



Augmentative and Alternative Communication: Cognitive Processes Involved in Progressing from an Initial Learner to an Experienced User of Icon-Sequencing Communication Devices & Clinical Implications for AAC Candidates with Autism Spectrum Disorder



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Introduction

Augmentative and Alternative Communication (AAC) refers to many different devices, no-tech to high-tech, that help individuals with complex communication needs to communicate (ASHA, n.d.). Understanding the learning process could improve teaching strategies and utility of the device (Willis, 2022).

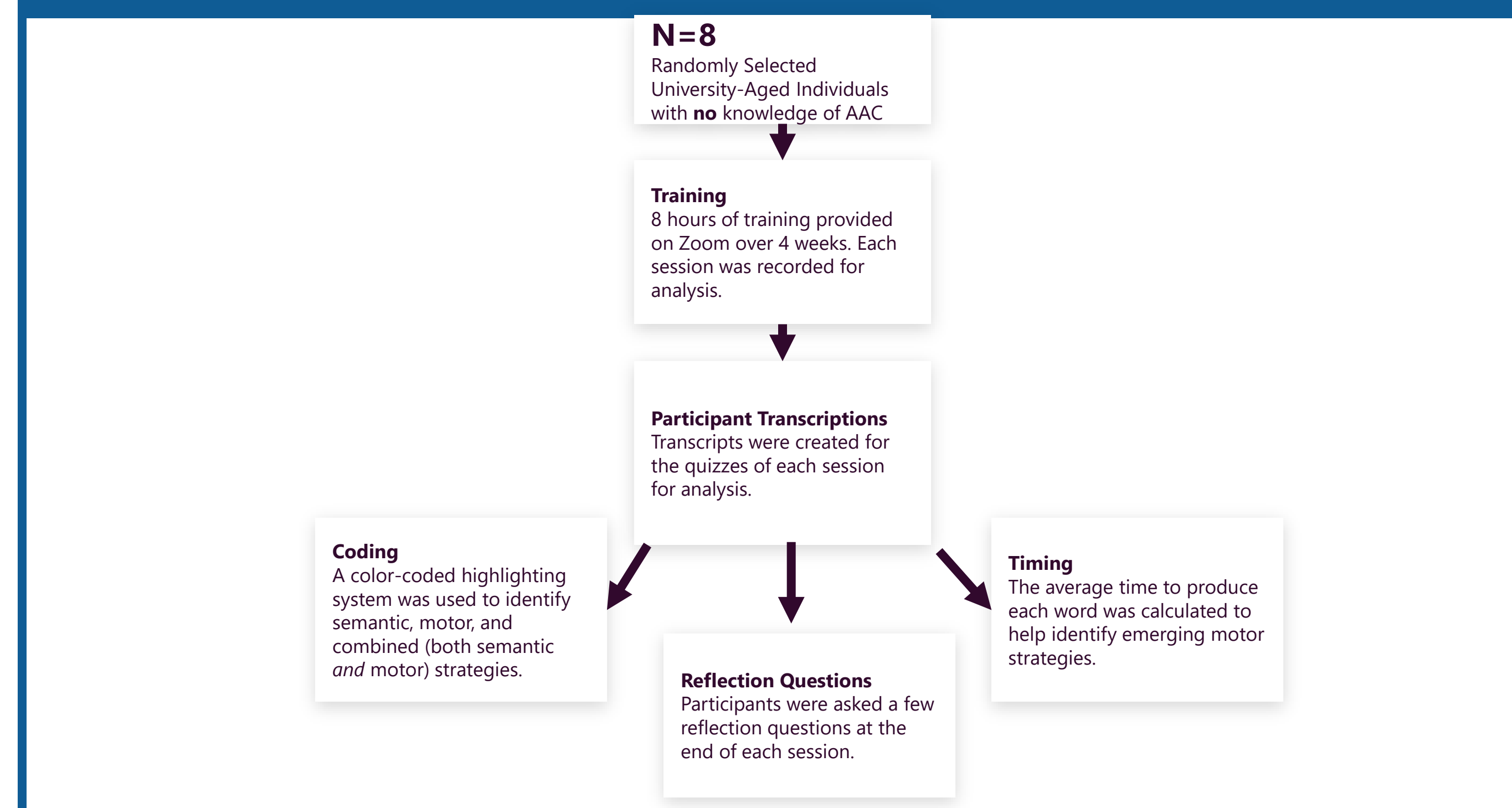
Previous research has established using both semantic and motor instruction as more effective than using one or the other for early-stage learning, but has not established what's most effective for late-stage learning of icon-sequencing systems (Loncke, Chung, 2016).

It is estimated that 20-50% of individuals with autism spectrum disorder (ASD) have complex communication needs (Finke, et al. 2017). AAC is a common recommendation to allow these individuals to meet their communication needs (Lord, et al. 2004).

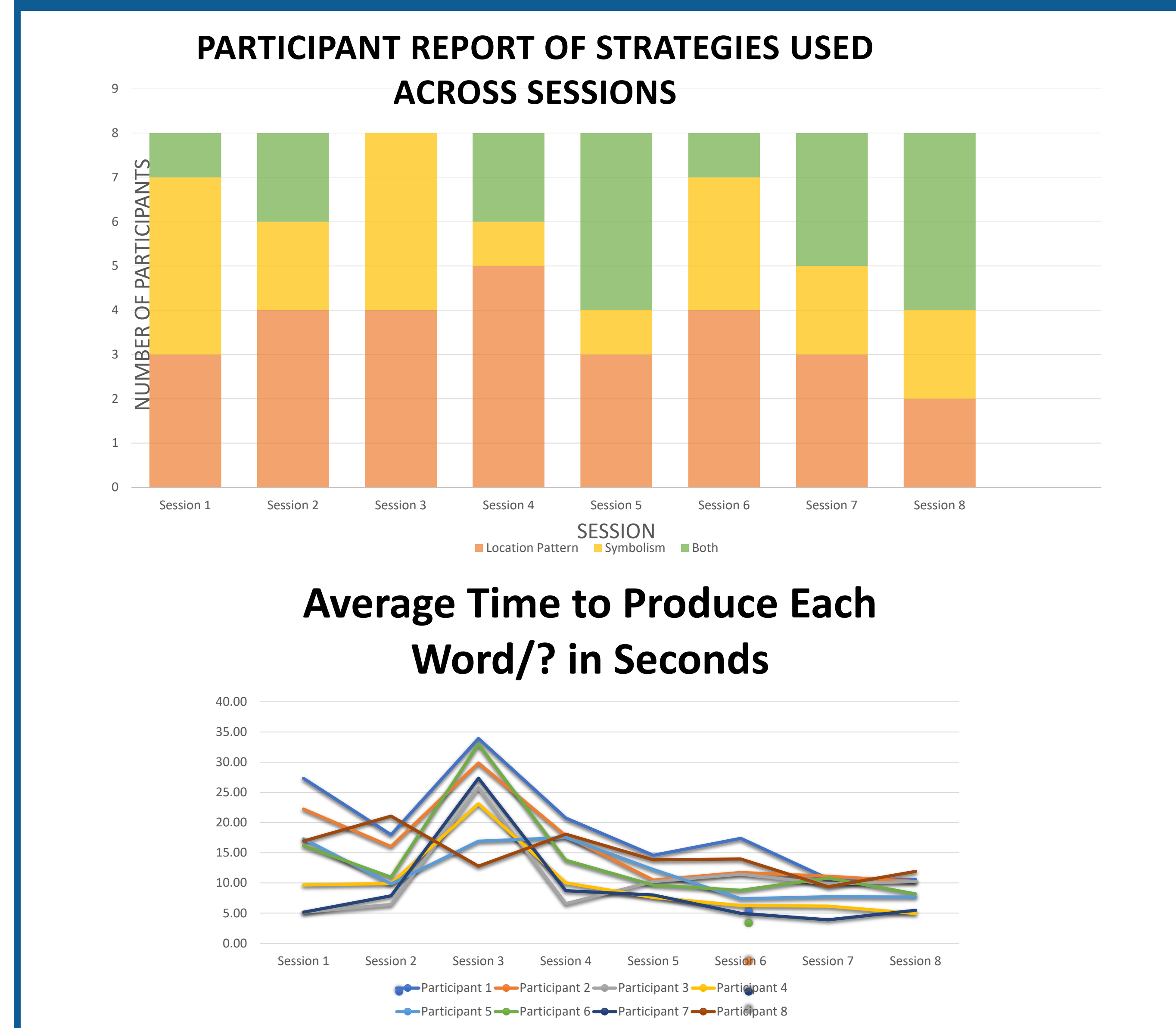
Objectives

- Investigate the cognitive processes employed across the learning process (semantic, motor, combined)
- Determine if there are shifts in the cognitive processes employed
- Discuss potential clinical impacts of findings related to current research

Method (Willis, 2022)



Results (Willis, 2022)



Conclusions

- New learners initially relied on icon symbolism, shifting to combined strategies at later-stages (Willis, 2022)
- It is *extremely important* to minimize load on memory systems in intervention for individuals with ASD because:
- AAC systems already place demands on memory systems (Icht, et al., 2020)
- Individuals with ASD have significant impairment in phonological and visuospatial domains of working memory across age groups (Habib, et al., 2019)
- Research assessing working memory capacity of typical children and adults showed significant difficulty with symbol sequence binding when “memory systems are overloaded” (Wagner et al, 2021).
- May be beneficial to focus on using icon symbolism as visual mnemonic, particularly in late-stage learning; mnemonics can be used as compensation for limited working memory capacity & long-term memory deficits (Light & Lindsay, 1991)
- May be beneficial to incorporate production effect as memory strategy as well (Icht, et al., 2020)

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