



## Iterative Redesign of a Behavioral Skills Training Program for Use in Educational Settings

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### Project Overview

Teachers endorse challenging behavior as a considerable concern for autistic students, which is compounded by the lack of adequate resources for behavior management in the classroom. The RUBI program is an evidence-based, low-intensity manualized intervention, initially developed for parents of autistic children ages 3-14 and co-occurring challenging behavior. Utilizing the Discover, Design/Build, Test (DDBT) framework, which combines human-centered design and implementation science, RUBI intervention content was collaboratively and iteratively redesigned with elementary school stakeholders.

**DISCOVER Phase:** Identify the contextual constraints and end users relevant to the management of challenging behavior in the classroom. Identify targets for RUBI redesign to determine which RUBI components should be retained, eliminated, or modified to address the needs of the context and end-users identified in Aim 1.

**DESIGN/BUILD Phase:** Iteratively adapt RUBI content and procedures based on identified targets for redesign and continual user testing to determine the extent to which redesigned RUBI, or RUBIES, improves usability and implementation outcomes.

### Population/Sample

40 school staff including principals, general and special education teachers, paraeducators, and other school personnel (e.g., counselors, speech pathologists, etc.) that support autistic children in general and special education classrooms from 28 elementary schools. The aims were initially conducted in a West Coast public school district. After all aims were completed, the final Design/Build Phase (RUBIES Demonstration Study) was replicated with school staff from a Midwest public school district to collect further feedback on RUBIES in a demographically and geographically unique setting compared to the first RUBIES Demonstration.

### Key Findings

Feedback from stakeholders with regard to end users led to six key findings: 1) special education teachers feel adequately prepared to support the needs of autistic students, including behavioral management; 2) general education teachers endorsed the desire to successfully support inclusion of autistic children, yet reported having little time to actively intervene one-to-one with autistic children; 3) challenging behaviors are a key prognostic indicator that disrupts inclusion; 4) the target end user for RUBIES ought to be paraeducators as they are best suited to support the transition from special to general education settings due to their consistent contact and access to the child across classrooms; 5) paraeducators are in need of targeted training in classroom behavioral management strategies given their minimal autism-specific behavior management training but extensive time with autistic children; and 6) WA State has issued a paraeducators' certification program, where paraeducators must meet a minimum of 14 hours of training – the provision of RUBIES would meet our community partners' priorities and needs.

The final version of the RUBIES intervention is streamlined in comparison to the original RUBI intervention, informed by staff feedback around removing less relevant, lower value, or specialized content. Examples used in the manual are now school-specific. An Autism 101 module was added to address feedback that paraeducators receive little training around ASD. In response to difficulties with creating (highly-regarded) visual supports, RUBIES now has a “visual support toolkit” with premade visual supports for easy use. Additionally, compliance training and planned ignoring were modified in response to concerns about the use of physical prompting and ignoring behavior in a classroom setting. The redesigned RUBIES intervention now has eight modules. Feasibility scores improved following redesign. The use of the DDBT framework to redesign the RUBI intervention may promote greater usefulness and usability in school contexts.

## Measures used

Participants completed the: [Intervention Usability Scale](#), [Feasibility of Intervention Measure](#), [Acceptability of Intervention Measure](#), [Intervention Appropriateness Measure](#)

## Methods

Iterative quantitative and qualitative methods were conducted with stakeholders to identify targets for RUBI redesign. Conventional content analysis was used to code qualitative data and identify usability issues.

**DISCOVER Phase Activities:** in-class behavioral observations, retrospective cognitive walkthroughs, interviews, demonstration of the original RUBI intervention paired with behavioral rehearsal, prospective think-aloud, and structured assessment methods.

**DESIGN/BUILD Phase Activities:** user testing.

## Next steps

We are now testing RUBIES in an R34, and our aims are:

- 1: Examine the acceptability and feasibility of RUBIES with paraeducators supporting autistic children and disruptive behavior in schools. We will measure RUBIES’ acceptability (attendance, attrition, satisfaction) and feasibility (demonstration of successful study design) to determine whether paraeducators can successfully implement the RUBIES intervention in schools.
- 2: Conduct exploratory analyses on the impact of RUBIES compared to Psychoeducation on Autism on challenging behavior. Results will allow us to estimate the means, standard deviations and intraclass correlations of RUBIES compared to Psychoeducation on Autism on challenging behavior outcomes, which will be essential for sample size/power calculations for a future definitive longitudinal RCT.
- 3: Conduct exploratory analyses on RUBIES’ proposed paraeducator- and child-level mechanisms of change on child challenging behavior.

## Recommended readings

Bearss, K., Tagavi, D., Lyon, A.R., & Locke, J. (2022). [Iterative redesign of a caregiver-mediated intervention for use in educational settings](#). *Autism*, 26, 666-677.