**ABA and speech therapy: approaches to improve language development of children with autism**

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**Introduction**

Speech-language pathologists (SLP) work with individuals who have been diagnosed with autism spectrum disorders (ASD). ASD is a neurodevelopmental disorder that includes deficits in social interactions and speech and language abilities (NINDS, 2016). Two common approaches to improving social interaction and language skills are speech therapy services and applied behavior analysis (ABA).

Speech therapy is defined as an approach that addresses speech, language, and communication difficulties of individuals. Speech therapy can focus on difficulties like speech sound production, receptive language, expressive language, and cognition (Justice, 2010). ABA is defined as an approach that is designed to make positive changes in a person’s behavior such as communication and social skills (ASHA, 2016).

It is unclear if children would demonstrate better language skills if they received a combination of these services or speech only.

**Case Scenario**

- I am a speech-language pathologist graduate student at the University of Nevada, Reno. One of my clients is a 5-year-old boy with autism named Phillip whose parents are debating if they should enroll Phillip in ABA services in addition to speech therapy.
- In the past, I worked as an in-home ABA provider for a 5-year-old boy with autism. He received ABA for 5 months, and had improvements. Once he received speech therapy and ABA services combined, I noticed additional improvements in his language.
- During graduate school I have learned the importance of early intervention and how multidisciplinary approaches can benefit children with autism.
- I am curious if the combination of speech therapy and ABA will increase language development more than speech therapy alone.

**Purpose**

The purpose of this study was to determine if children with ASD and delayed language develop more language skills as measured by semantics, syntax, morphology, pragmatics, and phonology when they receive a combination of speech therapy and ABA services compared to only speech therapy services.

**Methods**

**Search Terms:**

- Speech therapy and autism; applied behavioral analysis and autism; speech therapy, ABA, and occupational therapy

**Electronic Databases:**

- PsycINFO, Pubmed, Google Scholar

**Appraisal**

A Critical Appraisal of Treatment Evidence (CATE) was used for treatment articles to evaluate reliability and clinical significance based off of 4 appraisal points: The points used were: treatment comparison, random assignment of participants, participants that are related to my clinical question, similarity between groups, blinding, valid and reliable measures were used, if there was statistical significance and if there was practical significance (Gilliam & Gitlin).

Each study received a rating based on an 8 point scale. The articles received a rating of suggestive if they scored 6-8 points. Compelling if they scored 4-6 points, and Equivocal if they scored 0-3 points.

85% interrater reliability was achieved.

5 articles were selected citing direct relevance to this study.

**Dependent Variable**

- All participants performed significantly better on all outcome measures from Pre to Post testing after ABA services:
  - Imitation: (p < 0.001)
  - Receptive language: (p < 0.001)
  - Expressive language: (p < 0.001)
  - Play skills: (p < 0.001)
  - Nonverbal skills: (p < 0.001)

**Results**

All participants performed significantly better on all outcome measures from Pre to Post testing after ABA services:

- Imitation: (p < 0.001)
- Receptive language: (p < 0.001)
- Expressive language: (p < 0.001)
- Play skills: (p < 0.001)
- Nonverbal skills: (p < 0.001)

**Case Review**

Each study received a rating based on an 8 point scale. The articles received a rating of suggestive if 1 year: G1 improved 17.8 points and G2 improved 9.8 points. These results were not significant, and p-values were not reported.

2nd year: G1 improved 18.9 points and G2 improved 10.2 points. These results were significant, and p-values were not reported.

Expressions in language

From Pre to Post testing, after the assigned intervention:

- Pre: G1 improved 12.1 points and G2 improved 4.0 points. These results were significant, and p-values were not reported.

**Results**

All participants performed significantly better on the following outcome measures after each year of a combination of speech therapy, ABA, and occupational therapy services:

- General knowledge: (p < 0.001)
- Signs: (p < 0.001)

No participants performed significantly better on the following outcome measures after 3 years of a combination of speech therapy, ABA, and occupational therapy services:

- Abstract language skills: (p = 0.055)

**Discussion**

- Both ABA and speech therapy increased language abilities in children with Autism. In the one study that provided a combination of speech therapy and ABA services to all participants, all participants made significant gains in language development, especially those that were enrolled in the program at a younger age. The authors discussed that these significant gains were due to the combination of the approaches (Mukherjee et al., 2014).

**References**

**Authors (Date) / Research Design / Appraisal / Participants (Diagnosis, Age) / Dependent Variable / Results**

| Authors (Date) / Research Design / Appraisal / Participants (Diagnosis, Age) / Dependent Variable / Results |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Ben-Itzhak & Zachor (2006) / Non-experimental / Competing / N = 25 / DX: autism / Age: 20-32 months / Imitation / All participants performed significantly better on all outcome measures from Pre to Post testing after ABA services: |
| Dawson, Rogers, Munson, Smith, Winter, Greenson, Donaldson, & Verley (2009) / Experimental / Competing / N = 48 / DX: autism / Age: 18-30 months / Receptive language / Expressive language / All participants performed significantly better on all outcome measures from Pre to Post testing after ABA services: |
| Mukherjee, Rapan, Das, Subramanyam, Shah, & Kamuthi (2013) / Non-experimental / Competing / N = 18 / DX: autism / Age: 4-15 years / Eye contact / One-step commands / Expressive language skills / Receptive language skills / All participants performed significantly better on the following outcome measures after each year of a combination of speech therapy, ABA, and occupational therapy services: |
| Stainler & Ingessell (2004) / Non-experimental / Competing / N = 20 / DX: autism / Age: average of 28 months / Early childhood development (BSDH-1) / All participants performed significantly better on all outcome measures from Pre to Post testing after being enrolled in the Children’s Toddler School (CTS) Program for at least 6 months: |
| Zachor, Ben-Itzhak, Rabinovich, & Lahat (2006) / Experimental / Competing / N = 39 / DX: autism / Age: 22-34 months / Language and communication / Reciprocal social interaction / All participants in both groups (G1 & G2) performed significantly better on the following outcome measures after the assigned intervention: |

**Concepts**

- ABA: Applied behavior analysis
- ASD: Autism spectrum disorder
- SLP: Speech-language pathologist
- BSID-III: Brief Infant Developmental Scales, 3rd Edition
- Imitation: The ability to repeat actions or sounds that are performed by others
- Receptive language: The ability to understand spoken language
- Expressive language: The ability to communicate through speech or writing
- Social interaction: The ability to interact with others in a meaningful way
- Attention: The ability to focus on and respond to stimuli
- Meaningful utterances: Utterances that convey a specific message or idea
- General knowledge: Knowledge of a wide range of topics
- Signs: Nonverbal gestures that communicate ideas or emotions
- Abstract language: Language that is used to describe concepts or ideas that are not concrete