with learning disabilities (LD) would improve reading comprehension and story writing. Participants were 3 males (age 13) with learning disabilities in reading and writing. They were instructed in the eight important story elements familiar to normal-developing students of this age (e.g., characters, locale, action). Based on these elements, a story map was used to teach the text structures of the story form. Results showed that students’ story comprehension skills were improved by teaching concrete elements of story form and using the corresponding story maps; however, there was no effect on story-writing ability.


This study examined the effects of different types of vocabulary instruction on measures of vocabulary learning and reading comprehension. Sixty-one junior high students diagnosed with learning disabilities were divided into four groups: three involving interactive vocabulary instruction (semantic mapping, semantic-feature analysis, and semantic/syntactic-feature analysis) and one involving traditional instruction (definition instruction). Students in the interactive conditions received discussion-oriented instruction designed to help students activate prior knowledge and organize concepts based on their relationships. Both tests of written recall and reading comprehension showed that students who were instructed using interactive techniques demonstrated greater comprehension and learning than students receiving definition instruction.


This study consisted of three experiments exploring the use and effectiveness of graphic organizers (GOs) with students with disabilities, remedial students, and students in regular education classes. Experiment 1 compared a teacher-directed GO (designed by the teacher and filled in as a class) and self-study. Experiment 2 compared student-directed GOs (filled in independently by the students) with references for finding answers in the text and a self-study condition. Experiment 3 studied the impact of a student-directed GO in which lists of clues contained the information needed to complete the diagram. Results of all three experiments demonstrated that each type of GO generated higher academic performance than self-study for all three student groups in both middle school and high school.

Fifty adolescents with learning disabilities participated in this study examining the effectiveness of a learning task strategy called semantic-feature analysis (SFA) on text comprehension. Students in the SFA condition completed a relationship chart (a matrix where important ideas are listed at the top and related vocabulary is listed down the side), and students in the control group used the dictionary to write definitions of the vocabulary words and use those words in sentences. Comprehension was measured on a multiple-choice test, with measurements taken immediately following instruction and again 6 months later. Results indicated that students in the SFA instructional condition had significantly greater comprehension immediately following and 6 months after the initial instruction.


This study examined the use of concept diagrams to aid in content area learning of students with and without learning disabilities (LD). Participants were 475 students (grades 9–12), 32 of whom had learning disabilities. Teachers were trained on the use of concept diagrams, and student performance was assessed both before and after the concept teaching routine was implemented in the classroom. Results showed that students with and without LD both scored significantly higher after the concept training was implemented. However, instruction outside the mainstream class may be necessary to teach students with LD how to fully benefit from the organizer, as one-third of the students still did not show enough improvement to exhibit concept mastery.


A story-mapping strategy to improve reading comprehension was taught to 22 students (grades 3–4) of varying abilities, including 5 students who were identified as learning disabled (LD) or low-achieving (LA). Results indicated a significant shift in reading comprehension ability from baseline for all students, regardless of initial ability. Additionally, students continued to improve without teacher assistance, and improvement was maintained even after the mapping itself was removed. All of the students identified as LD or LA continued to benefit from the story-mapping instruction, receiving comprehension scores above 75% despite reading materials being more difficult than their placement levels.

This study analyzed the effects of using graphic organizers to aid in teaching material to students with learning disabilities. Participants were 24 students (grades 4–6) with learning disabilities, randomly assigned to two groups. The experimental group was presented social studies and science material in the visual display of a graphic organizer, while the control group was presented the same material in a text format. The teachers of both groups used scripts to maintain consistency of material presented, and both groups engaged in a structured group study session. Results showed that the graphic organizer group outperformed the text-only group 86% to 56% on a posttest.


This study examined whether graphic organizers aided recall of text for a group of 114 high school students. In two experimental conditions, the same information was presented two different ways. One presented the information in a comparative format and the other a descriptive format. Students using the graphic organizer technique under the descriptive text condition recalled significantly more information than those not using the organizer. However, in the comparative text condition, no significant difference was found between those who used the organizer and those who did not. These results supported the conclusion that organizers aid recall when students are required to reorganize the information but have little impact otherwise.

### Instructional Strategies

**Structure**


This study examined the efficacy of using interventions derived from the behavioral momentum paradigm to transfer compliance from preferred tasks (i.e., single-digit addition problems) to nonpreferred tasks (i.e., multiple-digit addition problems). Two 10-year-old students—Lance, diagnosed with an emotional disturbance, and Megan, diagnosed with a learning disability—were asked during baseline to solve a series of nonpreferred tasks for which each student experienced a low probability of success and which would typically lead to frustration and disruptive behavior. During intervention, two methods were implemented: a traditional high-probability condition (TRAD-HP) and an escape from demand + high-probability condition (ESC-HP). For TRAD-HP, the students were asked to solve identical problems to the baseline set, but each nonpreferred task was preceded by three preferred tasks. For ESC-HP, the students were provided with a set of problems similar to the TRAD-HP condition—a series of
three preferred tasks followed by one nonpreferred task—except that every other problem was crossed out (i.e., not to be solved), halving the amount of work. Results showed that the TRAD-HP intervention decreased latency to initiate problems in a series by 37% for Lance and 41% for Megan, relative to baseline. Also, the ESC-HP intervention decreased latencies by 46% and 39%, respectively. These findings reinforced the value of using high-probability sequences prior to nonpreferred tasks in order to reduce latency to initiate tasks; doing this can increase the rate of task completion and potentially improve learning by increasing the number of learning trials a student experiences.


This study examined the relationship between modeling and the reading performance of 4 elementary school students with emotional and behavior disorders (EBD). Reading passages of at least 200 words were divided into three sections, each having 33% of the total words, and assigned to one of three conditions (no modeling, teacher modeling, and computer modeling). Students in the no modeling group were simply asked to read each passage aloud, while students in the teacher modeling and computer groups listened to a passage read by either a teacher or computer prior to reading the passage aloud into a tape recorder. Students were judged based on the number of words correctly read per minute and the average percentage of words read correctly. Results showed that the students read more fluently and accurately when presented with teacher modeling than with either computer modeling or no modeling, and that computer modeling produced higher fluency and accuracy rates than no modeling.


This study examined the potential benefits of pairing preferred tasks with nonpreferred tasks. Participants were 2 female adolescent students in an alternative education school. Single-digit multiplication problems (preferred tasks) were completed prior to multiple-digit multiplication problems (nonpreferred tasks). Results showed a decrease in the latency of initiating completion of the low-preference problem when the preferred problems were administered first—supporting the claim that presenting preferred tasks before nonpreferred tasks can promote momentum in problem completion.
The purpose of this study was to extend existing research on constant time-delay methods by teaching multiplication facts to William, a 10-year-old student with learning disabilities. Fifteen targeted multiplication facts were separated into three sets with five additional known facts. They were taught during William’s normal instructional period (i.e., training condition). The training consisted of presenting the first 10 facts in a set with a 0-second delay between the cue (i.e., student reading the multiplication question) and the controlling prompt (i.e., teacher stating the correct answer). Afterward, a 4-second delay was inserted between the cue and prompt, allowing William an opportunity to respond independently. Once the multiplication sets were learned, generalization was tested by randomly altering visual presentation (e.g., color, orientation on page), time of day, and persons presenting the cues. The results added to the data supporting the numerous advantages of using a constant time-delay method in teaching: minimal prep time, short session time, low percentage of student error in training, more positive teacher–student interactions, and a positive, game-like format for students.


The effectiveness of instructional presentation strategies for teaching unfamiliar words was examined using 2 elementary boys diagnosed with serious emotional and behavior problems. Forty words were randomly assigned to either a trial-and-error or time-delay strategy condition. In the trial-and-error condition, the words were presented for 3 seconds; correct responses earned praise and incorrect responses resulted in verbal correction by the examiner. The time-delay strategy consisted of words presented and then correctly verbalized by the examiner at a delay of 0–8 seconds. Results showed that performance improved substantially from baseline during both the trial-and-error and time-delay conditions, with a slightly higher improvement level for the time-delay strategy.


Eight adolescents in a residential hospital learning setting, with severe behavioral disorders, were studied to evaluate the effectiveness of adding instructional pauses in lectures. Students were split into pairs, and teachers alternated between 4 minutes of instruction and 3-minute pauses, during which students practiced in their pairs. Increases in their ability to identify verbs on their worksheets following intervention was observed in 7 of the 8 students. Their improvement, as shown by geometric means, increased between 14% and 29%. Even the one student who did not want to
participate and did not show improvement in the worksheets showed signs of covert learning, as more correct verbs appeared in his writing. Thus, instructional pauses may be an effective way of increasing learning and retention among both motivated students and those with severe behavioral problems.

**Responding**


The purpose of this literature review was to examine the academic and behavior changes seen in students with emotional and behavior disorders when the opportunities to respond (OTR) to academic requests were increased. The results of six major studies were analyzed, all single case design studies with 2–5 subjects (ages 6–18) per study. The results of the studies indicated that increasing OTR increases student academic performance and task engagement and decreases inappropriate and disruptive behavior where measured.


This case study examined the hypothesis that when student performance indicates a lack of academic understanding, academic activities and teacher mands may serve as aversive stimuli. To test this hypothesis, researchers observed the instructional interaction between Tom, a 12-year-old male student with a severe behavior disorder, and his teacher during mathematics lessons. Observations during baseline indicated that a number of variables (e.g., academic level of materials, lack of positive attention) could be considered aversive stimuli and could be the cause of Tom’s disruptive behavior, but the procedure for providing feedback indicated that Tom was being asked to correct errors that he did not have sufficient skill to correct. During intervention, all instructional procedures were maintained except the error feedback process; instead, the teacher was asked to provide correct answers prior to the mand. This process, discussed as a “Talk/Mand” procedure, provided an appropriate means of escape and an alternative to undesired escape behaviors. Disruptive behavior decreased from a mean of .28 during baseline to a mean of .09 during intervention. This study provided evidence that the manner in which information is presented by teachers during corrective feedback could prevent or decrease disruptive classroom behavior and increase compliance and overall academic performance.

This study examined the effects of written feedback on 5 boys (ages 10–11) from a classroom for students with behavioral disorders. A multiple baseline design was used to measure the accuracy of reading performance. Teachers provided written feedback to students who read a passage (e.g., “You’ve really improved”). Results showed that reading accuracy was greater with written feedback than during the baseline condition, and students reported a preference for the feedback. Accuracy ranged from 5% to 80% during baseline and from 72% to 100% with written feedback, and the improvement was maintained for 1 year.


This study examined the effects of feedback on on-task behavior and academic performance. Two elementary school children with behavior disorders participated in the study and were given three types of feedback: right-wrong, where feedback was provided for both on- and off-task behavior; right-blank, where feedback was provided only for on-task behavior; and wrong-blank, where feedback was provided only for off-task behavior. Feedback, in the form of a check mark for on-task behavior and a cross for off-task behavior, was given at 1-minute intervals over a 30-minute period. Results showed that both the right-wrong and wrong-blank conditions led to increased on-task behavior; however, they had no effect on academic task accuracy.


This study examined the effects of prompting on the written language production of 3 adolescents in a class for socially and emotionally disturbed students. Two conditions were used: a baseline condition with random prompting and an instructional condition involving a prompt reduction strategy applied systematically. In the random prompting condition, students were given prompts in random order every 20 seconds until they began writing. In the instructional condition, students were given prompts in order from least intrusive (e.g., “You can do it.”) to most intrusive (e.g., “Write this sentence verbatim.”). Results showed that the students’ independent writing skills increased in the instructional condition. A 60-day follow-up showed continued progress, even without teacher prompts.
Mnemonics


See annotation in the Advance Organizers section.

Cade, T., & Gunter, P. L. (2002). Teaching students with severe emotional or behavioral disorders to use a musical mnemonic technique to solve basic division calculations. *Behavioral Disorders, 27*(3), 208–214.

Participants in this study, 3 students (ages 11–14) who were diagnosed with severe emotional or behavioral disorders, were trained using a musical mnemonic technique (a rhyming song containing the multiples of 7) and instructed to use this technique to solve a worksheet containing 24 division-by-7 problems. The technique was taught in one intensive session; at all subsequent sessions, the students were provided with only a short review of the song. Performance of all 3 students improved significantly over baseline when using the mnemonic strategy. They were able to complete 100% of the problems correctly after no more than two intervention sessions.


Twenty-three students identified as learning disabled (ages 8–13) participated in this study on the efficacy of using a mnemonic technique to help recall difficult multiplication facts. The students were divided into two groups, with each group receiving both mnemonic and traditional instruction in a counterbalanced order. The mnemonic condition consisted of flash cards containing a multiplication problem along with peg words and a cartoon illustration (e.g., for $6 \times 7 = 42$, the mnemonic was “sticks in heaven with a warty shoe” plus the illustration of that phrase). The traditional condition consisted of flash cards with numbers only. Results showed that mnemonic training led to greater retention of math facts than traditional methods.


This investigation examined the impact of a mnemonic teaching system, the recall enhancement routine (RER), on the teaching practices of secondary general-education teachers. In Study 1, nine teachers were taught the RER and then were observed to determine the extent to which they utilized the RER, what mnemonic devices they created, and their satisfaction. Study 2 examined whether students (both with learning disabilities and without) could learn to independently identify and create mnemonic
devices after watching their teachers use the RER. Results showed that the teachers incorporated the RER into their teaching, utilizing acronyms, mental images, and keywords most frequently. Moreover, satisfaction levels were relatively high for both teachers and students. However, the student results were mixed, with students able to identify and create appropriate mnemonic devices independently only 24–42% of the time.


Twelve students with learning disabilities were presented with mnemonic instruction as part of the paired associates strategy, designed to help students recall factual information. As part of the strategy, students were taught 4 mnemonic techniques. Students were tested using controlled tests (fill-in-the-blank recall items) and content tests (passages for which the student was required to identify and memorize main ideas for recall). After instruction with the paired associates strategy, all students eventually reached or exceeded the mastery criterion of 80% correct on controlled tests and 75% on content tests.


This study investigated the effects of a recall enhancement routine (RER) that utilized three mnemonic devices (acronyms, visual images, and keywords) on the recall performance of 41 students (grades 7–8). The participants were a mix of students with and without learning disabilities (LD), assigned evenly to the control and experimental groups. Data were collected on student recall via a multiple-choice test. For students both with and without LD, results demonstrated that use of mnemonic devices improved test scores and increased the percentage of passing grades. While the feasibility of incorporating the RER into the curriculum on a daily basis was not studied, it has the potential to benefit students at a variety of ability levels.


This study examined the effectiveness of using a keyword mnemonic technique with behaviorally disordered students. Participants were 8 students (ages 7–11) who were identified as seriously emotionally disturbed. Students were instructed using two methods: keyword mnemonic (in which science vocabulary concepts were presented together with a keyword and a corresponding picture) and traditional (in which the concepts were presented in words only). Each student received instruction in both

Two experiments using mnemonic techniques to help students learn vocabulary words were conducted with junior-high school students with learning disabilities. In the first experiment, 16 students were assigned to the mnemonic picture condition, in which target vocabulary words were associated with keywords and presented with a visual stimulus. The control group of 16 students received traditional direct vocabulary instruction. Results showed that the mnemonic picture group scored significantly higher on the posttest than the direct instruction group. The second experiment required the students to create their own mnemonic pictures (instead of having them provided). Results demonstrated that the mnemonic picture group still outperformed the control group about 69% to 47% on the posttest.

**Peer Tutoring**


Four classes of young English language learners (ages 4–5) were assigned randomly to an experimental or comparison group (2 classes in each). In the experimental group, peer tutors were used in assigned 20-minute sessions where tutor and tutee worked with educational toys or relevant instructional material. Tutors and tutees switched roles halfway through the sessions. Adults supervised and assisted some in the interactions. Significant results were demonstrated in the peer tutoring groups on measures of positive social interaction, receptive language, and knowledge of print and alphabet knowledge for the English language learners who were exposed to peer tutors. No differences were found for phonological awareness.


A meta-analysis of 26 single-case experimental designs examining the effects of peer tutoring for a total of 938 students reported a TauU effect size of .75 (moderate to large benefits). The participants’ grade level (elementary or secondary), dose (number, duration, and intensity) of sessions, and disability status had no significant effects on the
results. The use of rewards, however, was statistically significant in increasing results. Finally, content areas, in descending order of effect were: vocabulary, math, reading, spelling, and social studies.


This study examined the effects of peer tutoring on 8 male students (ages 13–16) who were experiencing academic difficulties and a wide range of behavioral problems. The students were divided into four groups of two, and tutors underwent training prior to the intervention. Results showed significant increases in academic success, attitudes toward math, and positive social interactions between tutors and tutees. Academic improvement was also shown for tutors.


This study reviewed the efficacy of tutoring programs involving students diagnosed with behavioral disorders by examining the research findings of 17 peer-tutoring intervention research studies. Tutoring subjects included reading, math, spelling, and social skills. The review focused on the academic and social benefits of each study, concluding that both tutees and tutors benefit academically and socially from peer-tutoring interventions, specific to the subject area(s). However, the benefits in these studies did not appear to extend to the student’s overall social functioning or self-esteem.


In this study of cross-age tutoring, 18 high school students (ages 15–18) were randomly assigned to one of three conditions: participate as a tutor, participate as a tutee, or participate in a group counseling program led by a school psychologist. Outcomes examined in this study included academic performance, frequency of disciplinary referrals, and attendance. Results showed that students who acted as tutors had significantly higher grades in language arts and social studies, fewer days absent, and fewer disciplinary referrals than students receiving peer tutoring or group counseling.
Classwide Peer Tutoring


This article offers support for the efficacy of peer-assisted learning strategies (PALS), an intervention that aims to strengthen the capacity of mainstream education to meet the academic needs of a broader range of students, specifically in the area of reading. PALS involves students (grades 2–6) taking turns as tutor and tutee and providing corrective feedback to each other. Several previous studies have shown that compared to students receiving conventional reading instruction, PALS students demonstrated greater improvement in fluency, accuracy, and comprehension. The authors have also had some success in establishing PALS as a viable intervention for younger children and high school students.


The effects of classwide peer tutoring (CWPT) with reinforcement (CWPT+R) and CWPT without reinforcement (CWPT-R) on the spelling performance of 77 Chinese students were studied. The reinforcement condition consisted of praise after correct responses, points given for proper tutoring behavior (points were posted in the classroom, and teams competed against each other), and certificates for the winning team. The CWPT-R condition did not include any of these measures. Both CWPT approaches led to improvements in spelling performance; however, the CWPT+R group made greater learning gains than did the CWPT-R students. The researchers hypothesized that the increased gains of the CWPT+R group were a result of higher rates of responding.


Classwide peer tutoring (CWPT) was implemented in two secondary classroom for mildly handicapped (MH) students in this study examining CWPT’s effect on student performance on weekly social studies tests. Participants were 20 MH students (ages 14–19). Students were randomly paired to tutor each other during daily 30-minute sessions. Results showed that in Classroom 1 and Classroom 2 mean test scores increased an average of 20 and 8 points, respectively, from the first baseline and an average of 17 and 29 points, respectively, over the second baseline. Additionally, student responses to a study questionnaire indicated that the majority of participants reported both academic and social benefits from the experience.

Forty classrooms participated in this study examining the effects of classwide peer tutoring (CWPT) on the reading skills of three types of learners: low achievers with and without disabilities and average learners. Twenty classrooms implemented the peer-tutoring program for 15 weeks (35 minutes, 3 times per week); the other 20 classrooms did not. The three learner types were represented in each class and were measured pretreatment and posttreatment in reading achievement using the Comprehensive Reading Assessment Battery. Results indicated that reading progress was significantly greater in the peer-tutoring environment, regardless of the type of learner.


This study examined the effects of peer-assisted learning strategies (PALS), an intervention that involves students taking turns as tutor and tutee and providing corrective feedback to each other, on three types of mathematics students: average-achieving, low-achieving, and low-achieving with an identified learning disability. Forty general educators were randomly assigned to either incorporate PALS into their mathematics instruction or to use regular mathematics-instruction curriculum. Students in the PALS treatment outperformed those in the contrast group across types of learning abilities. Additionally, teachers who implemented PALS indicated many advantages, such as increased capacity to respond to unique learning needs and more efficient classroom organization.


This article discussed a 12-year longitudinal study of at-risk 1st-graders who received classwide peer tutoring (CWPT) in grades 1–4 as compared to an equally at-risk control group who did not receive CWPT. Both academic and behavioral outcomes were assessed at various points over 12 years. By 6th grade, fewer students in the CWPT group had received special services (academic or behavioral). By 11th grade, students in the CWPT group had a lower school dropout rate. These results suggested that teaching methods can greatly influence a student’s academic success and may be critical in preventing early school failure.
Self-Monitoring


This study examined whether self-monitoring of attention (SMA) and self-monitoring of performance (SMP) had effects on the spelling study and on-task behavior of 6 elementary students with ADHD in the general education classroom. On-task behavior during baseline averaged 55% for the 6 participants. During the SMA phase, the students’ on-task behavior averaged 94%. In the SMP phase, the students’ on-task behavior averaged 92%. Results showed that self-monitoring interventions using both SMA and SMP had positive effects on each student’s on-task behavior.


Four elementary boys with serious emotional disturbances participated in this study investigating the relationship between a self-monitoring strategy and rates of on-task behavior and academic productivity. Each student assessed his own behavior through the use of self-monitoring cards containing the question, “At this exact second am I doing my work?” and the words “yes” and “no.” Data were collected at 10-minute intervals (prompted by a bell) during 20-minute sessions in which the students completed math worksheets. During the self-monitoring phases, percentages of on-task time and math worksheet problems correctly completed increased. In addition, increased on-task behavior levels were generally sustained during the fading phase; however, gains made in productivity were not maintained.


This study investigated the effectiveness of utilizing self-management techniques to improve problem behavior, task engagement, task completion, perception of student performance, and teacher praise. Nine male students in a 4th-grade classroom participated in the study: 1 target and 8 comparison students. The target student was instructed in the use of a self-monitoring technique that involved self-evaluation every time a signal was heard and self-recruitment of reward from the teacher when certain positive criteria were met. Results showed that the self-management techniques employed were functionally related to decreased problem behaviors and increased on-task behavior, task completion, teacher praise, and perception of student performance.

This study investigated the impact of a self-monitoring strategy on disruptive and on-task behavior using 2 elementary school students diagnosed with severe emotional disturbance and exhibiting high rates of behavior problems. The strategy required individualized behavior forms and 1-minute monitoring intervals; observers collected behavior data during class while the students monitored their own behavior via the forms. Results showed that the self-monitoring intervention was effective. For both participants, mean levels of on-task behavior increased (from 59% and 77% to 93% and 99%) and disruptive behavior decreased (from 13% and 48% to 2% and 2%). Additionally, the students’ ratings of their own behavior were highly and consistently accurate when compared to the observers’ ratings.


This study examined the effects of self-monitoring on academic performance using 3 adolescent males with behavioral disorders. The students received instruction in self-monitoring behaviors and were then assessed in reading, mathematics, and spelling. Data were collected on the percentage of problems correctly completed and dictated words correctly written (accuracy), the percentage of problems completed and number of words written (productivity), and the percentage of time spent seated and working (on-task behavior). Results demonstrated that each student made significant gains in all three subject areas in accuracy (increases ranged from 16% to 63%). Gains made in productivity and on-task behavior were more modest, ranging from negligible to 20% and from 11% to 22%, respectively.


Eighteen adolescents with behavior disorders participated in this study of self-management strategies and their impact on mathematics achievement. The participants received 6 weeks of self-management skills training. During the intervention phase, the students received prompts to use self-management strategies, scored their math worksheets, and recorded their scores on a graph. Additionally, each student created a reinforcer list to choose from after completing a worksheet. Results showed that self-management strategies greatly impacted the students’ achievement and on-task behavior, with performance (weekly mean percentage of correct answers) increasing from a range of 7% to 24% (baseline) to a range of 72% to 93% and maintenance levels ranging from 81% to 91%.

Five upper-elementary special education students participated in this study to determine the effects of self-recording of attentive behavior and academic productivity. Self-recording of attention involved training students to record whether or not they were attending to their assigned task when a tape-recorded tone sounded. Self-recording of productivity involved training students to record how much work they had completed when the tone sounded. Both interventions significantly increased productivity for each student, although there were no clear differences between the attention and productivity procedures. Results were maintained over a 5-week period, and participants reported preferring the self-recording of attention condition. Students were generally found to record their data accurately.


In a study of the effects of self-monitoring, 12 students (ages 9–11) with behavior disorders were randomly assigned to one of three groups: control, self-recording (students performed an assignment and kept track of their on- and off-task behavior), or self-recording plus matching (self-recording was compared to the teacher’s record and reinforced based on the degree of agreement). Data were collected on percentage of correct answers and accuracy of self-recording. Results demonstrated that the average percentage of correct answers increased for the two experimental groups. Significant differences were found between the self-recording plus matching and self-recording groups and both experimental groups and the control group. In addition, accuracy of self-recording increased when the matching contingent was included.

**Self-Instruction**


This investigation studied the effectiveness of teaching a self-regulated strategy for solving math word problems to students diagnosed with learning disabilities (LD) or mild mental retardation (MMR). A total of 4 students (grades 3–4) participated in the study—2 with LD and 2 with MMR. The problem-solving strategy was taught to the students in 35-minute sessions (3 times per week); it involved modeling self-instruction techniques, including self-monitoring, self-evaluation, and self-reinforcement. Results demonstrated that all students were able to master the strategy and each student’s
performance improved when using the self-instruction method, reaching mastery levels of 80% and above at the end of the study and maintaining gains at 6 and 8 weeks poststudy.


Four students (grades 5–6) with learning disabilities participated in this study to determine the effectiveness of a problem-solving strategy using self-regulation in solving addition and subtraction word problems. The strategy involved five steps: read the problem aloud, circle important words, draw pictures to gain understanding of the problem, write out the equation, and record the answer. These steps were modeled using self-instruction (i.e., thinking aloud), including self-evaluation and self-reinforcement. Results showed that the strategy worked well for students with learning disabilities, with performance gains made in both addition (from an average of 82% correct to 95% correct) and subtraction (from an average of 56% correct to 82% correct).


This study consisted of two experiments to assess the effect of self-instruction on learning. Each experiment had a single participant diagnosed with a severe behavior disorder and living in a mental health institution. Each participant was taught self-instruction strategies focusing on improving academic performance in mathematics or reading. Experiment 1 assessed only academics, while Experiment 2 also monitored the rate of on- and off-task behavior. Results showed that both students made significant academic gains when utilizing self-instruction. Experiment 2 results demonstrated that behavior and attention also improved, suggesting that students with behavior disorders may be acting out as a result of a learning problem and may benefit from a self-instructional intervention focusing on academics rather than behavior.


This study investigated the impact of self-instruction training on homework completion. Participants were 3 students (ages 8–9) who were diagnosed as emotionally disturbed. Self-instruction training related to homework completion and staying on task was presented in eight 30-minute individual training sessions over the course of 2 weeks. Results showed that homework completion rates increased for each of the students,
from a range of 29% to 40% during baseline to 75% after self-instruction training. Follow-up data, obtained 13 weeks after the study, showed completion rates of 87% to 96% (data were available for only 2 of the 3 students).


In this study, self-control strategy training was given to 2 students (age 12) with learning disabilities in an effort to improve school writing and composition skills. After training on self-instruction aspects specific to writing, the students’ stories increased from 108 and 98 words at baseline to an average of 146 and 138 words per story. Quality of the stories was also rated much higher than during baseline, and these positive results were maintained 14 weeks after training.


Two experiments about the effects of self-instruction on academic performance were described in this study. The first experiment involved 2 male students (ages 13–14) with learning disabilities. After baseline, the students were given training in self-instruction techniques, focusing on error monitoring, self-interrogation, making predictions, and using self-reinforcement. Results from this experiment demonstrated increased reading comprehension and spelling performance in the self-instruction phase as compared to baseline. The second experiment evaluated self-instruction’s effectiveness using a different task (math) with a 13-year-old boy. Similar self-instruction training was given in this experiment, and results also showed improvement (from 55% to 81% correct) from baseline to training.


The use of self-instructional techniques among students with mental retardation was examined in this study. Three students in special education (ages 9–11) were rated for distractibility and performance on arithmetic, printing, and phonics tasks. Two of the students were then trained in self-instruction techniques, namely verbalizing steps to complete in-class work, cope with distraction, and practice self-reinforcement; the third student acted as a control. Results of this study showed that the students who received intervention learned successfully to self-instruct and their off-task behavior decreased. In addition, there was transfer of the use of the self-instructional skills into a nontraining (i.e., regular classroom) situation.
Reprocessing Strategies

Summarization


This study investigated the effects of instruction in main-idea identification on reading comprehension. Participants were 33 middle school students with high-incidence (e.g., learning and behavioral) disabilities, divided into two groups. The experimental group received training in identifying main ideas, based on summarization strategy steps, while the control group received general reading instruction. Students in the experimental group outperformed students in the control group on both posttest and delayed posttest measures of reading comprehension, and they maintained strategy usage 6 weeks later.


Thirty students with learning disabilities participated in this study to determine the effect of using a summarization strategy on comprehension of expository text. Students in grades 6–9 were randomly assigned to either receive or not receive strategy training. A separate group of 15 average readers served as a comparison group. Individuals in the experimental group participated in 35- to 40-minute summarization training sessions in small groups until they mastered the strategy. Data were collected on the students’ reading performance using multiple-choice comprehension tests. The experimental group scored significantly higher than both the other groups on condensation questions. Gains were maintained at the 4-week follow-up, indicating that students were able to generalize their summarization skills to new material.


This study followed 45 students (grades 6–8) with learning disabilities who had weak reading comprehension and decoding skills. Each student was randomly assigned to one of three interventions: summarization training, summarization training with self-monitoring, or traditional reading-comprehension instruction. Instruction was delivered individually, with all students receiving condition-specific training, recall-comprehension practice, a think-aloud strategy, and performance and strategy feedback. Results showed that students in the two summarization training conditions performed significantly better on all measures of reading comprehension performance and
strategic knowledge than students who received traditional instruction, indicating support for the use of summarization strategies with individuals with learning disabilities.

**Cover, Copy, and Compare (CCC)**


Because spelling ability impacts reading and writing ability, students with learning disabilities were exposed to CCC to see if their spelling improved. This study ran for 12 weeks of the school year and participants included one 9-year-old girl (3rd grade) and two 11-year-old boys (6th grade). All students were in special education and their spelling skills ranged from 1st grade, 5th month to late 4th grade. Student baseline spelling scores were obtained, as were samples of free writing from each student. Then CCC training was introduced and practiced; worksheets used included spelling words missed by each student on his or her weekly pretest and remained in use even after being spelled correctly. Overall, by using CCC, Student 1 (girl) made an improvement in spelling from below her grade level to her appropriate grade level, as did Student 3. Student 2 improved from spelling at or below grade level to at grade level or above—despite sporadic attendance in the intervention.


This study examined using the CCC procedure with learning a foreign language. The participants were three 15-year-old male special education reading students. Baseline assessment data were collected before the students received instruction on how to use the CCC procedure and practice using it, including corrective feedback. Once students mastered the procedure, they were given the first set of Spanish nouns to translate into English. Correct responses were tallied daily until students independently achieved 80% accuracy for each of three word sets. Findings show that CCC helped all 3 students increase their Spanish vocabulary through self-instruction, although each of them saw his greatest progress occur at different points during the three sets of words.


This meta-analysis included 31 studies related to CCC or variants of it. Criteria for inclusion in the study ranged from having a similar four-step process for dealing with new content such as a math problem or spelling word (look; cover; respond; uncover
and compare to original) to a high percentage of nonoverlapping data (PND). [Effective PND is 70-100%.] Fifteen of the studies focused on the MCCC variant of the CCC procedure; this involves copying the new content while looking at it, just before covering it up. The breakdown of study topics was spelling (17), math (12), geography (1), and science (1). Results show that CCC/MCCC helps students, with disabilities or without, especially when paired with another proven method, such as a token economy. Advantages of the procedure include its low cost, usefulness in many settings, and simplicity of use and supervision.


This study compared two strategies for teaching spelling skills to two 3rd-grade students with learning disabilities. The students (a boy and a girl) were introduced to 12 new spelling words each week for 3 weeks. Six of the words were given using a cover, copy, and compare (CCC) technique, and the other 6 were assigned with a copy-only spelling method, which was the strategy in place in the classroom prior to the study. Both students learned more words in the CCC condition (an average of 22 words, compared to 11 in the copy-only condition) and retained them longer. The students also reported enjoying learning more under the CCC condition.


A cover, copy, and compare (CCC) intervention was evaluated for its efficacy in improving students’ accuracy in identifying states on a map of the United States. Participants were 7 students (mean age 10 years, 8 months) with emotional–behavioral disorders (EBD). Students were given two maps of the United States—one labeled correctly and one blank. Students used CCC to test themselves for approximately 5 minutes each day. Results showed that the CCC intervention increased accuracy in labeling states for all students. In addition, students all rated CCC favorably, reporting it to be fun and a good way to learn. The results demonstrated that CCC could be successfully applied in classes of students with EBD.


This study compared two cover, copy, and compare (CCC) strategies—written response (WCCC) and verbal response (VCCC)—on the written multiplication performance of 2 male elementary school students with behavior disorders. Problem sets were randomly assigned to either WCCC (in which students wrote the problem on paper), VCCC (in which students recited the problem aloud), or a no-treatment condition. Data were collected on the number of correct digits per minute and the percentage of
correct answers. Results demonstrated that VCCC produced the highest rates of fluency and accuracy. The researchers hypothesized that this was due to increased practice in the VCCC condition because it was more efficient to verbalize than to write, despite the fact that the posttests used a written format.


Three individuals, one 4th-grader and two 10th-graders, participated in this study examining the impact of a cover, copy, and compare (CCC) intervention on the mathematics skills of students with behavior disorders. The students received training in CCC and then completed multiplication worksheets utilizing the CCC technique. Data were collected from daily assessments on the number of seconds needed to complete each test sheet, the number of correct digits, and percentage of correct items. Results showed that all 3 students improved the speed and accuracy of answers after the CCC intervention, demonstrating that it is an effective and efficient approach to improving academic performance.

**Task-Selection Strategies**


This study examined the effects of modifying task requirements for 2 boys (age 11) diagnosed with an emotional and behavior disorder. A functional behavioral assessment was conducted to determine the classroom activities commonly associated with the problem behavior. Results from the assessment indicated an increase in problem behaviors during paper and pencil activities. Task engagement and disruptive behavior were monitored during assigned daily writing activities using a traditional medium (pencil and paper) and a preferred medium (computer). The 2 students averaged 27% and 70% engagement during traditional-medium assignments and 97% and 88% during preferred-medium assignments. Modest positive effects were shown for reducing disruptive behavior and increasing academic productivity.


This study examined the effects of instructional modification on academic performance and classroom behavior for 3 adolescent boys attending a school for students with severe emotional and behavioral disorders. Instructional modifications were
hypothesized for each student based on classroom observation and student and teacher interviews. The modifications (e.g., completing assignments on a computer instead of on paper, completing assignments with a peer tutor) were implemented, resulting in an increase in academic performance and a decrease in problem behavior.


This study examined the use of a functional assessment with a structural analysis to identify effective mathematics strategies for 3 boys (ages 9–10) who were receiving services for emotional and behavioral problems and academic difficulties. Information about each student was obtained using a combination of teacher reports, direct observation, preference assessment, and error analysis of math problems. From the data collected, three academic strategies were chosen and then implemented for each student. After implementation, the strategy proven most effective (i.e., producing the highest accuracy rate) was chosen as the long-term intervention strategy. Results showed that all 3 students demonstrated a significant increase in math accuracy when completing problems using the strategy identified during the assessment process, indicating the effectiveness of using academic strategy identification to develop targeted interventions for specific academic difficulties.


This study investigated the relationship between the rate of problem behavior and instruction tailored to increase task accuracy. Participants were 2 males (age 9) with emotional or behavior disorders. Functional assessment determined that problem and off-task behavior was maintained as an escape from difficult tasks. Using a within-subjects alternating treatment design, the students participated in two conditions: working independently and receiving individualized instruction on skills that matched their ability levels. When no instruction was given, accuracy on difficult tasks was 0% and problem and off-task behavior rates ranged from 15% to 58%. In contrast, when instruction was given, accuracy rates ranged from 84% to 95% and problem and off-task behavior rates ranged from 0% to 11%.


In this case study, a functional assessment was used to determine math intervention strategies for a second-grade student diagnosed with emotional and behavioral disorders. The assessment indicated that the student was unable to distinguish between addition and subtraction items. Based on this theory, three intervention strategies were
developed to determine which would best provide a strategy for discriminating between problem types: a visual advance organizer, a strategy called “counting up,” and a manipulative organizer. After implementing each of the interventions, results indicated that the counting up strategy was the most effective of the group of strategies. Functional assessment was determined to be a convenient and easily integrated method for identifying and developing the most efficient and effective interventions for students with academic difficulties.


This study examined the effect of individualized curricular modifications based on personal preferences of 4 male elementary students with a history of behavior problems. Their diagnoses ranged from autism to severe emotional disturbance to ADHD, and all attended special education classes. After each child identified his most disliked academic task, elements from a favorite interest were integrated into the task, such as an alphabet drill being illustrated with cars and motorcycles. The children showed reductions in disruptive behavior, increases in productivity, and increases in desirable behaviors. The results confirmed the value of curriculum adjustments and the importance of designing curriculum with individual behavior goals in mind.


The effects of task-selection strategies on academic performance were studied in 3 male adolescents with severe behavior problems. The strategies included student selection of reinforcers; student selection of tasks; student selection of both reinforcers and tasks: and teacher selection of reinforcers and tasks. Results indicated that student selection of reinforcers or tasks increased student completion and accuracy rates of assignments. Moreover, student selection of both reinforcers and tasks produced even greater rates of completion and accuracy of assignments.


The focus of this study was to examine the relationship between academic task level and student ability and what impact this might have on children with behavior disorders. Researchers examined how a mismatch between task level and ability may lead to an increase in inappropriate classroom behavior and how a reinforcement contingency on task accuracy may affect the mismatched condition. In this study, 15 male students (ages 8–12) with behavior disorders were evaluated to determine...
their current level of math ability and classroom behavioral status. They were then randomized into three groups: two experimental groups and one control. The two experimental groups were given alternating combinations of success- and failure-level assignments, with and without the reinforcement contingency. The control group received success-level assignments, with and without the reinforcement contingency. Results indicated that matching task difficulty to student ability can decrease incidence of inappropriate classroom behavior. Also, while the study results indicated that the reinforcement contingency appeared to have little effect on inappropriate behaviors during mismatched conditions, the authors noted that the data from the match condition suggest that the reinforcing properties of the contingency employed were limited.
Cognitive–Behavioral Therapy Integrated Approach


This study compared guided internet-delivered cognitive–behavior therapy (iCBT), a demonstrated treatment of anxiety related to mild to moderate depression, to more typical group-based CBT. Sixty-nine adults (at least 18 years of age) diagnosed with depression were randomly assigned to one of the two therapy groups. Both followed the same treatment components but the iCBT was a self-help treatment online and the other group was therapist led and in person. A confidence interval test was conducted immediately after the therapy concluded and 3 years later at a follow-up assessment. Both groups showed significant improvement posttreatment: iCBT showed a Cohen’s $d = 1.46$ and CBT $d = 0.99$. At the 3-year follow-up iCBT showed $d = 1.78$ and CBT $d = 1.34$. This suggests that iCBT is at least as effective as CBT.


This paper describes how the authors developed and piloted a brief version of cognitive–behavioral therapy (BCBT) to treat children (ages 6–13) diagnosed with anxiety disorders. The BCBT was developed based on empirical research, was reviewed by a panel of psychologists and psychiatrists with experience treating child anxiety, consisted of eight sessions, and included a therapist treatment manual and child client workbook. The pilot involved 26 children and their parents, and included a 2-month follow-up. Results demonstrated that the intervention was beneficial, with 42.3% of
participants no longer meeting the criteria of their original anxiety diagnosis at the conclusion of treatment, and 33.3% no longer meeting the criteria at the 2-month follow-up.


This study examined which predictors (clinical, demographic, therapy process-related) indicate that Internet-based cognitive–behavior therapy (iCBT) will be effective for patients with severe health anxiety. The participants in the study were 81 adults diagnosed with hypochondriasis who completed 12 self-help online text modules over 12 weeks with access to a therapist online. Subjects were assessed pre-, post-, and 6 months after treatment. The baseline depressive and anxiety symptoms were the largest predictors of treatment success. That is, participants with more anxiety before treatment, had more anxiety 6 months after treatment relative to other participants, but they also had the largest improvements. Having children was associated with anxiety improvement, but overall demographics did not significantly predict treatment success. The only significant therapy process-related predictor was the number of completed modules, with higher completion rates correlating with more improvement.


Successful treatment of social anxiety disorder includes changing four important maintaining mechanisms: avoidance, self-focused attention, anticipatory processing, and post-event cognitive processing. The authors compared the ability of two empirically proven treatments, individual cognitive therapy (ICT) and cognitive–behavioral group therapy (CBGT), to impact these mechanisms. Participants (n = 94) received either 16 weeks of ICT or 15 weeks of CBGT in two separate randomized controlled trials. Results demonstrated that both interventions had beneficial effects, but that ICT had larger effects on social anxiety and each of the four maintaining mechanisms. The success of ICT was mainly due to reductions in avoidance and self-focused attention, whereas the success of CBGT was mainly due to reductions in self-focused attention, anticipatory processing, and post-event cognitive processing.

This study examined the effect of Internet-delivered cognitive–behavior therapy (iCBT) on the amygdala, an essential part of a person’s neural fear network, as measured by pre- and post-intervention magnetic resonance imaging. Participants (*n* = 22; ages 18+) diagnosed with social anxiety disorder received a 9-week intervention online supported by a clinician, or participated in an attention bias modification (ABM) control group. In addition to the brain imaging, participants completed a self-report anxiety scale and were rated by clinicians on an improvement scale. The clinician assessment demonstrated that iCBT was more effective than the ABM control condition. There was relatively reduced reactivity in the amygdala after the iCBT intervention. These changes were related to the behavioral measures of social anxiety.


This paper describes two studies: (1) determining the effectiveness of conventional cognitive–behavioral therapy (CBT) to treat nocturnal panic (NP) in patients diagnosed with panic disorder (PD), and (2) determining whether a CBT intervention specifically aimed at NP would have different outcomes than the previous study. Each study involved three adults (ages 18 and above) diagnosed with PD and at least one instance of NP per week. Data were collected through standardized clinician ratings, self-report questionnaires, and participant self-monitoring. Results showed both treatments reduced NP compared to daytime panic, and that all measures of anxiety were reduced up to a year after treatment. These results suggest that conventional CBT is a sufficient course of treatment and does not need to be adapted for patients experiencing NP.


This study compared cognitive–behavioral therapy (CBT) to acceptance and commitment therapy (ACT) to treat social phobia; specifically the authors sought to determine if a participant’s levels of attentional bias or negative emotional reactivity could predict which course of treatment would be more effective for him or her. Participants, 46 adults diagnosed with social phobia, were assigned to one of the two treatments and were assessed (both self-report and clinician-rated) pretreatment, posttreatment, and 6 months and 12 months after treatment. Patients with greater
Attentional bias had a greater reduction in clinician-rated symptoms in the CBT group compared to the ACT group, making attentional bias a significant moderator. Participants with greater negative emotional reactivity had greater symptom reduction in both groups, making negative emotional reactivity a predictor for both treatments.


This study compares a specific disorder intervention, one aimed at childhood separation anxiety disorder (SAD), to a general anxiety intervention. The participants included 52 children (ages 8–13) diagnosed with SAD and their parents. Half the group was assigned to the disorder-specific treatment (referred to as TAFF) that included cognitive–behavioral therapy (CBT) and parent training; the other half of the group was assigned to a general child-focused therapy (referred to as CC) that did not include parent training. At conclusion of treatment, at 4 weeks after, and at 1 year after, both groups had a reduction in anxiety and showed significant benefits from the interventions. Though the TAFF group had some slight indications of being more effective, the differences were not significant (83.3% of the TAFF group no longer met the SAD diagnosis 1 year later versus 75% of the CC group). These results suggest that parent training does not significantly affect CBT interventions for children with SAD.


This study compared two early interventions for adolescent social anxiety: Internet-based cognitive bias modification (CBM) and school-based cognitive–behavioral group training (CBT). Participants included 240 students (ages 13–15) divided into one of the intervention groups or a control group. Data were collected by assessment pre-intervention and immediately following intervention, and at 6 months and 12 months postintervention. After 6 months, both intervention groups had reduced anxiety compared to the control. After 12 months, all three groups showed reduced anxiety. This suggests that interventions reduce anxiety symptoms faster, but the eventual end point of social anxiety is not affected. Overall, the CBT group had reduced test anxiety and the CBM group had the strongest decrease of negative automatic threat-related associations.
A survey of meta-analyses of CBT was conducted to cover the 84% of articles on CBT that have been conducted after 2004, which was the most comprehensive coverage of CBT treatment up to that time, addressing 17 disorders and/or populations. A total of 269 meta-analyses were included, and 106 were selected as a representative sample. Forty-eight of the studies examined Anxiety Disorders. Studies included internet-delivery and guided self-help CBT. Medium-to-large effects occurred for social anxiety, wherein group and individual treatments were both effective. CBT had greater long-term effects than psychopharmacology.

This meta-analysis of cognitive–behavioral therapy (CBT) interventions for childhood anxiety used guidelines set forth by the Quality of Reporting of Meta-analyses conference (QUORUM). The analysis included 63 studies from 11 countries with 8,225 participants. Results showed that school-based CBT was moderately effective in reducing anxiety (Hedge’s $g = 0.501$) compared to control groups ($g = 0.193$). The duration of an intervention did not significantly affect outcome, suggesting smaller (and more cost-effective) interventions may be just as impactful. Also, results suggest that while there is an immediate reduction in symptoms after these types of intervention, benefits dissipate over the long term.

Anxiety-based school refusal is different from truancy in that it is characterized by a young person suffering from problematic levels of anxiety. This study examined the effectiveness of and acceptability of a cognitive–behavioral therapy intervention for school-refusing adolescents. Twenty students (ages 10–18) were recommended to the study after demonstrating school-refusal, with an average of 15% attendance pretreatment, and being diagnosed with an anxiety disorder. Posttreatment, 55% of the participants no longer met these two criteria. Results showed significant and maintained improvements across all variables.
Sixty-four children (ages 4–7) diagnosed with anxiety disorders were assigned to a cognitive–behavioral therapy (CBT) group or a control group. The intervention involved a combination of teaching children strategies to control and cope with anxiety, and teaching parents modeling and positive reinforcement as well as anxiety management strategies. Of the children who completed the treatment, 59% were rated as no longer having anxiety disorders compared to 18% of children in the control group. These results suggest that parent-child CBT can be beneficial to treatment of anxiety in young children.

This study examined the use of Well-Being Therapy (WBT), to improve the positive, and Anxiety Management (AM), to lessen the negative, in a school setting. One hundred sixty-two Italian middle school students were assigned to either a WBT or an AM group, and were assessed pre- and post-intervention, and again 6 months after intervention. The students involved did not have any diagnoses or any known problems prior to involvement, which gave this study the aspect of prevention and risk reduction. The purpose of WBT is to teach the difference between positive thinking and unrealistic thinking to promote overall psychological well-being that is resilient in difficult environments. Anxiety Management focuses on symptoms and reducing psychological distress by educating the participant about inaccurate, negative feelings. The results of one evaluation of the interventions showed that the WBT had significant gains in a sense of well-being, and the AM group had a significant reduction in anxiety. This suggests that participants may benefit most from a combination of the two therapies.

This meta-analysis focused on data from randomized, controlled trials of interventions for mood and anxiety disorders with adolescents in the criminal justice system. To be included, the studies included adolescents with a mean age of 19 years or younger, to represent the current structure of the UK Youth Justice System. The literature review included 10 international studies and the meta-analysis of data included three studies with a total participation of 171 individuals. The results suggest that group-based cognitive–behavior therapy may help to reduce the symptoms of mental health problems, including anxiety disorders, in this population.

This study examined several treatment strategies (individual cognitive–behavioral treatment [ICBT]; family-based cognitive–behavioral treatment [FCBT]; family-based education, support, and attention treatment [FESA]); as well as secondary outcomes for children and adolescents diagnosed with separation anxiety disorder, social phobia, and generalized anxiety disorder. There were 161 participants (ages 7–14) with one of these diagnoses. Data were collected via self-, parent-, and teacher-reported symptoms and adaptive functioning at three points: pretreatment, posttreatment, and 1-year follow-up. Results showed that participants’ symptoms improved from pretreatment to posttreatment and 1-year follow-up, but there was no significant improvement from posttreatment to 1-year follow-up. The evidence supports ICBT, FCBT, and FESA as effective strategies for addressing symptoms of anxiety and deficits in adaptive function associated with anxiety.


This study compared the benefits over time of three treatments for anxious children: group cognitive–behavioral therapy (CBT), CBT in concert with parent training, or no treatment at all (control group). The 61 participants (ages 7–11) were randomly assigned to a group for 9 weeks of intervention. They were assessed 3, 6, and 12 months after the intervention. As expected, both CBT groups showed significant improvement in anxiety severity over the 12-month period when compared to the control group. Also, at the 3- and 6-month follow-ups, parent-report measures suggested that there were additional benefits to the group with parent involvement.


This study used functional magnetic resonance imaging (fMRI) to observe changes in subjects’ brain activation after one session of cognitive–behavior therapy (CBT). The subjects consisted of 26 females diagnosed with spider phobia, and 25 subjects with no phobia. All subjects were shown a series of spider pictures during fMRI. Then they were randomly assigned to a therapy group or waitlist. One week later, all were shown the pictures again during fMRI. In the second fMRI, there was increased medial
orbitofrontal cortex (OFC) activity in the subjects who had received CBT. This region of the brain is vital to self-regulating emotions as well as relearning stimulus-reinforcement associations.


This follow-up study evaluated 669 children and youth who had previously participated in a cognitive–behavioral intervention using the FRIENDS program (designed for the prevention of anxiety and depression) to see if treatment gains continued at 24- and 36-month follow-up. (Participants had earlier completed a 12-month follow-up assessment.) All students took a total of three assessments at each follow-up time to determine their levels of anxiety and depression. Results showed that the intervention group, overall, continued to show fewer symptoms of anxiety and depression than did the control group; however, the differences in depression scores were not significant. Age at treatment appeared to have an effect on treatment outcomes at 12-, 24-, and 36-month follow-up. Those who had participated in the program in 6th grade had significantly lower anxiety ratings than the control group at all follow-up points, while those who had completed the program in ninth grade did not. These results suggest that 6th grade may be an ideal age for preventative treatment. Girls, although they were at a higher risk for anxiety, tended to experience more benefits from the program than the boys. However, improvements in anxiety ratings for 6th-grade girls continued only until 24-month follow-up, suggesting the importance of providing booster sessions or ongoing life-skills training to maximize the long-term benefits of cognitive–behavioral interventions.


This study reports the results of a 3-year follow-up assessment of 29 children who earlier completed the Social Effectiveness Therapy for Children (SET-C) program, a cognitive–behavioral intervention for social phobia (Beidel, Turner, & Morris, 2000). The program includes group social skills training, peer generalization sessions, and individual exposure sessions. Anxiety measurements at follow-up were based on self-reports and parent reports, clinicians’ ratings, and independent observers’ ratings of the children’s anxiety and social effectiveness as they performed two behavioral tasks (role-play and reading out loud). Results indicated that the treatment gains that had been found at posttreatment were still present at 3-year follow-up, with 72% of the children free of social phobia diagnosis at follow-up, compared with 62% at posttreatment. Three children (18%) were found to have relapsed between posttreatment and follow-up. Overall, the follow-up findings supported the long-term effectiveness of SET-C as a treatment for childhood and adolescent anxiety.

This study evaluated 30 of the 37 children (ages 8–14) who originally participated in either individual cognitive–behavioral therapy (ICBT) or group cognitive–behavioral therapy (GCBT) at 1-year follow-up in order to see if treatment gains were maintained. In the original study, both treatment groups showed comparable improvement in contrast with the waiting list group. In this follow-up study, results were maintained or improved at 1-year follow-up as compared with posttreatment. The ICBT group showed a slightly higher percentage of children free of their original primary diagnosis, but the GCBT group showed a slightly higher percentage of children who were free from any of the three anxiety diagnoses studied. However, these differences were not statistically significant.


This study investigated the effectiveness of group cognitive–behavioral therapy for children with various anxiety diagnoses who were treated in heterogeneous groups rather than being grouped by diagnosis. Twelve students and their mothers participated in the study, with children and parents receiving separate training for 50 minutes each week, followed by 20 minutes of joint child–parent therapy. Therapy sessions included exposure to anxiety-provoking stimuli (for children) and training in cognitive and behavioral techniques (for both children and parents). Children also received some training related to their specific diagnoses, such as social skills training to address social phobia. After the 12 weekly therapy sessions, 50% of the children no longer met criteria for their primary diagnoses. At 12-month follow-up, this increased to 75%. All but 1 of the children (who had also been diagnosed with obsessive compulsive disorder) showed improvements. Although preliminary, this study showed evidence for the effectiveness and efficiency of treating childhood anxiety through group therapy that does not divide children according to their anxiety diagnoses.


In an effort to bolster the lack of long-term follow-up data available for the efficacy of cognitive–behavioral therapy (CBT) in treating children diagnosed with anxiety disorders, this study reassessed the participants of a 1996 study (see Barrett, Dadds, & Rapee, 1996 annotation later) that compared CBT with CBT plus family anxiety management training (CBT + FAM). Fifty-two of the original 79 subjects agreed to participate in this follow-up assessment, including 31 individuals from the CBT group.
and 21 from the CBT + FAM group (average time posttreatment was about 6 years). Results of the reassessment measures confirmed the authors’ hypothesis that treatment gains would be maintained from the original study’s follow-up to this study’s long-term follow-up, with about 80% and 86% of the participants no longer meeting diagnostic criteria for any anxiety disorder at 12-month and long-term follow-up, respectively. Contrary to the investigators’ expectations, however, the CBT + FAM intervention did not prove to be more effective than CBD alone.


This study evaluated the efficacy of the FRIENDS program, a family-oriented group cognitive–behavioral program for children with clinical anxiety. Seventy-one children (ages 6–10) were observed in this study; 54 were randomly assigned to treatment groups and 17 to a waiting list. All of the children had clinical diagnoses of anxiety. Throughout the 10 weeks of the FRIENDS program, children and parents attended separate weekly behavioral training sessions. At the end of the program, 69% of the children in the treatment group were diagnosis-free, compared to only 6% of the wait-list group. At 12-month follow-up, 68% of those who completed treatment were still diagnosis-free, indicating that group cognitive–behavioral training sessions for children and parents can be effective in helping children develop and maintain successful coping strategies.


A total of 67 children (ages 8–12) with a primary diagnosis of social phobia participated in this study and were randomly assigned to one of two treatment groups: Social Effectiveness Therapy for Children (SET-C) or a nonspecific treatment control group (Testbusters). Over the course of 12 weeks, children in the SET-C treatment group participated in two sessions a week (1 group, 1 individual) that focused on providing social phobia information, social skills training, peer generalization training, and in vivo exposure. Participants assigned to the control group underwent the Testbusters curriculum, a study-skills and test-taking program, attending two sessions per week (1 group, 1 individual) for 12 weeks. Data were collected via several means, including four self-report inventories, one parent report measure, one clinician rating scale, a behavioral assessment, and a daily diary. Results showed that 67% of the SET-C group no longer met diagnostic criteria for social phobia at posttreatment, compared to just 5% of the Testbusters group. Moreover, 85% of the 22 SET-C group children who completed 6-month follow-up no longer met diagnostic criteria, with only 1 child who had achieved this status at posttreatment suffering a relapse. Six-month follow-up data were not collected for the Testbusters group.

Seeking to expand the literature regarding the efficacy of group cognitive–behavioral interventions for treating childhood anxiety disorders, this preliminary study followed 37 youths (ages 8–14) who had been previously diagnosed with an anxiety disorder such as separation anxiety disorder or social phobia. The participants were randomly assigned to one of three conditions: group cognitive–behavioral treatment (GCBT), individual cognitive–behavioral treatment (ICBT), or a 9-week wait-list control (WL). Those in the GCBT and ICBT groups participated in an 18-week intervention that involved training in coping skills and strategies designed to manage anxiety symptoms. Data were collected using children’s self-reports, parent and teacher measures, and diagnostic interviews at pretreatment, posttreatment, and 3-month follow-up. Results showed participants in both GCBT and ICBT improved from pretreatment to posttreatment, with 50% and 73%, respectively, failing to meet criteria for their previously diagnosed anxiety disorders. The difference in improvement between the GCBT and ICBT groups was not statistically significant.


This article summarizes the 12- and 24-month follow-up conducted with the participants of the Queensland Early Intervention and Prevention of Anxiety Project (QEIPAP). In the QEIPAP study, 128 children either at risk for or currently suffering from mild-to-moderate anxiety disorders participated in one of two study groups: cognitive–behavioral therapy (intervention) or monitoring (control). Results from that study showed that the intervention effectively prevented development of anxiety disorders in children who were deemed at risk and reduced the prevalence in children diagnosed with anxiety disorders. Results of the assessments conducted at 12- and 24-month follow-up demonstrated that the positive effects of the intervention continued, with the percentage of intervention group children who had an anxiety disorder diagnosis falling from 37% at 12-month follow-up to 20% at 24-month follow-up. In contrast, the monitoring group’s rate of anxiety disorders remained essentially flat (42% and 39% at 12 and 24 months, respectively). The difference in diagnosis rates between the intervention and monitoring groups was statistically significant at 24-month follow-up.


Seeking to confirm and add to the literature supporting the efficacy of group cognitive–behavioral therapy (GCBT) for treating children and youths with anxiety disorders, this
study followed the progress of 56 children (ages 6–16) randomly assigned to one of two conditions: GCBT or wait-list control. Those assigned to the GCBT condition participated in 40-minute therapy sessions with a group of other children; the parents of these participants met simultaneously with a different therapist. Each session also included a 15-minute joint meeting of both parents and children. Skills addressed included the use of contingency management, modification of self-talk, and gradual exposure to anxiety-provoking stimuli. Data were collected at pretreatment; posttreatment; and 3-, 6-, and 12-month follow-up via multiple measures; including self-report, parent report, and clinician ratings. Results supported the efficacy of using GCBT to treat children with anxiety disorders. At posttreatment, 64% of the GCBT group no longer met diagnostic criteria for their respective diagnoses, compared to just 13% of the control group. Moreover, treatment gains were maintained at 3-, 6-, and 12-month follow-up.


This study examined the effects of a cognitive–behavioral intervention on the symptoms of 47 children (ages 9–13) diagnosed with childhood anxiety disorders. Twenty-seven children were randomly assigned to receive the intervention, and the remaining 20 children were placed in the wait-list control group. Participants in the treatment group received 16–20 individual therapy sessions over 16 weeks that were designed to develop their skills in recognizing anxious feelings, coping with anxiety-producing situations, and evaluating performances. Those in the wait-list group were evaluated at the beginning and end of an 8-week waiting period, after which they commenced treatment. Data were collected on all children via several measures, including parent-, teacher-, and self-reports; behavioral observations; and cognitive assessments. Results demonstrated the effectiveness of a cognitive–behavioral approach to treating childhood anxiety disorders, with 64% of participants no longer meeting diagnostic criteria for their respective anxiety disorders at the end of treatment, compared to just 5% of the control group at the end of the 8-week waiting period.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.

Thirty-five high school students participated in this study of the efficacy of the Skills for Academic and Social Success (SASS) program, an intervention designed to treat adolescent social anxiety disorder by adapting clinical procedures for use in the school setting. Participants were randomly assigned to one of two groups: SASS treatment or wait-list control. The SASS intervention involved social skills and realistic thinking training and consisted of 12 group sessions at school, two individual sessions, four social events, two parent meetings, two teacher meetings, and two booster sessions. Data were collected at pretreatment and posttreatment via several self-report, parent-report, and independent evaluator rating measures. No significant differences between the two groups were found at pretreatment. At posttreatment, 67% of the SASS group no longer met diagnostic criteria for social phobia, compared with a mere 6% of the control group—an outcome both statistically and clinically significant. Data collected for the intervention group at 9-month follow-up suggested that treatment effects had been maintained.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.

**Contingency Management**


This case study examined the effects of contingent access to reinforcers (i.e., video games, candy, and toy store coupons) and graduated exposure to separation based on the symptoms of separation anxiety disorder (SAD). The participant, an 11-year-old boy diagnosed with SAD, attended two sessions per week for 23 weeks. In each session, his mother moved out of sight at increasing distances and for increasing periods of time. Access to reinforcers was contingent upon the child refraining from emotional behavior (i.e., crying and/or asking for a parent more than once) for a predetermined and mutually decided upon time and distance goal. Results showed that the participant, who was only able to contain emotional behavior for a mean of 3 seconds during baseline, met the set goals for all but one session during the intervention phase, increasing the time and distance away to 90 minutes and his mother leaving the
building. Moreover, the child’s mother reported that the results were replicated in the home, demonstrating the potential of differential reinforcement for treating children with SAD.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.


A series of four experiments examined the effectiveness of repeated practice, reinforcement, feedback, and therapeutic instruction for alleviating the symptoms of a variety of common fears held by adults (e.g., heights, harmless snakes, electric shock) and children (e.g., darkness). Regardless of fear and age, participants who underwent the intervention procedure in each experiment demonstrated marked improvement in fear symptoms as compared to those in the control groups. These results suggest that a single treatment procedure can be effective in treating the escape and/or avoidance behavior associated with phobias of varying origins and occurring at different ages.

**Exposure-Based Techniques (Imaginal and In Vivo Desensitization, Emotive Imagery)**


This study was part of a larger one examining the effectiveness of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP). Specifically, this study focused on one component of UP: interoceptive exposure (IE), a cognitive–behavioral therapy (CBT) technique that involves repeatedly inducing the physical sensations of anxiety (e.g., rapid heartbeat) to increase the patient’s tolerance. This study included 54 adult patients (age 18 or older) with anxiety-related diagnoses. Over the course of the study there was an observable and significant decrease in anxiety across the subjects. Because most of the change took place along with or after the introduction of the IE module, there is indirect evidence that IE benefits the treatment of anxiety.

This study compared the efficacy of low-dose delivery of interoceptive exposure (IE) to a more intensive exposure. IE is a common treatment for patients diagnosed with panic disorder that exposes them to the bodily sensation related to panic (e.g., spinning in a chair to simulate dizziness induced by fear) so they can more easily identify and deal with panic-related sensations. The 120 adult participants diagnosed with anxiety sensitivity in this study were assigned to one four groups: low-dose IE called Panic Control Treatment, low-dose IE without controlled breathing or rest periods, intensive IE, or a control group. The results show that intensive IE was the most effective treatment, with large effects demonstrated on all primary outcomes.


This study examined the effectiveness of combining virtual reality exposure therapy (VRET) and other intervention strategies, such as cognitive–behavioral therapy and behavioral therapy, compared to using these intervention strategies alone. A thorough search of literature found 23 studies whose research samples formed the total sample for the analysis of this study. The results indicate that: VRET is more efficient during post-treatment for anxiety disorders than a waitlist control, as efficient as the classical evidence-based interventions, and can be just as effective as real-life exposure in treating anxiety disorders. This study demonstrated that VRET is an effective intervention strategy for treatment of anxiety disorder in clinical practice.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.


Seeking to evaluate the effectiveness of emotive imagery for treating childhood phobias, this literature review documented the clinical and research support for this intervention. As evidence, the authors cited several published studies whose participants demonstrated improvement in behaviors associated with their phobias (e.g., dogs, darkness), some of whom completely overcame such phobias. Available studies suggested that participants and their parents found emotive imagery to be effective,
acceptable, and ethical; however, methodological and theoretical issues remain, as indicated by the literature’s overwhelming focus on the fear of darkness. There is also insufficient information on the efficacy and long-term effectiveness of emotive imagery compared to other treatments. In sum, the authors were encouraged by the preliminary support for emotive imagery’s effectiveness.


This study examined the effects of emotive imagery treatment on 24 children (ages 7–10) old who had darkness phobia that significantly interfered with their daily lives. Half of the children were randomly assigned to the treatment group and half to a waiting-list control group. In the treatment group, children were told to imagine themselves in different scenes involving darkness combined with positive imagery, and to rate their level of fear. They were also encouraged to practice recalling the emotive imagery stories as they attempted exposure to different degrees of darkness at home. Results of the study, based on assessments by children and parents, as well as observations and fear ratings, demonstrated that the children who had emotive imagery treatment displayed significantly less fear of the dark following treatment than the children in the control group. This result was maintained at 3-month follow-up.


This study examined the efficacy of the emotive performances (EP) treatment package, an intervention that utilizes desensitization, participant modeling, and reinforcement to treat children younger than 9 years of age who are experiencing phobias. The 15 participants, all children suffering from fear of the dark and loud noises, each underwent the EP intervention during eight biweekly individual sessions, first addressing the fear of darkness and then the fear of loud noises. Story scripts (darkness: the adventures of a superhero; loud noises: a birthday party) and anxiety hierarchies (darkness: light intensity and exposure time; loud noises: noise intensity and distance) were created to address each phobia and were utilized during treatment sessions. In addition, a token reinforcement system was employed that rewarded participants when they behaved in an appropriate manner (i.e., without anxiety) in response to stimuli on the hierarchy. Results confirmed the efficacy of the EP treatment package, with all participants demonstrating significant improvement in phobia-related anxiety, gains that were maintained at 3- and 6-month follow-up.

In this study, 5 adolescents with social phobia attended group cognitive–behavioral therapy that included skill building, phobia exposure, and parental involvement. Multiple evaluations were given before therapy, during therapy, and at various follow-up times. Results showed decreases in overall anxiety, as well as other specific phobias and emotional disorders. At 3-month follow-up, only 1 of the 5 adolescents was still diagnosed with social phobia; the rest were diagnosed as being in partial remission. At 12-month follow-up, none of the adolescents were still diagnosed with social phobia; only 1 was diagnosed as in partial remission, and the other 4 were diagnosis free. The participants’ self-ratings of anxiety and frequency of negative thoughts were also significantly lower after therapy.


Seeking to determine the comparative effectiveness of two exposure-based therapies, this study followed 48 children (ages 3–8) who suffered from water phobia. The children were randomly assigned to one of four treatment groups: in vivo plus vicarious exposure (IVVE; live modeling of water activities plus child performing water activities), vicarious exposure (VE; live modeling of water activities), in vivo exposure (IVE; child performing water activities), or assessment-only control. Each child assigned to a treatment group participated in 3 individual therapy sessions over the course of 3 weeks. Results indicated that the IVVE and IVE groups made significant gains in fear reduction from pretreatment to posttreatment as compared to the control group. Conversely, the VE group did not make such gains; rather, the posttreatment assessment results did not differ significantly from those of the control group. Because research has shown that peer models are more effective than adult models when treating children, the authors suggest that the use of an adult model in this study may have been the cause of the VE group’s inferior outcome and that future investigations should take this into consideration.


This investigation focused on the effects of a contact desensitization and shaping intervention using social reinforcers for a 6-year-old girl who suffered from a phobia of dogs and an aversion to the outdoors after a dog attack. Contact desensitization involved creating a hierarchy of 10 behavioral steps designed to slowly expose the child to her feared situations, progressing from a low-level feared situation (walking outside her house) to her most feared situation (petting and talking to a dog). Shaping involved
playing outside with a dog in her vicinity for progressively longer periods of time (5, 10, 15, and 20 minutes). Praise from the girl’s mother and siblings provided social reinforcement for meeting each time goal. While able to be alone outside for less than 1 minute in each of the studied environments during baseline, the girl was able to do so for 20 minutes by the end of treatment. Moreover, she was able to play alone outside for over an hour at 9-month follow-up, often initiating outdoor play on her own.


This study investigated the use of emotive imagery for treating 3 children with excessive fear of the dark. A systematic desensitization technique was used pairing children’s hero images with narratives designed to address phobias. After working with each child to select a hero theme and determine anxiety hierarchies, scripts involving each child’s theme and anxieties were generated for use during emotive imagery sessions. The children participated in 6 to 13 sessions, each lasting approximately 30 minutes. Data were collected via parent interviews and questionnaires, darkness tolerance tests, nighttime behavior documentation, and the Fear Survey Schedule for Children–Revised (FSSC–R). All 3 participants showed increased tolerance for darkness ranging from 10–110 seconds at baseline to peaks of 125–180 during treatment. Two of the children decreased the number of nights they slept in their parents’ beds and the third child slept in his mother’s bed every night throughout baseline and treatment.


Thirty-two children (ages 4–5) who attended a daycare center were chosen for this study because of parent reports of fearfulness of the dark, which were confirmed by pretests. The children were randomly assigned to one of four groups: graduated exposure, verbal coping skills, combined (exposure + coping skills), and control. In the first group, the children were gradually exposed to greater degrees of darkness while playing with the therapist in a room. There was always an easy way for the child to choose to have more light. In the second group, children were taught to verbally respond to particular fears about the dark (e.g., hearing noises) with specific phrases (e.g., “it’s just people talking”). The third group also learned these coping skills, but during the last session, graduated exposure to darkness was included. Results showed that only the groups with graduated exposure to darkness showed any improvement from pretest to posttest, with the first group (those who had the greatest exposure to darkness) improving most significantly. The verbal skills group showed no improvement compared to the control group.

This study compared the effects of in vitro and in vivo desensitization for 24 children who were experiencing anxiety during swimming lessons and water-avoidance scenarios. The children (age 5–10) were randomly assigned to one of three study groups: in vitro, in vivo, or control. The in vitro treatment consisted of four sessions of imagery (in vitro exposure, in which contact with water was imagined), followed by four sessions of gradual physical contact with water (in vivo exposure). The in vivo treatment consisted of eight sessions of gradual physical contact with water. The control group participated in data collection testing only. A hierarchy of desensitization behaviors was created, based on child and swimming instructor interviews, for use with both the in vitro and in vivo treatment groups. Findings demonstrated that while those in the in vitro group initially showed greater reductions in fear symptoms (after four sessions), it was the in vivo group that ultimately evidenced the greatest gains after the full eight-session protocol. These results suggest that real-life exposure to feared stimuli is superior to imagery-based exposure and that combining the two may not offer any practical treatment benefits.


This study—the first to investigate the use of reinforced contact desensitization to treat phobias in children with neurological impairments—followed 30 children diagnosed with minimal brain dysfunction and either a fear of dogs or of riding public buses. The children (ages 7–12 years) were randomly assigned to one of two study groups: treatment or control. The treatment group participated in 5-hour weekly individual sessions for 10 weeks. The therapist first exposed the children to pictures or models of the feared situation/object and then slowly exposed them to greater contact with the actual situation/object. During the exposure activities, the therapist acted as a buffer between the children and the feared stimulus. Both social reinforcers (e.g., approval, encouragement) and tangible reinforcers (e.g., toys, books, candy) were provided when the children demonstrated tolerance for progressively higher levels on the anxiety hierarchy. Results demonstrated that those in the treatment group significantly reduced their fear symptoms, whereas the control group evidenced no such gains. At posttreatment, 100% of the children in the treatment group were able to either touch a dog or ride a bus with another person present, while just 20% of the children in the control group were able to do the same.
Family Therapy


This study examined the effectiveness of parent/child interventions to prevent anxiety, and the impact parental anxiety had on children’s anxiety. Children (ages 8–13) screened as either median-anxious ($n=74$) or high-anxious ($n=183$), were randomly assigned to one of three groups with their parents: child-focused intervention, parent-focused intervention, or no intervention. Data were collected via self-rating assessment prior to the intervention and then again 1 year and 2 years after the intervention. Post intervention, children in the high-anxiety group were still more susceptible to anxiety disorders than their peers. Both of the intervention groups improved compared to the no intervention group. Parental anxiety had no significant effect on child anxiety when controlling for intervention. From the results, it can be concluded that the anxiety prevention interventions are beneficial, and that it may not be necessary to focus on parental anxiety during interventions for childhood anxiety.


In this study, 38 children in elementary and middle school who had anxiety disorders were randomly divided into two groups: child-focused cognitive–behavioral therapy (CCBT) and family cognitive–behavioral therapy (FCBT). In addition to the family anxiety management techniques used in many other studies, the FCBT treatment in this study also emphasized helping parents to give their children autonomy, thus increasing their self-confidence. While the results showed that both treatment conditions greatly reduced the children’s anxiety levels, FCBT evidenced significantly better outcomes than CCBT on several measures. For example, independent evaluators’ ratings of children’s anxiety-related impairments affecting their school, social, and family life were lower among those in the FCBT group. In addition, a significantly higher percentage of students were rated as “very much better” or “completely recovered” in the FCBT group, compared to the CCBT group.


Sixty-one students (ages 7–14) diagnosed with an anxiety disorder participated in this study exploring the efficacy of three types of interventions in treating the participants’ school refusal: child therapy (CH), parent/teacher training (PTT), and child therapy plus
parent/teacher training (CH+PTT). CH consisted of eight 50-minute sessions utilizing cognitive therapy, relaxation training, desensitization, and social skills training. PTT involved eight 50-minute sessions teaching behavior-management strategies and offering cognitive therapy to parents. Data were collected on school attendance and a variety of self-, parent-, and teacher-report measures. Results showed that all three treatments were effective in improving school attendance. Nonclinical levels (minimum of 90% attendance) were reached at posttreatment for about 54% of students across all groups. At posttreatment, there was a greater chance of children in both the PTT and CH+PTT groups achieving 90% school attendance, compared with those in the CH group; however, there were no significant differences in school attendance among the three groups at 4.5-month follow-up.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.


In this study, 50 children diagnosed with social phobia were randomly assigned to one of three treatment groups: cognitive–behavioral therapy (CBT) with parent involvement (PI), CBT without parent involvement (PNI), or wait-list control (WLC). The CBT treatment utilized for both the PI and PNI groups involved training in social skills, positive self-instruction, cognitive challenging, graded exposure to feared social situations, reinforcement games, and homework assignments presented over the course of 12 weekly sessions and two booster sessions (at 3 and 6 months posttreatment). The parents of the children in the PI group attended weekly 30-minute sessions during which they learned how to support CBT teachings, including how to model, prompt, and reinforce their children’s newly learned skills; model socially confident behavior; and ignore socially anxious behaviors in their children. Parent and child self-report results indicated that social and general anxiety levels significantly decreased in both the PI and PNI groups. These decreases were statistically and clinically significant, with about 88% of the PNI group and 58% of the PI group no longer meeting anxiety diagnostic criteria at posttreatment, as compared to just 7% of the WLC group.

While previous studies have demonstrated the efficacy of cognitive–behavioral therapy (CBT) for treating children with anxiety disorders, this 2-year study sought to determine the impact of using CBT in a group setting, as well as to examine the role of parental involvement on treatment outcomes. Participants were 62 children (ages 7–12) who met diagnostic criteria for one or more anxiety disorders, and their parents. Each child was randomly assigned to one of three treatment groups: parent and child, child-only, or parent-only. Treatment was conducted in 12 weekly 90-minute sessions during which children were taught coping skills (e.g., physical relaxation exercises and self-talk) and parents were taught how to best understand and help their children. Results supported the efficacy of group CBT, with all treatment groups demonstrating decreases in anxiety and depressive symptoms from pretreatment through posttreatment assessments. Furthermore, the increased parental involvement in the parent and child condition resulted in additional gains, with those parents reporting more frequent use of coping strategies and rating their children as more improved at posttreatment compared to the parents in the other two groups.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.


In this study, 60 students with anxiety disorders were randomly assigned to one of three groups: group cognitive–behavioral therapy for the child only (GROUP-CBT), group cognitive–behavioral therapy plus family management training (GROUP-FAM), or a waiting list. The children in GROUP-CBT were taught anxiety management strategies such as recognizing positive and negative thoughts, coping self-talk, relaxation strategies, realistic self-evaluation, and self-rewards. Modeling and role-playing were also used in the training. In the GROUP-FAM treatment, these same techniques were used and, in addition, parents were taught how to reinforce courageous behavior and help minimize anxiety in their children. They were also taught how to manage their own anxiety, use problem-solving techniques, and communicate better with each other and with their children. Results showed that both treatment groups greatly reduced the number of children who met diagnostic criteria for anxiety disorders after training: about 65% across treatment conditions vs. 25% for the waiting list. At 12-month follow-up, about 65% and 85% of children were diagnosis free for the GROUP-CBT and
GROUP-FAM, respectively, suggesting a marginal (though not statistically significant) advantage for family inclusion in treatment. Clinicians’ ratings and parents’ and children’s self-assessments at posttreatment and 12-month follow-up provided further support for both treatment conditions, with the family inclusion condition showing slight superiority to the child-only treatment.


This study investigated the impact of child-focused cognitive–behavioral therapy (CBT) with or without a parental anxiety management (PAM) component on the behavior of 67 children (ages 7–14) diagnosed with anxiety disorders. Initially, all participants and their parents were administered diagnostic assessments to determine pretreatment levels of anxiety. Participants were then assigned to one of two conditions (child + parental anxiety or child anxiety only) based on the results of the parent assessments. Next, the children were randomly assigned to one of two interventions (CBT or CBT + PAM), resulting in the study’s four treatment groups. The 10-week CBT program involved training in basic relaxation techniques, cognitive restructuring, coping self-talk, parent-assisted exposure to feared stimuli, and contingency management. The 4-week PAM program involved training in anxiety disorder etiology, cognitive restructuring, relaxation, and contingency management. For children with one or more anxious parents, posttreatment measures indicated that CBT + PAM was significantly more effective than CBT alone. In fact, 77% of such children were free of anxiety diagnosis following CBT + PAM, compared with only 39% of such children following child-only CBT. No difference between CBT and CBT + PAM was found for children with nonanxious parents. These results underscore the importance of taking parental anxiety levels and management into account when treating childhood anxiety disorders.


In this study, 79 children (ages 7–14) identified as having anxiety disorders, were randomly assigned to one of three groups: cognitive–behavioral treatment (CBT), cognitive–behavioral treatment plus family anxiety management (CBT + FAM), or a waiting list. In the CBT group, children attended 12 weekly sessions where they were taught anxiety management strategies such as recognizing positive and negative thoughts, coping self-talk, relaxation strategies, realistic self-evaluation, and self-rewards. In the CBT + FAM group, these same techniques were used and, in addition, parents were taught how to reinforce courageous behavior and help minimize anxiety in their children. They were also taught how to manage their own anxiety, use problem-solving techniques, and communicate better with each other and with their children. Results showed that both treatment groups were highly effective in reducing
anxiety: about 70% across treatment conditions versus 26% for the waiting list. Parents’ and children’s self-report measures, as well as clinicians’ ratings, provided limited support for the superiority of the family involvement condition; however, treatment effectiveness varied depending on the sex and age of the child. Having family involved in treatment led to more positive results for girls and younger children, whereas for boys and older children, either treatment was equally effective.


See annotation in the Exposure-Based Techniques section.


This study examined the effectiveness of family anxiety management as a component of treatment for children’s anxiety disorders. Fourteen children with anxiety disorders were randomly assigned either to a cognitive–behavioral plus family anxiety management treatment group or to a waiting-list control group. Children in the treatment group completed a cognitive–behavioral therapy program incorporating exposure-based techniques and cognitive restructuring. Their parents participated in a series of 12 weekly 90-minute sessions that provided training in anxiety management strategies and effective discipline, communication, and problem-solving. At posttreatment, 70% of the children in the treatment group were free of anxiety diagnosis, and the 2 other children in this group also showed notable improvement. In contrast, none of the children in the control group showed improvement. These results suggest that CBT with family involvement can be an effective treatment for childhood anxiety.

**Modeling (Live and Video)**


This study investigated the impact of participant modeling when teaching coping skills to children undergoing elective ear tube surgery. It sought to determine whether or not the presence of a caregiver during modeling alleviated the children’s preoperative and postoperative distress. The participants were 26 children (ages 4–10 years) who were randomly assigned to one of three groups: participant modeling for the child alone, participant modeling with the child’s mother present, or standard procedure. Children in both participant modeling groups viewed a 10-minute video showing a child using
techniques such as deep breathing and imagery to deal with preoperative anxiety. Those in the standard procedure group received information about the surgery according to the hospital’s standard script and were also allowed to see and touch operating room equipment. Results demonstrated that only the children who experienced participant modeling alone had significantly decreased levels in both heart rate and sweating. The greater effectiveness of modeling when the child was alone (rather than with mother present) suggests that the mother’s participation might distract the child from learning the coping techniques presented, or that the mother’s own preoperative anxiety may serve as a model for the child.


This investigation compared the effectiveness of active participant modeling versus symbolic modeling of coping techniques when treating children with fears of injections. Participants were 38 children (ages 8–13) who were identified as needing a simple restorative dental procedure that required local anesthesia. After random assignment into two groups, Group A (participant modeling) and Group B (symbolic modeling), each child made two visits to the dental clinic: a screening visit and a treatment visit. During the treatment visit, prior to undergoing the dental procedure, all participants viewed a video portraying two children modeling controlled breathing and imagery to cope with the tooth restoration procedure. However, the video viewed by Group A prompted the viewer to actively practice the coping techniques, while the Group B video merely demonstrated the techniques. The effectiveness of each video was assessed by comparing the participants’ responses to a fear survey before and after the video, in addition to observers’ ratings of the children’s self-control in the operating room and direct measurement of physiological changes (i.e., heart rate, breathing). All measures supported the comparative effectiveness of active participant modeling over symbolic modeling.


This study investigated the relative effectiveness of filmed peer modeling versus a filmed demonstration of dental procedures (without modeling) for children of different ages and with previous levels of dental experience. The impact of the length of the film was also examined. Eighty children (ages 4–11 years) who needed to undergo dental procedures due to cavity formation, participated in the study. Just prior to undergoing the tooth restoration procedure, participants were randomly assigned to watch one of five videos: (1) long model [a cooperative and fearless child experiencing cavity restoration, 10 minutes in length], (2) long demonstration [a dentist and assistant demonstrating the restoration procedure without a child model, 10 minutes], (3) short
model [a cooperative child receiving anesthesia and an oral exam, 4 minutes], (4) short demonstration [a dentist and assistant demonstrating the injection and exam without a child model, 4 minutes], or (5) unrelated control [a child creating a special place for himself in his living room]. Results indicated that peer modeling was more effective than simple demonstration. Further, more children who viewed the long and short model videos reported less fear and apprehension and exhibited fewer disruptive behaviors during procedures than those in the other study groups.


This study examined the impact of active versus passive participation on the effectiveness of a contact desensitization intervention for 67 children suffering from snake phobia. The participants were randomly assigned to one of three treatment groups: active participation, passive participation, or control. A hierarchy of snake-desensitizing behaviors was created and utilized at pretest, treatment, and posttest. Treatment sessions were conducted one-on-one, with a maximum of four 8-minute sessions per child. In the active participation group, the participants observed the experimenter modeling each behavior in the hierarchy and then attempted to perform it themselves. In the passive participation group, the participants each sat in a chair while the therapist carried a snake slowly toward him or her, gradually coming closer until the therapist was able to touch the snake to the child’s hand. Results indicated that contact desensitization was a highly effective and efficient intervention for treating childhood snake phobia, regardless of whether participation was active or passive, with 87% of treated children able to successfully complete all items at posttest, compared to just 23% of participants in the control group.


Forty-eight adults and teens with a debilitating fear of snakes were randomly assigned to one of four groups: systematic desensitization (i.e., being shown increasingly fear-provoking images of snakes, combined with relaxation methods), symbolic modeling (i.e., viewing photographs of models handling snakes), live modeling with guided participation (i.e., watching a live model handle a snake and then being walked through handling it in the same way), and a control group. After the brief study, all treatment groups showed significant decreases in fear levels and significant increases in their ability and willingness to handle snakes; however, live modeling with guided participation resulted in the greatest improvement.
Psychoeducational Approach


This study examined whether a mindfulness-based intervention could reduce anxiety and depression symptoms within a student population. Mindfulness is the development of awareness through purposefully paying attention without judgment to experiences as they occur moment by moment. English university students (*n* = 104, with a mean age of 24.70 years) participated in either an online self-guided 2-week intervention or a control group. The intervention group demonstrated improvements in mindfulness, which were strongly associated with decreases in their personal sense of stress (*r* = −0.73, *p* < 0.001) and decreases in symptoms of anxiety and depression (*r* = −0.59, *p* < 0.001). The results suggest mindfulness does benefit the treatment of anxiety.


The goal of this article was to map specific facets of mindfulness to dimensions of anxiety and depression symptoms to gain a clearer understanding of why mindfulness is considered beneficial to the treatment of anxiety and depression. Five specific facets of mindfulness were identified by the authors: describing, observing, acting with awareness, nonjudging, and nonreactivity. Distinct clusters of depression and anxiety were also identified: general distress-anxiety, general distress-depression, anhedonic depression, and anxious arousal. Participants included 187 adults (ages 18–71) who were administered the Five Facet Mindfulness Questionnaire and the Mood and Anxiety Symptom Questionnaire. Path analysis identified significant inverse associations between nonreactivity and general distress-anxiety, as well as between describing and anxious arousal. Furthermore, observing was positively associated with anxious arousal.


For this study, 32 New York City high school students with social anxiety disorder were randomly assigned to two groups: the Skills for Academic and Social Success (SASS) treatment group and the Educational-Supportive Group Function (ESGF) control group. The SASS treatment, which met weekly in the school setting, included social skills training, realistic thinking training, psychoeducation, and exposure. The ESGF control group had a comparable format with the same amount of professional attention as the SASS group, but with content that focused on general relaxation strategies. After 12 weekly sessions, 59% of the SASS group members were free of social anxiety diagnosis,
compared to 0% of those in the control group. Treatment gains were maintained at 6-month follow-up. Results suggest that school-based cognitive–behavioral interventions for social anxiety in adolescents can be effective.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.

**Relaxation Training**


See annotation in the Family Therapy section.


See annotation in the Family Therapy section.


For this study, 4 children (ages 8–12) with generalized anxiety disorder were examined prior to treatment to determine if their primary symptoms were anxiousness or somatization. Two of the children were immediately assigned to the treatment prescribed for their type of anxiety symptoms (i.e., cognitive treatment for anxiousness; relaxation therapy for somatization). The other 2 children were assigned to the treatment that was not prescribed for their type of anxiety symptoms (i.e., relaxation therapy for anxiousness; cognitive treatment for somatization) for the first 5-week treatment period and then subsequently completed an additional 5-week treatment period using the prescribed intervention. As hypothesized, some improvements were seen in all 4 children, but those who received the prescribed intervention during the first 5 weeks of treatment showed greater decreases in anxiety levels over that period, as measured by multiple child and parent rating scales, a daily diary, and a heart rate change measurement. After completing the prescriptive treatment corresponding to their symptoms, 3 of the 4 participants met the criteria for high end-state functioning.

A total of 128 children, either having mild-to-moderate-level anxiety disorders or identified as “at risk” for anxiety disorders, participated in this study. The Queensland Early Intervention and Prevention of Anxiety Project (QEIPAP) examined the posttreatment and 6-month follow-up effects of the Coping Koala anxiety program, a group-based cognitive–behavioral therapy (CBT) intervention for children. The program included lessons of graduated exposure to fearful stimuli and physiological, cognitive, and behavioral coping. Participants were randomly assigned to one of two groups: intervention or monitoring (control). The 10-week Coping Koala program taught participants how to cope with their anxiety through relaxation, positive self-talk, proactive behavior, and self-rewards. Parent sessions were conducted in weeks 3, 6, and 9 and involved training in child management skills, modeling, and coping skills. Results showed that for children who had an anxiety diagnosis at pre-intervention, diagnosis rates considerably decreased in both the intervention and control groups at post-treatment; however, at 6-month follow-up, the diagnosis rate for those in the intervention group was significantly lower. For those participants who were classified as “at risk” for anxiety disorders at pre-intervention (i.e., they had features of anxiety but did not meet diagnostic criteria for a disorder), 54% assigned to the control group met diagnostic criteria at 6-month follow-up, compared to just 16% of those assigned to the intervention group. These findings emphasized the importance of effective early intervention programs in preventing and managing anxiety disorders in childhood.


See annotation in the Family Therapy section.


In this investigation, 4 children and adolescents (ages 6–15) with anxiety disorders were studied as they underwent three treatments: cognitive therapy (CT), relaxation training (RT), and the combination of both (CT + RT). Each child received all three types of treatment, although the order in which CT and RT were introduced varied so that each treatment came first in half of the cases. According to child, parent, and clinician ratings, as well as daily diaries, all 4 children improved dramatically. Due to the small number of participants and other limitations in the design of the study, solid conclusions about the relative effectiveness of the treatments could not be drawn; however, the results suggested that CT may be more effective than RT for treating
overanxious children. Further, the findings supported the idea that each child’s specific anxiety symptoms may influence which type of treatment is most effective. For example, one oversensitive participant who was a chronic worrier (a symptom related to cognitive distortions) benefited much more from CT, while another participant with more somatic complaints experienced greater benefits from RT.

Self-Monitoring and/or Self-Assessment


See annotation in the Family Therapy section.


See annotation in the Family Therapy section.


See annotation in the Cognitive–Behavioral Therapy Integrated Approach section.
Cognitive–Behavioral Therapy


This study followed 152 adolescents (ages 12–18) who had been previously diagnosed with depression and prescribed selective serotonin reuptake inhibitors (SSRIs). Participants were randomly assigned to receive either the treatment-as-usual care (TAU group) of SSRIs alone or the collaborative care of cognitive–behavioral therapy (CBT) plus SSRIs (CBT + TAU group). CBT was delivered in five to nine 60-minute sessions followed by monthly telephone calls to check in with the participants. Data were collected at baseline and 6-, 12-, 26-, and 52-week follow-ups. Results showed that, of those found to be moderately depressed at baseline, fewer participants in the CBT + TAU group (25%) than in the TAU group (44%) remained moderately depressed at the 52-week follow-up. However, this and other study findings offered only minor indications supporting the effectiveness of combining CBT with SSRIs, suggesting that TAU (i.e., SSRIs alone) is a powerful treatment option for adolescents with depression.


In this 12-week study of the efficacy of medication and cognitive–behavioral therapy (CBT), separately and in combination, 439 adolescents (ages 12–17) diagnosed with major depressive disorder (MDD) were randomly assigned to one of four conditions: fluoxetine alone, CBT alone, fluoxetine with CBT, or placebo. Children receiving fluoxetine were monitored via six 20- to 30-minute medication sessions over the course of the study. Dosages started at 10 mg/d, increased to 20 mg/d, and were capped at
40 mg/d. The CBT-alone group received individual and family skills-oriented treatment in goal setting, mood monitoring, increasing positive activities, and social problem solving. The fluoxetine with CBT group received all treatment aspects of both fluoxetine-alone and CBT-alone groups. Results showed that fluoxetine with CBT was the most effective (71%) in alleviating symptoms of MDD when compared with the three other study conditions. Fluoxetine alone also proved to be effective (60%), although not as effective as fluoxetine combined with CBT. Additionally, results showed that response rates in the CBT-alone group (43%) were only slightly better than those in the placebo group (34%).


This study involved 8 children who were referred to the program because of anxious or depressive symptoms, although they were not necessarily clinically diagnosed. The children attended 10 group therapy sessions using the PANDY (Preventing Anxiety and Depression in Youth) program, which involved creative and fun ways of helping them learn to evaluate their thoughts, feelings, actions, and physiological responses and learn more ways of coping. The group setting also gave children a chance to address fears such as performance failure and peer disapproval. Data collected from parent reports on child behavior changes indicated that 57% of the participants worried less about school, 29% worried less about criticism, and 29% worried less about embarrassment.


Twenty-three students with depression in grades 4–6 participated in this study of a 10-session cognitive–behavioral and family education intervention that focused on (1) improving problem solving and social skills, (2) increasing self-direction of skill acquisition and mastery, (3) generalizing skills across environments, and (4) encouraging parents to support and have positive attitudes about treatment. The students were randomly assigned to either the intervention group or the wait-list control group. The treatment group met twice each week for nine 90-minute sessions that utilized games, homework, and role-playing to teach treatment skills and objectives to the students. The family education component took place during the tenth treatment session, utilizing the presentation of achievement awards and student-led games to emphasize the students’ progress and the parents’ role in facilitating continued improvement. Results supported the effectiveness of the combined therapy, with students in the treatment group more likely to exhibit diminished symptoms of depression, negative thoughts, and negative responses to stress as compared with the
control group. In addition, satisfaction levels were high for both parents and students, with parents indicating that the brevity of the family education component was both desirable and sufficient.


This study compared the efficacy of cognitive–behavioral therapy (CBT), systemic behavioral family therapy (SBFT), and nondirective supportive therapy (NST) for treating adolescent depression to determine the impact of therapist background, mediators, and moderators on treatment outcomes. A total of 103 adolescents (ages 13–18) with depression were randomly assigned to receive one of the three therapies in two phases. In the active phase, participants in each group received treatment in 12 to 16 sessions over the course of 12–16 weeks. In the booster phase, participants received treatment in two to four sessions over 2 to 4 weeks. Measures of psychiatric symptomatology, cognitive functioning, and family environment were collected at intake, after the sixth intervention session, at posttreatment, and at five follow-up points (3, 6, 9, 12, and 24 months). In terms of long-term impact, results showed that therapist variables impacted few outcomes and that assessing cognitive distortion and family dysfunction neither mediated nor moderated outcomes.


This study followed 123 adolescents (ages 14–18) who had been diagnosed with major depressive disorder or dysthymia and who were randomly assigned to one of three conditions: cognitive–behavioral therapy (CBT), CBT plus parent sessions, or wait-list control. The CBT group utilized the Adolescent Coping With Depression Course, which includes instruction in improving social skills, resolving conflicts, monitoring moods, and improving communication. Individuals in the CBT group participated in 16 two-hour group-treatment sessions over 8 weeks. In the CBT plus parent group, participants received the same training as the CBT group, and their parents attended nine separate sessions. After follow-up assessments, participants in the two treatment groups were randomly assigned to one of two follow-up conditions: boosters or frequent assessments. Individuals in the frequent assessments group were assessed every 4 months, whereas those in the boosters group received one to two booster sessions in addition to being assessed every 4 months. Results showed recovery rates—defined as no longer meeting clinical criteria for major depression or dysthymia—of about 65% for the CBT group and 69% for the CBT plus parent group, compared with about 48% for the wait-list group. In addition, rather than minimizing recurrence, the booster sessions most benefited those who had not responded to initial treatment, regardless of treatment group.

See annotation in the Interpersonal Psychotherapy section.


This study examined the effectiveness of a self-administered cognitive therapy for adolescents with mild to moderate depression. The self-administered cognitive therapy—cognitive bibliotherapy—required participants to read *Feeling Good* and receive weekly phone calls monitoring their progress. No counseling was given during telephone conversations. The participants (22 adolescents in grades 7–12) were randomly assigned to one of two treatment conditions: immediate or delayed treatment (i.e., a 4-week waiting period prior to treatment). Data were collected through several independent measures: participants in the immediate-treatment group were assessed at pretreatment, posttreatment, and after 1 month, while those in the delayed-treatment group were assessed prior to the waiting period, at pretreatment (approximately 1 month later), and at posttreatment. Additional data were collected on participation and compliance via participant reports of book exercises completed and number of pages read, respectively. Results supported the potential effectiveness of cognitive bibliotherapy with depressed adolescents, with more than half of the participants scoring in the nondepressed range on two measures at posttreatment (59% on the Hamilton Rating Scale for Depression and 64% on the Child Depression Inventory).


In this study, 107 adolescents with clinical depression were randomly assigned to one of three treatment groups: cognitive–behavioral therapy (CBT), systemic behavior family therapy (SBFT), and nondirective supportive treatment (NST). CBT focused on the individual, although it involved the whole family, and dealt with thoughts, assumptions, and beliefs. SBFT focused more on identifying dysfunctional habits and teaching family skill building. NST served as a control group, while accounting for the nonspecific elements of treatment, such as therapist attention, empathy, and the passage of time. Results showed that CBT was more effective than either SBFT or NST in remission rate (60% for CBT compared to 38% and 39% for SBFT and NST, respectively). However, there were no differences in the effects on suicidality and functional impairment.

Forty-eight elementary school children (mean age = 9.1 years) participated in this first investigation of the effectiveness of the Primary and Secondary Control Enhancement Training (PASCET) program, an eight-session cognitive–behavioral intervention developed specifically for children with mild-to-moderate depression. Participants were randomly assigned to either the treatment group (16 children) or the no-treatment control group (32 children). For the treatment group, the first six (of eight) 50-minute sessions involved education in five control skills: two primary skills (identifying and participating in mood-enhancing activities and building skills through goal setting and practice) and three secondary skills (identifying depressive thoughts, practicing mood-enhancing cognitive techniques, and utilizing relaxation and positive imagery). In the two remaining sessions, each child in the treatment group met individually with a therapist to discuss the skills learned in relation to his or her specific situation (Session 7) and participated in a “quiz show” designed to review and reinforce the skills (Session 8). Results indicated that children in the treatment group showed significant decreases in symptoms of depression as compared to those in the control group; these differences remained at the 9-month follow-up. These results offer tentative support for the efficacy of short-term treatment programs for children with depression.


This study evaluated 53 older children and adolescents with major depressive disorder. The children were randomized into two groups: a brief (5–8 sessions) depression treatment program (DTP) and a control group using relaxation training (RT). The DTP had three main components: cognitive, social problem solving, and physical symptoms of depression. At posttreatment, the DTP group had significantly lower levels of depression than the RT group. Interestingly, the differences lessened at 3-month follow-up and were negligible at 6-month follow-up, partly because the RT group slowly improved and partly because of relapses in some members of the DTP group. However, in the short-term, this brief DTP program provided an effective (50% response rate) treatment.

A total of 150 adolescents at risk of depression participated in this study examining the preventative efficacy of a group cognitive intervention, the Coping With Stress Course. Participants were randomly assigned to one of two study conditions: treatment (i.e., cognitive interventions) or usual care (i.e., a control group). The cognitive intervention course’s 15 group sessions (three weekly 45-minute sessions) utilized role-playing, group discussions, and cartoons to teach participants how to identify and confront negative and irrational thoughts. Individuals in the usual care group continued to receive any care they were currently involved in and/or any new treatment they chose to seek on their own. Data were collected via several measures at intake, posttreatment, and 6- and 12-month follow-up. Findings demonstrated that, compared to the control group, fewer participants in the treatment group had developed unipolar depressive disorder at the 12-month follow-up. However, the intervention failed to completely prevent the disorder, with the treatment group’s incidence rate at nearly twice that of unselected community samples.


The effectiveness of the Penn Prevention Program (PPP), a depression prevention program for adolescents that utilizes cognitive–behavioral techniques, was the focus of this study involving 143 individuals (ages 10–13). Approximately half of the participants were placed into the PPP treatment group, while the rest were assigned to one of two control groups (wait-list = 24, no-participation = 50). The groups’ levels of distress were not significantly different based on the measures taken at pretest. Students in the PPP treatment group received training in social problem solving, coping with family conflict, thinking flexibly, and evaluating accuracy of beliefs over 12 sessions. Results demonstrated that participants in the PPP group experienced significant reductions in depressive symptoms and demonstrated improved classroom behavior as compared to those in the control groups at both posttreatment and at 6-month follow-up. However, findings showed that the PPP treatment did not reduce the occurrence of conduct problems in the home setting.


School psychologists provided treatment in the school setting to 68 middle school children with moderate and severe depression in this study comparing three
interventions: (1) Adolescent Coping With Depression Course (CWD-A), a cognitive–behavioral course emphasizing skills and strategies to cope with depression-related problems; (2) relaxation training, which focuses on understanding and managing the relationship between stress and depression; and (3) self-modeling training, in which positive behavioral and cognitive changes are promoted through repeated viewing of oneself role-playing targeted desirable behaviors. The participants were randomized and placed evenly into one of the three treatment groups or the wait-list control group. Children in the CWD-A and relaxation groups received their assigned treatment in twelve 60-minute, small-group (2–6 children) sessions over the course of 6–8 weeks. The participants in the self-modeling group received individual treatment in 12 sessions over 6–8 weeks. Results demonstrated the efficacy of each of the three interventions for use with adolescents with depression, with participants in all treatment groups achieving notable positive gains as compared with the wait-list control group.


This 7-week study examined the short- and long-term effectiveness of parental involvement and the Adolescent Coping with Depression (CWD-A) course, a cognitive–behavioral intervention focusing on relaxation techniques, conflict resolution, social skills, and management of negative and irrational thoughts. After the initial assessment and inclusion process, 59 adolescents (ages 14–18) were randomly assigned to one of three groups: adolescent only, adolescent and parent, or wait-list control. The participants in the adolescent-only group received CWD-A training during 2-hour sessions twice a week. The participants in the adolescent-and-parent group received the same training, and their parents attended weekly 2-hour sessions in which they learned the skills and methods of CWD-A and how to support and reinforce their children’s training. Data were collected at intake, posttreatment, and at 1-, 6-, 12-, and 24-month follow-ups. From intake to posttreatment, results showed marked declines in the number of participants meeting diagnostic criteria for depression in the two treatment groups (57% in adolescent-only and 52% in adolescent-and-parent), whereas about 95% of the wait-list group continued to meet the criteria. Moreover, targeted behaviors significantly improved in both treatment groups, and these gains were maintained through the 24-month follow-up. The findings support the efficacy of CWD-A and suggest roughly equal results can be achieved with and without parental involvement.


This study assessed and examined the characteristics of families of children with depression and/or anxiety, as well as each child’s and mother’s perceptions of their family, using the Self-Report Measure of Family Functioning (SRMFF). The 51 participants (ages 9–14) were initially assessed via several behavioral measures to determine diagnoses, resulting in the following diagnostic groups: depressed (n = 11),
depressed and anxious \((n = 15)\), anxious \((n = 10)\), control (i.e., no psychopathology; \(n = 15)\). Each participant then completed the child version of the SRMFF (SRMFF–C) in small group settings, and 41 mothers and 3 stepmothers completed the SRMFF. Results demonstrated that a majority of the time the child’s perceptions of family environment accurately predicted each child’s diagnosis, with the exception of the control group (71% accuracy for depression group, 64% for depressed and anxious, 78% for anxious, and 23% for control). Moreover, depressed or anxious children viewed their families as less supportive, less democratic, and involved in fewer recreational activities; these families also appeared to have more conflict.


Rehm’s coping skills training program and a behavioral problem-solving approach to treating childhood depression were the focus of this 5-week study to determine each therapy’s efficacy in terms of impact across behaviors, across environments, and over time. Twenty-nine children in grades 4–6 were randomly assigned to one of three conditions: self-control therapy (S-C), behavioral problem-solving therapy (BPS), or waiting list (WL). Over the course of 12 sessions, participants in the S-C group learned skills in self-monitoring, self-reinforcement, self-evaluating performance, attributing causes, and determining consequences. The BPS group learned to improve problem-solving skills, self-monitor behavior, and engage in pleasant activities. Data were collected at pretreatment, posttreatment, and an 8-week follow-up. Results showed that symptoms of depression at posttreatment, as well as at the 8-week follow-up, significantly decreased in both the S-C and BPS treatment groups, indicating that both therapies are effective options for treating children with depression.


In this 5-week study, 30 high school children with depression were randomly assigned to one of three conditions: cognitive–behavioral therapy (CBT), relaxation training, or wait-list control. CBT focused on self-control skills training and the basic methods for generating a self-change plan. Relaxation training centered on understanding the relationship between stress and depression and learning self-relaxation skills. Each treatment group met for ten 50-minute, small-group sessions over the course of the study. Data were collected using measures of depression, self-concept, and anxiety during the initial screening process and at pretreatment, posttreatment, and 5-week follow-up. Results showed that 83% of the CBT group, 75% of the relaxation training group, and 0% of the wait-list group had moved from the moderately depressed range at pretreatment into the nondepressed range at posttreatment. The findings support the efficacy of both CBT and relaxation training for treating adolescent depression.
The efficacy of role-playing (R-P) and cognitive restructuring (C-R) for treating children with depression was the focus of this study involving 56 students in grades 5–6. The participants were randomly assigned to one of four study conditions: R-P, C-R, attention-placebo (Placebo), or classroom control (Control). Students in the R-P group participated in 10 weekly, 1-hour, group role-playing sessions that focused on how to solve problems relevant to children with depression. The C-R group received instruction in 10 one-hour sessions on how to recognize and replace irrational and self-defeating thoughts, improve listening skills, and solve problems more effectively. Those in the Placebo group were taught cooperative problem-solving skills through research sharing and information pooling. Data were collected via teacher interviews and 4 self-report questionnaires administered at pretreatment and posttreatment. The findings showed statistically significant changes in depression scores and locus of control measures for both the R-P and C-R groups. Role-playing was found to be most effective, with 9 of 14 students demonstrating improved classroom behavior, all 9 with assessment results falling below the depressed range, compared to the C-R group, with only 4 of 14 showing improvement in classroom behavior, and 3 of those 4 having considerably improved depression scores.

Interpersonal Psychotherapy


This study investigated the suitability and efficacy of interpersonal psychotherapy for adolescents (IPT-A) in comparison with treatment as usual (TAU) in a school-based mental health clinic setting. Sixty-three students (ages 12–18) referred for mental health services were randomly assigned to one of the two treatment conditions. The IPT-A treatment, consisting of psychotherapy focusing on current problems and aiming to reduce the symptoms of depression and improve interpersonal functioning, was delivered during twelve 35-minute sessions over the course of 16 weeks (8 weekly sessions, and 4 at any time during the subsequent 8 weeks). The TAU condition consisted of the treatment protocols in place at the clinics at the time of the study. Data were collected via three clinician-rated and two self-report measures at baseline and at weeks 4, 8, 12, and 16. Results indicated that students receiving IPT-A had significantly reduced symptoms of depression and significantly improved social functioning as compared with the TAU group. Moreover, students in the IPT-A group improved more quickly than their TAU peers, suggesting there is great potential in IPT-A’s use in a school setting.

Forty-eight adolescents (ages 12–18) with depression participated in this 12-week study comparing interpersonal psychotherapy for adolescents (IPT-A) with clinical monitoring. Individuals were randomly assigned to one of the two treatment groups: IPT-A or monitoring. Individuals in the IPT-A group attended 12 weekly 45-minute sessions and 4 weekly telephone contacts (over the first 4 weeks of the study). Individuals in the clinical monitoring group attended 3 monthly 30-minute sessions, with the option of one additional session each month. Data were collected on diagnoses, symptoms, global and social functioning, and problem-solving skills. Thirty-two of the participants completed the study (21 receiving IPT-A and 11 receiving clinical monitoring). Results showed marked reductions in symptoms of depression and improvements in social functioning in the adolescents receiving IPT-A (75%) as compared with those in the clinical monitoring group (46%).


Seventy-one Puerto Rican adolescents with depression (ages 13–17) participated in this study comparing the effects of cognitive–behavioral treatment (CBT) and interpersonal treatment (IPT) with a wait-list control group. The children were randomly assigned to one of the conditions, with individuals in the CBT and IPT groups receiving 12 weekly, 1-hour, individual therapy sessions and the wait-list group receiving no treatment. Participants in the CBT group learned to identify the thoughts, feelings, and actions that influence feelings of depression in order to diminish depressive symptoms and increase their sense of control. Participants in the IPT group evaluated current problems in their interpersonal relationships and addressed problematic areas as a means to reduce symptoms of depression. Results demonstrated that both CBT and IPT groups showed striking reductions in depressive symptoms as compared with the wait-list group and that 59% of the CBT group and 82% of the IPT group showed clinically significant improvement (moving from nonfunctional to functional) from pretreatment to posttreatment. The outcomes suggest that both CBT and IPT can be effective for treating depression in adolescents.


The recovery of 10 of 14 adolescents with depression who had been treated with IPT-A for 3 months was re-evaluated after one year. Clinicians gauged their social functioning and symptoms of depression—and the teens also completed self-reports. Most had
maintained the improvements achieved via IPT-A (fewer depressive symptoms and improved social functioning) in spite of negative life events.


This article documented the first two phases of a three-phase study that attempted to establish the efficacy of interpersonal therapy (IPT) for adolescents (IPT-A). Phase I involved exploring modifications that would help to tailor IPT to adolescents, developing a manual and treating 5 depressed adolescents. The 5 cases were analyzed based on the frequency and number of sessions, length of treatment, and patient outlook posttreatment. Phase II utilized a 12-week clinical trial of 14 depressed adolescents receiving a refinement of the new IPT-A methods. Participants were assessed via seven measures (a combination of parent- and self-reported) at baseline and at weeks 2, 4, 8, and 12. Results of this Phase II study showed significant reduction in the symptoms of depression and an increase in overall functioning, demonstrating the potential effectiveness of IPT-A.


This article summarizes the treatment of 38 adolescents (ages 13–17) who had been hospitalized with major depression. All participants received intensive psychosocial treatment for a minimum of 6 weeks, involving individual psychotherapy (thrice weekly), group therapy (twice weekly), and family therapy (once weekly). Those participants determined to have persisting symptoms of depression (i.e., did not respond to therapy alone) then received tricyclic antidepressants (TCA) while continuing with the therapy program. Twenty-three participants (47%) responded to psychosocial treatment alone; of the remaining 15 participants, 92% responded to a combination of psychosocial treatment and TCA. In terms of the dexamethasone suppression test (DST) and melancholic subtype in relation to response to therapy alone, 31 participants were DST suppressors while 7 were DST nonsuppressors, and 19 participants were melancholic while 19 were nonmelancholic.
Behavioral Interventions


This study investigated the efficacy of treating conversion disorder with negative reinforcement techniques. A 12-year-old boy with a 3-month history of chronic pain and immobility of his right arm was the subject of this case. After consultations with pediatrics, orthopedics, rheumatology, and neurology suggested no physical cause of the boy’s symptoms, he was referred for a psychiatric evaluation. The evaluation resulted in a preliminary diagnosis of conversion disorder based on the persistence of symptoms, inconsistencies in the boy’s apparent ability to use his right arm during a physical exam, the presence of family stressors, and his learning difficulties at school. Conversion disorder and behavioral intervention were discussed with mother and child, and, with the support of the parents, complete bed rest was prescribed until the symptoms resolved. Within 24 hours of the start of bed rest, the boy regained full use of his arm and experienced no residual pain, returned to his normal activities and remained symptom-free. Results of this case study indicate that negative reinforcement, when supported by the parents, can be an effective treatment option for children diagnosed with conversion disorder.


This article consisted of 3 case studies investigating the efficacy of using traditional behavior management strategies when treating children with conversion disorder. The 8 participants (ages 9–12) included in this study were all inpatients in a rehabilitation unit for various symptoms, including abdominal pain, nausea, rash, headaches, joint pain, leg pain, and inability to walk. In all cases, it was determined that inadvertent reinforcement of illness behavior was occurring. In the first case, a 10-year-old girl and her family received counseling to address communication strategies and conflict issues;
in the second case, a 9-year-old boy was taught distraction, pain control switches, and imagery techniques to cope with pain; and in the third case, a 12-year-old girl received daily therapy sessions to learn coping strategies for stress and self-hypnosis for pain management and relaxation. Reward systems were established for each patient for good attainment. Some patients (e.g., case 3) had a level system instituted, with increasing privileges for goal achievement. In addition, all patients and their families received psychological assessment and instruction in pain and stress management strategies. While the authors acknowledge that the results are preliminary, the case studies presented offer tentative support for the use of behavior management techniques for treating children with conversion disorder.


This article documents 4 illustrative case studies from a 7-year program that utilized a neurologic and psychiatric team approach to treat 41 children with conversion reactions. All participants were inpatients at a hospital and received parallel evaluations from a neurologist and a psychiatrist to check for their respective symptoms. After discussing the results of the evaluations, the two professionals determined and presented individual treatment plans to the participating children and their parents. These treatment plans involved first explaining that the children’s physical symptoms were real and worthy of serious consideration, and second explaining that no medical causes had been uncovered and it was suspected that the children’s symptoms were caused by stresses and anxieties (i.e., the children’s bodies used physical symptoms to express the inability to cope with stress and anxiety). Treatment plans were individualized for each participant and always incorporated ongoing psychiatric care along with objectives relating to the reduction and elimination of symptoms (e.g., increasing mobility or decreasing medication use). Attainment of goals was reinforced through encouragement from medical staff and other contingent rewards (e.g., being allowed to go home once a certain goal was reached). In all, 31 patients were classified as having positive results (full or partial recovery), 8 were classified as uncertain (lost to follow-up or left program), and 2 had organic diseases. Overall, results supported the use of combined psychiatry/neurology treatment for children with conversion reactions to maximize the gains of health over the sick role that generates attention and sympathy.


The focus of this investigation was on behavioral treatment approaches for children with functional visual problems. The participant was a 10-year-old boy suffering from alexia with no apparent organic cause. After determining that positive reinforcement had little impact on the boy’s symptoms and motivation, a negative reinforcement
approach utilizing escape/avoidance procedures was instituted. The treatment involved informing the child that his visual problems were due to eye weakness resulting from a previous illness and that eye exercises would help to improve his vision. The boy participated in daily treatment sessions consisting of reading and focusing exercises, ranging in length from 45 minutes to 2 hours. Results demonstrated that the patient’s performance improved from correctly reading 0% of the targeted words during baseline to 100% after 3 weeks of treatment. Furthermore, 100% accuracy was maintained at 2-week, 4-week, and 3-month follow-up, and no relapse, no visual difficulties, and above-average academic performance at school were reported at 1-year follow-up. The swift and successful outcome of the intervention supports its potential effectiveness for use with functional visual disorders.


This study examined the effects of a contingent reinforcement intervention on the conversion symptoms of a 13-year-old girl experiencing chronic lower-back pain and an inability to bend at the waist for 5 months. Target behaviors were identified (stomach contractions and leg lifts), as were discharge behaviors (e.g., bending of the back, walking unassisted down a hallway). The first phase of treatment, Contingent Reinforcement I, tied the stomach exercises to predetermined strength and frequency goals; if the child met the goals, she earned television and telephone privileges for the day. During the second phase, Contingent Reinforcement II, the stomach contraction goals initially remained the same but the reinforcement was modified to parent visits. Then, leg lift exercises were added to the goal requirements. Finally, a series of discharge behaviors were identified as goals, and discharge from the hospital became the reinforcement. Results showed that Contingent Reinforcement I had little effect on the girl’s symptoms, whereas each component of Contingent Reinforcement II, which included more powerful rewards, had substantial effects that culminated in her being discharged from the hospital. However, the girl’s behavior regressed somewhat at the 5-month and 1-year follow-ups, and as evidenced by an inpatient stay at a pain clinic 8 months after the study. In sum, this study provides tentative support for the effectiveness of contingent reinforcement in the short term.


This study assessed the effectiveness of timeouts from social attention and focused on a 10-year-old girl experiencing chronic stomach pain with no organic cause for more than a year. The girl’s mother typically responded to the child’s complaints by offering medication (Donnatal®) and having her rest until she felt better. The mother offered constant attention and comfort measures throughout the child’s rest periods. During the timeout intervention, researchers maintained the girl’s Donnatal dosage but required her to rest in bed for the remainder of the day without toys, television, snacks,
or social attention. Results showed the number of stomachache episodes, occurring approximately 1.5 times per day before treatment, decreased from 9 episodes during the first 30 days of treatment to 3 during the subsequent 56 days of treatment. In addition, no reoccurrences were reported at 4, 6, and 8 weeks or at 1-year follow-up, indicating timeouts from preferred activities may be an effective intervention strategy for children demonstrating somatic behaviors.


This case study focused on one 10-year-old boy who complained of daily abdominal pain, sometimes severe, which was thought to be the result of somatization. Researchers tracked occurrences of the boy’s major pain attacks and daily pain levels on a scale of 0–10. The boy received positive reinforcement in the form of points (that he could apply toward rewards) for days without attacks where his pain levels were below his baseline average. He also received points for days he attended school. Researchers gradually raised standards to require lower levels of pain and longer periods of time in school for a reward. Immediately upon beginning treatment, the child’s average pain levels went below the target point, and he had very few occurrences of major pain attacks (none in the last 15 weeks). The boy, who had missed about half of the school days in the first quarter, attended 86% of the time after treatment began.

**Cognitive–Behavioral Therapy**


A brief CBT intervention was tested with 5 children (ages 6–16). Measures of abdominal pain, somatization, functional disability, anxiety, and behavior were collected. A multiple baseline design across subjects was used for 4 participants, with 1 serving as a separate pilot case. Of the 4 participants, 2 demonstrated daily decreases in pain posttreatment, 1 remained unchanged, and 1 increased. Anxiety measures remained stable across treatment. Somatic complaints were statistically significantly lower for 3 of the 4 participants. Most of the parents rated the treatments to be helpful at some level.


Two treatments were compared for effects with 15 adult participants (age range 25–40) from a walk-in clinic in India. After diagnostic criteria were met and physical illness was eliminated as a possibility for complaint, participants were assigned randomly to a psychotherapeutic intervention or a non-specified intervention. The psychotherapeutic
intervention included relaxation breathing, removing the focus from physical symptoms, problem-solving, distraction, and the scheduling of activities. Measures assessed disability and health, neuroticism and somatic symptoms, level of depression and level of anxiety. Both groups also received oral fluoxetine (20 mg) daily. Some individuals also received lorazepam or alprazolam for significant anxiety or insomnia. Of the 66 patients that gave their consent, 36 were inconsistent in attendance and thus dropped from the study. Duration of illness and number of symptoms was higher in the attrition sample. Remaining subjects had no statistically significant differences between control and treatment group in any social-demographic or clinical variables. Subjects in both groups demonstrated significant improvement in disability, distress, somatization, neuroticism, depression, and anxiety; but those in the group receiving specific psychotherapeutic treatment showed more improvement than those in the non-specified treatment group.


Group cognitive–behavioral therapy (CBT) was compared with individual cognitive–behavior therapy and standard care. Recruitment from 29 centers in Spain identified 204 individuals who met criteria and were between the ages of 18–65. Participants were then randomly divided into three groups of 68. Measures included severity of symptoms, somatic, depression, psychiatric diagnosis, anxiety, quality of life, and clinical impressions. Individual CBT outperformed group CBT in decreasing anxiety. Individual CBT outperformed standard care in decreasing depression. Both CBT delivery approaches outperformed standard care 1 year later at follow-up.


Cognitive–behavioral therapy (CBT) was compared to psychiatric consultation intervention (PCI) with 84 adult participants (ages 18 and up) with somatization disorders. Random assignment to either standard medical care with PCI or a CBT group consisting of 10 manualized, individually administered sessions. This CBT approach focused on stress management, activity regulation, emotional awareness, cognitive restructuring, and interpersonal communication. Implementers were graduate level psychologists with supervised training in CBT. Sessions were audiotaped and reviewed for fidelity of implementation and quality. Results from independent reviewers and other assessments indicated statistically significant improvements for individuals in the group receiving CBT.

Forty-four children (ages 7–14) with recurrent abdominal pain (RAP) participated in this study investigating the impact of a cognitive–behavioral family intervention compared with a standard pediatric care, on the pain level, incidence of relapse, and extent of activity interference caused by RAP. The children were randomly divided into two groups: cognitive–behavioral family intervention (CBFI) and standard pediatric care (SPC). The CBFI group participated in six 50-minute sessions devoted to self-management training for the children and contingency management training for their parents. Those in the SPC group had four to six visits with a gastroenterologist. Data were collected using several measures assessing pain intensity, pain behavior, maternal caregiving, self-coping skills, child adjustment, treatment expectations, relapse, and parent satisfaction. Results showed that while both treatment groups attained clinically significant improvements in daily functioning, the CBFI treatment proved to be superior based on several of the assessed outcomes, including a higher percentage of pain-free ratings by the children, lower incidence of relapse, and lower rates of pain interference with daily activities.


This study followed 16 children with recurrent abdominal pain (RAP) who had been referred for psychological consultations due to the absence of physical causes of their symptoms. The children all received brief targeted cognitive–behavioral therapy at a suburban pediatric clinic with onsite psychiatric services and learned one or more of the following techniques: how to monitor the frequency and intensity of their RAP, cope using relaxation, determine the situations in which pain occurs most often, reduce the need for parental attention to their RAP, increase fiber intake, and increase functional activities. Sixteen children with similar symptoms to those in the treatment group, but who had not been referred for psychological consultation, were randomly selected from the same clinic and served as the comparison group. After treatment, data were collected on outcome ratings of pain (as assessed by parents and therapists). Both prior to and after treatment, data were also collected on absences from school (average days missed per month), visits to the school nurse (average visits per month), and visits to the clinic (average visits per month, general and RAP-specific). Results demonstrated that 81% of parents reported their children’s symptoms had improved or resolved after treatment. Mean numbers of general clinic visits, RAP-specific clinic visits, and school absences all showed a statistically significant decrease from pretreatment to posttreatment.

Operating on the assumption that pain symptoms and behaviors associated with recurrent abdominal pain (RAP) with no physical explanation can trigger responses (e.g., sympathy or attention) that reinforce the behavior, this study documented the effects of a cognitive–behavioral intervention on the symptoms of 16 children suffering from RAP. The participants were randomly assigned to either a treatment group or a wait-list group. Those in the treatment group attended eight counseling sessions during which they learned symptom-reduction techniques such as self-monitoring of pain, self-instruction, relaxation, and imagery. Data were collected at pretreatment and posttreatment and at a 3-month follow-up via four observational measures (parent, teacher, trained observer, and self-report). Results showed that the percentage of children experiencing pain dropped from 100% at baseline to 25% at posttreatment and 12.5% at follow-up. While children in both groups demonstrated improvement in pain behaviors, the treatment group’s behaviors improved more quickly, more dramatically, and across environments.


Treating children with conversion reactions is more challenging when physicians and parents cannot agree on a diagnosis or when an organically based problem is confounded by a secondary conversion reaction in the same part of the body. This article documents 4 case studies involving a coping approach designed to deal with these types of difficult cases. Components of the coping approach included continuing medical care due to the possibility of a hard-to-find organic cause, discussing a return to normal activities despite the pain, comparing the child’s situation with the situations of others in much graver circumstances (e.g., a child coping with cancer pain who continues to attend school), explaining the possibility of the pain continuing indefinitely due to the inability of doctors to find a cause or relieve symptoms, and encouraging the child to cope with the pain without complaint due to the stress and burden that such behavior places on family and friends. All case study participants were able to regain functioning and return to normal activities relatively quickly after the coping intervention was instituted.


This case study tracked the pain of one 17-year-old girl who complained of chronic, unexplainable stomach pain, as well as headaches, insomnia, nausea, and problems at school. A multimodal cognitive–behavioral therapy intervention with strategies chosen
based on functional assessment data was implemented when it was determined that the chronic pain was caused by stress, anxiety, and cognitive misperceptions, and that the condition was being maintained through negative reinforcement (escape and avoidance of difficult circumstances at home and school). With the implementation of the multimodal intervention, downtime, depression, and nausea decreased while activity level, mood, and health increased. Results were maintained at 9-month follow-up.
Interventions for Adaptability Problems: Evidence for Use Annotations

Behavioral Momentum


This study examined the effects of using high-probability command sequences (HPCS) on reducing classroom noncompliance of a 7-year-old boy with Down syndrome, moderate mental retardation, and Attention-Deficit Hyperactivity Disorder. Preliminary data were collected to determine which commands were high probability commands and which were low probability commands. Results from the study showed that the use of HPCS did increase the child’s compliance to low probability commands during the intervention phase (baseline mean = 13%, intervention mean = 78%). However, after the intervention was removed, the amount of compliance returned to baseline levels. The child started taking Ritalin, and a second baseline and intervention were done, followed by a fading phase. While on medication, the child’s compliance to low probability commands had a mean of 25% during the baseline phase. His compliance increased to a mean of 70% during the treatment phase and remained high at a mean of 77% during the fading phase. These findings replicate those found in previous studies on HPCS’s effects on compliance to low probability commands.


This article is a literature review of research on high-probability (high-p) request sequences in academic settings for both task-to-task transitions and within-task transitions. The authors discuss how high-p sequences can help students begin and stay engaged in school tasks that have a compliance probability that is low. Several studies are cited for improving within-task transitions in math and language arts. Overall, the authors concluded that the high-p intervention improves students’ transitions and productivity in class.
This article discusses experiments studying the effects of high-probability (high-p) request sequences on two academic tasks (i.e., letter-writing and problem completion in mathematics). The first experiment consisted of two 7-year-old children with a history of doing their assignments wrong or poorly—or not finishing or even doing them. Both children also had a history of being disruptive in class. The high-p tasks involved copying single letters and the low-p tasks involved copying 7–12 letter words. The results showed that productivity did increase when the high-p tasks were included in the sequence. To investigate whether the high-p task were responsible for the more consistent rate of response, the authors conducted a second experiment using 4 children (ages 10–11). All participants were receiving special education services for learning disabilities and had been referred for academic noncompliance. The high-p tasks involved single-digit addition problems and the low-p tasks involved multi-digit problems. The experiment had three conditions: (1) low-p plus tokens, (2) high-p, and (3) high-p plus tokens. The students showed increased responding between the baseline and the low-p plus token condition and also between the high-p and high-p plus token conditions, indicating the amount of reinforcement impacted their responding.

This study examined the effects of pre-task requests on transition times for 4 children with disabilities (ages 7–10). Previously, these children all had trouble in some school transitions, particularly from preferred activities to nonpreferred activities. Pre-task requesting involved having the teacher give the child a series of quick, easily performed commands (e.g., “give me five”) before the transition command (e.g., “go inside to the classroom”). Compliance rose significantly during treatment and declined again with a return to baseline, showing that pre-task requesting does have a significant effect.

Because students with ADHD often have issues with regulatory functions, they are more likely to have problems with adaptability too. This article begins with a review of the recent literature exploring the adaptability skills in children with ADHD. It continues with a discussion on the different types of cognitive, behavioral, and emotional
interventions used to treat ADHD and how these interventions could help with some of the subcomponents of adaptability. The article concludes with a discussion on the important considerations that can help improve the effectiveness of the interventions used.


Twenty-one male children, ages 6–13, were observed in this preliminary study to determine the overall effectiveness of a 6-week summer treatment program for children with Asperger’s disorder (AD). Additionally, two treatment regimens were compared to determine if data supported one over the other. Two groups were formed, with one group receiving social skills training and one group receiving both social skills training and CBT in the form of a token system. Over the course of the 6 weeks, parents and teachers reported an overall increase in social skills in the children from both groups. Parents also reported an increase in adaptability and a decrease in atypical behaviors. This preliminary examination supports using a combination of CBT and social skills education for children with AD.


This study examined the efficacy of a social skills intervention program for adolescents with social phobia. The program was conducted in school during regular school hours. Of the 35 students (26 female) who met diagnostic criteria for social phobia, 18 students (14 female) were randomly assigned to the intervention and the other 17 (12 female) to the wait-list control group. Students in the intervention program were taught social skills, put in role-play situations, and provided with real-life social events to practice their skills around peers. Sessions were also offered to educate teachers and parents about social anxiety and to teach them techniques for managing children’s anxiety. At the end of the study, 67% of the intervention group no longer met diagnostic criteria for social phobia, compared to only 6% of the control group. In addition, 94% of the intervention group showed moderate to marked improvement, contrasted with only 12% of the control group. These results indicate that a school intervention consisting of social skills training, exposure, and realistic thinking can significantly improve the functioning of adolescents with social anxiety disorder and, therefore, is encouraging for those considering social anxiety intervention in the schools.

For this study, 61 children (ages 7–14) who exhibited school refusal and had been diagnosed with anxiety disorders were assigned to one of three groups: child therapy (CH), parent/teacher training (PTT), or a combination of the two (CH + PTT). It was hypothesized that the combination would be the most effective. After treatment, 69% of the children were no longer diagnosed as having anxiety disorders, and 60% showed no clinical disorders at all. School attendance increased for all groups. At posttreatment, the PTT and CH + PTT groups had significantly higher rates of school attendance, but, interestingly, at follow-up the rates leveled, showing that combination therapy is not always necessary or desired. Parent therapy, alone or in combination with child therapy, produced immediate results, but in the end, all three forms of therapy increased school attendance and lowered levels of anxiety.


To determine the efficacy of a cognitive–behavioral treatment (CBT) program, this study divided 34 children (ages 5–15) who had problems with school refusal into two groups, one of which received CBT, and the other group was placed on a waiting list and served as the control group (WLC). The children in the CBT group received 6 therapy sessions over a period of 4 weeks, and their parents received the same. Teachers were also contacted and involved in the process. Results showed that the percentage of days present at school for the CBT group went from 62% to 94% at posttreatment, and the gains were maintained at follow-up. In contrast, for the waiting list group, percentage of days present at school increased only modestly, from 40% to 56% at posttreatment. In addition, significant differences were seen between CBT and WLC on various pretreatment and posttreatment self-report measures of emotional distress, with the CBT group showing more favorable ratings than the control group.


In this study, 2 female and 3 male adolescents (ages 13–17) with social phobia attended 16 sessions of group therapy that included skill building, phobia exposure, and parental involvement. Multiple evaluations were given before therapy, during therapy, and at various follow-up times. Results showed overall decreases in anxiety and in other specific phobias and emotional disorders. Specifically, at the 3-month follow-up, only 1 of the 5 adolescents was still diagnosed with social phobia; the rest were in
remission. At the 12-month follow-up, 4 of the adolescents were still in full remission, and 1 was in partial remission. Overall, the individuals rated their anxiety levels and frequency of negative thoughts significantly lower after therapy.

### Functional Behavioral Assessment Based Intervention


This study examined the importance of using a functional behavioral assessment when designing interventions. The participant in the study was a boy in 4th grade who had no identified disabilities and was not receiving any special education services or academic modifications. The student had average grades in math, but math instruction time was difficult for him, and he was often disruptive and off-task during this time (more than the other children in the classroom). Based on a teacher interview utilizing the Functional Assessment Checklist: Teachers and Staff (FACTS), it was correctly hypothesized that the student was being disruptive to try to get adult attention. The functional analysis had three conditions: adult attention, escape, and control. The subsequent intervention that used self-monitoring and attention components led to the best improvements in the participant’s on-task behaviors.


This article is a meta-analysis of 82 studies with a total of 168 participants. One goal of this meta-analysis was to understand how intervention effectiveness is influenced by whether or not a functional behavioral assessment (FBA) is included or not. It was found that studies that utilized FBAs when planning interventions had greater effects than those that didn’t use FBAs. Based on the research analyzed, the authors concluded that using FBA procedures in the development of interventions for students diagnosed with ADHD is important.


Chris, a 3-year-old boy with pervasive developmental disorder (PDD), regularly exhibited dangerous and disruptive behaviors at school and at home. Based on an FBA that included 17 days of classroom observation as well as consultations with Chris’ parents, it was hypothesized that transitions or changes in routine were unsettling for Chris and that his problem behaviors functioned as communication of distress and confusion. Intervention for him involved using the Picture Exchange Communication
System (PECS) to create an activity schedule board, where pictures of each school activity were placed in order. Chris was taught to take the first picture, match it to the activity, and engage in that activity until the lights were turned off to signal that it was time to return to the activity board and transition to the second activity. This intervention caused a marked decrease in disruptive behaviors during transitions, and Chris’s parents were able to implement a similar system at home as well.


The study investigated the effects of two alternating treatments used to reduce disruptive behavior: (1) differential reinforcement of alternative behavior (DRA), where attention was given to appropriate behavior and problem behavior was ignored; and (2) reprimand, where all problem behavior was dealt with using reprimands. Two separate classrooms were used to collect data during this study. Classroom 1 consisted of 8 children (ages 2–4) in a nursery school program, all diagnosed with mild to moderate speech delays. Classroom 2 consisted of 22 students (age 4) in a Head Start program from which 6 students were randomly selected. Based on a functional behavioral assessment of both classrooms, it was hypothesized that most disruptive behavior was aimed at receiving teacher attention. For each classroom, both the indicated treatment (i.e., DRA) and the contraindicated treatment (i.e., reprimand) were employed. While both treatments served to stabilize levels of disruptive behavior somewhat, the DRA intervention was more effective. In Classroom 1, disruptive behaviors decreased from 39% during baseline to 23% using DRA, compared to 32% using reprimands. In Classroom 2, disruptive behavior decreased from 31% at baseline to 16% and 27% for DRA and reprimands, respectively.


One 11-year-old girl with mental retardation and ADHD was examined for this study. She was observed engaging in non-compliant behaviors multiple times a day—most predominantly “flopping,” which involved lying on the ground and refusing to move, sometimes accompanied by aggression. During the first phase of assessment, she was observed during multiple transitions to different activities, and it was discovered that flopping occurred only when transitioning to school. Two hypotheses emerged: (1) that she flopped as a result of leaving preferred tasks, and (2) that she did so when losing staff interaction. To evaluate these hypotheses, the girl was told during transitions in school that she would be allowed to play for 5 minutes upon arrival at school, talk with someone for 5 minutes, or a combination of the two. Each of these options reduced the problem behavior, but interaction eliminated it, showing that this one simple adjustment was effective in restraining her problem behavior.

See annotation in the Precorrection section.


See annotation in the Precorrection section.


Two girls, Alicia (age 9) and Sarah (age 7), both diagnosed with mental disabilities and significant behavioral problems, were observed in this study. A functional behavioral analysis examining both antecedent conditions and consequences was used, leading to a hypothesis that, even though the problem behavior usually occurred during demand settings, its purpose was to gain attention. During baseline, problem behavior was consistently followed by teacher attention but rarely brought removal of demands. During treatment, teachers were instructed to ignore problem behaviors but to consistently pay attention when the girls were on task. This instruction style was largely effective with both girls. Alicia’s tantrums decreased from 41% of the day to an average of 2–4% of the day, and this level was maintained at follow-up a year later. Sarah’s tantrums were reduced from an average of 22 to 4 times per day and were reported at follow-up to no longer occur.

### Precorrection


Based on observations and low use rates for specific praise statements taught during a program-wide training given at the beginning of the school year, 3 teachers of preschool Head Start classrooms were chosen for this study. All 3 teachers were given individual instruction on the use of precorrective statements to orient students at the beginning of a lesson and on the use of specific praise statements when student behavior matched expectations. The teachers were given feedback on their use of the interventions throughout the study. Data were collected on child problem behavior as well as the rate of teacher use of precorrective and specific praise statements. Two of the 3 teachers increased their use of precorrection (1 teacher already used that
intervention regularly and maintained use during the study), and each of the teachers increased his or her rate of use of specific praise statements. Overall, these combined interventions reduced the rate of student problem behavior across all three groups. The results also indicated that the increased use of precorrective statements prior to a lesson perhaps sets the stage for more appropriate interactions between teachers and students.


This study focused on 1 preschool-age boy with autism and interventions aimed at helping him engage in sharing behaviors. Regular care providers implemented both phases of intervention and recorded data. Phase 1 involved priming, prompting, and praise. At the beginning of a play session, the boy and a playmate were instructed on the importance of sharing and how to share. During playtime, the boy was regularly prompted to share if a minute went by when he was not doing so, and he was praised every time he shared. During Phase 2, only prompting and praise were used. The data showed that the interventions did have a significant effect on the frequency of his sharing, both verbally and physically, but Phase 1 was more effective in raising and maintaining his frequency of physical sharing. The results indicated that priming before a classroom play session, combined with reinforcement during play, resulted in higher levels of sharing behavior.


This study measured the effects of proactive (versus reactive) correction of minor behavioral incidents (e.g., eating, talking out, getting out of one’s seat) in a 6th grade classroom of 26 students in two intervention phases. The classroom teacher was taught two proactive strategies: active supervision (e.g., circulating in the classroom, reinforcing positive student behaviors) and precorrection (e.g., giving reminders of proper behavior before instances in which problem behavior regularly occurred). For both intervention phases, the researcher met with the teacher each morning before class to discuss progress and encourage use of the interventions. Immediately upon implementation of the interventions in the first phase, the average occurrence of minor behavioral problems in the classroom went down from 95% at baseline to 62%. During the second intervention phase, the average occurrence dropped from the second baseline of 72% to 34%. The results demonstrate a relationship between proactive instruction and decreases in minor behavioral incidents. Moreover, the study suggests that even low levels of proactive instruction result in moderate decreases of minor behavioral incidents.

See annotation in the Functional Behavioral Assessment Based Intervention section.


See annotation in the Procedural Prompts section.


This study examined one 7-year-old girl with autism who had problems with self-injurious behavior (SIB). Through observation, it was determined that her SIB was used to access preferred objects or to escape from demands. She was further observed when she received preferred objects or escaped from demands regularly (not as a result of SIB), as well as when she received multiple warnings before a negative occurrence (e.g., removing a desired object, beginning a demanding task). It was shown that multiple warnings before the negative occurrence, as well as removing the reinforcement, were effective in greatly reducing her use of SIB.


A school-wide treatment plan was implemented in this study to see if using active supervision and precorrection would reduce the problem behaviors (e.g., running, hitting, yelling) of elementary children during three key transitions: Transition 1, when entering the school building; Transition 2, when moving to the cafeteria for lunch; and Transition 3, when exiting the school building. Teachers were taught to remind students of proper behavior just before entering the transition period, and teachers responsible for supervision of the transitions were taught to move around the area, scan to observe all the children, and interact with the children as much as possible. Both of the interventions had positive effects. Problem behaviors decreased at the implementation of precorrection and tended to be lower when interaction of supervisors was higher. Average incidents dropped from 40 to 8 in Transition 1, from 25 to 12 in Transition 2, and from 23 to 11 in Transition 3. The amount of supervisor interaction with the children was significantly more effective for incident reduction than the number of supervisors per transition period.

Two single-case studies were conducted to determine the effect of predictability on levels of problem behaviors in students with disabilities. In the first study, a functional assessment of the behavior of a 14-year-old boy with autism indicated that he found novel tasks aversive, and that his maladaptive responses to such tasks were reinforced by opportunities to escape from the tasks. Based on this assessment, a predictability strategy was chosen in which unfamiliar tasks were modeled and clearly explained before they were assigned. This led to a reduction in problem behavior. For the second study, a functional assessment was conducted for a 17-year-old boy with autism and cerebral palsy. Interview and observation data suggested that the boy’s problem behaviors (destruction of property and aggression) served the function of enabling escape from classes where the duration and sequence of activities were not clearly communicated. Intervention strategies for the remainder of the study were designed based on these findings, and problem behaviors were reduced. The results of these two case studies indicate that consistency may not be needed for students with severe disability, provided the tasks are in some way predictable. Moreover, the findings support the idea that predictability could replace rigid consistency, which is often difficult to implement in school and real-life settings, for controlling problem behaviors.

**Procedural Prompts**


Normally, prompting has been studied in preschool settings as a stand-alone strategy; this is in contrast to its typical use in combination with other strategies in K–12 general education. However, this study looks at prompting as a stand-alone strategy in general education. Two male middle school students showed a decrease in off-task behavior when prompting of appropriate behavior was introduced.


In this study, 14 boys (ages 5–6) in a self-contained special education kindergarten class, with behavioral disorders that included aggression, destruction, noncompliance, and running away, were taught to “freeze” at the sound of a bell while the teacher gave them instructions about transitioning to their next activity. Then, the children quickly cleaned up their current activity and went to the new area. The children who
properly froze were given a small piece of candy as reinforcement. This process was applied during two transitions in both the morning class (6 boys) and afternoon class (8 boys). This intervention, while very simple to implement, had immediate and significant results. For all transitions, the intervention decreased transition time significantly; in three of the four transitions, time was halved.


In this study, visual prompts were used to help 2 young boys with autism transition between activities. Jeff (age 7) was given two visual schedules, one kept in the car and a portable one carried by his caretaker, and he was shown a picture of each activity before it happened. Josh (age 5), in addition to a visual schedule, was given a box in which he could place index cards of tasks as he completed them and a visual timer, where he could see the time “run out” as his time for a particular task ended. For both boys, these interventions produced marked improvements in transition time. Transitions that used to take Jeff a mean of over 6 minutes took less than 2. Josh went from 2.5 minutes to 0.7 minutes on average. Upon return to baseline, both boys reverted to long transitions and repeatedly asked for the visual interventions, showing that it was not only effective but also preferred by the boys.


In this study, Alex, a 6-year-old boy with autism, was observed during school transitions (e.g., to another part of the classroom or from the playground to the classroom) to determine the efficacy of a photographic cuing system with a verbal cue as an intervention package for his tantrum behavior. During baseline, when simply told, “It’s time to go”, Alex regularly responded to transitions with tantrums. During intervention, in addition to being told of the transition, he was shown a photograph with the next setting and one word (e.g., “library”) printed on it. Although it did not eliminate tantrums completely, this intervention helped to reduce the number of tantrums and increase the number of transitions Alex made appropriately. In addition, his parents were able to implement the same intervention at home.


See annotation in the Precorrection section.

This research was conducted in an integrated preschool classroom in which 3 students with mental handicaps had a difficult time making transitions quickly between locations and activities and required a lot of teacher assistance. The participants were selected based on direct observation during transitions and on teacher rankings of transitional ability. The target students (males, ages 3–4) were rated as severely autistic and exhibited stereotypical behaviors (e.g., perseverative speech and object preoccupation). Two of the children had little functional communication and avoided or ignored peer contact. After two baseline studies, with and without teacher assistance, two interventions were implemented: a bell and a buddy system. For the bell intervention, when it was time for a transition, students were shown a card with a picture of a bell and given verbal directions to go to a specified location and ring a bell. For the buddy system, non-handicapped students were paired with the target students and were taught to help them get to the target location. While both treatments were effective in increasing transition speed, the bell was more effective, cutting transition time in half for the target students and greatly reducing the amount of teacher assistance needed.

**Self-Management Training**


This study was a single-subject design using 2 boys, ages 11 and 13, with emotional/behavior disorders (EBD) and ADHD. One boy also had been diagnosed with oppositional defiant behavior disorder (ODB). Both boys had scores in the average-to-low average range on an intelligence test. The purpose of the study was to show the relationship between self-management and a decrease in talking-out behaviors. Baseline data were collected on how often the students exhibited the talking-out behavior during five, 30-minute classes. The students were shown the data and then given two self-monitoring sheets to later record whether or not they were doing their work and whether or not they were paying attention when the teacher randomly cued them. This allowed the students to self-monitor and self-manage their own behaviors. The responses from the post-experiment questionnaires showed that everyone involved noticed an improvement in the students’ behavior and that the talking-out behaviors were dramatically reduced by using the self-monitoring intervention.
In this study, three 4-year-old boys with autism were taught to share using a self-management technique involving tokens. During all sessions, the boys were given opportunities to share. Sessions ended once each student had received 5 tokens, which could then be exchanged for an edible reinforcer. If 30 seconds went by while a child was holding a toy and not sharing, he was given the verbal prompt, “Share.” If he still did not share, he was physically prompted to do so. During baseline, tokens were given out regardless of whether the child demonstrated sharing behavior. During treatment, the boys were allowed to take tokens for themselves after each instance of sharing. For all 3 boys, instances of sharing rose from a small amount to close to 100% during treatment. Although these levels were not maintained during a return to baseline, they were quickly regained when self-management treatment was implemented for a second time.


Three teenage boys in an after-school program (ages 14, 16, and 17), all diagnosed with autism, were participants in this study. This study investigated the efficacy of self-management techniques to teach participants to follow set schedules independently. The schedule, listing the day’s activities and times, was posted in front of the classroom, and a digital clock was in view. The boys were taught to quietly tell their teacher when it was time for them to move on to the next activity. If a transition passed without the student indicating the next activity, the teacher would verbally prompt the end of the current activity. When the teacher was notified correctly, the boy could take 1 of 7 tokens from his back pocket and move it to his front pocket. At the end of the day, tokens could be exchanged for preferred gym activities. Marked increases in the accurate identification of transitions were seen in all 3 boys, even though only 1 of them consistently remembered to transfer tokens.
Chapter 11

Interventions for Functional Communication Problems: Evidence for Use Annotations

Functional Communication Training


A limitation of FCT is overuse of functional responses, where an individual misuses a positive communication to demand constant attention. One solution is schedule thinning, or reducing reinforcement to the individual’s response, which can be attempted by using stimuli (e.g., a picture) to let individuals know when responses are reinforced and when they are not reinforced. This study included a literature review and three experiments. The key results validated the use of schedule thinning with FCT, and especially the method of using stimuli to establish discriminative control of responses. The results also suggest how schedule thinning is implemented and how the type of schedule affects its degree of effectiveness.


Initiating joint attention (IJA) is an early form of nonverbal communication used by young children (e.g., pointing at something to indicate interest). As with other forms of communication, there is a deficit of IJA in children with autism spectrum disorders (ASD). This study was to determine if teacher-implemented Joint Attention and Symbolic Play/Engagement Regulation (JASP/ER) improved IJA in ASD children, ages 3–5 years. The 6-week intervention comprised randomized controlled trials that paired a teacher or paraprofessional with 1 of 16 children in a classroom environment. IJA frequency did increase, suggesting JASP/ER can be effectively used by teachers in classrooms.
Past research has suggested that FCT not only affects the targeted disruptive behavior, but it may have a positive impact on correlating behaviors. This study used FCT on specific destructive behaviors of the participants, but all disruptive behavior was observed to determine if the intervention had a wider impact. Between the initial functional analysis baseline and the final FCT condition baseline, lower levels of the targeted behaviors (71%) and nontargeted behaviors (90%) were observed.


In this pilot study, prompts were given at different frequencies (prompt schedules) during FCT of a 34-year-old woman with autism and mild to moderate intellectual disability. The results indicated that the different prompt schedules affected the frequency of her appropriate communicative responses (mand rates). In addition, the subject’s preference for a specific mand only became clear during one prompt schedule. The study suggests that evaluating prompt schedules can benefit an individual’s communication training by increasing mand rates and revealing mand preferences.


An 11-year-old boy with developmental disabilities was taught to use the phrase “excuse me” only when an experimenter was not busy. By using a naturally-occurring schedule (an experimenter being occupied or available), the researchers hoped to curb the boy’s overuse of an appropriate communicative response, which can be an unintended consequence of FCT. The subject’s behavior did improve, concurring with a previous similar study; however, this training was part of a larger system of treatment for the boy, so more research would be needed to see how it would apply in other situations.


This study examined whether using motivating operations with FCT would enhance treatment effectiveness. The FCT goal was to exchange a boy’s challenging behavior when a toy was removed (i.e., shouting “no”) with an appropriate response (i.e., asking
“more toy”). The motivating operation was allowing the child to play with the toy for 15 minutes prior to the session. During a baseline of no intervention, the child’s rate of challenging behavior was high (64%). During FCT without presession access to the toy, the rate was 38%; and with FCT in conjunction with presession access to toy, the rate was 2%.


In FCT, individuals usually have multiple positive communication responses (mands) to select from. The purpose of this study was to see if mand selection could be influenced by the stimulus of a picture card. One boy and 1 girl, both age 3, were evaluated in their homes for a year. Both children showed a preference for novel mands (the card) over familiar ones, but would use others if the card was not available. Overall problem behavior decreased and remained low. The results of this study suggest that the use of multiple mands is beneficial to FCT, but more research is needed on the correlation of stimuli and mand selection.


This study examined the concept of mand preference—whether being given multiple types (topographies) of mands would lead individuals to choose a mand they liked best. The study included 3 boys, below age 4, who were taught vocal, manually signed, microswitch, and communication card mands in a home setting. Across sessions, the children preferred using vocal mands, which they were familiar with prior to intervention. This suggests that they preferred familiar mands to novel ones. One child used a mix of signing and vocal mands, suggesting the easiest mand for him was the preferred one.


This study observed one 4-year-old boy who was diagnosed with a pervasive developmental disorder and exhibited frequent tantrums. Through a series of trials, clinicians determined that his tantrums were mechanisms used to get a preferred tangible object. Following this discovery, a functional communication training was implemented to teach the child to obtain the desired object through presenting a picture card rather than throwing a tantrum. The child’s communication increased and the problem behavior decreased. This behavior was generalized across objects and people, even when the child had to distinguish between picture cards.

When functional communication is taught as a way to escape an undesirable task, it is often effective in reducing problem behaviors. In the case of homework assignments, however, it can negatively impact learning because the student is allowed to miss the assignment. This study addressed this problem by adding response chaining to the functional communication training and extinction. After the 3 students learned to verbalize “no” to request a break, they were gradually required to complete more of the task before being allowed to request the break, until eventually the whole task was completed. All 3 students showed continued low occurrences of problem behaviors and increased compliance in completing the tasks before requesting a break.


Three studies were conducted to evaluate the effectiveness of FCT in reducing problem behaviors. Specifically, FCT was compared to time-out strategies. Twelve children, who were displaying a number of problem behaviors stemming from a strong need for attention from others, were split into two groups (6 children in each: 1 female, 5 males) based on chronological age, mental age, and language age. One group was taught how to seek attention using newly learned communication strategies (e.g., asking, “Am I doing good work?”). The second group was taught how to use a time-out strategy. The children’s subsequent behavior was recorded during specified intervals. A reduction in the average number of intervals that included problem behaviors was found (about 60% to 5%) even when the experience level (i.e., naïve vs. experienced) of the trainer varied. Children who were taught only the time-out strategy also saw a reduction in the average number of intervals that included problem behaviors (from 49% to 8%), but such effects were not found with less experienced (i.e., naïve) trainers.


Three people with mental disabilities, a lack of speech or communicative gestures, and regular inappropriate behavior participated in this study: a 30-year-old woman and 2 boys (ages 7 and 9 years). Functional behavioral analysis was used to determine the antecedents of the problem behavior, and then the participants were taught a nonverbal response to use to indicate a preferred object, task, or escape. Trials were conducted with and without negative consequences for the inappropriate behavior. Results indicated that treatment was effective in eliminating inappropriate behavior and increasing appropriate behavior only when combined with reinforcement of appropriate behavior and consequences for inappropriate behavior.

This study consisted of two phases. In the first phase, 4 developmentally disabled students were taught a set of both easy and hard tasks. As expected, hard tasks resulted in the students engaging in more problem behaviors than when they undertook easy tasks. In the second phase, each student was taught how to ask an adult for praise or assistance when he or she felt the task was becoming too difficult. This action led to a significant decrease in problem behavior, demonstrating that helping students to express their desires verbally can lead to positive outcomes.

**Milieu Language Teaching**


This study examined the effectiveness of an enhanced milieu teaching (EMT) model: teach-model-coach-review. The participants were 4 child/caregiver pairs who were in turn paired with a child interventionist and caregiver educator in a clinical setting. The children were 24–42 months old and had been diagnosed with a primary language impairment. The children’s language performance improved, with an average use of 17 communication targets during intervention compared to 4 communication targets during the baseline study. This suggests that the use of EMT by caregivers can result in positive outcomes in a child’s language skills.


The purpose of this experiment was to determine if the frequency of milieu communication teaching (MCT) impacted its effectiveness. Half of a group of 64 children with intellectual and communication delays received MCT for 60 minutes, once a week, over a 9-month period; and the other half received the intervention 5 times per week for the same period. There was not a large, unconditional improvement in the high-frequency group compared to the low-frequency group. Children who demonstrated more interest in objects (played with nine or more during a play assessment) did benefit from the more frequent teaching. Otherwise, the outcomes were moderate.
In this study, 77 preschool children with intellectual disabilities received either enhanced milieu teaching (EMT) by therapists only or by both caregivers and therapists to determine if caregiver involvement enhanced gains in language. The children were assessed before, immediately after, 6 months after, and 12 months after their interventions. At the end of the intervention there was no significant difference between the two groups, but children in the therapist/caregiver group had significantly higher usage of target utterances at 6 months (16%) and at 12 months (13%) than the other group. The results suggest that caregiver involvement does positively impact language intervention strategies.


This study examined the effectiveness of milieu therapy to increase communication and reduce aberrant behavior in 3 preschool- or elementary-age boys with ASD. Their communication responses increased at least 75% across the study period and during the 2-week follow-up period. This increase was observed both in the intervention setting and in the classroom setting. Similarly, aberrant behavior decreased. Teachers and parents involved in the study stated that they saw benefits from the treatment.


This study was the first to combine enhanced milieu training (EMT), which includes natural reinforcers, prompting, and adults following the children’s lead, with Voice Output Communication Aids (VOCAs). In an EMT setting, 3 preschool children with autism were taught to use the VOCAs, and 2 of the 3 did not initiate any type of communication (gesturing, vocalizing, etc.). After intervention, all 3 used both VOCAs and gestures independently, and 1 child included vocalizations.


Unique because of its focus on how language training with children with autism affects their communication with their parents at home, this study used the enhanced milieu teaching (EMT) method in simple 15-minute sessions with 4 young children and
gauged progress in the children’s language abilities both in the clinic and in their homes. The parents were not aware of the training method, but they were asked to give feedback on their children’s improvement over the course of the intervention and during follow-up. All 4 children saw marked increases in their speech—both in mean length of utterance and in diversity of words—between pretreatment and follow-up studies, although there was variance in the extent of improvement, and all of them generalized at least somewhat to the home. All of the parents ranked the intervention very highly.


Experimenters in this study taught parents to use three different methods to teach their autistic children to spontaneously use a specific phrase. Three autistic boys were chosen for this study, which used discrete trial (focusing on mass repetition), incidental teaching (focusing on a natural environment), and the authors’ idea of combining these two principles to make modified incidental teaching sessions (MITS). The study found that while 1 of the boys acquired the target phrase during incidental teaching and 2 acquired their phrases during discrete trial, only MITS helped the boys to generalize their learning to other situations. All 3 boys successfully acquired the target phrases and generalized that learning through MITS.


This study focused on the effectiveness of teaching older siblings of children with autism to use milieu teaching during their playtime to help improve the language skills of their younger brothers. Three pairs of siblings were used in this study, and all 3 older siblings learned to use training techniques. Language increases were seen in all 3 target children, and both the language increases and the siblings’ teaching patterns were maintained during follow-up. Two of the 3 sibling pairs generalized their behavior from a play setting to a snack setting. Parents reported more positive interactions between the siblings as a result of this intervention.


In this study, 36 preschoolers from six classrooms across two states were assigned by classroom to either milieu teaching or responsive interaction treatments. Students were matched across treatments according to pretest levels in multiple language areas in order to best compare the two treatments, and individual language goals were set for each student according to his or her abilities. Both of the treatments were implemented
by trained teachers in the classroom. Overall, all students saw improvements in their language, but it was discovered that milieu teaching was more effective for children with language levels of less than 22–26 months who had vocabulary goals, and responsive interaction treatment was more effective for children with higher pretest language levels who had syntactic language goals. Possible reasons for this finding are discussed in the article.


In this study, 4 parents (3 mothers and 1 father) of children with language disabilities were trained to use enhanced milieu teaching with their children. Overall, the parents learned the training method quickly and accurately, and they seemed to enjoy it. Language skills improved for all 4 children, although there was a greater improvement for younger children whose delays were not as significant. Three of the 4 children generalized their newly learned language skills to a new communication partner, and all 4 generalized the skills to the home setting. The parents all rated the intervention highly and were pleased with the results in their children’s development.


In this study, trainers taught 6 mothers of young children with language disabilities to use milieu language training with their children. The mothers were instructed in four types of milieu language training, one at a time, and were given as many training sessions as needed to master one type of training before moving on to the next. Each mother was observed with her child at home during play sessions, and generalization studies were conducted during household chores and when the television was on. In general, the mothers mastered three of the four types but implemented the incidental teaching procedure (the final type) inconsistently. However, growth was seen in the language of the children, and the mothers gave the intervention fairly positive ratings.


The 3 children in this study were taught a series of target greetings and sentences to be used at appropriate times and settings throughout the day through their parents’ use of the time-delay method. At first, the parent would instruct the child to say a particular sentence (e.g., “Good morning, Mom.”) in a particular setting (e.g., in the child’s bedroom in the morning). Gradually, the parent would increase the amount of time delay before giving the prompt, allowing the child to speak spontaneously. The children, for the most part, learned spontaneous speech in a few weeks and maintained it over a period of up to 30 months. In general, the target speech was also generalized within settings across locations and persons. In addition, time delay was an easy method for parents to learn and implement in everyday family settings.
Two methods of teaching autistic children to spontaneously say “I like (love) you” were studied in this experiment. First, 2 of the 4 children were taught using a time-delay method across three different settings. The experimenter (or their mother) would say, “Give me a hug,” wait 2 seconds, and then say, “I like (love) you.” The children were given reinforcements when they responded (or initiated) with the same phrase. Afterward, those 2 children were used as peer models for the other 2 children. However, possibly due to the unstructured setting of these peer models, the other children did not learn from this method. All 4 children were successful in generalizing the spontaneous verbalizations of affection when taught using the time-delay method.

**Picture Exchange Communication System (PECS)**


This meta-analysis summarized studies featuring (among other criteria) participants diagnosed with autism spectrum disorders (ASD) receiving aided augmentative and alternative communication (AAC) interventions. The results were (1) AAC is an effective treatment overall; (2) of targeted skills, communication improved the most, but there was also positive impact on social skills and academics, and reduced challenging behavior; and (3) PECS and speech generating-devices (SGDs) were more effective than other aided systems.


This study examined the effectiveness of adapting PECS for use with students who have multiple disabilities, including visual impairment, and little or no verbal skills. It included 3 girls and 1 boy (ages 7–14) who were taught to make requests using tangible symbols (i.e., objects, meant to represent other items, mounted on board) using the PECS method. All 4 students were able to learn to make requests, and they all used this form of communication in other settings following treatment. The results from the study suggest that PECS can be adapted and used successfully as an alternative form of communication for the visually impaired with multiple disabilities.

This study compared 17 children (ages 3–7) diagnosed with autism who participated in 15 hours of PECS instruction (through Phase III) with a control group who did not. Both groups were made up of students from multiple classrooms (9 for the intervention group, 11 for the control group). The study showed that use of the PECS teaching significantly increased the number of times children initiated communication with an adult as well as responded to an adult’s initiation. The control group did not show these same improvements.


This study—one of the few randomized controlled trials to look at the effectiveness of PECS—examined 17 classrooms of children (ages 4–11), each of which contained at least 3 children with autism or autism spectrum disorders. These classrooms were randomly divided into three groups: immediate treatment, delayed treatment, and no treatment. Children in the treatment classrooms attended a 2-day PECS training session and had consultants come to the classroom to follow-up. Children in the treatment groups showed an increase in communication initiations and in PECS use compared to the control group, although a 10-month follow-up study with the first group showed that the results were not maintained.


This study examined 36 preschoolers with autism spectrum disorders randomly assigned to two treatment groups: either responsive education and prelinguistic milieu teaching (RPMT), or the Picture Exchange Communication System (PECS). The children attended three 20-minute training sessions per week for 6 months and were studied for the effect of these training sessions on requesting, turn taking, and initiating joint attention. It was found that RPMT was significantly more effective in increasing turn taking and initiating joint attention for children who already exhibited some initiating of joint attention before beginning training. The PECS, on the other hand, was more effective in increasing spontaneous requesting in children with very little communication before beginning training.

This study compared two methods of augmentative and alternative communication (AAC): the Picture Exchange Communication System (PECS) and Voice Output Communication Aids (VOCA). Six 4-year-old boys who did not speak and who had been diagnosed with developmental delays were chosen to go through both rounds of interventions simultaneously. The PECS involved choosing a picture to communicate a desire for an object. The VOCA involved pressing a button near a picture that would activate a recorded word, which would communicate the child’s desire for an object. Both were fairly effective in helping these nonverbal children communicate their desires, and the children were able to generalize these behaviors to the classroom after interventions. Some children had a stronger preference for either PECS or VOCA, indicating that choosing an intervention tool depends on the individual.


This study examined 3 children with autism who were trained in PECS in order to see if this system increased their use of spoken language. All 3 children mastered the PECS system and increased the number of intelligible words spoken per session. They also showed an increase in the complexity of their sentences. All 3 started with only one-word verbalizations (if any at all), and by the end were saying three- or four-word phrases. Contrary to expectations, there was no decrease in nonword verbalizations.


This pilot study examined the effects of PECS training on 34 children (ages 5–12) from multiple schools across the U.K. Although initial language skills varied among the children, none were fluent communicators at the beginning, and all showed significant improvements in their communication, particularly in their use of PECS. Interestingly, those with the lower initial communication levels gained the most (and the most consistently), while those who began with higher communication levels had a quick gain at the beginning but then tended to plateau. Weaknesses of this study were the lack of a control group and a reliance on teacher and parent ratings without outside evaluation. However, the study still seemed to show clear improvement in communication due to PECS training.

This study observed 3 boys with autism who rarely communicated verbally in both academic and play settings. The three areas primarily observed were vocal communication, social-communicative behaviors, and problem behaviors. These areas were observed during a baseline study, while the children were being taught PECS, and during post-study. All 3 boys learned the PECS system quickly and also were able to generalize these new communication skills to incorporating speech. In addition, social-communicative skills (e.g., eye contact, attention, playing together) increased throughout the course of this study, and problem behaviors (e.g., tantrums, grabbing, out-of-seat behaviors) decreased. The marked increase in verbal communication in all 3 boys is further evidence of the effectiveness of the PECS.


This study examined 31 children from a special education preschool. Some of the children had been diagnosed with autism; others had Down syndrome, severe mental retardation, or other diagnoses. All children began the study as nontalkers. In the classroom, the children were trained in PECS, including creating sentences and generalizing to peers as well as adults. All of the students successfully completed the PECS training, requiring an average of 14 months. In a second experiment, 18 of these 31 children were observed to see if their verbal communication skills were affected by the PECS training. Of the 18 children, 44% gained spontaneous speech to the point that they ceased to use the PECS system. The other 56% gained very little, if any, speech, but they continued to use the PECS system effectively.

**Pivotal Response Training**


One girl, age 2, with autistic disorder and 1 boy, age 1, with pervasive developmental disorder not otherwise specified (PDD NOS) received PRT for 8–10 hours per week for 4 months. The children and parents all received training in both clinic and home settings. The children made clinically significant improvements in the measured skills,
most notably in adaptive skills, but also in social-communication. In addition, fMRI scans of the two showed greater activation to social stimuli in brain regions used by typically developing children.


The purpose of this study was to examine the effects of home-based PRT in a large-scale, community setting. In one community clinic, 158 families of children with autism disorder or pervasive developmental disorder not otherwise specified (PDD NOS) were chosen. The parents participated in a 12-week parent-education program learning PRT. The Vineland Adaptive Behavior Scales was administered after both the first and last session to assess the students’ progress. Significant improvement was seen in all areas for the total sample of children, with little variance in the amount of improvement seen across sex and race/ethnicity (between white and Hispanic families). The study found that this intervention, while somewhat effective for all ages, was most effective for younger children. The older the children were, the more impaired they were at the beginning of the study, and the less they improved. These results emphasize the importance of early intervention.


In this study, two children with autism were taught to ask a simple question in order to self-initiate learning of a specific verb tense. For example, one child was taught to manipulate a pop-up book page and then ask, “What happened?” When the clinician answered with a simple, regular past-tense verb, such as, “He pinched,” the child would repeat it. The children were observed during interventions as well as during generalization periods at the clinic and in their homes. At the end of the study, both children were regularly using the verb forms that had previously been absent from their vocabularies. In addition, their rate of question-asking in general, as well as the number of verbs they used and their mean length of utterance, increased greatly.


Five children with autism (ages 3–5), whose speech was mostly intelligible, were studied during two types of intervention: analog and naturalistic. During analog intervention, clinicians taught the target sounds through rote drills and then incorporated the sounds into words, phrases, and sentences, reinforcing with verbal praise and treats. During naturalistic intervention, the clinicians selected objects for which each particular child had a preference and included the target sounds and natural reinforcement (receipt of the desired object when its name was pronounced). While both showed overall gains in
the pronunciation of target sounds during training sessions, only the naturalistic training showed widespread generalization of the target sounds in other settings, such as during playtime and at home. All 5 children learned the sounds taught through naturalistic training, and their overall intelligibility rose throughout the course of the study.


In this study, the authors examined 10 boys (ages 7–9), including 2 boys with autism. Six of the other children (3 for each autistic child) were taught, one at a time, to use peer pivotal response training (PRT) in a naturalistic training with their autistic peer in order to help him initiate and maintain interactions with other children. The 2 remaining boys served as “generalization peers”, who received no special training, but did interact with the subjects before and after treatment. Both boys, during baseline, showed few initiations (4% and 7%), but by the post-study they had both increased to 16% and 19%, respectively. Maintaining interactions rose from inconsistent to 100% for both boys, and these interactions were generalized across settings, toys, and people, including untrained peers.


For this study, two 10-year-old boys with autism were paired with 2 peers, who were taught to use PRT with their playmates. Each pair was individually brought to a room with toys and was told to play together. The peer used techniques such as initiating, modeling conversations and play, and taking turns in order to engage the playmate. Both target children, during baseline, showed little to no initiation, little maintenance of interaction, and poor attention. Following the training, maintenance levels rose to nearly 100%, and initiation and joint attention rose significantly. Both boys generalized these behaviors across settings and toys, and 1 of them generalized to a non-PRT-trained peer.


Three young boys with autism were observed in this study, in which they were taught sociodramatic play by an experimenter in a natural play environment to see if this would improve their play and language skills. Sociodramatic play involves role-playing, persistence (continuing a storyline), make-believe transformations (using imaginary objects), social behavior, and verbal communication. Many of these skills, which are natural for normally developing children, are rare or difficult for children with autism.
However, all 3 boys, who initially demonstrated very few of these skills, engaged in sociodramatic play consistently after training. Improvements were also seen in their social behavior and language skills. These skills were generalized to new settings and to their parents, although the effects were more limited.


In this study, parents of 8 autistic children were trained to use the natural language paradigm (NLP) with their children in order to increase speech. Parents were observed interacting with their children in a clinic setting and at home; results were compared with observations of parents with normally developing children as well as with 3 siblings of the autistic children. All of the parents trained in the NLP showed increases in their own verbalizations, providing more naturally occurring opportunities for their children to use speech. In addition, all of the children showed increases in speech, although the children with the least speech in the beginning showed the most dramatic increases. Improvements were generalized to the home setting.

**Video Modeling**


The purpose of this study was to determine if video behavior modeling is as effective a treatment for preschool students with autism as live (in vivo) behavior modeling. Four preschoolers diagnosed with ASD received modeling intervention for 3 minutes, an average of 3 times per week. The treatment was either administered by a teacher/teaching assistant team or via a recorded video of a team. Both treatments were administered on the same day in a randomized order. Three of the 4 children increased their social-communication target behaviors. Of those 3, one favored video modeling, one favored live modeling, and one’s results showed that both were equally effective.


Two experiments were conducted in this study to show the effect of video modeling on how often children with high-functioning ASD gave compliments. Two 5-year-old boys were studied in the first experiment, during which they were shown short videos instructing them in giving compliments. They were then monitored during play time to see how many compliments they initiated or gave as a response. One phase...
included receiving a prize from the teacher if a certain number of compliments were given. During the second experiment, 3 preschoolers were also shown the videos, but this time they monitored their own behavior (with a wrist counter or checklist) in order to receive their prize. In both experiments, compliment-giving increased significantly, but the self-monitoring phase was most effective in helping the children initiate compliments.


Seven children (ages 9–15) with severe problems related to autism were used in this study to identify whether video modeling could help them develop appropriate initiation and play skills. After watching a brief video modeling initiation of play with a certain toy and another person, each child was taken to the room shown in the video, where the same toy was present (sometimes by itself, sometimes among others). Each child was then observed to see if he or she would initiate play. For 4 of the 7 children, both initiation and social play were enhanced, and learning was generalized across setting, people, and toys. Three of the 7 children, however, showed no social initiation throughout any of the trials and did not display any play skills. It was suggested that these children may have needed to learn imitation skills and attention skills (for watching the video) before beginning this type of training. Nevertheless, for certain children, video modeling does seem to have beneficial effects.


Four preschoolers with autism were chosen for this study. They had all previously been taught to verbally request items, but they did so at a very low frequency. For this study, each child was individually videotaped in his or her home with preferred play items. The child was prompted to request items so that a significant number of requests showed up in the video for self-modeling. After taping, most adult prompts and all negative child behavior was edited out of the video. Then, the video was played in front of the child once a day for 5 days, right before school. Data on the frequency of spontaneous requesting were collected at school. All 4 children had large increases in the frequency of spontaneous requests. Three of the 4 children were studied 2–6 weeks later as follow-up, and each of the 3 children maintained high levels of spontaneous requesting.


This study was undertaken to determine whether video modeling or in vivo (i.e., live) modeling was more effective in teaching target behaviors to children with autism. Each of the 5 children in the study was given one or two target behaviors, and each target
behavior had two unique but similar tasks: one that was taught through video modeling and one that was taught through in vivo modeling. For all but 1 of the children, video modeling resulted in faster acquisition of the target behaviors. (For the fifth child, acquisition took only two models for either medium.) Most notably, none of the behaviors taught via in vivo modeling were generalized, whereas all of the behaviors taught through video modeling were generalized across settings. In addition, it was determined that in all but one case, video modeling was less expensive and less time-consuming than in vivo modeling.


For this study, 3 preschoolers with developmental disabilities were videotaped saying target-requested phrases unique to each child. Following baseline, the children were individually taken into a separate room and shown their self-modeling video before being returned to the classroom, where each child was given eight opportunities per session to request items. Although each of the children did show an increase in his or her targeted requests over the course of the 4-month study, the request structure was not as quickly generalized to the classroom setting as anticipated. Three branching steps—increased time delay, questions or mands (i.e., requests), and viewing the video in the classroom—were added, with limited success, to help facilitate generalization to the classroom.


Therapists in this study examined the use of video modeling in 3 boys with autism (ages 6–7). After a baseline study, each of the boys was shown videos of model conversations, where the child and adult would take turns answering a question and asking another. The boys were then asked by the therapists to have the same conversation, mimicking the video clip. Once each boy could do this, he was given prompts to start similar but distinct conversations. After the video modeling and during follow-up studies, each of the 3 boys showed a significant increase in his ability to hold a conversation and to generate novel responses and questions.
Social Skills Training


The SSIS-CIP is a social skills curriculum that includes units ranging from following classroom rules to showing kindness to others. Beyond improving students’ social skills, the program is meant to decrease classroom behavior that is counterproductive. In this study, the SSIS-CIP was used on 228 second-grade students, with a control group of 204. Based on ratings by teachers, the students exposed to the SSIS-CIP showed improvements in social skills, as well as in areas such as cooperation, responsibility, and empathy. Furthermore, the students who made the greatest strides were those who originally needed the social skills intervention the most. However, students were helped more with internalizing (shyness, withdrawal) behaviors than with externalizing behaviors (hyperactivity, aggression).


The authors used a new graphic analytic framework to identify effective evidence-based practices during a literature review of social skill interventions for young children (ages 3–5) with autism spectrum disorder (ASD). The goal of the new system was to review a variety of studies that had resulted in contradictory information and inform readers how to determine which one best fits their specific needs. The authors reviewed 67 studies and rated specified criteria on a scale of 1–4. The evaluations of study quality are presented for comparison. While the study results differed, overall, they support the efficacy of social skill interventions for young children with ASD.

This meta-analysis focused on studies of social skill interventions for entire classrooms (preschool–grade 12), including students both with and without social skill difficulties. To be included, the articles had to meet the following criteria: appear in a peer-reviewed journal in English; have a control/comparison group; and have enough statistical data to calculate an effect size. After aggregating the data from the 28 articles, it was determined that, overall, classroom-based social interventions have a small but positive outcome (effect size = 0.15). Interventions with younger students (especially those in preschool and kindergarten) were more effective than interventions with older students. This suggests that classroom-based social skill interventions are best initiated with younger children.


In a randomized design of 942 third graders in 24 New York City public schools, the 4Rs Program (Reading, Writing, Respect, and Resolution) was implemented in order to affect academic, behavioral, and emotional development. Two groups of 883 total students were matched across 20 demographic characteristics to test effects. The study consisted of a universal, school-based intervention combining social–emotional learning and literacy skills. Two main effects (out of thirteen possible) were found: reductions in self-reports of hostile attributional biases and reductions in self-reports of depressive symptoms.


In this evaluation, the authors reviewed three specific social skills interventions for at-risk children and adolescents and gave broader comments concerning previous meta-analyses of social skills interventions. The three main studies examined Dinosaur School, a 24-session intervention for children ages 4–7 years; Coping Power, an intervention for 4th- and 5th-grade boys and their parents; and Fast Track, an in-school program for entire classrooms as well as an after-school program for at-risk students in grades 1–6. These three programs were selected for review because they had been shown to be effective in at least two randomized controlled trials or in a multisite evaluation. The review authors offered a series of suggestions for improving next-generation social skills interventions, including developing effective strategies for
dealing with disruptive behavior and missed sessions; involving peers, parents, and teachers in order to enhance generalization; and using other interventions to treat children’s behavior problems (e.g., aggression) in tandem with social skills training.


The authors of this article analyzed 55 previous studies including 157 children with autism spectrum disorder (ASD) to examine the results of social skills training on the social competency of the children. Overall, results showed that social skills training is only minimally effective in improving the social skills of children with ASD. However, most of the gains that were made during intervention were maintained at follow-up. In addition, training that took place in the children’s normal classrooms, as opposed to pull-out sessions, was found to be more effective. The authors noted that only 14 of the 55 studies measured the fidelity of implementation, and only 12 studies collected data on the social validity of the targeted interventions. The authors stressed the importance of monitoring and measuring implementation fidelity in order to draw sound conclusions about the effectiveness of any given type of treatment.


This article examined 13 reviews of studies evaluating social skills training for students with emotional and behavioral disorders (EBD). All of the reviews revealed only little to moderate improvement; however, the author hypothesized that the modest treatment gains could be due to flaws in the design and implementation of the interventions. In particular, the following three problems were consistently cited: a lack of emphasis on generalization, ineffective assessments used to monitor improvement, and a failure to monitor treatment fidelity.


This meta-analysis examined 53 studies (n = 2,113) to determine the effectiveness of social skills intervention for children with learning disabilities. Overall, the studies showed only small improvements with an average effect size of 0.211. It was suggested that this low level of intervention efficacy could be due to trouble defining social skills, ineffective training programs, insufficient training time, poor measurements, or a lack of construct validity. However, the authors encouraged the continued use of social skills training as an experimental intervention. The training does often produce gains, even if small, and it has also been shown to increase self-esteem and self-perceived improvement among the children with learning disabilities who participate.

This article synthesized the findings of 23 group-design studies focusing on preschool children (ages 3–5) with any sort of disability, with the goal of determining whether social skills training was effective for this population and, if so, which methods were most effective. Results showed that social skills training is effective when a variety of methods are used. Particularly beneficial were interventions that included modeling, play-related activities, rehearsal, and/or prompting. These trainings took place in natural settings in the regular classroom environment and produced significant improvements in the social skills of preschoolers with disabilities. Encouragingly, the most significant improvements were seen in children with behavioral and emotional disorders (i.e., the children who most needed social skills training).


This review evaluates approximately 55 studies of social skills interventions for children with autism (ages 9 or younger) to determine how effective such interventions were for this population and which types or components were most efficacious. The majority of studies pointed to child-specific and peer-mediated interventions as most successful. The review also emphasized the importance of assessing individual children’s social skills in naturalistic settings, arranging the environment to allow for frequent interactions with normally developing children, teaching specific social skills to both children with autism and their peers, fading direct intervention to natural reinforcement, incorporating treatment into other activities throughout the day, and monitoring effects over time.


In this book chapter, the authors provide commentary on the definition and the importance of social skills, as well as ways of measuring such skills. In addition, they report on a meta-analysis conducted on 18 studies of adults’ and adolescents’ social skills that involved analyzing specific, discrete social behaviors (e.g., talk time, eye contact, gestures) and their effects on perceived social competence. Twelve behaviors (9 nonverbal and 3 verbal) were examined, and each of these alone had an effect on perceived social competence. Talk time was the most significant measure; this single indicator accounted for 46% of the variance in social competence ratings. These results
are encouraging because they suggest that training people to use simple social skills, such as head movements, questions, and talk time, can greatly increase others’ perception of their social competence.


Researchers in this meta-analysis examined six narrative reviews on the effects of social skills training (SST). The results varied widely, from very little effect to large effect, and several reasons were suggested for this variance. Population variance was one reason: children with learning disorders and emotional–behavioral disorders seemed to show resistance to intervention. Also, most studies failed to consider students’ specific social skills deficits when determining which skills would be included in training. Very few of the studies assessed treatment integrity, which made it difficult to determine the effectiveness of the intervention. In addition, not all of the assessments used to determine intervention effectiveness were equally valid, and some had very little social validity. Finally, newly learned social skills often failed to be generalized and maintained because they were taught out of context or because there were competing behaviors that produced more efficient or reliable results.


This meta-analysis examined 35 group studies on the effects of social skills interventions on children with behavioral and emotional disorders. The studies included 1,123 participants and yielded a total of 328 effect size measurements, including measurements of the effects on prosocial behaviors (e.g., social competence, social problem solving), problem behaviors (e.g., disruptive behavior, family relations problems), and specific behavior traits (e.g., anxiety, cooperation, aggression). These studies were analyzed according to types of interventions, child demographics, and other criteria to see if there were any discernable patterns in what made interventions effective. The overall effect size (ES) was .199, indicating modest improvement. Using established social skills programs versus experimental programs did not seem to make a difference, nor did high internal validity rankings, length of programs, or age of students. The only significant improvement (ES above .4) noted was in anxiety, which had an ES of .422; however, this ES was based on a small number of cases. Overall, improvement due to social skills interventions alone was minimal.
This article examined results from 19 studies that met the following criteria: (1) examined the effect of interpersonal skills training on aggressive or antisocial behavior; (2) used a randomized, controlled design; and (3) published results in a peer-reviewed journal. Overall, the results from these studies provided some evidence for modest, short-term effects of interpersonal skills training on behavior; however, they provided limited evidence for maintenance of treatment effects over time. The authors noted that, even using the most promising skills training program delivered under optimal conditions, the majority of children treated remained in the clinical range for measured behavior problems after treatment. Based on these results, they concluded that while interpersonal skills training is not effective on its own for remediating conduct problems, it may be useful as one component of a multifaceted intervention program.

Sixty-three single-subject studies including 283 participants with emotional or behavioral problems (ages from preschool to secondary school) were analyzed in this meta-analysis to determine the effectiveness of social skills training for this population. Participants included those with emotional/behavioral disorders, autism, and delinquency. Results were analyzed by looking at the percentage of nonoverlapping data (PND) between the baseline and intervention phases. They showed delinquent students to be the most responsive to social skills training (mean PND of 76%) and students with autism to be the least responsive (mean PND of 54%). The mean PND across studies was 62%, with a standard deviation of 33%, suggesting that treatments were mildly effective. In addition, preschoolers were not as responsive as older students, perhaps showing that training needs to be further tailored to the needs of very young students. Training was also shown to be more effective in some skill areas than others; more improvements were seen in social interaction than in social communication or other social skills. While overall results showed only mild improvement, that improvement was significant.

This meta-analysis examined results from 49 evaluative studies of the effects of social competence training (SCT) in children ages 3–15 years, with a focus on the variability
of effects for different participant characteristics and program types. The participants in the studies were classified into five diagnostic groups: externalizing syndromes, internalizing syndromes, intellectual problems, at risk (e.g., due to stressful life events), and normal. Program types were coded according to their complexity (monomodal or multimodal) and content focus (e.g., social problem solving, behavioral). The analysis showed that, overall, most SCT interventions, regardless of the style or focus of the training, were effective at bringing about the targeted changes in the short term. The effects were greatest for at-risk children and lowest for normal children, while those with externalizing and internalizing syndromes showed moderate treatment effects. In addition, monomodal training was somewhat more effective for the youngest children, and multimodal training proved most effective for older children. The analysis also revealed that social problem-solving training was the only multimodal training that showed clear, long-term effects; self-control training exhibited the greatest short-term gains.


This review examined 27 studies involving 574 school-aged participants (ages 7–18) with behavior problems to determine the effects of social skills interventions. Almost all of the studies reported significant positive changes on one or more of the outcome measures, including peer ratings, specific social behaviors, problem-solving skills, and teacher and parent ratings of behavior problems and aggression. Parents and teachers almost always perceived positive change in the students; peers seemed resistant to changing their views of the students. These findings suggest a need for the development, testing, and evaluation of programs that include peers in treatment to help them see and support the improvements in students with behavioral problems.