

# Impact of a Dialogic Reading Intervention on the Effectiveness of an Adaptive Magnitude Comparison eBook for Improving Young Children's Magnitude Comparison Skills

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## Introduction

The home learning environment is a valuable resource in education, particularly in early childhood. As technology becomes more integrated into education, empirically based applications are needed to ensure the best outcomes.

## Research Questions

- Q1:** Will an adaptive magnitude comparison eBook improve preschoolers' magnitude comparison skills more so than traditional eBooks?
- Q2:** Will a *dialogic reading intervention (DR)* improve the positive effects of the adaptive magnitude comparison eBook?

## We hypothesize that

Children who are in the two experimental conditions (Adaptive eBook, Adaptive eBook + DR training) will improve both their magnitude comparison skills and general math skills significantly more than children in the control group.

and

Children in the Adaptive eBook + DR condition will demonstrate improvements in their magnitude comparison skills and general math skills significantly more than children in the Adaptive eBook condition.

## Methods

- Assessed using:**
- Flexible Attention to Magnitudes Task (<https://osf.io/fxms2/>)
  - WJ IV ECAD – Number Sense
  - Parent Self-Report Survey

## Conditions

- Control:** Read non-adaptive eBook
- Ex. 1:** Read adaptive eBook 4x a week for two weeks.
- Ex. 2:** Read adaptive eBook with DR 4x/week for two weeks.

## The Intervention

- Train parents through:**
- A video w/ example of DR in action
  - Review video focused on the C.R.O.W.D. prompts.
  - A pamphlet with examples of each prompt.

## Analysis Plan

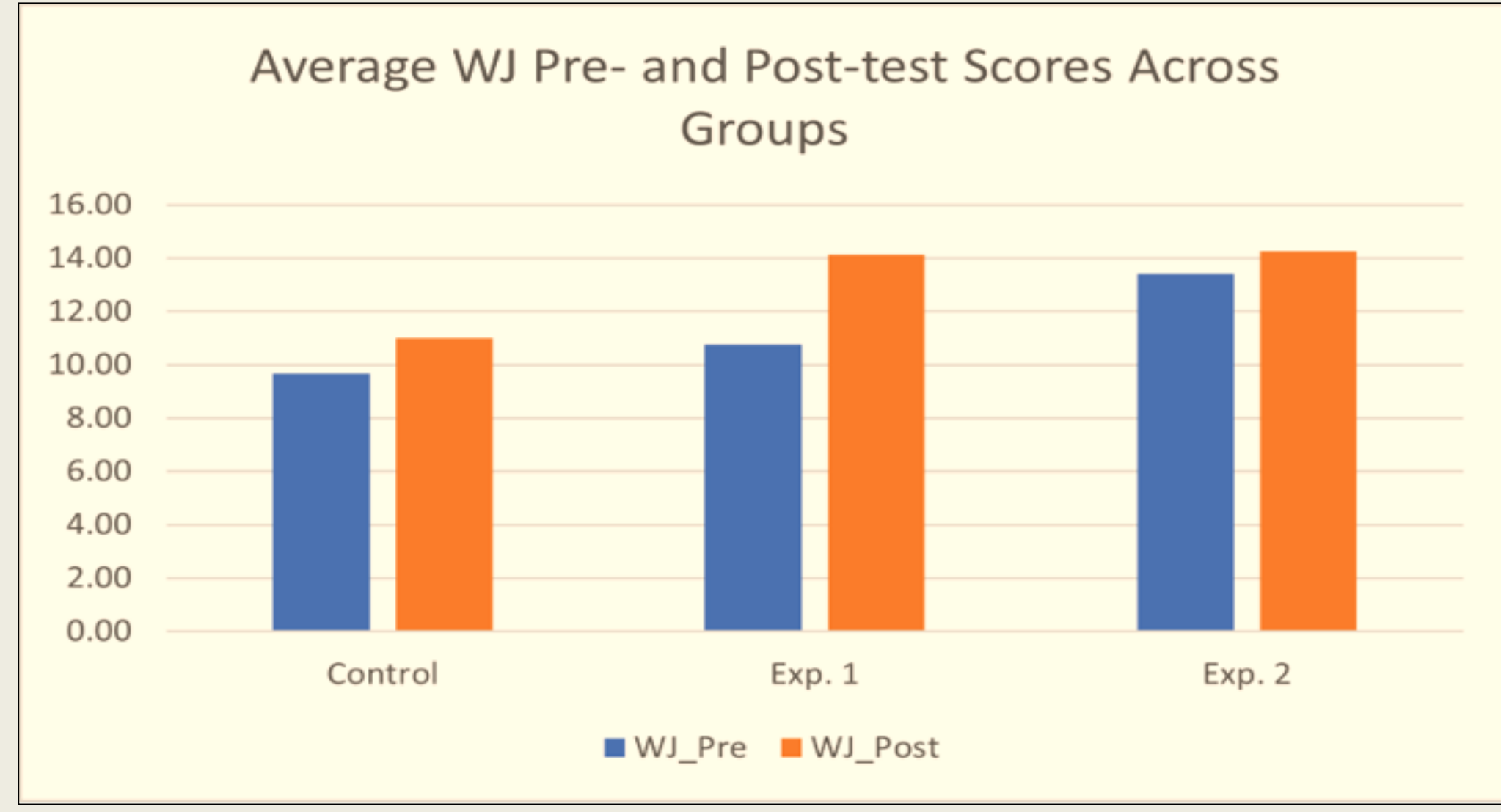
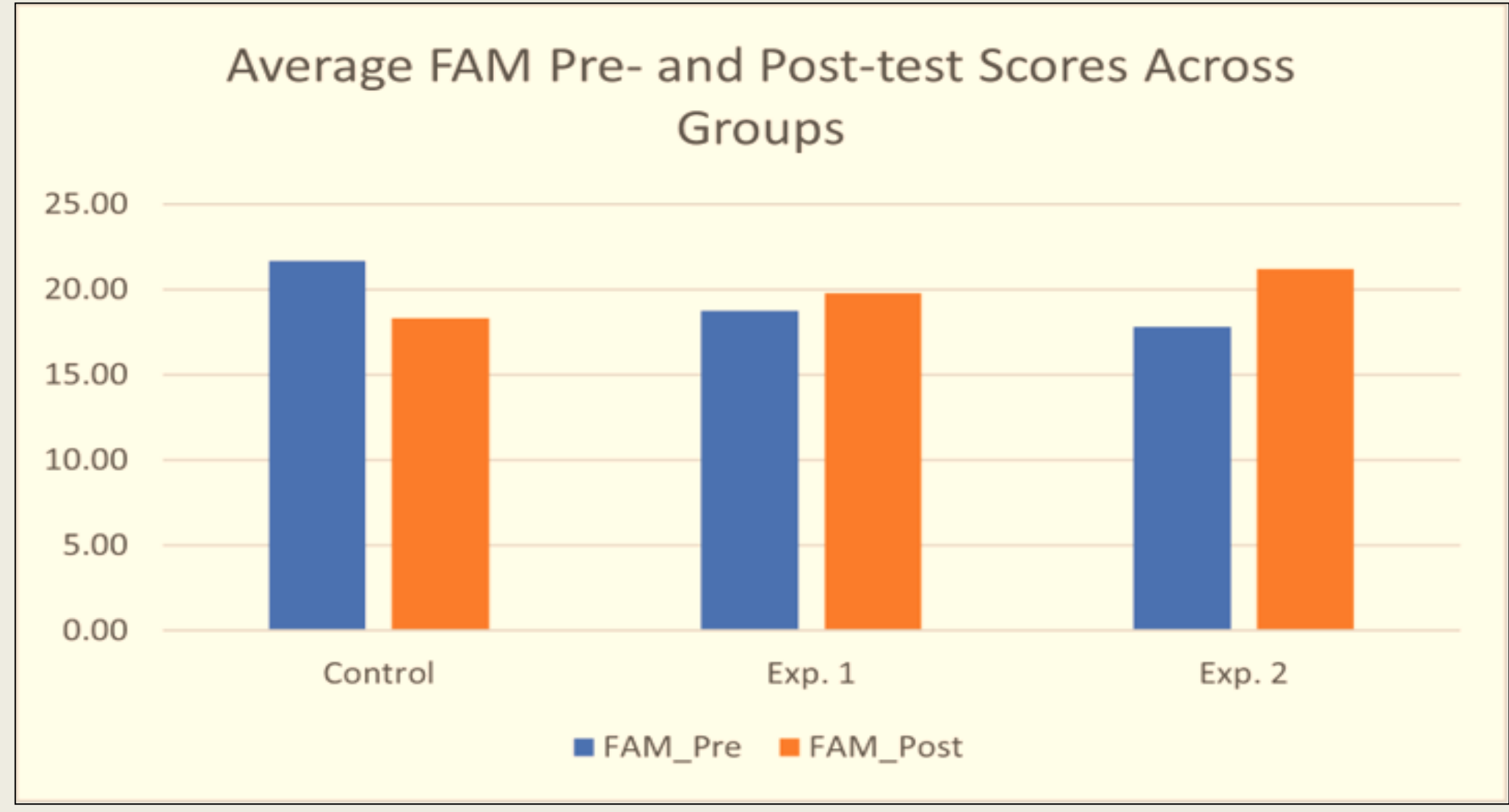
Two ANCOVAS to test for near transfer effects (FAM) and far transfer effects (WJ-IV ECAD) controlling for pre-tests and covariates.

## Followed by:

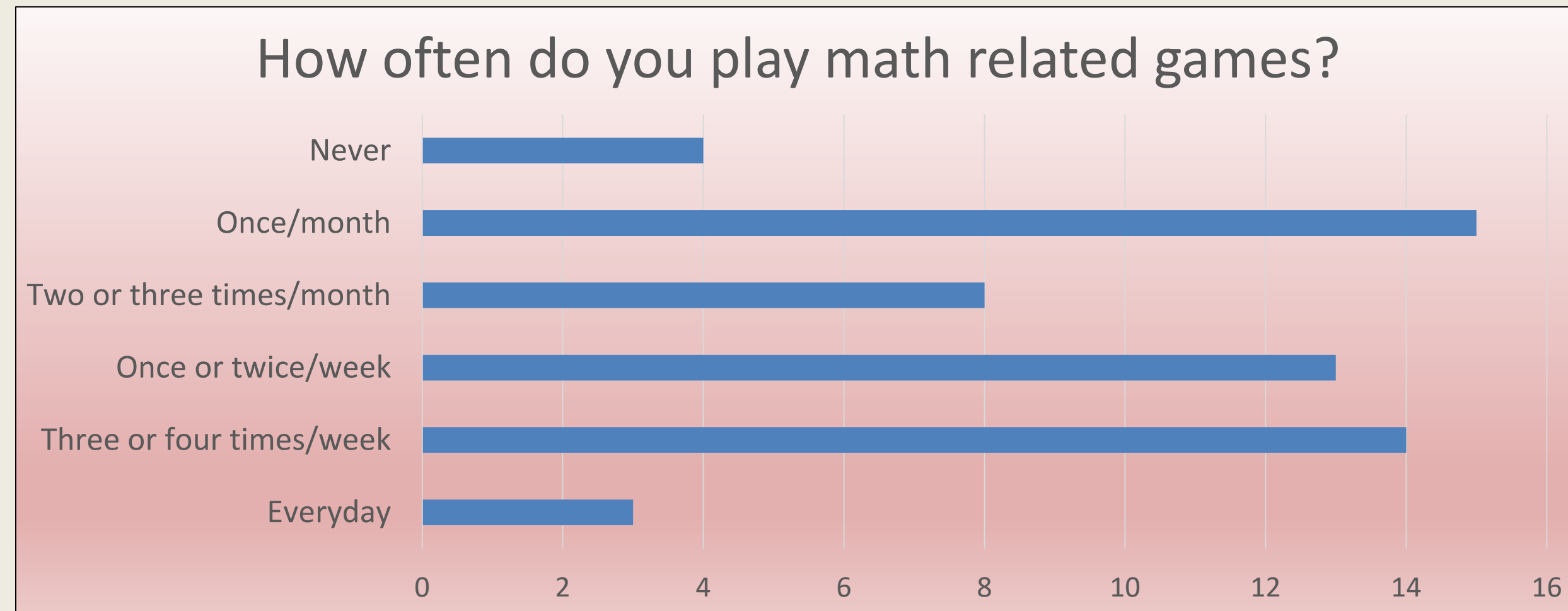
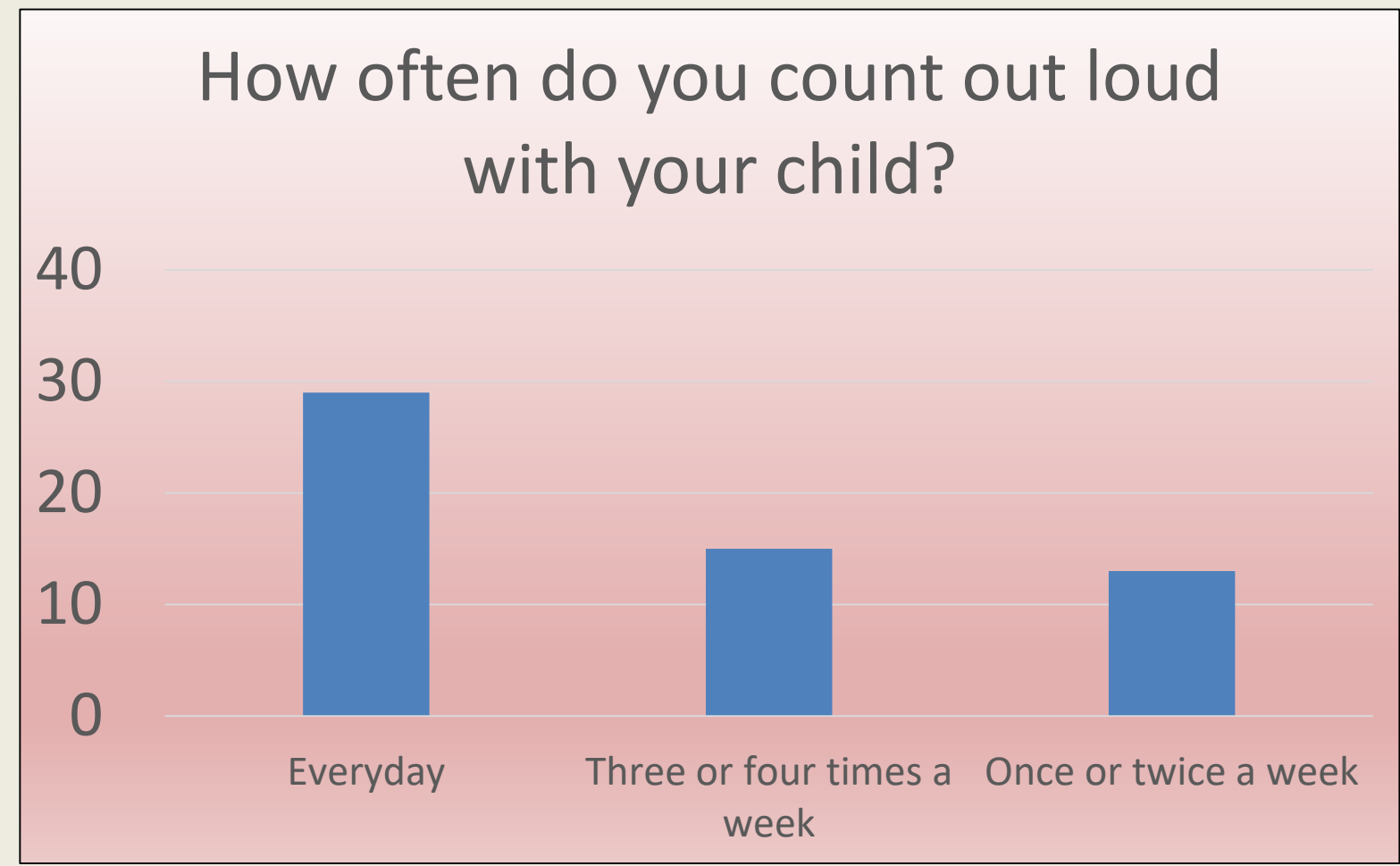
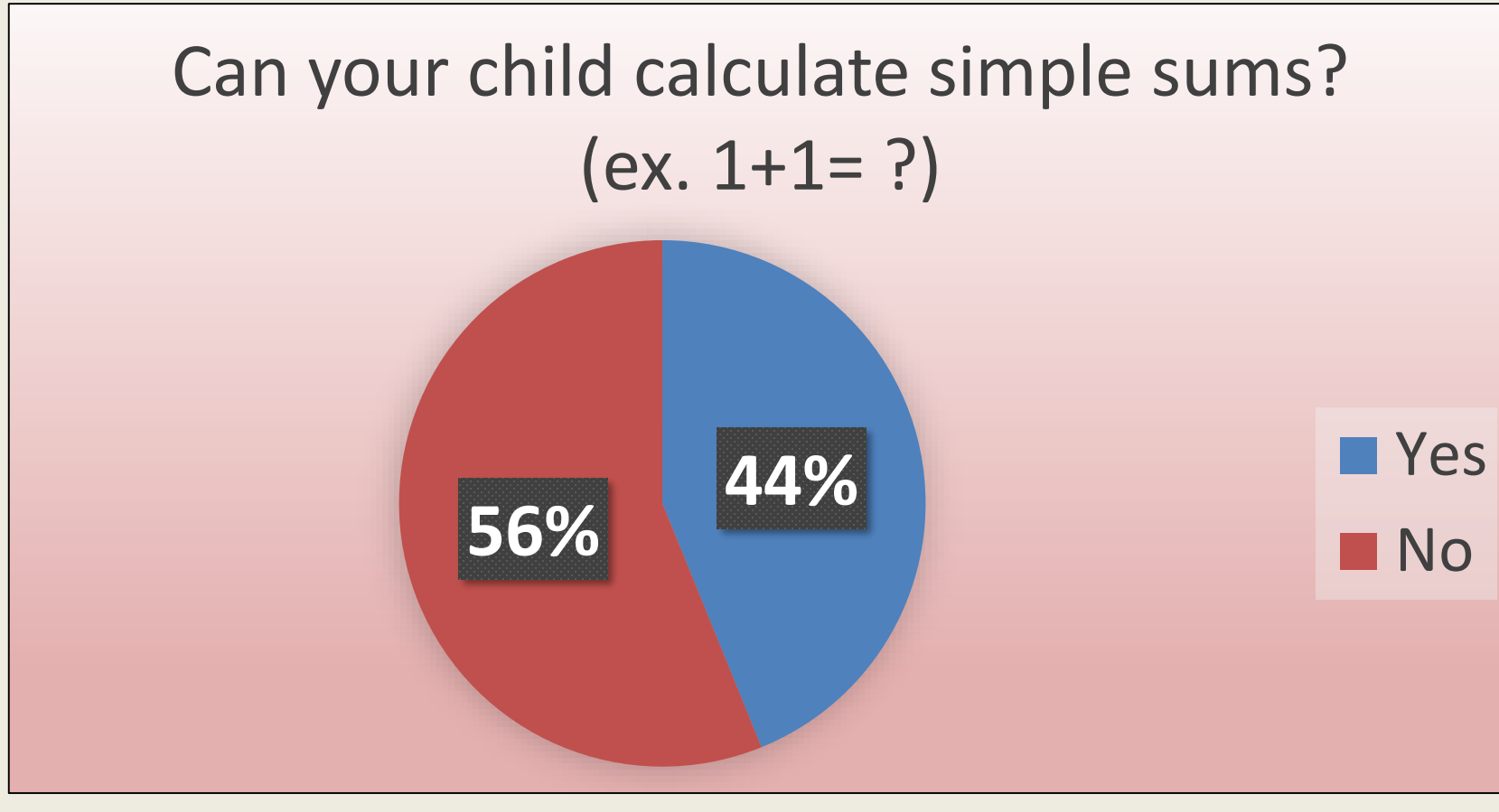
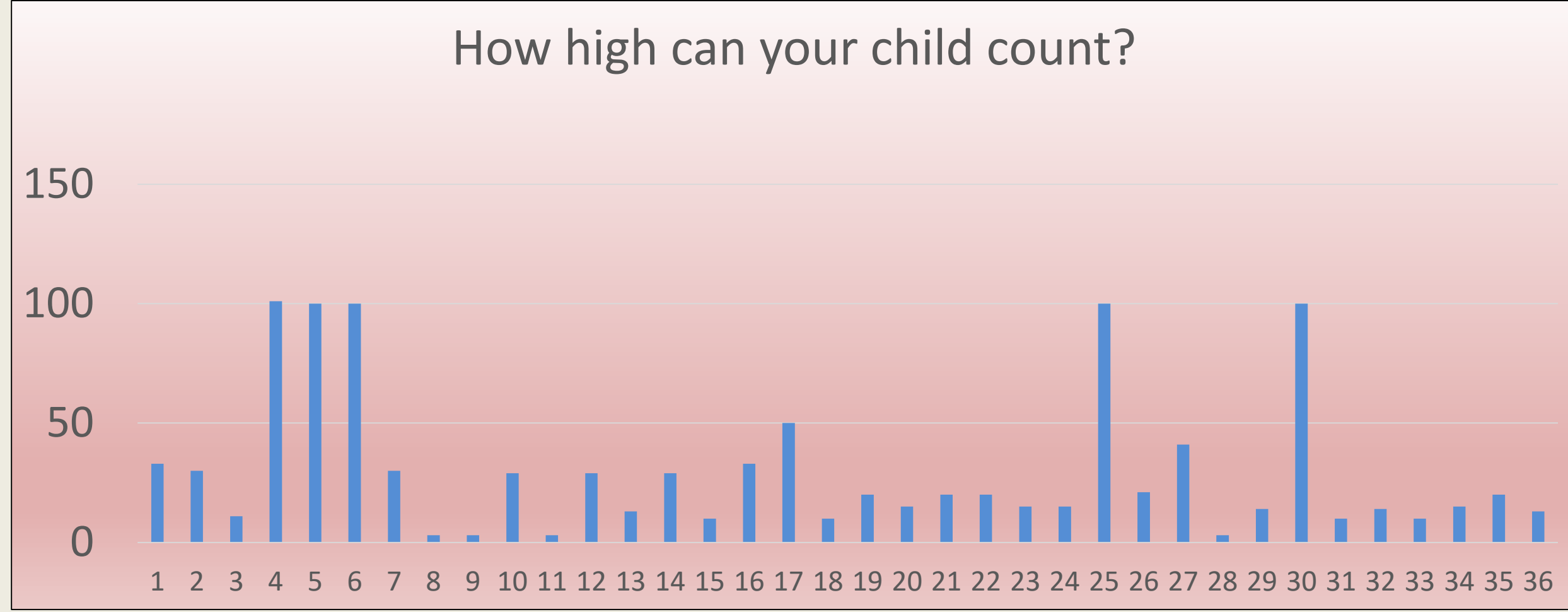
Planned comparisons of experimental groups of interest.

## Current Data Collected

We have 36 of the desired 98 participants completing the study thus far. Descriptive data indicate wide variability in home math experiences. The average math growth appears larger for experimental groups.



## Pre-test Survey Responses



## Three levels of difficulty in the Adaptive eBook

**Lvl. 1** Look at what the kids have brought with them. Which side has more items?

Select

**Lvl. 2** What else did Laura and Lamar bring? Which side has more things?

Select

**Lvl. 3** Laura and Lamar are going to play with something new. Which side has more items?

Select