Are Language Abilities Related to Early Social Aptitude in Young Children with and without Autism Spectrum Disorders?

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INTRODUCTION

The interconnectivity between early language development and an infant’s social world is well-established. For instance:

• Gaze-following predicts language development (e.g., Brooks & Melzoff, 2005; Carpenter, Nagel, & Tomasello, 1998; Marcus, Mundy, Morais, Delgado, & Yule, 2000; Morais, Mundy, & Rojas, 1998).

• Children acquire words more easily in joint attention contexts (e.g., Aikar, Dunham, & Dunham, 1991; Baldwin, 1991, 1993; Tomasello & Barton, 1994).

• For children with Autism Spectrum Disorders (ASD), which are often noted as having language difficulties, the extent of the impact such a relationship on social development beyond the first few years of life is of particular importance.

GOAL

To explore the association between early language abilities and the engagement of children with and without ASD in a number of social-cognitive and prosocial tasks (e.g., Warnken & Tomasello, 2007), while controlling for their developmental level (nonverbal mental age).

METHOD

Participants

• 14 children with ASD

• Diagnoses confirmed using the Autism Diagnostic Observation Schedule–Generic (Lord, Rutter, DiLavore, & Risi, 2002)

• Chronological Age in months: M=48.79, SD=12.05, Range=28-68; Mental age in months: M=43.00, SD=16.52, Range=19-69

• 13 Typically Developing (TD) children

• Chronological Age in months: M=37.46, SD=21.42, Range=17-70; Mental age in months: M=41.38, SD=17.44, Range=19-69

Measures

• The Mullen Scales of Early Learning (MSEL, Mullen, 2005)

• Vineland Adaptive Behavior Scales (VABS; Sparrow, Cicchetti, & Balla, 1995)

Experimental Procedure

All children engaged in a play-based task that examined the following:

Social Cognitive Skills (SCS)

• Joint attention for sharing and requesting (4 trials)

• Imagination of bodily movements and actions on objects (8 trials)

• Understanding of intentional versus accidental actions on objects (4 trials)

Prosocial Behaviour (PSB)

• Instrumental Aid: retrieving an out-of-reach object (1 trial)

• Assisting in overcoming a physical obstacle (1 trial)

• Emotional Aid: comforting a ‘hurt’ experimenter (1 trial)

• Sharing: sharing a snack with an experimenter (1 trial)

RESULTS

Children with ASD

Table 1. Means, Standard Deviations, and Pearson Correlations between Language Age-Equivalent Scores and Social Abilities in TD children controlled for MSEL simultaneous mental age

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>(d)</th>
<th>(e)</th>
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</thead>
<tbody>
<tr>
<td>MSEL Receptive Language</td>
<td>40.48</td>
<td>6.27</td>
<td>0.22</td>
<td>-0.32</td>
<td>0.40</td>
<td>0.67</td>
<td>0.87</td>
</tr>
<tr>
<td>MSEL Expressive Language</td>
<td>39.54</td>
<td>6.11</td>
<td>0.27</td>
<td>-0.27</td>
<td>0.51</td>
<td>0.72</td>
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<tr>
<td>TOTAL Language Composite</td>
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<td>9.46</td>
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<tr>
<td>TOTAL Social Cognitive Composite</td>
<td>75.25</td>
<td>9.09</td>
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<td>0.47</td>
<td>0.74</td>
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<tr>
<td>TOTAL Prosocial Behavior Composite</td>
<td>154.37</td>
<td>14.03</td>
<td>0.61</td>
<td>0.40</td>
<td>0.67</td>
<td>0.87</td>
<td>1.00</td>
</tr>
</tbody>
</table>

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SCS: No significant associations were uncovered between language scores and the tendency of children with ASD to engage in the different types of SCS.

TD Children

Table 2. Means, Standard Deviations, and Pearson Correlations between Language Age-Equivalent Scores and Individual Prosocial Behaviour in TD children

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
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<th>(e)</th>
</tr>
</thead>
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<tr>
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<td>7.62</td>
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<tr>
<td>MSEL Expressive Language</td>
<td>38.55</td>
<td>7.56</td>
<td>0.24</td>
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<td>0.43</td>
<td>0.73</td>
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<tr>
<td>TOTAL Language Composite</td>
<td>79.99</td>
<td>9.42</td>
<td>0.25</td>
<td>-0.19</td>
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<td>0.74</td>
<td>0.94</td>
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<tr>
<td>TOTAL Social Cognitive Composite</td>
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<td>0.26</td>
<td>-0.15</td>
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<td>TOTAL Prosocial Behavior Composite</td>
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SCS: No significant associations were uncovered between language scores and the tendency of TD children to engage in the different types of SCS.

DISCUSSION

After controlling for developmental level, there was no relationship between language abilities and the tendency of either children with or without ASD to engage in a series of social cognitive tasks.

In contrast, there were positive associations between language abilities and engagement in prosocial behaviour in children with ASD, particularly in providing instrumental aid and sharing with an experimenter.

A similar, but less pronounced, relationship existed between TD children’s language scores and their tendency to engage in acts of prosocial behaviour.

LIMITATIONS AND FUTURE DIRECTIONS

In light of the binomial scores calculated for prosocial behaviour trials, children’s developmental level was not controlled for when correlating language and individual prosocial trials. As no association was uncovered between the composite prosocial behaviour score and language abilities in children with ASD, it remains possible that the relationships reported here may be accounted for by their level of development.

An increased number of prosocial behaviour trials will enable a more detailed investigation of associations between language and different forms of prosocial behaviour. Likewise, this will enable close examination of how different forms of prosocial behaviour may correlate with one another, holding relevance for interpretation of a composite prosocial behaviour score.

REFERENCES


 getKeyWords

Acknowledgements

We would like to thank all of the wonderful families who participated in this research. This study was supported by Queen’s University and the Developmental Disabilities Consulting Program, Autism Ontario, and the Cordani Foundation for Innovation.

Contact Information

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TABLE 1: Spectrum Contributions between Language Age-Equivalent Scores and Individual Prosocial Behaviour Trials in TD children

<table>
<thead>
<tr>
<th></th>
<th>Out of Reach</th>
<th>Personal Obstacle</th>
<th>Tangible Aid</th>
<th>Emotional Aid</th>
<th>Snack</th>
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<tbody>
<tr>
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<td>0.62**</td>
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<td>0.53</td>
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<td>0.26</td>
<td>0.44</td>
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<tr>
<td>TOTAL Language Composite</td>
<td>0.63**</td>
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<td>0.59</td>
<td>0.39</td>
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</tr>
<tr>
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<td>0.59</td>
<td>0.39</td>
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</tr>
</tbody>
</table>

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TABLE 2: Spectrum Contributions between Language Age-Equivalent Scores and Individual Prosocial Behaviour Trials in TD children

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<td>MSEL Receptive Language</td>
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<td>MSEL Expressive Language</td>
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<td>-0.02</td>
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<tr>
<td>TOTAL Language Composite</td>
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