Science in the time of COVID-19: The Feasibility of Online Data Collection in Developmental Populations

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Abstract

Introduction

COVID-19 social distancing restrictions and state regulations required many scientists to cease in-person data collection (Magan et al., 2020). Virtual data collection sites, like MTurk, have been used for over a decade for adult research experiments (Buhrmester et al., 2016). Remote data collection eliminates lab visits and interaction with researchers, thus COVID-19 precautions can be maintained (Rhodes et al., 2020). Developmental studies, especially those with infants and toddlers, pose unique challenges for virtual data collection as child experiments usually require: Spacially constructed physical spaces; Recording equipment to monitor behaviors; Interactions with visual and perceptual stimuli. (Sheskin et al., 2020).

Objective

To evaluate the feasibility of virtual data collection in a toddler population using a well-studied word-learning paradigm.

Methods

Participants

• Toddlers (N = 49), 18-36 months of age (M = 28 months, SD = 5.5 months).
• 50% of the sample was male.

Materials

• Six novel spoken word-shape pairs (Fig. 1).

Experiment

• Cross-situational word learning paradigm (Smith & Yu, 2008; see Fig. 2) using preferential looking.
• Participant’s eye movements were recorded during the training and test phases.
• Training: Two novel words and two novel shapes were presented in each trial. Word-shape matching was ambiguous within trials.
• Test: Two novel shapes were presented along with a verbal direction (“Look at the boasa, boasa, boasa”).
• Participant’s gaze to each shape will be coded to evaluate if the word-shape mappings are learned.

Video quality assessment

• Videos were coded to evaluate their potential for useable preferential looking data.
• Parental adherence to study directions: Dichotomous Yes/No
• Interference & Technology issues: 5-point Likert scale of frequency of distraction and technology issues
• # of Participants

Results

Most parents followed the study directions (between 60% and 96% adherence; see Fig 4)
• Lighting issues (M = 2.43, SD = 2.09) and participant interference (M = 2.88, SD = 1.51) occurred most frequently during video recordings as evidenced by highest ratings (see Fig 5).
• Parent interference (M = 1.56, SD = 1.60), external distractions (M = 0.83, SD = 1.23) and technology issues (M = 0.70, SD = 1.32) occurred least frequently during video recordings (see Fig 5).

Next steps

• Videos with appropriate lighting will be prioritized for preferential looking coding.
• Experimental directions will be updated to include an instruction about ambient lighting.

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