Technology Integration in the Primary Grades: Enhancing Literacy Instruction Through iPads and Teacher Professional Development

Heather Monroe-Ossi, Tiffany Ohlson, Stephanie Wehry and Cheryl Fountain
Florida Institute of Education at the University of North Florida
United States
h.monroe-ossi@unf.edu
tiffany.ohlson@unf.edu
swehry@unf.edu
fountain@unf.edu

Abstract: The integration of technology and literacy is essential to developing 21st century skills to create successful learners. In this presentation, presenters will describe how iPads are being utilized by primary grade teachers to enhance literacy instruction in their classrooms. Participants will: (1) gain knowledge of the iPad as an instructional tool to provide differentiation using multiple modalities, (2) become more knowledgeable about choosing and using appropriate apps for instructional purposes, (3) gain knowledge of the various grouping methods conducive to iPad use. Using interactive techniques to promote adult learning, presenters will model use of iPads with various groupings, model use of specific apps chosen to differentiate learning for children, describe technological support essential to beginning iPad use, provide criteria for choosing appropriate apps, provide opportunities for participants to discuss educational apps supportive of individual learning outcomes, and provide opportunities for teachers to reflect and ask questions via VoiceThread, an online multimedia tool.

Introduction

The purpose of this presentation is to report upon a blended professional development pilot project for primary grade teachers. Professional development sessions are delivered via a Web 2.0 learning community and traditional face-to-face meetings. The technology approach serves two purposes: delivery of the literacy content and simultaneously enhancing teachers’ understanding of Web 2.0 capabilities and the benefits of technology-assisted primary instruction. We will discuss the results of the development, implementation, and outcomes of the professional development pilot at completion of year two of implementation. The professional development pilot project was initiated at the request of a large urban school district located in a southeastern state to improve literacy outcomes for all children. The Exceptional Student Education (ESE), Title I, and Instructional Technology departments of this district are participating in a collaborative partnership with a nearby university educational research center.

School district personnel agreed to a blended eLearning format for the professional development as an alternative to traditional methods. The focus of the professional learning is to improve teachers’ literacy instruction through technology integration utilizing iPads. Teachers attend face-to-face sessions, participate on BlackBoard, and reflect and collaborate on VoiceThread.

Context

The pilot includes 34 Prekindergarten, 15 Kindergarten, and 16 second grade classrooms of which 13 are classified as ESE. These classrooms are located in 20 public schools with Title I status. Participants in the pilot program were selected based on certain criteria such as location, teacher credentials, and Title I status. Each teacher received an iPad and $20 worth of preselected apps. Technical assistance is provided through monthly technology sessions and on-site visits.

Framework
Effective teaching is a complex and multifaceted process. High-quality teachers use two domains, content knowledge and pedagogical knowledge, to promote meaningful learning. Shulman (1986; 1987) found that the two domains were often presented to teachers in separate contexts that did not fully support the complexity of effective teaching. Using Shulman’s work as a foundation, Mishra and Koehler (2006) developed a framework that included technological pedagogical content knowledge (TPCK). Revised by the authors Koehler and Mishra (2009), the model is defined as:

TPACK is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can redress some of the problems that students face; knowledge of the students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones. (p. 1028-1029)

Unfortunately, traditional methods of professional development are not designed to support teachers’ abilities to instruct using such a complex process such as TPACK. This model, one of the most comprehensive models for improving teacher practice in ways that support technology and learning, is not often incorporated in K-12 professional development initiatives.

### Implementation

Teachers participating in the pilot have laptop computers and wireless internet provided by the school district and iPad2 tablets (without G3 capability) provided by the research center. The research facilitators use video, audio, instant messaging, slide shows and incorporate games and surveys via the Learning Management System (LMS) to promote a professional learning community. Teachers use VoiceThread to post reflections on their practice. VoiceThread, a collaborative, multimedia slide show that holds images, documents, and videos, allows users to navigate slides and leave comments using voice (microphone or telephone), text, audio file, or video (via webcam). Posted conversations provide evidence of the effectiveness of the professional learning and content implementation (e.g., children’s work samples). VoiceThread presents teachers’ opportunities to video and share small-group instruction, thus allowing discussion of children’s work among teachers from all 20 schools.

Tablets, specifically iPads, are used with children. iPads provide a child-friendly interface and children quickly learn to use the touch screen icons. Applications (apps) are relatively inexpensive and frequently allow
teachers to archive student work, thus, forming individual digital portfolios. The researchers have installed between five and seven apps (see Table 1). The professional development addresses how teachers can use the installed apps with small groups of children to enhance children’s literacy development. Table 1 details connections between possible apps and some of the National Research Council recommendations for teachers to promote literacy (Snow et al., 1998.)

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<tr>
<th>NRC Recommendation</th>
<th>Interactive and Authoring Applications</th>
<th>App</th>
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<tr>
<td>1. Provide rich conceptual experiences that promote growth in vocabulary and reasoning skills</td>
<td>In the interactive software, text is read to reinforce spoken to written word correspondence and left to right reading. In the interactive software, words and activities encourage verbal exchanges and vocabulary growth. Authoring software requires planning, discussion, reasoning, as well as written and verbal participation.</td>
<td>Barefoot Atlas Meet Millie Writing Pad Meet Millie Writing Pad Tools4Students Kid’s Journal</td>
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<td>2. Encourage lexical development, from early referential (naming) abilities to relational and abstract terms and finer-shaded meanings.</td>
<td>The interactive software offers opportunities for teachers to guide children to socialize and discuss objects found in the stories, name the objects, and discuss their purposes in the story.</td>
<td>Barefoot Atlas Meet Millie</td>
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<td>3. Encourage development of listening comprehension skills and the kinds of syntactic and prose structures that preschool children may not yet have mastered</td>
<td>The interactive software offers children opportunities to hear stories read. Authoring software offers children opportunities to create their own interactive stories.</td>
<td>Barefoot Atlas Read Me Stories Meet Millie Writing Pad Meet Millie Writing Pad PuppetPals Kid’s Journal</td>
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<td>4. Encourage development of children’s sense of story.</td>
<td>Interactive software reads stories aloud; repeats words so that children hear them multiple times; and while interacting with their teachers and peers offers opportunities for children to predict and discuss event in stories. Authoring software lets children record and replay sounds.</td>
<td>Read Me Stories Meet Millie Scribble Press Meet Millie Scribble Press Kid’s Journal</td>
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<td>5. Encourage children’s sensitivity to the sounds of language.</td>
<td>Interactive software reads stories aloud; highlights words as they are read; repeats words so that children hear them multiple times; and while interacting with their teachers and peers offers opportunities for children to predict and discuss event in stories. Authoring software lets children record and replay sounds.</td>
<td>Meet Millie PuppetPals Scribble Press Kid’s Journal</td>
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<td>6. Encourage development of concepts of print.</td>
<td>Interactive software highlights text prompting understanding that print is read from left to tight and top to bottom.</td>
<td>Meet Millie</td>
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<td>7. Encourage development of children’s concepts of space, including directionality</td>
<td>Interactive software highlights text prompting understanding that print is read from left to tight and top to bottom, and that words are separated by spaces.</td>
<td>Meet Millie</td>
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**Table 1:** Recommendations and Apps

**Discussion**

The integration of technology and literacy is essential to developing 21st century skills to create successful learners. In this presentation, presenters will describe how iPads are being utilized by primary grade teachers to enhance literacy instruction in their classrooms. Participants will: (1) gain knowledge of the iPad as an instructional tool to provide differentiation using multiple modalities, (2) become more knowledgeable about choosing and using appropriate apps for instructional purposes, and (3) gain knowledge of the various grouping methods conducive to
iPad use. Using interactive techniques to promote adult learning, presenters will model use of iPads with various groupings, model use of specific apps chosen to differentiate learning for children, describe technological support essential to beginning iPad use, provide criteria for choosing appropriate apps, provide opportunities for participants to discuss educational apps supportive of individual learning outcomes, and provide opportunities for teachers to reflect and ask questions using Web 2.0 capabilities.

References


