Chapter 23
Literacy and Technology

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ABSTRACT

Contemporary literacy education needs to acknowledge technology's nearly ubiquitous presence and leverage that status by incorporating technology into practice. For such integration to be successful, teachers need to carefully select appropriate resources, work with them until they are comfortable with them, and take time to design instruction that includes technology skills instruction as well as content instruction. The school community as a whole should systematically incorporate technology into literacy instruction by allocating resources to acquire appropriate technology, provide the infrastructure to support technology, and train educators in its use. Many tools can be used to support literacy education, including ways to address the literacy needs of specific learner populations. Literacy constitutes a pillar of education. The ability to read and write, to use language effectively, is required in today's society. Literacy is not an intuitive skill; it requires conscious and deliberate learning and practice. The explosion of technology calls for increased literacy skills, and technology can also be used to teach those literacy skills. Factors to consider in incorporating technology into literacy education are explored in this chapter.

WHAT IS LITERACY?

A simple definition of literacy is the ability to use written language purposefully: the ability to read, write, spell, listen, and speak. However, how literacy is operationalized has changed over the centuries. For instance, reading a known text such as the Bible was the basis for being literate at one point; the emphasis was on recall. Being able to decipher and comprehend a new, unknown text was a later development. Likewise, being able to copy a known text (again, the Bible serving as a typical example) predated being able to construct and write down original meaningful text. Some groups now contend that literacy also requires be-

ing able to use technology tools related to language. The concept of literacy can even extend to the general notion of being able to handle information in various representations to express ideas, make decisions, and solve problems (UNESCO, 2006). For the purposes of the following discussion, the term literacy will be defined in its narrower scope, as introduced at the beginning.

Literacy may also be categorized into different levels of fluency. Basic literacy typically applies to initial reading and writing, and focuses on skills Functional literacy typically refers to the level of independent use that one would need in order to succeed in today's society.

McGee and Richgels (2000) identified five levels of literacy in early childhood:

- Pre-emergent: name familiar images and objects, make and respond to simple requests, pay attention to images and reader than text when read to.
- Emergent: attempt writing processes, understand that images serve as informational symbols, understand that text conveys information, handle books appropriately, attend to works in texts, identify signs and labels.
- Novice: write to communicate, write alphabet, read text using visual cues, respond to stories, tell stories in sequence.
- Experimental: use conventional tools, read with support, phonic awareness, retell story, use inventive spelling.
- Conventional literacy: speak appropriately for various purposes, extensive sight word vocabulary, make predictions and inferences from reading, read to obtain information, write short documents with help, use descriptive language.
- Orthographic literacy: have complex understanding of written language, conventional spelling.

Reading skills are typically categorized as follows (Male, 2003):

- Phonemic awareness: recognizing how sounds function in words, for example, recognizing rhyme and alliteration.
- Phonics: connecting sounds with letters.
- Fluency: reading accurately at a conversational rate with appropriate expression.
- Comprehension: making meaning of text.
- Vocabulary.

Writing has its own set of skills (Slomp, 2012):

- Writing mechanics: grammar, punctuation, capitalization.
- Writing process: prewriting, drafting, revising, editing, publishing.
- Knowledge of audience: adapting vocabulary, tone and writing style to fit the audience.
- Rhetoric: art of discourse to persuade, inform, motivate.
- Genre knowledge: differentiating types of writing and subgenres, such as prose versus prosody, science fiction versus fantasy.
- Subject knowledge.

While different schools of thought exist, most practitioners agree on a balanced approach to literacy education that includes direct instruction on phonics and writing mechanics within a context of authentic reading and writing experiences that build on student interests. Listening, speaking, and critical thinking need to be integrated into these practices. In addition, good literature should provide the major focus for reading instruction and integrating the language arts (Carnahan et al., 2012).

THE IMPACT OF TECHNOLOGY ON LITERACY

Technology impacts the resources available, the reading and writing processes, and learning.

Access to Literacy Resources

With the Internet coupled with digitization of texts, people have access to reading materials from around the world. The British Library has the largest collection in the world, 170 million items,

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