Pilot Study: Assistive Technology as a Vocational Support for Individuals with Autism Spectrum Disorder

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# Pilot Study: Assistive Technology as a Vocational Support for Individuals with Autism Spectrum Disorder

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## Background
- **Autism spectrum disorder (ASD):** a lifelong neurodevelopmental condition with impairments in reciprocal social communication and social interaction, including restricted and repetitive behaviors, interests, and activities (American Psychiatric Association, 2013)
- **Video-based instruction (VBI):** helps increase functional independence and learning abilities through personal digital assistants (PDAs)
- **Effective vocational supports** are needed for individuals with ASD in order to establish self-independence and to be successful in the workplace (Hendricks, 2010)

## Statement of Purpose

*The purpose of this study was to examine the use of VBI on a PDA as a vocational support for learning novel tasks for individuals with ASD*

## Implications for OT Practice
- Occupational therapists advocate for the use of VBI technology in the workplace to better suit the needs of individuals with ASD
- Technology is an essential part of everyday activities and a socially acceptable tool to use as an assistive device
- VBI helps reduce human error that occurs with other forms of demonstration and assistance
- Occupational therapists use VBI as an intervention to increase learning and self-efficacy with complex tasks

## Research Design & Methodology

<table>
<thead>
<tr>
<th>Design</th>
<th>Pilot Study – Mixed Methods Design</th>
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<tbody>
<tr>
<td>Program Used on an iPad</td>
<td>VideoTote program was selected because of its ease of use and customizability to a specific task</td>
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<tr>
<td>Participants</td>
<td>N=9 (8 males, 1 female)</td>
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<tr>
<td>Measurements</td>
<td></td>
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</tbody>
</table>
  - Wechsler Abbreviated Scale of Intelligence (WASI): a norm-referenced test with composite scores representing intellectual functioning in specific cognitive domains  
  - Social Communication Questionnaire (SCQ): a screening evaluating communication skills and social functioning  
| Level of Independence Scale |  
  - 5 Independent  
  - 4 Verbal  
  - 3 Gestural  
  - 2 Partial Physical  
  - 1 Full Physical |
| Intervention and Control Tasks | Two tasks with 17 steps  
  - Control: written instructions  
  - Intervention: VBI on a PDA  
  Used activity analysis to break down each task with similar activity requirements |

## Results

### Qualitative:
- Participants’ perspectives from the follow-up survey included feelings that both tasks lacked complexity and VBI is beneficial when learning difficult tasks
  - "I am a fairly visual learner, and do better learning new and complex procedures while being shown, either physically or by video. The step-by-step chapter breakdown would be very helpful."
  - "It may help me learn to cook in the future."
  - "It can help me look up instructions."
- 8 out of 9 participants stated they believed the use of an iPad could help them learn other tasks

### Quantitative:
- There was a positive correlation between the participants’ WASI performance score and the VBI score: \( r = 0.709, p < 0.05 \)
- Slight increase in level of independence while using VBI to perform a novel task
- Independence scores across participants were about 9% higher on the VBI task compared to the written task (\( M=0.09 \) points, \( ns \))

## Conclusion & Recommendations
- VBI was successful in guiding constructional cooking tasks when broken down into simpler steps, regardless of FSIQ-4 or previous cooking experience
- Individuals are able to use VBI, even without the ability to read or cook
- VBI scores were highly correlated to performance skills score on the WASI, but not correlated with written task scores
- For future research, we recommend using two tasks with little or no overlap to reduce any learned effects

## Selected References


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