Using implementation science to translate assistive technology research into sustainable practice for early literacy development.

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Background & Purpose

Step Up AT for Early Literacy is a professional development toolkit to promote the adoption of assistive technology (AT) strategies in early childhood settings for children with disabilities. The toolkit is composed of online learning modules, an AT lending library, as well as virtual and in-person coaching for teachers. The Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) implementation science framework has served as a guide on how to take recommended practices from research to the field while also planning for sustainable dissemination of the toolkit.

Step Up AT Toolkit

(All components of the toolkit are in English & Spanish)
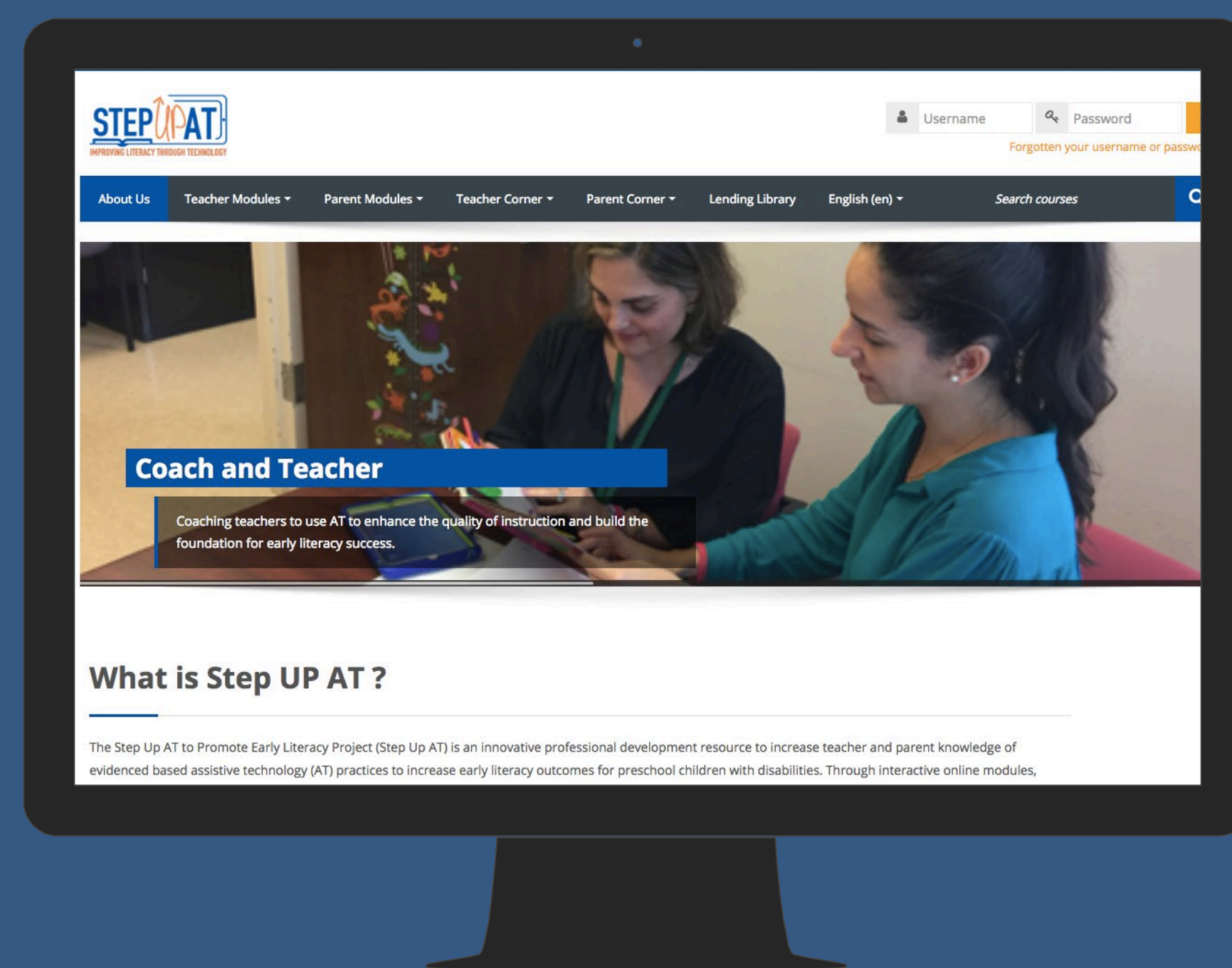
ONLINE LEARNING MODULES

www.StepUpAT.com

IN-PERSON & VIRTUAL COACHING

STATE LENDING LIBRARY & AT KITS

Teacher Modules	Curriculum Topic
1	AT & the Importance of Early Literacy
2	Adapting the Classroom Environment
3	Adapted Books & Shared Reading
4	AT for Communication
5	AT for Vision & Hearing
6	AT for Writing & Drawing

RE-AIM
An Implementation Science Model

Reach *Who is and how do we reach the target population?*	**Total 5-Year Goals (2016-2021):** • 85 early childhood teachers and teacher aides • 340 child-parent dyads (children 3-5 years of age with an IEP)
Effectiveness *What is the impact of the intervention?*	**Logic model & Outcomes:** • Proximal: + teacher AT knowledge, confidence, beliefs & use; + child AT use • Distal: + teacher use of inclusive practices; + child early literacy outcomes **Wait-list cluster-randomized control trial (RCT):** • Years 1 & 2 - toolkit development; • Years 3 & 4 - RCT, with 2 control & 2 intervention schools each year • Year 5 - dissemination
Adoption *How do we develop organizational support for the intervention?*	**Total 5-Year Goal: 17 centers** Community early childhood centers & school district pre-kindergarten ESE classes
Implementation *How do we ensure the intervention is delivered properly?*	**Intervention:** 6 months, online modules, coaching, AT kits, workshops **Fidelity:** 20% of all coaching sessions are monitored to confirm that 80% of the procedures are met.
Maintenance *What do we do for the sustainability of the program and practices?*	**Intervention:** booster sessions and follow-up assessments **Scaling Up:** integrating into district and state structures

Results

REACH & ADOPTION

Participants	Yr1	Yr2	Yr3	Yr4	Yr5
Teachers & Aides	20	16	14	26	50
Child-Parent Dyads	22	34	50	34	200
Centers	1	2	2	2	10

(Yr5 is a dissemination year, where 10 schools will receive the program)

EFFECTIVENESS

Following the intervention in year 3:
• The level of self-reported AT Knowledge was significantly higher for the intervention vs. control group; $F(1,30) = 6.043$, $p=.020$
• Teachers self-reported a significantly higher frequency of considering AT devices when planning interventions for children with disabilities for the intervention vs. control group; $F(1,30) = 5.201$, $p=.030$
• Teacher use of AT in the classroom, via research team observations, increased significantly for the intervention vs. control group; $F(1,26) = 13.291$, $p=.001$

IMPLEMENTATION & MAINTENANCE

• As of year 4, a practice-based coaching model will be the foundational framework for implementation
• A protocol for follow-up booster sessions is being developed for schools who have completed the program

Leading Change Together

The development, implementation and maintenance of Step Up AT has occurred in collaboration with many agencies. The statewide assistive technology agency has helped develop the toolkit, and early childhood center administrators create supportive environments in which teachers can get the most out of the program. District and state institutional structures will support the expansion of Step Up AT to enhance early literacy and quality education for all children with disabilities.