Cognitive Behavior Modification

Characteristics Overview Chart

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<th>Grade Levels</th>
<th>Cognitive Level</th>
<th>Areas Addressed</th>
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<td>Nonverbal</td>
<td>PK</td>
<td>Classic</td>
<td>(Pre)Academic/Cognitive/Academic</td>
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<td>Mixed</td>
<td>Elementary</td>
<td>High Functioning</td>
<td>Adaptive Behavior/Daily Living</td>
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<td>Verbal</td>
<td>Middle/High</td>
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<td>Behavior</td>
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<td>Communication/Speech</td>
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<td>Social/Emotional</td>
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Brief Introduction

Cognitive behavior modification (CBM) is an intervention that combines cognitive and behavioral learning principles to shape and encourage desired behaviors. To be more specific, cognitive behavior modification refers to theoretical and applied orientations that share three underlying assumptions: (a) an individual’s behavior is mediated by cognitive events; (b) a change in mediating events results in a change in behavior; and (c) an individual is an active participant in his learning. In short, the cognitive behavioral approach assumes that individuals have both the capacity and preference for monitoring and managing their own behavior (Heflin & Simpson, 1998).

Description

Cognitive behavior modification aims to teach individuals to monitor their own behavior, pace, or performance, and to appropriately dispense self-reinforcement. As such, it emphasizes modifying thinking as a means of changing feelings and behavior (Corey, 1991; Harris, 1988). The teacher strives to activate the child’s cognitive processes using a behavior change system to alter his thinking as well as his behavior. According to Meichenbaum (1980), the premise of CBM is that individuals must develop the ability to notice (a) how they feel, think, and behave and (b) the impact their behavior has on others as a prerequisite to behavior change.

According to Kaplan and Carter (1995), five characteristics distinguish cognitive behavior modification from other types of behavior management systems:

- Participants themselves rather than external agents are the primary change agents.
- Verbalization is on an overt level, then a self-monitor level, and then a covert level.
- Participants are taught to identify and use a series of problem-solving steps.
- Modeling is used for instructional purposes.
Cognitive behavior modification facilitates self-control. (p. 381)

Cognitive behavior modification has been widely used in a variety of settings to address aggression, anxiety, panic disorders, substance abuse, schizophrenia, bipolar disorder, borderline personality, depression, limited self-control, poor social problem solving, and related problems (Kendall, 1993; Larson & Lochman, 2002; Leahy & Beck, 1988; Mayer, Lochman, & Acker, 2005). The technique has been applied successfully with individuals with autism who exhibit a range of skills (Quinn, Swaggart, & Myles, 1994).

**Steps**

Quinn et al. (1994) outlined the instructional sequence for individuals with classic autism as follows:

- **Model.** The teacher verbalizes aloud what he is doing while demonstrating the strategy steps of a task.

- **Put-through.** Following modeling, the teacher puts the student through the process, providing prompts if necessary. This procedure is performed on a daily basis until the student completes the task with minimal prompting. The teacher collects data and monitors the process until the student is able to master the task at the preestablished criteria.

- **Self-recording.** After following a signal or visual representation of a step, the student places a chip on a board, places a mark on a self-monitoring sheet, or otherwise records the occurrence of the target behavior.

- **Self-rewarding.** After the picture sequence or after the self-monitoring has been completed, the student self-rewards from a menu of preferred reinforcers.

Quinn et al. (1994) also listed a three-step instructional sequence for individuals with high-functioning autism:

- **Self-monitoring.** The student listens to an audiotaped signal; when she hears a signal, the student self-questions, “Am I paying attention?”

- **Self-recording.** The student quickly assesses whether or not she was attending. If the student was attending, she circles “yes” on the self-monitoring sheet. If she was off task, she circles “no.”

- **Self-rewarding.** The student provides a self-reward for on-task behavior by saying, “Good job.” If the student was off task, he or she will silently prompt himself or herself by saying, “Get back to work.” The student resumes work immediately.
**BRIEF EXAMPLE**

Norton is a 15-year-old with Asperger Syndrome. He has difficulty with social limits and understanding subtle social rules. He often makes mistakes in social judgment that make others uncomfortable. For example, he oversteps traditional greeting protocol by hugging and kissing people.

Norton’s teacher, Ms. Williams, decided to introduce a problem-solving scale to him with various ways to greet friends, parents, etc. Ms. Williams and Norton matched greetings to individuals, such as saying “Hi” to friends and shaking hands with or giving a high five to his baseball coach after a game. Ms. Williams also taught Norton to use a daily diary to rate his greeting with others.

**SUMMARY**

Cognitive behavior modification involves both cognitive and behavioral components. It is an intervention designed to enhance self-regulation, which involves monitoring one’s own behavior and performance and delivering reinforcement accordingly. Studies have demonstrated the effectiveness of a variety of cognitive behavior modification techniques with individuals with disabilities. It holds promise as an effective intervention for individuals with autism.

**RESEARCH TABLE**

<table>
<thead>
<tr>
<th>Number of Studies</th>
<th>Ages (year)</th>
<th>Sample Size</th>
<th>Area(s) Addressed</th>
<th>Outcome</th>
</tr>
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<tbody>
<tr>
<td>16*</td>
<td>3–adult*</td>
<td>301</td>
<td>Aggressive behavior, on-task behavior, stereotypic behavior, social behavior, communication skills</td>
<td>+</td>
</tr>
</tbody>
</table>

*Note: Includes reviews of literature by Scattone (2013).

**STUDIES CITED IN RESEARCH TABLE**

1. Scattone, D. (2013). Cognitive behavior therapy in the treatment of anxiety for adolescents and adults with autism spectrum disorders. *Psychology in the Schools, 50*(9), 923-935. This article evaluated the current available literature on Cognitive Behavior Therapy (CBT). The author found that there is evidence that CBT is an effective treatment for anxiety in
children and adults with autism, with the added advantage of being able to conduct CBT in groups, which decreases wait periods for treatment, and the opportunity for feedback within a supportive group environment. The author suggests that more data needs to be collected in order to determine what types of modifications to CBT may need to be done in order to more effectively serve individuals with autism.

2. Reaven, J., Blakeley-Smith, A., Culhane-Shelburne, K., & Hepburn, S. (2012). Group cognitive behavior therapy for children with high-functioning Autism Spectrum Disorders and anxiety: A randomized trial. *Journal of Child Psychology and Psychiatry, 53*(4), 410-419. This study included 50 participants with high functioning autism (ages 7–14 years) who were randomly assigned to either a Cognitive Behavior Therapy (CBT) group or a Treatment as Usual (TAU) group to assess effectiveness of treatment on anxiety levels. Differences in treatment outcomes were measured using structured interviews (Anxiety Disorders Interview Schedule – Parent Version; ADIS-P) pre and post-intervention, as well as blind evaluators who assessed Clinician Severity Ratings, diagnostic status, and clinician ratings of global improvement. Results found 50% of CBT group had a clinically meaningful positive treatment outcome, in comparison of 8.7% in the TAU group.

3. Storch, E. A., Arnold, E. B., Lewin, A. B., Nadeau, J. M., Jones, A. M., De Nadai, A. S., & ... Murphy, T. K. (2013). The effect of cognitive-behavioral therapy versus treatment as usual for anxiety in children with Autism Spectrum Disorders: A randomized, controlled trial. *Journal of the American Academy Of Child & Adolescent Psychiatry, 52*(2), 132-142.e2. This study included 45 children ages 7–11 years of age diagnosed with high functioning autism and clinically significant anxiety. Participants were randomly assigned to either a Cognitive Behavioral Therapy (CBT) intervention group or a Treatment as Usual (TAU) group. CBT showed improvement in anxiety symptoms in relation to the TAU group. Out of 24 children in the CBT group, 18 (75%) responded to treatment. The TAU group had only three of twenty-one children (14%) who responded to treatment. A follow up conducted three months later found results were generally maintained by CBT group.

4. Lickel, A., MacLean, W. r., Blakeley-Smith, A., & Hepburn, S. (2012). Assessment of the prerequisite skills for cognitive behavioral therapy in children with and without Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 42*(6), 992-1000. This study involved 40 children between the ages of 7–12 years old diagnosed with autism, as well as 40 typically developing age matched to them. The purpose of the study was to determine the cognitive skills necessary for Cognitive Behavioral Therapy. The study results indicate that participants with autism performed comparably to their typically developing peers in discrimination among thoughts, feelings and behaviors, and cognitive mediation, but demonstrated difficulties in emotional recognition. Authors suggest that this is consistent with children with autism having difficulty recognizing and discriminate between emotions and their internal states, and prior teaching of emotional recognition would make CBT more effective for children with autism.

Two students with AU were selected to use task, analysis, self-monitoring, and social scripts to learn functional skills and verbal interactions in social settings with peers. The intervention package increased independent task completion, peer-directed verbal interaction, and activity engagement for the students with autism during social, game, and cooking activities.

Three adolescents were chosen to participate in a procedure designed to alleviate aggression from aggression triggering events. The results suggested that adolescents with autism can learn and effectively use a mindfulness-based procedure to self-manage their physical aggression over several years.

Seventy children were chosen to evaluate the effects of a 16-week CBM program. Findings suggested that factors, such as regular sessions in a structured setting, consistent therapists, social exposure and the use of autism-friendly strategies are important components of an effective framework in the management of anxiety in children and adolescents with AU.

Nine high-functioning adolescents with autism participated in the study to evaluate the effectiveness of small-group training consisting of feedback and self-management. All participants demonstrated a significant improvement in correct question asking after training.

The study evaluated the effectiveness of a cognitive behavioral intervention for anger management with children with AS. Forty-five children and their parents were randomly assigned to either intervention or control conditions. Results indicated positive effects of the cognitive behavioral intervention.

The effectiveness of a cognitive behavior modification strategy was investigated with a 6-year-old boy with AS. The child was taught to use the strategy to increase his ability to stay engaged in a task while eliminating or decreasing his dependency on adult prompts. Data revealed that the child exhibited “on-task” behavior for an increasing period of time following introduction of the strategy.
This study evaluated the use of clinician-implemented skill training of replacement behavior and clinician fading with self-management of replacement behavior as a means of managing the aggressive behavior of a 10-year-old child with autism toward his sibling. The results showed a decrease in the occurrence of the aggressive behavior, an increase in the percentage of intervals in which replacement behaviors occurred, and an increase in the duration of sibling interactions.

This study evaluated the effectiveness of using self-management strategies and reinforcement to increase the on-task behavior of a second-grade student with autism. Data indicated that the rate of on-task behavior was significantly increased when self-management and reinforcement procedures were implemented. In addition, improvements in independent academic and behavioral functioning were also documented.

The study examined the effects of self-monitoring on the activity engagement and social interaction of three preschoolers with autism. Results showed that the adult and child monitoring procedures produced equal increases in children’s engagement with typical peers. In addition, the child-monitoring procedure maintained children’s independent interaction during the follow-up condition. Children exhibited varying levels of consistency in their self-monitoring.

Three preschool boys with autism participated in the study, which examined the effects of a self-monitoring intervention. Three primary results were obtained. First, the self-monitoring package increased each participant’s interactions with his peers and/or siblings. Second, the school and home procedures produced comparable impacts on some dimensions of children’s social behaviors. Finally, both adult prompts and reinforcement were successfully reduced or faded within both school and home intervention settings.

The study assessed whether self-management could be used to produce extended improvements in children’s responsiveness to verbal initiations from others in community, home, and school settings without the presence of a treatment provider. Four children with autism participated. Results indicated positive outcomes in which children learned to self-manage responsively to others across multiple community settings. In addition, disruptive behaviors decreased without the need for special intervention.

The study evaluated whether four children with autism could learn to use a self-management treatment package to reduce their stereotypic behavior. Results indicated that all children learned to use self-management procedures to greatly reduce levels of stereotypic behavior, and improvement occurred for extended periods of time in new settings.

**REFERENCES**


**ORGANIZATIONS RECOGNIZING INTERVENTION AS EVIDENCE BASED**


National Autism Center: [http://www.nationalautismcenter.org](http://www.nationalautismcenter.org)

National Professional Development Center on Autism Spectrum Disorders: [http://autismpdc.fpg.unc.edu](http://autismpdc.fpg.unc.edu)

**RESOURCES AND MATERIALS**

  This fact sheet includes information about adults on the spectrum, but the information about cognitive behavior therapy pertains to children as well.

**GENERAL RESOURCES**

- Autism Internet Modules (AIM) [www.autismininternetmodules.org](http://www.autismininternetmodules.org). The Autism Internet Modules were developed with one aim in mind: to make comprehensive, up-to-date, and usable information on autism accessible and applicable to educators, other professionals, and families who support individuals with autism spectrum disorders (ASD). Written by experts from across the U.S., all online modules are free, and are designed to promote understanding of, respect for, and equality of persons with ASD.

- Evidence-Based Practice Briefs [http://autismpdc.fpg.unc.edu/content/briefs](http://autismpdc.fpg.unc.edu/content/briefs)
• Indiana Resource Center for Autism (IRCA) [http://www.iidc.indiana.edu/index.php?pageId=32/](http://www.iidc.indiana.edu/index.php?pageId=32/). The Indiana Resource Center for Autism staff’s efforts are focused on providing communities, organizations, agencies, and families with the knowledge and skills to support children and adults in typical early intervention, school, community, work, and home settings.

• The National Professional Development Center on Autism Spectrum Disorders [http://autismpdc.fpg.unc.edu/](http://autismpdc.fpg.unc.edu/) The National Professional Development Center on Autism Spectrum Disorders is a multi-university center to promote the use of evidence-based practice for children and adolescents with autism spectrum disorders. The Center operates through three sites that include the FPG Child Development Institute at the University of North Carolina at Chapel Hill, the M.I.N.D. Institute at University of California at Davis Medical School, and the Waisman Center at the University of Wisconsin at Madison. Each year, three states are selected through a competitive application process for a two-year partnership with the Professional Development Center. The Center works in coordination with each state’s Department of Education, Part C agency, and University Center for Excellence in Developmental Disabilities to provide professional development to teachers and practitioners who serve individuals from birth through twenty-two years with autism spectrum disorders.

• Texas Statewide Leadership for Autism [www.txautism.net](http://www.txautism.net). The Texas Statewide Leadership for Autism in conjunction with the network of Texas Education Service center with a grant from the Texas Education Agency has developed a series of free online courses in autism. Please check the training page, [http://www.txautism.net/trainings](http://www.txautism.net/trainings), for updated lists of courses, course numbers, and registration information.
  - Current courses include the following:
    - Asperger Syndrome 101
    - Augmentative and Alternative Communication and the Autism Spectrum
    - Autism for the General Education Teacher
    - Autism 101: Top Ten Pieces to the Puzzle
    - Classroom Organization: The Power of Structure for Individuals with ASD
    - Communication: The Power of Communication for Individuals with ASD
    - Futures Planning for Students with Autism Spectrum Disorder
    - Navigating the Social Maze: Supports and Interventions for Individuals with ASD
    - Solving the Behavior Puzzle: Making Connections for Individuals with ASD
  - Strategies for Working with Students with Autism in the General Education Setting:
    - Strategy 1: Understanding Students with Autism Spectrum Disorders.
    - Strategy 2: Get to Know the Individual Student.
    - Strategy 3: Create Predictability.
    - Strategy 6: Create a Positive Learning Community.
    - Strategy 8: Use Instructional Strategies That Promote Successful Learning.
    - Strategy 10: Develop a Plan to Address Challenging Behavior.
    - Strategy 11: Borrow from the Special Educator's Toolbox.
Strategy 12: Respect Each Student's Dignity and Need for Autonomy

School-Based Applied Behavior Analysis Programs for Students with Autism Spectrum Disorders:

- Course 1: Introduction to Autism Spectrum Disorders, Evidence-Based Practices, and the Basics of Applied Behavior Analysis (45 minutes)
- Course 2: Reinforcement and Extinction (1.5 hours)
- Course 3: Challenging Behavior Assessment and Treatment (1 hour)
- Course 4: Communication and Social Skills Training (1 hour)
- Course 5: Instructional Strategies (4 hours)
- Course 6: Classroom and Environmental Arrangement (1.5 hours)