Introduction

We present our findings from three years of our summative evaluation of Ready To Learn, a U.S. Department of Education-supported initiative that aims to develop media-rich learning resources for young children from traditionally economically disadvantaged communities.

In partnership with the Corporation for Public Broadcasting (CPB) and Public Broadcasting Service (PBS), Education Development Center, Inc. and SRI Education Development Center seek to document and measure the impact of transmedia mathematics resources on learning across a variety of settings: early childhood classrooms, in the community, and at home. These studies focus on the use of PBS transmedia resources in preschool classrooms.

Approach

- Developmentally appropriate media and technology promote early learning in various domains
- Media offers several affordances to improve learning:
  - Multiple, dynamic representations of content
  - Timely feedback of content
  - Powerful modeling
  - Opportunities for repetition and practice
  - Interactivity
- It is important, therefore, to understand:
  - The current state of digital media use in early childhood classrooms
  - How media might fit into an instructional day
  - How it might be introduced, desirited, and used by adults
  - How it might change children's conversations
- What support teachers might need to provide instruction that centrally involves media and technology

Research Activities

Year 1: Survey of Target Programs & Program Quality Observation Study

- **Study aim:** to develop an understanding of the context needed to support the design of the media-rich curriculum supplement
- **The Survey:**
  - 196 preschool teachers
  - Identifying current technology use and program structure
  - Measuring staff attitudes toward the use of media for learning
- **The Observation Study:**
  - 32 preschool classrooms
  - Focusing on prevalent teaching practices
  - Identifying current and potential future integration of technology into classroom practice

Year 2: PreK Pilot Study of PBS KIDS Transmedia Math Content

- **Study aim:** to pilot and refine a media-rich curriculum supplement
- 16 preschool classrooms
- 10-week media-rich curriculum supplement with teacher PD program
- Implementation data and math assessment data collected
- PBS videos and online games on laptops and interactive whiteboards

Year 3: PreK Transmedia Math Randomized Controlled Trial

- **Study aim:** to test the effectiveness of a media-rich curriculum for teaching math
- 86 preschool classrooms
- 10-week PBS KIDS Transmedia Math Supplement
- Curates media-rich and non-media activities
- Support children's growth of math skills
- Provided on-site instructional and tech support

Three Conditions

- **PBS KIDS Transmedia Math Supplement:** Enrolled a supplementary curriculum including Ready To Learn videos and games, non-digital activities, teacher PD, and on-going coaching support; access to interactive whiteboards, laptops, computers, and broadband Internet access
- **Technology & Media:** Ask teachers to use technologies and transmedia materials to target the same math skills as the PBS KIDS Transmedia Math supplement condition. Received teacher PD and on-going coaching support: had access to interactive whiteboards, laptop computers, and broadband Internet
- **Business as Usual:** Continued providing the same learning opportunities as before the study began. Did not receive teacher PD, coaching, or new technology

Year 3 Implementation Schedule

- **Year 3 Implementation Schedule:**
  - **Technology & Media:**
    - Enrolled a supplementary curriculum including Ready To Learn videos and games, non-digital activities, teacher PD, and on-going coaching support; access to interactive whiteboards, laptops, computers, and broadband Internet access
  - **Business as Usual:**
    - Continued providing the same learning opportunities as before the study began. Did not receive teacher PD, coaching, or new technology

Findings

Approaches to Classroom Use of Media

- **Free Play:** Child-directed and explore from other class activities; a chance to have fun and play away from stimulus exposure; no big ideas with tech tools available in home
- **Opportunistic:** Child-directed media use is related to stochastic play; encountered, teacher engagement is spontaneous and short
- **Media-Centered:** Teacher-designed media activities tied to concepts or skills already learned; considers what technology tool or media asset can do to support specific kinds of learning
- **Sequenced:** Teacher selected activities that take advantage of media and non-media experiences play in a patternless instructional array that acknowledges key concepts and skills

Ways Children Experience Media

- **Teacher-Led:** Whether as a whole class, in small groups, or with an individual child, the technology tool is controlled by a teacher; typically part of an activity intended to focus children's attention rather than to provide hands-on media experience
- **With Classmates:** Using media in pairs or small groups creates the chance forturn-taking, cooperative learning, and social development; in addition to learning academic skills and content knowledge

- **Solo:** Independent media experience relies on a child's prior knowledge, individual mastery, and technological fluency; the child controls the experience, using her own hands and judgment to navigate the activity

Roles Teachers Take in Supporting Children’s Media Use

- **Tech Support:** The teacher jumpstarts children's media use, keeps them from getting stuck when a technical problem arises, and helps them move to another activity when it's time to transition
- **Pop-up Guide:** The teacher makes welcome, surprise visits to children's media play; turning on otherwise stand-alone technology experience into a stand-alone engagement

Action Formats and Their Affordances

- **A "gentle" introduction to math skills:** An opportunity for scaffolding
- **An opportunity for independent practice and children collaboration:** Just-in-time guidance from coaches

Keys to Successful Implementation

- **Adult mediation of child’s media use:** Significant planning and preparation by teachers

The PBS KIDS Transmedia Math Supplement Condition

- **Year 1:** Involves media and technology in preschool classrooms
- **Year 2:** Provides on-site instructional and tech support
- **Year 3:** Provides on-site instructional and tech support

Effects of a Curated Transmedia Math Supplement

- **Impact on Math Skills:** Significant planning and preparation by teachers
- **Impact on Math Knowledge:** Significant planning and preparation by teachers

References


To learn more about our summative evaluation of the Ready To Learn initiative and to read full reports on these studies, please visit http://cct.edc.org/rtl