

## Rationale

- Research has shown that motion is an incredibly powerful attractor of visual attention
- It is important to investigate ways to increase visual attention to AAC displays so that they can be used to develop individual's literacy and general learning skills
- Small changes to AAC systems can lead to significant improvements in the successful learning and use of these devices
- Prior research on targeted motion in AAC displays is limited
- AAC can be beneficial to individuals with Down syndrome through improving their learning abilities
- In order to eventually learn a symbol, individuals must first attend to the symbol

## Research Questions

- Does the incorporation of targeted motion in an AAC display increase the amount of time an individual with attends to a targeted symbol?
- Does the incorporation of targeted motion in an AAC display increase an individual's ability to demonstrate learning?

## Methods

- Due to COVID-19, this study was conducted virtually through Zoom video-conferencing software
- This was a preliminary pilot study with repeated measures across two different display conditions (a static display representing the current state of practice and a display with motion of the target symbol)
- In the static condition, upon selection, the target written word (Pokemon name) remained in place; in the motion condition, upon selection, the target written word (Pokemon name) enlarged and moved to the center of the screen
- After the participant completed the exposure task, a probe task was used to measure learning

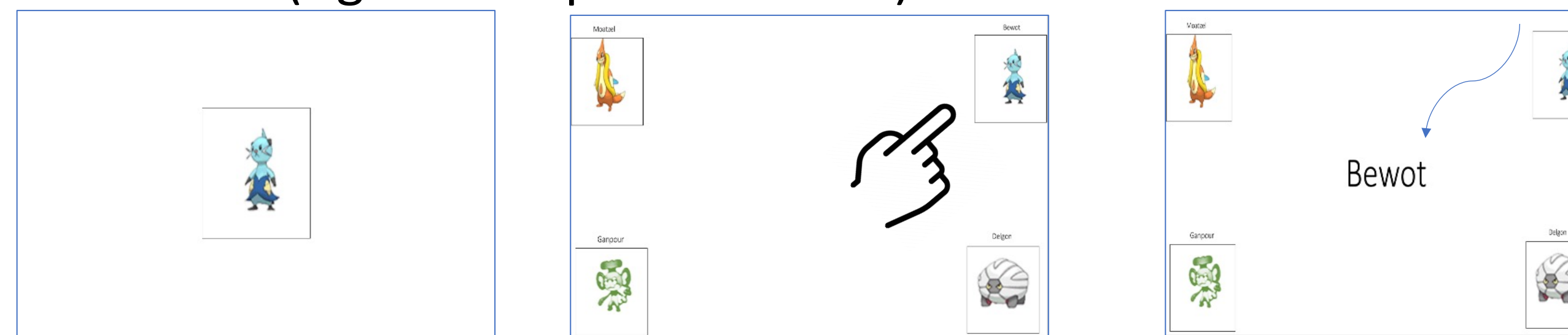
## Participants

- 1 participant with Down syndrome

Chronological age	18 years
PPVT standard score	66

## Procedures

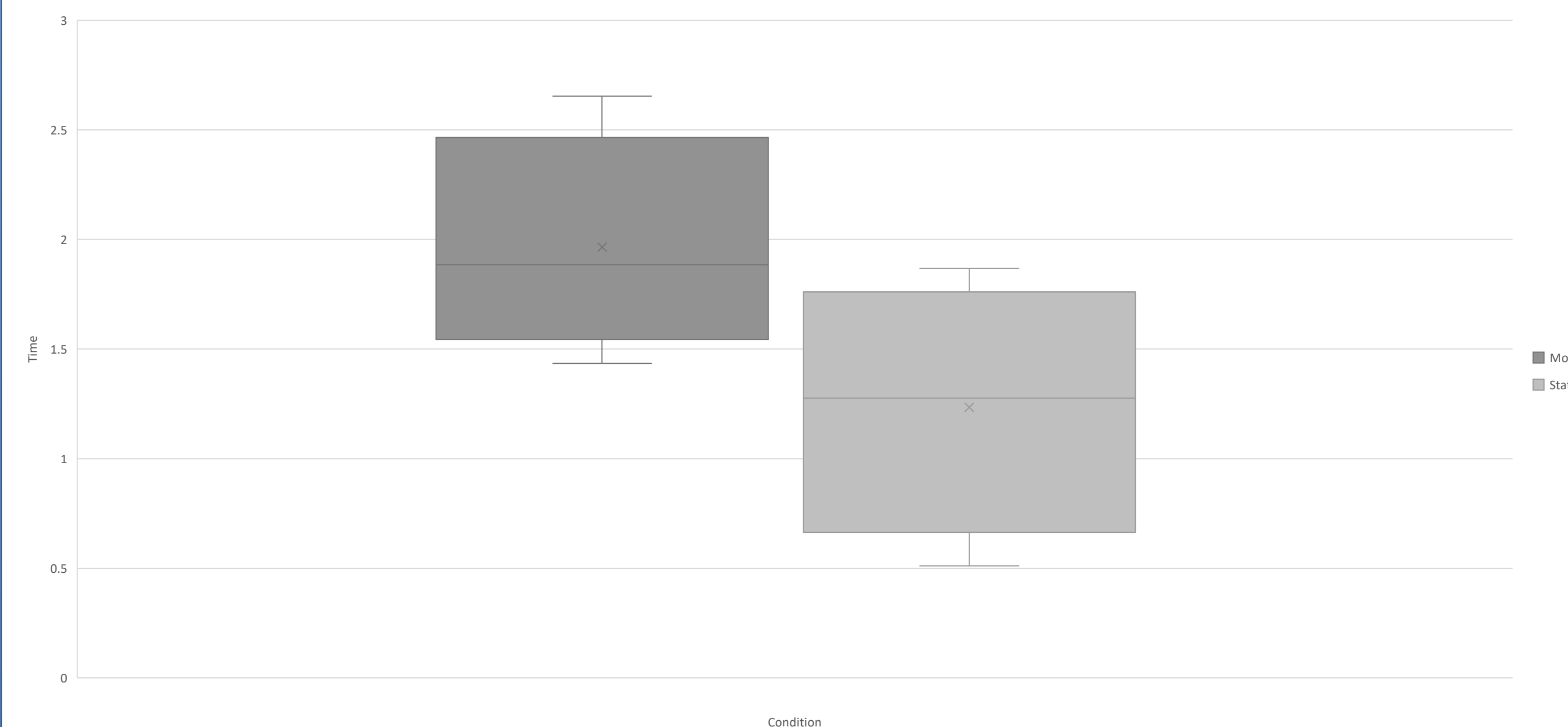
1. Participant saw a screen with the target symbol in the center (left-hand picture below) and were instructed to select the symbol for each trial prior to the beginning of the session
2. The screen then showed four symbols (1 target symbol and 3 distractors) selected the symbol they had seen on the prior screen (center picture below).
3. In the static condition the written word above the symbol remained in place; in the motion condition, the written word moved (right-hand picture below)



## Results

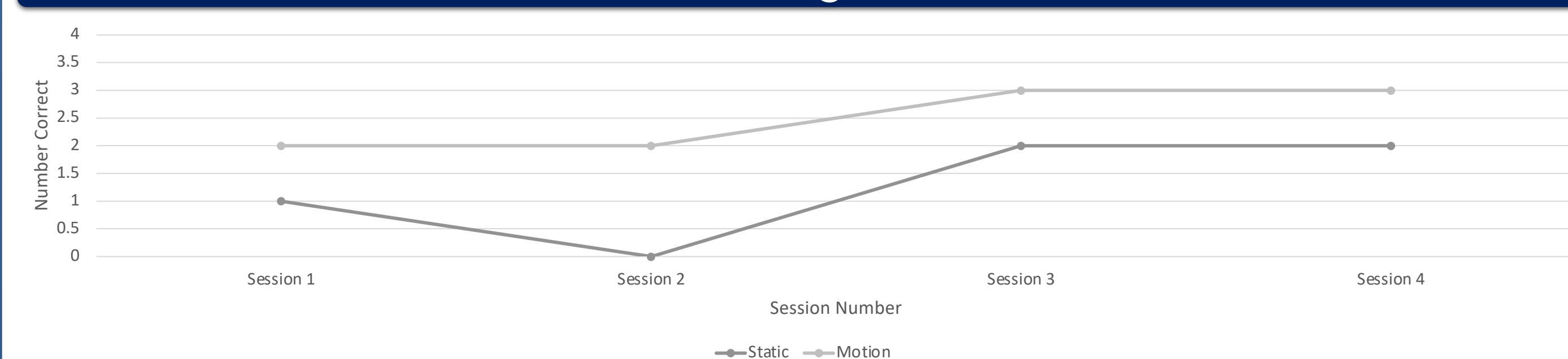
### Visual Attention Data:

The graph below illustrates the mean time the participant spent attending to the targeted symbol in both the motion and static condition.



- The mean time the participant spent attending to the target symbol in the motion condition (dark gray) was 1.965s out of 5.5s
- The mean time the participant spent attending to the target symbol in the static condition (light gray) was 1.234s out of 5.5s

### Learning Data:



The graph above illustrates the number of correct selections the participant made during the probe task in each session. The light gray line depicts the results of the motion condition, and the dark gray line depicts the results of the static condition.

## Discussion & Implications

**Q1:** Does the incorporation of targeted motion in an AAC display increase the amount of time an individual with attends to a targeted symbol?

- The results of this study reflected that motion allows individuals to focus visual attention on key elements of an AAC display and reduces their attention to distractions.
- The results also indicate that the effect of motion persists beyond initial exposure since the data on the effects of motion on visual attention was collected during the participant's fourth session of the study

**Q2:** Does the incorporation of targeted motion in an AAC display increase an individual's ability to demonstrate learning?

- Results of this study suggest that targeted motion in AAC displays has a powerful effect on visual attention and facilitates learning of novel AAC symbols (in this case written words).

## Conclusions

- This study made three important contributions to the field of AAC: It was the first study to investigate the effects of targeted motion in AAC displays, which is potentially a powerful feature to enhance visual attention, reduce distractions, and enhance learning. It was also the first study to consider the effects of display factors (such as motion) on visual cognitive processing over time with repeated exposure (four sessions). Finally, it was the first study to investigate the relationship between visual attention and learning
- The results of this study suggest that targeted motion may be a powerful strategy to capture the visual attention of individuals with developmental disorders to targets and decrease attention to distractors, thus facilitating learning.
- These findings are especially important for those with developmental disorders and other populations that are susceptible to distraction
- Future research is necessary to replicate these results and to further investigate the effects of this potentially powerful AAC display factor.

## Acknowledgements

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