Year One Context Studies

Executive Summary

Report to the *Ready to Learn Initiative*

EDC **Learning transforms lives.**

SRI International

About EDC/CCT

Education Development Center, Inc. is a global nonprofit organization that develops, delivers, and evaluates innovative programs to address urgent challenges in education, health, and economic development. EDC manages more than 300 projects in 35 countries. For more than 30 years, EDC's Center for Children and Technology has been at the forefront of creating and researching new ways to foster learning and improve teaching through the development and thoughtful implementation of new educational technologies.

About SRI/CTL

SRI International is an independent, nonprofit research institute conducting client-sponsored research and development for government agencies, commercial businesses, foundations, and other organizations. SRI's Center for Technology in Learning (CTL) evaluates large-scale technology innovations, designs assessments that enhance teaching and learning, develops tools to help students master complex ideas, builds online communities of learners, and offers strategic learning consulting services.

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Support Provided By

Context for the Study

The Ready to Learn initiative, funded by the U. S. Department of Education, brings engaging, high-quality media to young children who may be at risk for academic difficulties due to economic and social disadvantages. The initiative aims to deliver early mathematics and literacy resources on new and emerging digital platforms, such as tablet computers, interactive whiteboards, and smartphones, as well as better-established technologies, such as computers, video displays, and gaming consoles, and to create learning experiences that leverage the unique capabilities of these various technology platforms.

Study Overview

As external summative evaluators of Ready to Learn, Education Development Center, Inc. (EDC) and SRI International (SRI) are conducting four context studies during the first two years of the initiative (2011 and 2012). This report combines findings from two of the studies; the Survey of Target Programs and the Program Quality Observation Study. The findings provide a picture of how preschool and out-of-school–time educators are currently using technology and media to support math and literacy learning, the barriers they encounter in using instructional media and technology, and likely ways that new and emerging digital resources can serve children in the near future.

Methods and Sample

The Survey of Target Programs gathered responses from 106 preschool teachers and 86 summer–learning-program instructors, identifying current instructional practices in mathematics and literacy, current technology use to support those practices, staff perceptions of and attitudes toward the use of media for learning, and structural characteristics of programs that could affect implementation. The Program Quality Observation Study examined a subset of 32 classrooms, focusing on prevalent modes of teaching and learning, enhancements that could improve current practice, and the times and places where technology is currently being and might optimally be integrated into classroom practice. The study included classroom observations, teacher and program director interviews, and opportunities for teachers to experiment with and comment on early versions of Ready to Learn transmedia.

Findings

Our findings are grouped into six categories: availability of media and technology, integration of media into teaching and learning, social arrangements that shape children's media experiences, teacher support of children's media use, professional development for technology integration, and teachers' reactions to PBS transmedia.

Availability of Media in Early Learning Settings

Classrooms fall into one or more of four categories of technology access: basic infrastructure, gateway technologies, personal devices, and future infrastructure. Basic technology tools have found their way into many classrooms: 98% of preschool teachers and 82% of summer learning program teachers report having a working computer in their classrooms. However, only 29% of preschool classrooms have Internet connections that children can use to access games and other multimedia; the same is true for 61% summer learning program classrooms. Responsibility for selecting and scrutinizing media content often falls to administrators; most teachers have little control of what media content is available on the computers in their classrooms or in computer labs.

Technologies such as music players and digital cameras are gateway technologies for teachers: many have and are comfortable using them. A few tech-savvy teachers bring personal devices (MP3 players, tablets, smartphones) into their classrooms to support a range of learning activities. Few teachers have access to newer technology tools: only 5% of preschool teachers and 3% of summer learning program teachers report access to an interactive white board or a projector.

Integration of Media and Technology into Instruction

The ways in which technology is integrated into instruction vary widely. Often, children use media during free play times, independent of other teaching and learning activities. In many classrooms, technology use is opportunistic. Teachers use it to extend learning, focusing on discrete skills, but not as part of planned instruction. Though there are connections between media content and instruction, they are spontaneous rather than systematic.

Less frequently, children's media experiences flow from planned instruction. Teachers intentionally select or develop media content to align with the goal of the learning activity, for example, purposefully combining music (played on MP3 players, CD players, or tape decks) with instructional routines and goals. Least common—but present in a few classrooms—was full media integration, in which teachers combine media-centered activities with activities that do not rely on media to create an instructional mix that addresses key concepts or skills.

Social Arrangements that Shape Children's Experiences with Media

Children in early learning settings use media on their own, in pairs or small groups, and sometimes, in large, whole-class groups. Their experiences with media differ based on the social arrangement in which they use it. When using media on their own, children must rely on their prior knowledge, initiative, and technological fluency. Used in pairs or small groups—a common arrangement—media can support social and emotional development through cooperation, as well as academic skill-building and content learning. However, shared use of media can create distractions, such as when children compete with one another to control game play. Teachers in a few observed classrooms used media in a shared display format to lead a lesson or an activity with the whole class, typically to investigate or introduce important learning concepts. In this pattern of media use, media function as a shared object towards which the teacher and children direct their attention. However, this pattern was uncommon.

Teacher Support of Children's Media Experiences

We observed four roles that teachers play in supporting children's media experiences: tech support, "pop-up" guide, Sherpa, or creative director. In the "tech support" role, teachers help children with practical and technical matters, ensuring that children are able to use media and technology on their own. As "pop-up" guides, teachers support children's learning experiences by engaging with children during brief-but-substantive interactions. Teachers may ask questions to promote understanding, repeat key ideas, or explain a concept. Children also invite conversations with teachers, asking for help with cognitive challenges, verifying if they have completed a task correctly, or seeking praise by displaying their work.

In the "Sherpa" role, teachers use media as the basis for sustained interactions, staying with children throughout media experiences and nimbly making use of the tool's format and functions to draw children into rich exchanges. When acting in this role, teachers often intentionally select media resources based on children's needs. Occasionally, we saw teachers act as "creative directors," using media tools with children to co-create user-generated content as a way of expressing ideas.

Professional Development for Using Media and Technology

The extent to which teachers are able to identify and take advantage of opportunities for using media to extend learning is contingent on the extent to which they have been trained and supported to enhance learning and

teaching using media and technology. However, professional development for media and technology is relatively infrequent and limited in scope. Though 67% preschool teachers and 44% summer learning program teachers report receiving some form of professional development on using media and technology, it was nearly always narrowly focused on very basic uses of specific technologies, and rarely focused on strategies for incorporating media into teaching and learning.

Teachers' Reactions to Transmedia Suites

As part of the Observation Study, we showed shown early versions of the PBS transmedia resources to teachers. Their responses to the resources are illustrative of the goals teachers have for media and the design features that work best in the classroom. Teachers wanted resources that were easy to use and accessible even in classrooms without Internet connectivity; that fit with the content, skills and themes that guide their instruction; and that allow for differentiation of instruction based on students' needs. Most envisioned using the transmedia in ways similar to the ways they currently use other digital resources, probably reflecting their limited access to and experience with other technologies.

Future Considerations

Producers, public media stations and other support agencies, and educators all have roles in how digital media is used to help children from economically disadvantaged circumstances succeed in school. Based on the findings from these studies, we have developed a set of recommendations to help key players to design for and use transmedia in early-learning classrooms, taking into account the everyday conditions for teachers and students in these settings. These findings make evident that:

- Transmedia can be most effective when threaded throughout children's learning experiences rather than used as isolated activities or add-ons. Although the term transmedia refers to having the same narratives or characters appearing on different technology platforms, transmedia learning not only takes best advantage of different media platforms but it takes place in different settings, in different social arrangements, and at different times across a child's life.

- Media is best integrated into preschools and summer learning program by fitting media resources to existing routines and instructional practices. The media should be fitted to instruction, not the other way around. Ideally, media will become integrated into the suites of activities that teachers develop to help children develop skills or build content knowledge.

- The media and technology resources currently present in classrooms will shape what is possible in these environments. Computers are nearly ubiquitous, but Internet connectivity is not. Tablet computers and smart phones are being used by some early adopters, and may be more widely adopted soon, but there are budget constraints. In Year 2, the initiative may want to consider methods of distribution that do not depend on an always-on broadband Internet connection.

- Adoption and use of transmedia will be led by policy decisions and district and school leaders in some cases but, in the near term, will more likely occur because of the enthusiasm of individual teachers willing to experiment. The initiative's outreach efforts may want to give consideration to reaching those early adopters who are bringing personal technologies into their classrooms.

- Professional development will be essential to supporting Ready to Learn outreach work. Professional development activities will be wise to function as co-design experiences in which teachers, stations, and support organizations work together to determine how best to integrate transmedia resources into instructional routines and established learning goals.

- Although the media landscape is evolving at a fast pace, and the norms and expectations of use are shifting, teachers currently have a preference for transmedia that:
    - Targets critical mathematics and literacy skills;
    - Is organized thematically;
    - Complements, rather than displaces, children's physical interactions with concrete, physical objects, and allows children to have experiences that are difficult to have in the classroom (such as those that require expensive or unusual materials);
    - Engages children through multiple sensory modalities, such as kinesthetic and auditory;
    - Includes feedback mechanisms that are responsive to a child's correct or incorrect answer patterns, and that provide increasingly supportive, specific help to children;
    - Includes features to support social interaction between children using media together or between children and adults, such as tips for teachers or encouragements to take turns;
    - Allows teachers to differentiate instruction based on students' needs, by selecting particular levels or skills for focus; and
    - Is simple to navigate, allowing children and adults to focus on the content of the experience.