Exploring the Effects of Individualized Interaction Interventions Using Smart and Assistive Devices for Students with Severe and Multiple Disabilities

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I. Introduction

Background

- Intervention with smart devices has been shown to increase the interest and attention of children with disabilities and to provide immediate interaction feedback through various apps and activities. However, there are few studies on the effects of interaction interventions for students with severe and multiple disabilities.

The purpose of this study was to explore how individualized interaction interventions using smart devices, assistive devices, and computer programs increased voluntary device input actions and social responses of students with severe and multiple disabilities.

Q. 1
What were the effects of individualized interaction interventions with smart devices, assistive devices, and computer programs on device input actions of students with severe and multiple disabilities?

Q. 2
What were the effects of individualized interaction interventions with smart devices, assistive devices, and computer programs on social responses of students with severe and multiple disabilities?

II. Methods

Design

- After deciding each student’s long-term goal, the short-term goals were set by evaluating the intervention results each session for each student. Each student had an individualized interaction intervention program with different intervention activities and goals.

Participants

<table>
<thead>
<tr>
<th>Brain lesions</th>
<th>Accompanied disabilities</th>
<th>Communication characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 11yrs./Female</td>
<td>- Hearing impairment with a cochlear implant - Visual impairment with no eye tracking - Overall developmental delays</td>
<td>[Expression]: Nonverbal / Laughter, babbling, and turning head</td>
</tr>
<tr>
<td>B 10yrs./Female</td>
<td>Rett’s syndrome</td>
<td>[Expression]: Nonverbal / Laughter</td>
</tr>
<tr>
<td>C 13yrs./Female</td>
<td>Overall developmental delays</td>
<td>[Expression]: Nonverbal / Smiling and vocalization</td>
</tr>
</tbody>
</table>

III. Results

<table>
<thead>
<tr>
<th>A</th>
<th>Reactions (laughs, babbling, eyes open, head turned)</th>
<th>B</th>
<th>Switch, PC eye success rate</th>
<th>C</th>
<th>Switch, Interaction App</th>
</tr>
</thead>
</table>

IV. Discussion

- Instead of setting fixed goals at an early phase of individual interventions, a sensitive modification of variables was proposed with a process of analyzing results and setting next goals at each session. The development of expressions, along with the constant discovery of students’ preferred activities and their timely application to interventions based on the students’ actual actions and responses, have had a positive impact on interaction outcomes for students with severe and multiple disabilities.

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