I. **Title:** Applied Behavior Analysis and Autism – Is Discrete Trial Teaching the Only Way?

II. **Topic of Study:** I researched this topic as I do discrete trials on a daily basis with my students and use some of the verbal behavior practices in my classroom. I was hoping to learn more through my research on different methods of delivery to students with autism and behaviors.

III. **Questions:**
1. Are discrete trials the best teaching method for student with autism?
2. How does discrete trial teaching work for students with autism?
3. What other teaching methods are available besides discrete trial for students who have autism?

IV. **Search Strategies:**
On February 17 and 18, 2011 I searched for the articles based on my topic above. The abstracts below were taken from ERIC EBSCOhost online from the University of New England’s library website. Finding the abstracts and articles was simple for me as I narrowed my search using the advanced search options. I searched first for applied behavior analysis, autism, and discrete trials. I modified the dates for between January 2005 and January 2011. I also modified the search for full articles only. From that search I gathered several articles and placed them in my folder to view later. The next day I searched verbal behavior, autism, and
applied behavior analysis. I kept the same modified dates and full text articles only. From that search I gathered more articles and had my abstracts and articles.

V. Abstracts:

1. **Title:** Applied Behavior Analysis: Beyond Discrete Trial Teaching  
   **Author(s):** Steege, Mark W.; Mace, F. Charles; Perry, Lora; Longenecker, Harold  
   **Source:** Psychology, v44 n1 p91-99 Jan 2007. 9 pp.  
   **Peer Reviewed:** Yes  
   **ISSN:** 0033-3085  
   **Descriptors:** Intervention, Comprehensive Programs, Autism, Clinical Psychology, Behavior Modification, Cognitive Restructuring, Test Reliability, Psychometrics, Program Descriptions, Convergent Thinking, Special Education, Special Programs, Program Effectiveness  
   **Abstract:** We discuss the problem of autism-specific special education programs representing themselves as Applied Behavior Analysis (ABA) programs when the only ABA intervention employed is Discrete Trial Teaching (DTT), and often for limited portions of the school day. Although DTT has many advantages to recommend its use, it is not well suited to teach the full range of cognitive, social, academic, leisure, and functional living skills children with autism and related disorders need to develop and generalize to varied natural environments. DTT also does not address the treatment of behaviors that can interfere with instruction and the acquisition, generalization, and maintenance of skills many children with autism bring to instructional situations. We describe a comprehensive program of ABA services for children with autism and briefly discuss the various interventions and their applications and combinations to achieve broad improvement in many different skill areas. In our view, "true" ABA programs are comprised of multiple assessment and intervention methods used individually and dynamically to achieve the best results.

2. **Title:** Discrete Trial Training in the Treatment of Autism.  
   **Author(s):** Smith, Tristram  
   **Source:** Focus, v16 n2 p86-92 Sum 2001.  
   **Peer Reviewed:** N/A  
   **ISSN:** 1088-3576  
   **Descriptors:** Autism, Behavior Modification, Behavioral Science Research, Elementary Secondary Education, Intervention, Training Methods, Elementary Secondary Education  
   **Identifiers:** Applied Behavior Analysis, Social Skills Training
Abstract: This article on the use of applied behavior analysis with students who have autism focuses on discrete trial training (DTT) to develop new forms of behavior, new discriminations, advanced skills, and manage disruptive behavior. Cautions include the need to combine the method with other interventions, provide intensive DTT during early phases of treatment, and provide specialized teacher training.

3. Title: Instructing University Students to Conduct Discrete-Trials Teaching with Confederates Simulating Children with Autism
Author(s): Arnal, Lindsay; Fazzio, Daniela; Martin, Garry L.; Yu, C. T.; Keilback, Lukas; Starke, Mandy
Peer Reviewed: Yes
ISSN: 1184-0412
Descriptors: Educational Strategies, Autism, College Students, Training Methods, Learning Modules, Role Playing, Developmental Disabilities, Experimental Psychology, Caseworker Approach, Mastery Learning, Competency Based Education, Behavior Modification, Foreign Countries, Higher Education
Identifiers: Canada
Abstract: An essential component of applied behavior analysis programs for teaching children with autism is discrete trials teaching. Experiment 1 investigated the effectiveness of a self-instructional manual for teaching university students to correctly apply discrete-trials teaching to teach three tasks to confederates role-playing children with autism. Experiment 2 investigated a training package consisting of the self-instructional manual combined with accurate scoring of a videotape of an experienced tutor conducting discrete-trials teaching with a confederate role-playing a child with autism. The results suggest that self-instructional strategies have considerable potential for instructing participants to conduct discrete-trials teaching.

4. Title: Reducing Student Stereotypy by Improving Teachers' Implementation of Discrete-Trial Teaching
Author(s): Dib, Nancy; Sturmey, Peter
Peer Reviewed: Yes
ISSN: 0021-8855
Descriptors: Teaching Methods, Private Schools, Autism, Check Lists, Pervasive Developmental Disorders, Intervals, Discrimination Learning, Student Behavior, Teacher Improvement, Children, Early Childhood Education, Elementary Education
Abstract: Discrete-trial teaching is an instructional method commonly used to teach social and academic skills to children with an autism spectrum disorder.
The purpose of the current study was to evaluate the indirect effects of discrete-trial teaching on 3 students' stereotypy. Instructions, feedback, modeling, and rehearsal were used to improve 3 teaching aides' implementation of discrete-trial teaching in a private school for children with autism. Improvements in accurate teaching were accompanied by systematic decreases in students' levels of stereotypy.

5. **Title:** Further Evaluation of Emerging Speech in Children with Developmental Disabilities: Training Verbal Behavior  
**Author(s):** Kelley, M. E.; Shillingsburg, M.A.; Castro, M. J.; Addison, L. R.; LaRue, R. H., Jr.  
**Peer Reviewed:** Yes  
**ISSN:** 0021-8855  
**Descriptors:** Language, Verbal Stimuli, Generalization, Autism, Developmental Disabilities, Verbal Operant Conditioning, Psycholinguistics, Speech Language Pathology, Intervention, Communication Research, Individual Instruction, Emergent Literacy, Early Childhood Education  
**Abstract:** The conceptual basis for many effective language-training programs are based on Skinner's (1957) analysis of verbal behavior. Skinner described several elementary verbal operants including mands, tacts, intraverbals, and echoics. According to Skinner, responses that are the same topography may actually be functionally independent. Previous research has supported Skinner's assertion of functional independence (e.g., Hall & Sundberg, 1987; Lamarre & Holland, 1985), and some research has suggested that specific programming must be incorporated to achieve generalization across verbal operants (e.g., Sigafoos, Reichle, & Doss, 1990). The present study provides further analysis of the independence of verbal operants when teaching language to children with autism and other developmental disabilities. In the current study, 3 participants' vocal responses were first assessed as mands or tacts. Generalization for each verbal operant across alternate conditions was then assessed and subsequent training provided as needed. Results indicated that generalization across verbal operants occurred across some, but not all, vocal responses. These results are discussed relative to the functional independence of verbal operants as described by Skinner.

6. **Title:** A Methodology for Assessing the Functions of Emerging Speech in Children with Developmental Disabilities
Author(s): Lerman, Dorothea C.; Parten, Mandy; Addison, Laura R.; Vorndran, Christina M.; Volkert, Valerie M.; Kodak, Tiffany
Peer Reviewed: Yes
ISSN: 0021-8855
Abstract: An approach based on Skinner's (1957) theory of verbal behavior has been developed to understand and teach elementary communication skills to children with autism and developmental disabilities (Sundberg & Partington, 1998). However, few studies have directly examined the characteristics of emerging language in children with developmental disabilities. The purpose of this study was to develop and evaluate an assessment for identifying the elementary functions of vocal speech in children. Participants were 4 children with developmental disabilities, aged 6 years to 12 years, who exhibited at least one distinguishable vocal response (word or phrase) frequently in the natural environment. The assessment focused on three verbal operants delineated by Skinner (mand, tact, and intraverbal). One or more functions were identified for at least one vocal response of each child. Results suggested that this assessment would be useful for (a) evaluating Skinner's theory, (b) guiding decisions about language training for individual children, and (c) studying the nature of expressive language development in children with developmental disabilities.

7. Title: A Language Programme to Increase the Verbal Production of a Child Dually Diagnosed with Down Syndrome and Autism
Author(s): Kroeger, K. A.; Nelson, W. M., III
Peer Reviewed: Yes
ISSN: 0964-2633
Descriptors: Teaching Methods, Autism, Down Syndrome, Delayed Speech, Language Acquisition, Verbal Communication, Elementary Education
Abstract: Background: The incidence of children dually diagnosed with Down syndrome and autism is estimated to be as high as 11%. There is a paucity of research investigating linguistic treatment interventions for such children. This single-subject experiment examined a programme designed to increase the language production and verbal behaviour of a 9-year-old dually...
diagnosed boy who had been receiving a 15-h/week home-based applied behaviour analysis (ABA) programme. Methods: Training principles were derived from previously empirically validated research in discrete trail learning and natural environment teaching, as well as modified incidental teaching procedures. The crux of the language programme involved withholding reinforcement until a spoken request was made. Results: Language production noticeably increased for each target area after the introduction of the language programme and was maintained at a 9-month follow-up session. Conclusions: A combined treatment approach incorporating direct instruction, natural environment teaching and incidental teaching can be effective in increasing and maintaining responsive and spontaneous speech in a child with Down syndrome diagnosed with autism. Replication studies are needed with such multiple dually diagnosed children to further evaluate the effectiveness and generalizability of this combined language programme.

8. **Title:** Acquisition of Mands and Tacts with Concurrent Echoic Training  
**Author(s):** Kodak, Tiffany; Clements, Andrea  
**Source:** Journal of Applied Behavior Analysis, v42 n4 p839-843 Win 2009. 5 pp.  
**Peer Reviewed:** Yes  
**ISSN:** 0021-8855  
**Descriptors:** Verbal Stimuli, Teacher Effectiveness, Developmental Disabilities, Communication Skills, Evaluation, Autism  
**Abstract:** Previous studies have identified a number of effective teaching procedures to increase verbal behavior in individuals with developmental disabilities. However, few studies have evaluated modifications of treatment procedures when children fail to acquire communication skills. In the present investigation, a 4-year-old boy with autism failed to acquire unprompted mands and tacts during mand-only and tact-only training. Results indicated that combining echoic training with mand or tact training increased unprompted manding and tacting.

VI. **Secondary Sources:** Found through Google  
1. **Title:** The Discrimination Of Object Names and Object Sounds in Children with Autism: A Procedure for Teaching Verbal Comprehension  
**Author:** Svein Eikeseth, Diane W. Hayward  
**Source:** Journal of Applied Behavior Analysis
Descriptors: Autism, Language Delay, Stimulus Control, Transfer, Verbal Stimulus

Abstract: We assessed whether 2 preschoolers with autism learned to discriminate between the sounds of musical instruments more rapidly than the spoken names of the instruments. After the children learned the sound-object relations more rapidly than the name-object relations, we then evaluated a prompt-delay procedure for transferring stimulus control from the sounds to the names of the instruments. The prompt-delay procedure facilitated the acquisition of name–object relations for both children.

2. Title: Discrete Trial Training in the Treatment of Autism

Author: Tristram Smith

Source: Journal of Special Education: Focus on Autism and Other Developmental Disabilities Summer 2001 16: 86-92

Abstract: Discrete trial training (DTT) is a method for individualizing and simplifying instruction to enhance children's learning. For children with autism, DTT is especially useful for teaching new forms of behavior (e.g., speech sounds or motor movements that the child previously could not make) and new discriminations (e.g., responding correctly to different requests). DTT can also be used to teach more advanced skills and manage disruptive behavior. However, several cautions about DTT are noteworthy: First, the method must be combined with other interventions to enable children to initiate the use of their skills and display these skills across settings. Second, early in treatment, children with autism may require many hours of DTT per week, although controversy exists over precisely how much is appropriate. Third, to implement DTT effectively, teachers must have specialized training. Despite these limitations, DTT is one of the most important instructional methods for children with autism.

VII. References:


VIII. Summary

The authors of *Applied Behavior Analysis: Beyond Discrete Trial Teaching* created an easy to read piece that is roughly eight pages long but packed with information for special education teachers and behavior consultants about “applied behavior analysis [ABA], services for students with autism and related disabilities, as well as to discuss the ABA-based interventions that have been effective in teaching and treating students with autism” (Steege, Mace, Perry & Longenecker, 2007). The article is broken down by observations of classrooms claiming to “utilize an “ABA program” but many of these school-based programs are limited in scope and few only off a full variety of methodologies that are effective with students with autism” (Steege, Mace, Perry & Longenecker, 2007).

The article then goes on to explain exactly what discrete trial teaching (DTT) should look like and how it should be taught. DTT is mainly used to teach “pre-academic skills such as imitation of gross motor movements; pointing to body parts; labeling objects; receptive and expressive identification of letters, shapes, numbers, and colors; and matching words to objects” (Steege, Mace, Perry & Longenecker, 2007). The authors go on to explain that DTT should be taught on a one to one basis while seated at a table with the student across from the teacher. Steege, Mace, Perry & Longenecker go on to explain that DTT should be an intensive and systematic instruction that should be taught twenty-five to forty hours a week. After the explanation of DTT, the authors break the article into sections of explaining what ABA is,
components of comprehension and effective ABA programs, beyond DTT, and comprehensive ABA-based programming. Applied Behavior Analysis is “the technology side of a scientific discipline known as Behavior Analysis” (Steege, Mace, Perry & Longenecker, 2007). The article then goes on to explain in detail the sound practices and ABA methods that are used to support persons with autism and related developmental disabilities. They also discuss how assessments and interventions are used to develop “evidence-based treatments” (Steege, Mace, Perry & Longenecker, 2007) and that interventions need to match the individual for maximized learning potential.

The authors explain other teaching methods that would be a balanced diet for students with autism and related disabilities of Discrete Trial Teaching (DTT), Incidental Teaching (IT), and Modified Incidental Teaching Sessions (MITS). “Incidental teaching would be more adult directed activities which would be structured such as teaching social skills, communication, and academic skills. Discrete Trial Teaching which was explained earlier in the article would be table work for roughly twenty-five to forty hours a week teaching pre-academic skills. Modified Incidental Teaching Sessions is a combination of basic DTT teaching specific skills in the natural environment which would be functional and motivating” (Steege, Mace, Perry & Longenecker, 2007). The authors include a diagram of advantages and disadvantages of using DTT as well for those using this instructional teaching method.
When using ABA methodologies, it is a “dynamic treatment and an ever changing process that will need constant reconsideration of the behaviors being taught, goals of instruction, and the teaching methods and interventions for interfering behaviors that are most likely to be effective with an individual with autism or related disabilities” (Steege, Mace, Perry & Longenecker, 2007). Educators must remember that no one teaching method is right for all individuals. There is an Individual in Individual Education Plan. We as educators must explore options if a teaching method is not working for a student. Best practices were not created over night, but took time to evolve.