Developing novel intervention materials to aid the development of dressing skills in young children with visual impairment

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The Issue

• Development of mobility and independence skills in visually impaired children is essential

• Independence training allows active engagement in their environment

• Skills of dressing and undressing are fundamental in everyday life

• Distinct lack of research in Habilitation literature
Habilitation

Habilitation refers to the teaching and developing of Independent Living Skills in children as they move towards independence

Miller, Wall & Garner (2011) *Quality Standards*
Incidental Learning

• Vision acts as a facilitator for the natural learning process for independence (Lewis & Iselin, 2002)

• Sighted children develop independence without organised guidance

• In the absence of vision, development of independence is achieved through systematic teaching activities
Compensating for the lack of Incidental Learning

- Intervention should be structured appropriately for the task
- Carried out at the relevant time and place e.g. the cloakroom at playtime
- Split the task into manageable steps
- Suited to ability while correctly teaching necessary skill (Klein, 1987)
- Time and Rehearsal (Swallow, 1987)
Research Question

Would an interactive suite of intervention materials aid the development of dressing skills in children with visual impairment?
Aim

- to develop and test novel intervention materials specifically designed for teaching shoelaces and the fastenings of an outdoor coat
Designing Novel Materials

- Three materials were created for the study: an interactive story (‘Just Joey’), an interactive puzzle game (IPG) and a standardised coat.
### Materials and Apparatus

#### Table 1: Resources:

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Type</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Puzzle Game (IPG)</td>
<td>Large Jigsaw Puzzle</td>
<td>1. For the children to familiarise themselves with the fastenings, and practise fastening and unfastening</td>
</tr>
<tr>
<td>‘Learn to Dress with Alex’ (Joey)</td>
<td>Commercially Available educational Soft toy</td>
<td>1. Bright and colourful soft toy to develop dressing skills.</td>
</tr>
</tbody>
</table>
| ‘Just Joey’                   | Interactive story game       | 1. Introduce children to rhyming strategies for fastening  
                             |                                                             | 2. Dress along with Joey and fasten coats together         |
| ‘Simon Says’                  | Game                        | 1. Interactive game used as a warm-up for the children  
                             |                                                             | 2. Labelling body parts (i.e. put your finger on your nose) beneficial for body awareness and postural control |
Participants

- 9 children with visual impairment (VI) (3 girls, 6 boys; age range 5;06-10;02 years; mean 8;0).
- 6 were registered blind, 3 were diagnosed with partial sightedness
- 4 typically developing (TD) boys (age range 3;03-7;09 years old; mean = 5;05)
- Children with VI were recruited from a Specialist School
- TD children were recruited from a mainstream school
- Ethical approval was granted from the Institute of Education Ethics Committee
Procedure

• A pre-test, intervention, post-test design was used to assess the impact of the intervention over a 10 week period

• The children participated in two 15 minute sessions per week for the duration

• A series of event based observations were used at weekly intervals to examine the effects of the interventions and assess the progress of the children.

• The observation schedule was previously piloted with the intervention resources for reliability and face validity.
<table>
<thead>
<tr>
<th>Week number</th>
<th>Session</th>
<th>Activity</th>
<th>Week number</th>
<th>Session</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 1          | 1       | 1. Play ‘Simon Says’  
2. Read ‘Just Joey’ with IPG | 6           | 1       | 1. IPG                                        |
|            | 2       | 1. IPG                                        |             | 2       | 1. Standardised coat                         |
| 2          | 1       | 1. Story with IPG                             | 7           | 1       | 1. IPG & standardised coat                   |
|            | 2       | 1. IPG                                        |             | 2       | 1. IPG, standardised coat & Joey             |
| 3          | 1       | 1. IPG                                        | 8           | 1       | 1. IPG & Joey                                |
|            | 2       | 1. IPG with laces*                           |             | 2       | 1. IPG, standardised coat & Joey             |
| 4          | 1       | 1. IPG                                        | 9           | 1       | 1. IPG & Joey                                |
|            | 2       | 1. IPG                                        |             | 2       | 1. IPG, standardised coat & Joey             |
| 5          | 1       | 1. IPG                                        | 10          | 1       | 1. IPG, standardised coat & Joey             |
|            | 2       | 1. Joey  
2. IPG with laces                               |             | 2       | 1. Transfer skills onto different items      |

Note: * = all IPG activities incorporated laces after wk3 S2
Results

• The observations show that all children demonstrated some level of practice effects in the zip, button, popper and lace conditions.

• All TD children, and 3 boys with VI were able to unfasten and fasten all fastenings without assistance.

• All VI children were able to unfasten all fastenings but required physical or verbal assistance to support some stages of fastening.
Findings

• Chronological age may affect and skill ability in the VI condition as the older children were able to independently fasten/unfasten at the end of the intervention period

• Within the VI sample, boys appeared to develop motor skills faster than girls – this could also be linked to chronological age
Discussion

- Children show a similar developmental pattern in terms of fastening, however children with VI appear to be delayed.

- Motivation and additional disabilities could play a role in fastening ability, as children with partial sight and additional disabilities performed worse than children with blindness.

- The ‘developmental lag’ theory supports the findings (Warren, 1994).
Moving Forward

• The current study could be developed in the following ways:
  – Increase sample size
  – Inter-rater validity for the observation schedule
  – Create a training manual for the intervention for key supporting adults
Conclusion

• The results indicate that the suite of intervention materials could support dressing skill development in both sighted children and children with VI

• The degree of skill mastery between the children varied, but overall the results show an improvement in each child’s skill ability from pre-test to post-test
Thank you for listening!

Any questions?

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