

Examining the Feasibility of a Tablet-Administered Learning Receptiveness Assessment (LRA)



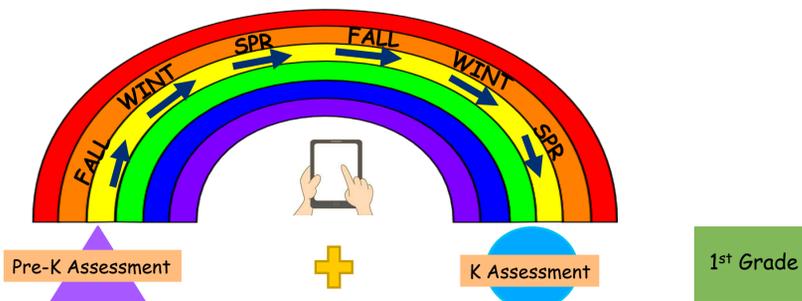
Leilani Sáez and Marissa Pilger
University of Oregon

Introduction

The Problem: Few existing screening measures for reading disabilities (RD) are appropriate for Preschool (Pre-K) and Kindergarten (K) children, and those that exist use different methods and measures for assessing critical behaviors, knowledge, & skills (Diamond, Justice, Siegler, & Snyder, 2013; Conner et al., 2014). This creates a significant gap in early RD prevention efforts across Pre-K and K.

Current Assessment Limitations: (1) *specialized training required*, (2) *time consuming*, (3) *expensive*, (4) *results weakly translate to practice*, (5) *separate Pre-K and K methods stifle cross-school communication*.

Research Question: Can a tablet-based assessment designed using Universal Design principles feasibly target crucial skills for supporting children at RD risk across the K transition?



Learning Receptiveness Assessment (LRA)

Learning Receptiveness Components

Pre-Academics
Math ★ Literacy

Behavior
Prosocial ★ Task Engagement

Cognition
Working Memory

Assessment Format



Universal Design Principles

Universal Design “is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design, 2008, p. 2).

Equitable and Flexible Use

Perceptible Information

Simple & Intuitive

Tolerance for Error

Size and Space for Approach and Use

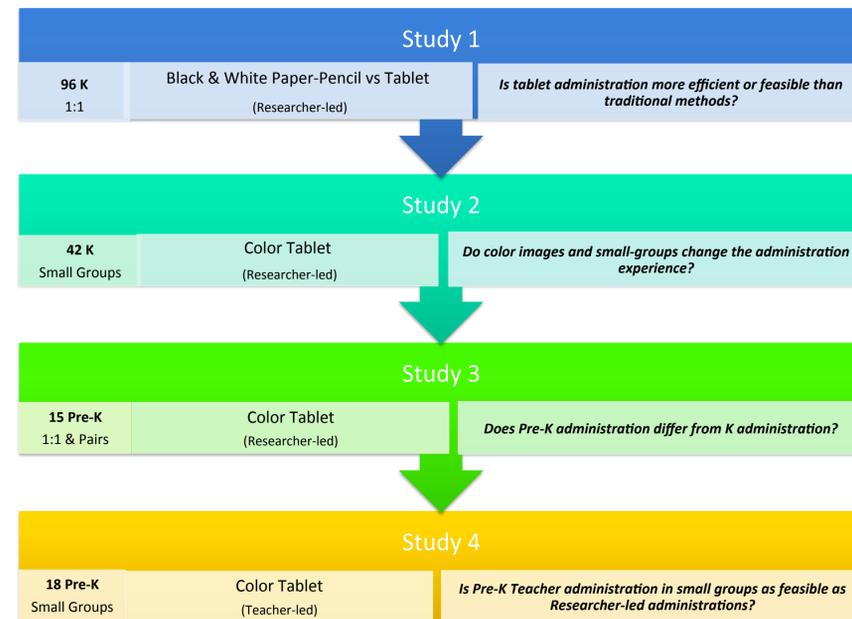
Low Physical Effort



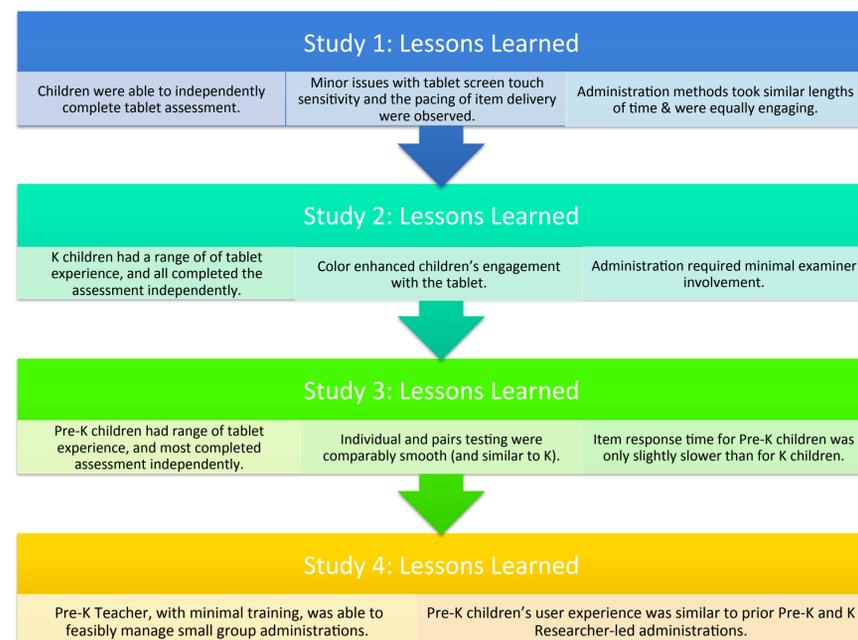
Methods

We report findings from 4 studies conducted in Oregon between April 2015- May 2016. Across studies we examined **LRA feasibility** and **accessibility** focused on the following factors:

- 1) Delivery format in K (Study 1)
- 2) User experiences and needs for support (Studies 2 - 4)
- 3) Group size (Studies 2 - 4)
- 4) Impact of administrator in Pre-K (Study 4)



Results



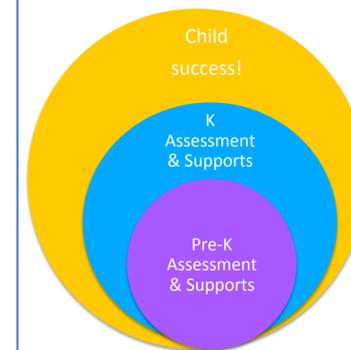
Implications

Across studies, our findings suggest:

- **Efficiency:** Researcher-led tablet administration involved similar amounts of time as paper-pencil administration (when off-task talk was excluded from analyses). Small-group and 1:1 administrations were found to be comparable, which increases the potential for greater administration efficiency when small groups are used. Minimal training was required for the Pre-K teacher to feasibly administer the LRA, suggesting that specialized training is not needed for administration. This may potentially enable different systematic, yet flexible, administration options in Pre-K.
- **Simple to Use/Accessible:** Both K and Pre-K children were able to complete the LRA mostly independently. Although prior tablet experience resulted in particular observed user behaviors (e.g., swiping instead of touching), children with no prior experience were not apparently disadvantaged in their ability to respond using the LRA: they were observed to require slightly more initial touch assistance for submitting responses. Age (e.g., being four years old at the time of testing) appeared to play a larger role than prior tablet experience in the quantity and type of assistance needed.
- **Perceptible Information & Equitable Use:** Overall, K and Pre-K children independently completed the LRA, and similarly responded neutrally or positively to practice item feedback, indicating that the domains chosen and how they were targeted was developmentally appropriate for both groups of children. Strikingly similar tablet interactions were noted across different groups, although K children tended to exhibit more verbal engagement “with” the tablet.

Next Steps

- **Assessment Item Refinement:** More item development is needed to optimize measurement precision across the K transition. In addition, refinements are needed to more fully support the “touch” and attention needs of younger children using the LRA.
- **Priority Grouping Development:** We are currently working with Pre-K teachers to develop meaningful automatized priority risk groupings for facilitating data score interpretation.
- **Technology Sensitivity:** Future work will include investigating the extent to which tablet touch sensitivity varies across tablet models and potential alternatives to finger touch selection (e.g., stylus support). We are also examining how to best scaffold adequate screen touch responding among tentative children.
- **Fall Pre-K Administration Needs:** We are currently examining the degree to which Pre-K fall administrations require additional teacher prompting and on-screen guidance.



Contact and Acknowledgements

We would like to thank the following sites & individuals for their cooperation with our studies:

Bethel & Central Point School Districts
Learning Tree & Parkside Preschools

Dawn, Diane, Donna, Michelle, Nanette, Sam, & Tanya

For more information, please contact:

Dr. Leilani Saez at lsaez@uoregon.edu or Marissa Pilger at mpilger@uoregon.edu.

Note. Study 4 was conducted through work on Project ICEBERG, funded by the Office of Special Education Programs (OSEP), Grant # H327S150007.