

Title. Optimizing Learning Opportunities for Students' Early Learning Observation System (OLOS)

Topic. Early Learning Research Network (ELRN), Supporting Early Learning from Preschool through Early Elementary Grades: Assessment Team (CFDA 84.305N)

Purpose. To use technology to take three already integrated, well-validated, reliable, and effective observation systems: Individualizing Student Instruction (ISI)/Pathways, Creating Opportunities to Learn from Text (COLT), and the Quality of the Classroom Learning Environment Rubric (Q-CLE) and develop a version that can be used reliably by practitioners to assess instruction, teacher-child interactions, and classroom learning environment. Conducted using a tablet or laptop, technology will compute complex observation data to create displays and reports so that detailed information and guidance will be accessible to practitioners. Using this feedback, they can improve classroom practices and the general learning environment and, hence, student academic and social-behavioral outcomes.

Sample and Setting. Year 1 & 2 prototype development of OLOS will use the extensive database of observations of preschool through third grade ($n = 2352$ children, $n = 291$ teachers) conducted as part of the ISI and Pathways projects (Connor, Morrison, & Al Otaiba PIs). Conducted in FL, MI, and AZ, there are video-taped observations of classroom instruction and assessments of students' literacy, math, and social-behavioral outcomes. Schools are located in urban, suburban, and rural communities and serve ethnical/racial minorities, English Language Learners (ELL), and children living in poverty. New data in Years 1 & 2 for design purposes will be collected in AZ partner schools, which have similar demographics. Starting in Year 3, we plan to recruit all preschool and kindergarten through third grade teachers and their students at our partner schools and the other ELRN teams to find schools in their regions.

Assessment. A fundamental difference between OLOS and currently used observation systems is that we will measure instruction and student participation at the student level. OLOS will capture literacy and emergent literacy, numeracy, math, and science learning opportunities as well as more foundational aspects of the classroom learning environment, including teacher warmth and responsiveness to students, teacher-student interactions, classroom management and organization, discipline, teacher knowledge, and social and emotional climate. We will also collect the data needed to establish the reliability and validity of OLOS and the training regime required for reliable and valid use of the system by practitioners.

Research Design and Methods. Our project will pursue an iterative design, development, and testing process based upon the well-established principles of design-based implementation research for development during years 1, 2 and 4 with generalizability, decision, and feasibility studies in years 3 and 5.

Measures. In addition to our archival assessment and observation data, which includes a comprehensive battery of language, literacy, math, and social-behavioral assessments, as well as classroom observations during the fall, winter, and spring of the school year, we plan to include a core set of web-based assessments conducted a minimum of three times per year, as well as the assessments proposed by the other ELRN teams.

Data Analytic Strategy. We intend to conduct a series of generalizability and decision studies that evaluate the reliability and validity of OLOS both in lab prototypes and the full version in schools; this includes IRT and reliability analyses.

Timeline. Collaboration with ELRN and dissemination will occur during all 5 years. Years 1 & 2, prototype development; year 3, 150 classroom study; year 4, development; year 5, 300 classroom study.