Teaching discriminated requests to an individual with autism spectrum disorder using grid, scene, and hybrid displays on an iPad AAC application

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ABSTRACT

AAC applications can include different displays including grids, visual scenes, and hybrid models (elements of grids and scenes). Using a multilevel design, the aim of this pilot study was to compare how a 3 year-old male with ASD acquired discriminated requesting using four different display formats available on the AAC application AutoMate developed by SpecialNeedsWare. During discriminated request training (with four similarly preferred items) the participant showed the most rapid acquisition with the grid and the least rapid acquisition in one of the hybrid formats. The participant’s performance with a second hybrid format (visual scene with a pop-up grid) was, however, more consistent with the grid during generalization probes. When a highly preferred item was introduced, the participant had high rates of correct responding across displays, but showed higher performance with the grid and pop-up hybrid when the highly preferred item was removed. The results suggest that a variety of AAC displays may be appropriate for individuals with ASD, but individualized assessment may distinguish which formats lead to more accuracy and efficiency under a variety of conditions.

METHODS

Participant

Addie was a 3 year-old African-American male diagnosed with ASD. He did not use vocal words, but had prior experience with PECS and manual signs. He had previously participated in the Gevarter et al. (2014) study teaching field of one requests. In that study he mastered field of one requests using Scene-precursor and Grid-precursor displays. He was most efficient and consistent with the scene-precursor format. He did not master the hybrid-precursor format.

Materials

Preferred Stimuli. A stimulus-stimulus without replacement preference assessment was utilized to determine 4 similarly preferred items (slinky, Legos, book and sippy cup) to be used during the initial discrimination phase. One highly preferred item (phone) was also selected to be used in the case that the participant did not master requests for 4 similarly preferred items.

RESULTS

The dependent measure was the number of correct SGD requests. A correct SGD request consisted of pressing a hotspot or symbol area with enough force to produce output AND then selecting the preferred item that matched the item requested. In addition, responses needed to include no more than 2 fingers, or 2 taps of one hotspot and could not consist of motions such as swiping. Grabbing, touching alternative spots of the iPad (e.g., navigation button), or touching more than one hotspot or symbol area were incorrect responses. Mastery criterion: was 3 days at 80% performance with the Hybrid1 and VSD 1 conditions.

SCENE GRID HYBRID1 HYBRID2

Experimental Design

A multilevel design randomly alternating each condition was implemented. An ABA reversal component was added to determine interaction of item preference with conditions. A session in each condition consisted of 10 trials to request any of the 4 preferred items using the SGD.

METHODS CONTINUED

Dependent Measures and Mastery Criterion

The dependent measure was the number of correct SGD requests. A correct SGD request consisted of pressing a hotspot or symbol area with enough force to produce output AND then selecting the preferred item that matched the item requested. In addition, responses needed to include no more than 2 fingers, or 2 taps of one hotspot and could not consist of motions such as swiping. Grabbing, touching alternative spots of the iPad (e.g., navigation button), or touching more than one hotspot or symbol area were incorrect responses. Mastery criterion: was 3 days at 80%

DISCUSSION

The results suggest that a variety of different AAC display formats may be preferred in the evaluated population of individuals with autism spectrum disorder. Individualized assessment may help to distinguish which display types or application elements may lead to better efficiency and accuracy during acquisition. This supports previous findings of Gevarter et al. (2014). Additionally, proficiency and preference for different display formats may interact with performance for those individuals who may require additional training and support.

REFERENCES