

Introduction

Many infants and toddlers diagnosed with autism have significant developmental delays coupled with significant behavior excesses. Past research suggests an early and intensive behaviorally based treatment, in particular the use of applied behavior analysis (ABA), is effective in systematically teaching skills and reducing problematic behaviors (Jensen & Sinclair, 2002). By beginning an ABA intervention during a child's first 6 to 18 months of age, it "may be possible to prevent many cases of autism and reduce the debilitating effects of many others." While early ABA intervention is most appropriate for young children diagnosed with autism, there is much speculation about the effectiveness of specific types of program designs. Some researchers have found intensive in-home programming is effective, while others support less restrictive center based environments (Stahmer & Ingersoll, 2004). Authors also suggest the "duration and intensity of treatment may be reduced, from the previous research suggesting a full time 40 hour per week program." (Lovaas, 1987; Drash & Tudor, 2004 & 2006). Other programs support the use of parent involvement to increase the likelihood of generalization of skills across environments (Lafasakis & Sturme, 2007; McConachie & Diggle, 2007).

Based on the most recent research and statistics surrounding the diagnosis of autism, it is important to start ABA intervention as early as possible. In addition, ABA programs focusing on play and functional communication (DiCarlo & Reid, 2004), parent training, and generalization of acquired skills are best in an inclusive setting. This presentation focuses on the clinical effectiveness of an infant/toddler ABA program offered by Applied Behavior Consultants, Inc. in Sacramento, CA. Data indicates significant positive results for at risk infants and toddlers that increase overall independence across skill areas and increase the likelihood of placement into less restrictive environments.

Method

Participants

- 31 participants (18-36 months) diagnosed with ASD or PDD-NOS. 26 boys/5 girls
- All participants were enrolled in ABC's Infant/Toddler Development Program in Sacramento, CA.
- All participants were initially assessed below developmental levels in most developmental areas.

Materials

- The Carolina Curriculum for Infants and Toddlers with Special Needs 3rd edition by N. Johnson-Martin, S. Attermeier, and B. Hacker.
- The Carolina Curriculum assesses children 0-36 months across developmental domains.

Program Design

- Infant / Toddler (I/T) Development Programs have been developed and administered by Applied Behavior Consultants, Inc. since 2005, funded by school districts, regional centers, and parents throughout California.
- To achieve program goals, ABC Inc. utilizes Applied Behavior Analysis (ABA) techniques and principles.
- The I/T Development Program is designed to last approximately 6-12 months, with the end goal of transitioning the child to the most appropriate and least restrictive educational environment possible.

Program Goals

- To increase the child's skills across the developmental domains so he/she can readily participate and learn from their natural environments.
- To increase the parent/caregiver interaction by training these individuals to recognize and respond to the child's unique characteristics.
- To increase and develop parent/caregiver interpersonal relationships through the day-to-day activities.

Program Logistics

- 15 hour behavioral assessment.
- 1:1 ABA therapy provided three hours per day, five days per week.
- Skill Areas: Functional Communication, Play, Appropriate Interactions with Others, Self-help skills, Physical and Motor skills, and Skills targeting cognitive development.



Abstract

Research indicates that an empirically derived intervention such as ABA, during a child's early development (0-3 years) may: a) prevent or reduce the long term impact of a child's developmental disability on his ongoing growth and development, b) increase the probability she will be able to participate in typical developmental, academic and social activities in natural environments, and c) improve the likelihood he will no longer require specialized services. A specialized program for infants and toddlers is described which provides 1:1 ABA services to children diagnosed with Autism or whose symptoms place them at risk for the diagnosis. Outcome data demonstrate that all infants and toddlers enrolled have made developmental gains. Forty six percent made more developmental gains (in months) than actual months spent in the program. An additional 8% of students made the same developmental gains as months spent in the program. Thus, 54% of all students enrolled made at least the expected developmental gains. Ninety five percent of all students transitioned to a less restrictive environment after turning three. The program design and data collection methods will be presented to illustrate the usefulness of standard, evidenced based measurement methods in demonstrating program effectiveness.

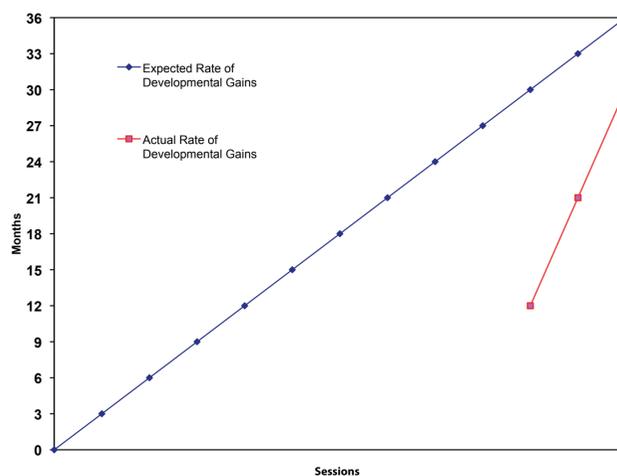
Results

Data was collected across all students enrolled in ABC's program. Two students with the greatest acquisition during the time spent in the program will be presented below. Following the individual data will be group outcome data.

Participant 1: Barry

- Barry entered the I/T Program at 29 months old.
- Data indicates Barry made a 17 month developmental gain (as measured by the Carolina Curriculum) after only 6 months in the program.
- Barry demonstrated a 21 month developmental gain within the areas of social skills and functional communication.
- Initially, Barry engaged in tantrum behaviors ranging from zero to three times per session and from 1 minute to 24 minutes duration, with an average of seven minutes. After being enrolled in the program for three months, Barry's tantrum behaviors decreased and were no longer of observable significance.
- Barry transitioned into a typical preschool environment without support at the age of 3.

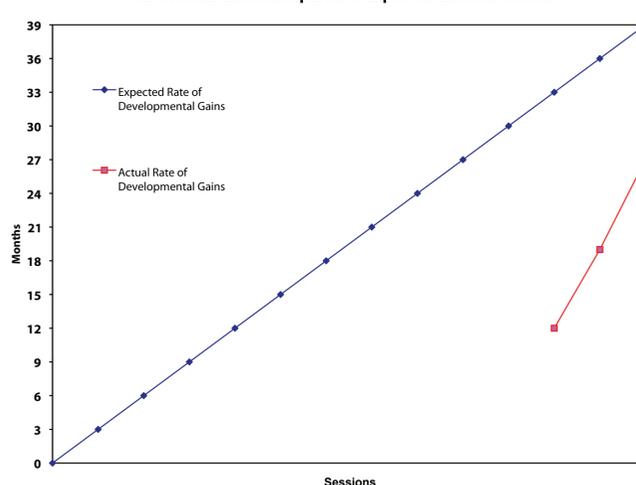
BK's Actual Gains Compared to Expected Gains in Months



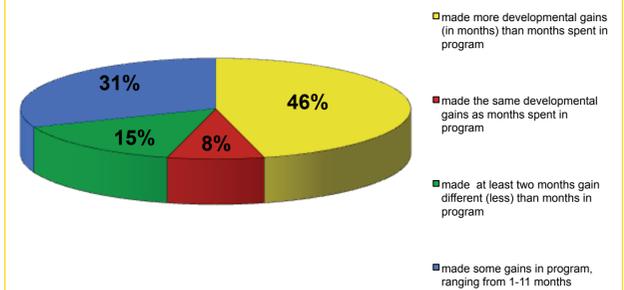
Participant 2: Kenji

- Kenji entered the I/T Program at 33 months old.
- Data indicates Kenji made a 15 month developmental gain (as measured by the Carolina Curriculum) after 5 months in the program.
- In the area of Functional Communication, he made a 16 month developmental gain within a 5-month period.
- Initially, Kenji had minimal interest in other children (either through vocalizations or eye gaze). After 5 months, Kenji recognized his peers by name, commented on their absences, expressed preference and affection for some peers, and participated in simple interactive games with peers.
- Kenji transitioned into a typical preschool environment without support at the age of 3.

KB's Actual Gains Compared to Expected Gains in Months



Program Effectiveness in an Infant/Toddler Program



Group Outcome Data:

Of the children enrolled in the program 31% made at least some gains (ranging from 1-11 months) though not at a pace commensurate with actual time in the program. However, forty six percent made developmental gains over and above the number of months spent in the program, e.g., 17 months gain in 6 months spent in the program. An additional 8% made the same number of gains as months spent in the program, e.g., 6 months gain in 6 months in the program. Thus, 54% of all participants enrolled made at least the expected development in the time spent in the program. Further data analysis indicated that 15% of the participants made gains but at a rate of two months less than time spent in the program, e.g., 7 months gain in a 9 month period.

Discussion

Research indicates that an empirically derived intervention such as ABA, during a child's early development (0-3 years of age), may prevent or reduce the long term impact of a child's developmental disability and increase the probability the child will be able to participate in typical environments. Results indicate all participants enrolled in Applied Behavior Consultants' Infant/Toddler Development Program made progress. Greater than half of all participants met or exceeded the minimum of months in developmental growth that would have been expected given the number of months they were in the program. This suggests that by participating in the program more than half of the participants changed their expected learning trajectory (i.e., decreased the learning gap between them and their typically functioning peers). Data suggest programs, such as the one presented, may be the future of ASD services for children ages 0-3. Like previous research, an important key to an effective intervention is the timing of the intervention. With child development, the earlier ABA programming is implemented, the greater the likelihood for increasing skills to a typical level.

Future research could include following up with each of the participants to collect long term data with regard to classroom placement and overall behavioral, social and developmental growth. Studies may also include a comparison to other types of ABA center based programs (e.g., full time versus part time, 1:1 versus greater ratios between students and staff, and those that have in-home complimentary components).

References

- DiCarlo, C. & Ried, D. (2004). Increasing pretend toy play of toddlers with disabilities in an inclusive setting. *Journal of Applied Behavior Analysis, 37*(2), 197-207.
- Drash, P., & Tutor, R. (2004). An analysis of Autism as a contingency-shaped disorder of verbal behavior. *The Analysis of Verbal Behavior, 20*, 5-23.

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