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

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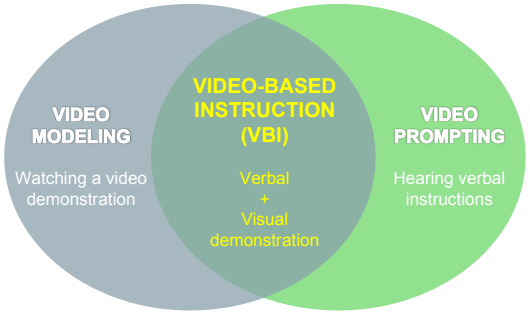
BACKGROUND

- **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

Design	Pilot Study – Mixed Methods Design
Program Used on an iPad	VideoTote program was selected because of its ease of use and customizability to a specific task
Participants	N=9 (8 males, 1 female)
Measurements	**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

Figure 1: Start of VBI Intervention Video

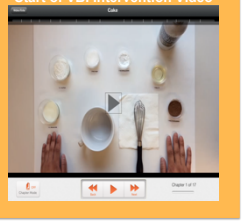
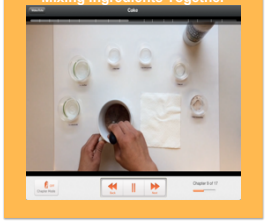


Figure 2: Mixing Ingredients Together



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."

8 out of 9 participants stated they believed the use of an iPad could help them learn other tasks

"It may help me learn to cook in the future."

"It can help me look up instructions."

Quantitative:

- There was a positive correlation between the participants' WASI performance score and the VBI score: $r = .709$, $p \leq 0.05$
- 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=.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

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association.

Hendricks, D. (2010). Employment and adults with autism spectrum disorders: Challenges and strategies for success. *Journal of Vocational Rehabilitation*, 32(2), 125-134.

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