Developing a Teacher Training Program to Integrate AT Use in Inclusive Preschools for Early Literacy Learning

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STEP UP AT
IMPROVING LITERACY THROUGH TECHNOLOGY

Background

There is promising evidence that assistive technology (AT) improves early literacy outcomes for young children with a range of disabilities. There is an urgent need for evidence to better understand how to use Assistive Technologies (AT) in culturally, linguistically, and developmentally appropriate ways to facilitate early literacy development. There is also a need for improved teacher quality and training to support the needs of young children with disabilities and their families.

Rooted in Division of Early Childhood (DEC) recommended practices, the *Step Up AT* project is an integrated professional development resource designed to train teachers and parents in childcare centers to adopt evidenced-based AT practices to support early literacy skills for young children with disabilities, primarily from low-resource neighborhoods. Extending beyond traditional professional development practices, *Step Up AT* includes coordinated coaching and multimedia resources for teachers and parents.

Presented here are promising results from year 2 of the pilot phase.

Table 1. Step UP AT Pilot Study Participant Characteristics

Role	(N=84)
Teacher	6
Teacher Assistant	10
Primary Caregiver	34
Child	34
Childcare Centers	2
Classrooms	6
Ethnicity	**N (%)**
Hispanic	61 (73)
Child Disability	**N (%)**
Autism Spectrum Disorder	10 (29)
Developmental Delay	7 (21)
Speech and Language Delays	9 (26)
Other	8 (24)
Severity of Disability	**N (%)**
Severe	2 (6)
Moderate	11 (32)
Mild	14 (41)
N/A	7 (21)

Child study inclusion criteria included: (1) be between the ages of three and five years old; (2) documented disability or an individualized education plan (IEP); and (3) consent to participate from primary caregivers.

Intervention

Participating childcare centers received the following for 6 months:

Table 2. Step Up AT Integrated Resources

Self-Guided Online Learning Modules	Assistive Technology Resources	Expert Training
• Access to modules and resources at **www.StepUpAt.com** • 6 modules for teachers • 4 modules for parents **Topics:** (1) Importance of Early Literacy, (2) Overview of AT: Engineering the Environment, (3) AT for shared reading, (4) for communication, (5) for vision and hearing, (6) for writing and drawing	• Classroom AT Toolkit • Access to AT device lending library through a partnership with the state AT program • Lesson plans & demonstration guides for using AT in the classroom	• Weekly coaching sessions for teachers (4 per module, both in-person and virtually); parents are invited to 1 coaching session per module • Parent AT workshop on how to use AT for home literacy practices • Teacher AT workshop on communication overlay software

* All components are in Spanish and English; Step Up AT is a bilingual resource.

Research Methods

- Mixed-methods design (quantitative & qualitative)
  - AT Knowledge, Beliefs, & Use Surveys
  - AT Confidence Scales
  - AT Use Checklists for Teachers & Students
  - Inclusive Classroom Profile Observations
  - Focus Groups with Teachers

Results

Table 3. Teacher Knowledge and Beliefs

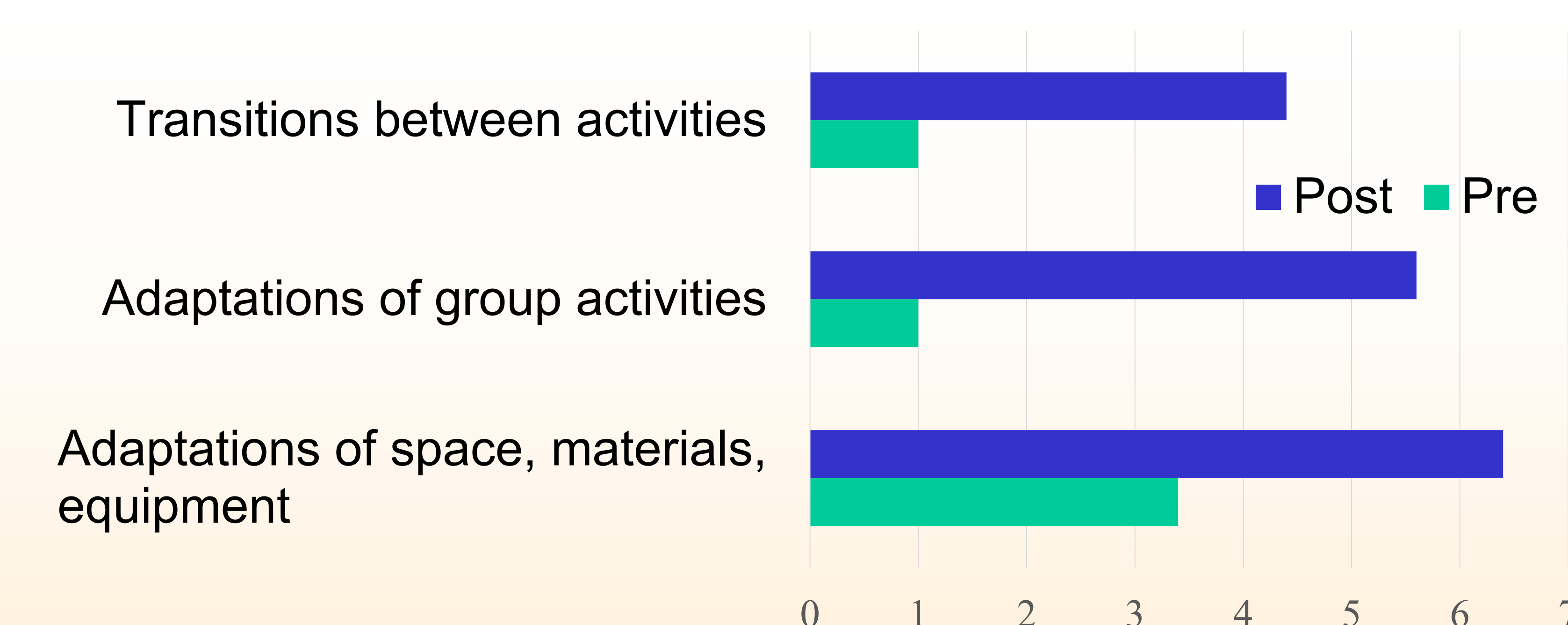|	Pre	Post
Development Phase – Year 2		
Teachers reporting regular use of AT increased	0%	94%
Teachers considering the use of AT when planning interventions for children increased	12.5%	100%
Belief that AT interferes with child's development decreased	63%	19%

Table 4. Teacher Workshop Attendance

The number of workshops attended by teachers strongly positively correlated with: - increased level of AT knowledge - children's use of communication devices - use of communication books/boards/symbols	$r_s = .724, p<.001$ $r_s = .642, p<.001$ $r_s = .576, p=.001$

(where an r_s of 0.60-0.79 signifies a strong correlation)

Inclusive Classroom Profile Findings

On a scale of 1 [inadequate] to 7 [excellent], classrooms significantly improved on the following classroom inclusion strategies:

Bar chart showing Post and Pre values for: Transitions between activities, Adaptations of group activities, Adaptations of space, materials, equipment (scale 0 to 7).

Teacher Focus Group Themes

- Teachers reported that the AT was adaptable to the needs of all children and that they saw increased engagement in classroom activities through the implementation of AT.

- The support, dedication, training and bilingual characteristics of the coaches were highly valued among teachers.

- Teachers could use more support in how to implement AT in larger group activities.

Conclusion

Through participation in Step Up AT, teachers are modifying teaching practices to utilize AT in early literacy activities to support inclusion. Pilot phase results show promising groundwork for the randomized control trial during years 3 and 4 (2018-20).