The Use of iPads to Enhance Joint Attention Skills in Children with Autism Spectrum Disorder (ASD)

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The Use of Mobile Devices to Develop Joint Attention Skills in Children with Autism Spectrum Disorder

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Background

- Children with autism often find it difficult to share and coordinate attention with an adult or peer about an object or activity by following gaze, pointing and alternating gaze, but also showing interest to the other person[1].
- Children with autism have an affinity with technologies[2].
- The benefits of mobile devices in providing structure and predictability and the vast variety of apps that can facilitate social communication makes it imperative to effectively incorporate iPads in the teaching of joint attention[3].
- Despite the increase use of mobile devices in primary schools, there is a lack of guidance for parents and teachers on how to use these devices in home and school environments for children with autism.
- This study aims to aims to produce a list of guidelines for teachers and parents on how to use the tablets to improve joint attention skills in children with autism.

Methods

Study 1: Teachers’ experiences of developing JA skills

- Semi structured interviews with 16 school staff members in 3 UK schools (1 mainstream and 2 special needs)
- Results: a) Evidence-based strategies daily in their teaching practice to promote JA, b) iPad training needs: collaboration and sharing of apps and activities, pedagogical iPad use recommendations, c) need for stronger links with parents

Study 2: Observations of strategies and technology use in the school settings

- Non-obtrusive observations with 12 children and 8 teachers in class, sensory room, PE hall
- Results: a) iPads used as a reward b) iPads used in conjunction with visual aids and other teaching resources to teach the curriculum, c) iPad challenges: children not sharing or waiting for their turn

Study 3: Parents’ experiences of developing JA skills

- Semi-structured interviews with 10 parents of children with autism
- Results: a) Parents engage with their child in social activities such as puzzles, outdoor activities, cooking. b) iPad use: solitary device vs sharing it with their child through 2player and mirroring apps, c) need for advice and training within their child’s school

Study 4: The development of guidelines about the use of iPads for JA purposes

- Focus groups with teachers, parents, children and academics
- Results: a) iPad can be used to promote JA as long as parents and teachers are willing to use the device with the child by sharing with them what they enjoy doing on the device. b) A number of challenges and steps should be addressed before giving the iPad to the child, such as the child’s difficulty in sharing, choosing suitable apps and ensuring that online safety settings are activated. c) Children want to use the iPads with the learning partners they choose and away from their desks

CONCLUSIONS

- The guidelines are proposals rather than definite answers on how to use the iPad for joint attention. In order for the guidelines to be effective in promoting joint attention, researchers, teachers, parents and app developers should work in partnership.
- The device should only be used as a facilitator in the learning process and should not overtake what the teacher or parent already have in place.
- Parents can try using the tablet in collaboration with their child in order to interact and communicate more often.
- Teachers should keep ahead of the technological and pedagogical innovations, so the guidelines can help them instil the habit of using the iPad as a teaching tool to develop joint attention skills in their everyday teaching practice.

Guidelines

**App Checklist Criteria**

<table>
<thead>
<tr>
<th>Audience</th>
<th>Accessibility Settings</th>
</tr>
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<tbody>
<tr>
<td>Purpose</td>
<td>Connectivity</td>
</tr>
<tr>
<td>Ease of Use</td>
<td>Screen time</td>
</tr>
<tr>
<td>Customisation</td>
<td>Online Safety Settings</td>
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<tr>
<td>Price</td>
<td>Positive reinforcement and rewards</td>
</tr>
<tr>
<td>Data Storage</td>
<td>Sharing enjoyment</td>
</tr>
<tr>
<td>Access</td>
<td>Taking turns in games</td>
</tr>
</tbody>
</table>

**Technical Preparations**

- iPad training sessions for parents and teachers
- Project iPad screen to the TV and IWB
- Dynamics of learning partners
- Moving around and sitting on bean bags/different areas of the house
- Visual aids to supplement iPad activities
- Set a routine in the child’s visual timetable when the iPad is used for social communication development
- The purpose of using the iPad to be explicit in class and home
- Encourage verbal/ non-verbal communication while playing together

**Strategies**