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Simulation to Foster Teachers' Skill
Development in Positive Teacher-Child
Interactions

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Project Prepare!: A Preschool Classroom Simulation to Foster Teachers' Skill Development in Positive Teacher-Child Interactions

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Abstract. Project Prepare! is a professional development training program for preschool teachers that includes tutorials for knowledge development, web-based interactive simulation for skill acquisition and practice, and in-class coaching and feedback. The interactive simulation is a first-person, interactive environment that places the teacher inside a typical preschool classroom populated with ten students represented as virtual, animated characters. The virtual children are diverse, eliciting a range of emotions, behaviors, and cognitive abilities. Several of the children elicit behaviors that are suspect for possible disabilities or at-risk for disabilities due to behavioral difficulties, delays in language and social communication skills, or delays in learning. The simulation allows the teacher to practice seven key teacher-child strategies that have been linked to positive affective, behavioral, and cognitive outcomes for young learners. There are over 14 scenarios that may be experienced with or without coaching from a simulated preschool director. Teacher interactions are scored, and when the preschool director coaching is activated, the teacher receives prompts, hints, and coaching feedback. When coaching is turned off, the teacher sees realistic responses to interactions that either diffuse or escalate problems in the classroom. The simulation can be used to facilitate meaningful training that supports typical interactions, natural consequences, and real-time feedback in the form of a simulated coach.

Keywords: Classroom Simulation, Preschool Teachers, Virtual Children.

1 Purpose

The overall aim of this project was to design, develop, evaluate, refine, and validate the feasibility and usability of a professional development (PD) model for preschool educators focused on effective teacher-child interactions in preschool educational settings.

Seven key teacher-child interactions are taught. For a content area, preschool teachers complete a computer-based tutorial that presents content for one of the strategies followed by practice with student avatars in their simulated classroom. After mastering the skill in the simulation, the teachers practice the skill in their actual classroom with intermittent in-class coaching.

2 Simulation

This is a simulation of a preschool classroom with ten children aged 3-4. The classroom is an age-appropriate realistic classroom that adheres to the accreditation standards of the National Association for the Education of Young Children (NAEYC) and the standards set forth by the Commonwealth of Virginia. The ten children have individual behaviors, synthesized voices, and vocabulary that match their histories which may be accessed via student records available in a side menu. The teacher can interact with any student via a pop-up text menu. To speak, the teacher chooses a text response from a range of desired and undesired responses that were collected via crowdsourcing and expert review.

A series of interactions form a scenario. Scenarios can be rapidly scripted by using custom-developed tools that facilitate development, testing, data collection, and data verification. (see Fig. 1). Scenarios range from two children playing with cars on a track to a group of children coloring at a table (see Fig. 1). In some strategies, the teacher should reinforce positive behaviors while ignoring negative ones, in other situations, the teacher may help the student find and expand on their words and language development. The timing and interactions of the teacher's interactions are integral to the scoring algorithms and resulting changes in the child behavior. The teacher may ask for guidance from the director who will provide prompts, hints, and feedback to help the teacher implement the strategy most effectively.



Fig. 1. Sample classroom illustration with virtual children coloring and interacting at a table.

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