A longitudinal analysis of an ABA program’s effects on adaptive behavior, autism spectrum symptoms, and language in school children

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ABSTRACT
This study investigated the effects of an ABA treatment over time on several variables, including adaptive behavior, symptoms of Autism Spectrum Disorder (ASD), and communication competencies. In regards to adaptive behavior, caregivers reported that expressive language, written language, and community skills decreased with time; teachers reported that children’s play and leisure skills, coping skills, and socialization skills increased over time. Mental health professionals reported that ASD symptoms decreased with time. Auditory and expressive communication skills increased with time as reported by the child’s speech language pathologist. Overall, results suggest that while the targeted skills are mostly changing in the expected direction as reported by school personnel, these changes may not be generalizing to the home environment.

HYPOTHESES
1. As a result of ABA treatment:
   a. Adaptive behavior skills will increase.
   b. Symptoms associated with ASDs will decrease.
   c. Communication competencies specifically, auditory expressive and auditory receptive, communication will increase.

METHOD
Participants
Data was collected from 43 students (38 males; 5 females) at The Vista School. The Vista School is a day school which provides education and therapeutic programs for children diagnosed with an Autism Spectrum Disorder. See Table 1 for other descriptive statistics.

RESULTS
Hypothesis 1: Mean differences in adaptive behavior skills, ASD symptoms, and communication competencies. One-factor repeated measures ANOVA were conducted to effect the an ABA intervention on adaptive behavior, autism symptoms, and language over three years.

Hypothesis 2a. There were no significant effects on the overall Autism Index [F (2, 56) = 12.13, p < .001], written language [F (2, 44) = 10.82, p < .001], and community skills as reported by the child’s caregiver over time [F (2, 44) = 5.87, p < .001]. The child’s caregiver reported that these skills were significantly decreasing over time. On the other hand, there was a significant effect on play and leisure skills [F (2, 80) = 10.04, p < .001], coping skills [F (2, 80) = 5.42, p < .001] on adaptive communication [F (2, 80) = 5.56, p < .001] as reported by the child’s teacher over time. The child’s teacher reported that these skills were significantly increasing.

Hypothesis 2b. There was a significant effect on the overall Autism Index [F (2, 56) = 5.84, p < .001] as well as on Stereotyped Behaviors [F (2, 56) = 11.00, p < .001] as reported by a mental health professional working in the school over time. The child’s mental health professional reported that these symptoms were significantly decreasing.

Hypothesis 2c. In regards to language skills, there was a significant effect on auditory comprehension [F (2, 52) = 17.29, p < .001] and on expressive language skills. The child’s SLPS reported that these skills were significantly increasing.

Table 2. Hypothesis 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Direction of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive language</td>
<td>2</td>
<td>12.13***</td>
<td>5.61</td>
<td>5.22</td>
<td>Decreasing</td>
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<tr>
<td>Written language</td>
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<td>10.82***</td>
<td>8.17</td>
<td>7.87</td>
<td>Decreasing</td>
</tr>
<tr>
<td>Expressive speech</td>
<td>2</td>
<td>5.42**</td>
<td>7.21</td>
<td>7.88</td>
<td>Increasing</td>
</tr>
<tr>
<td>Socialization skills</td>
<td>2</td>
<td>8.56***</td>
<td>54.17</td>
<td>56.79</td>
<td>Increasing</td>
</tr>
<tr>
<td>Stereotyped Behaviors</td>
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<td>5.84*</td>
<td>9.45</td>
<td>8.17</td>
<td>Decreasing</td>
</tr>
<tr>
<td>PLS – (SLP)</td>
<td>2</td>
<td>11.00***</td>
<td>8.38</td>
<td>8.85</td>
<td>Increasing</td>
</tr>
</tbody>
</table>

Note: SLP = Mental Health Professional, IEP = Speech-language Pathologist

DISCUSSION
Conclusions. The purpose of this study was to investigate the effects of an ABA treatment on caregiver report of adaptive behavior, as well as school personnel report of adaptive behavior, ASD symptoms, and communication competencies. In regards to adaptive behavior, neither caregivers nor teachers reported significant change in either direction over time for the majority of skills except for play and leisure skills. Teachers reported increased expressive language, written language, as well as their children’s community skills, decreased with time. On the other hand, teachers reported that children’s play and leisure skills, coping skills, and socialization skills increased with time. Mental health professionals rated their students’ ASD symptoms overall, as well as stereotyped behaviors, as decreasing with time. Finally, according to children’s SLPS ratings, both auditory and expressive comprehension scores increased with time. Overall, results suggest that while the targeted skills are mostly changing in the expected direction as reported by school personnel, these changes may not be generalizing to the home environment.

Limitations. There are a number of limitations to this study. First, all data were measured by self-report. Future studies should incorporate observational data. The sample was somewhat restricted in age, gender, ethnicity, and gender. Future research should establish whether these findings can be generalized to more diverse ASD populations. Finally, the study has no control group; therefore, it is not known whether change occurred as an effect of time only.

Implications. Despite these limitations, the present study expands existing knowledge of the potential efficacy of ABA treatments for children/adolescents with moderate to severe ASD symptoms. More importantly, results inform clinical work as to which skills sets ABA treatment effects change and which skills sets it may not be as effective in treating.

REFERENCES

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