



Chapter IV

Technology-Infused Instruction: A New Paradigm for Literacy

Rose Mary Mautino
Duquesne University, USA

Stefan L. Biancaniello
Duquesne University, USA

Abstract

This chapter introduces a model of technology-infused literacy instruction that implements a constructivist approach to teaching and learning that defines a new paradigm for the classroom of the twenty-first century. It argues that in the face of the constant change process that is redefining literacy instruction today, it will be necessary to rethink our curriculum and redesign our instruction to infuse new technologies. In this new paradigm it will be necessary to not only ask different questions, but also to redefine the context in which the questions are posed. Students learning must focus on exploration, investigation, paradoxes, and inquiries. We must teach students to start their inquiries with “essential questions” in mind, and to seek not answers but rather new questions, new theories, and new ideas. The technologies of literacy in the future will need to function as cognitive tools that guide students in the generation of the concentric circles of lifelong learning.

Deictic Change

As the twenty-first century begins to unfold, it is becoming increasingly evident that change is defining the nature of literacy. The impact of the information age has produced enormous impetus for rapid and continuous change in literacy, driven predominately by the appearance of new technologies designed to address the ever-changing needs for information and communication. These new technologies produce new kinds of literacy that in turn produce new applications of the technology. The mutual initiatives generate continuous cycles of innovation that accelerate the process of change. Today continuous rapid change regularly redefines the nature of literacy and increases the challenges educators face as they consider how best to prepare students for literacy in the future.

Perhaps for the first time in history, we are attempting to prepare students for a literacy future that we cannot define nor predict. Literacy and being literate are routinely redefined through the innovation of new technologies, and the constant demand for increased speed and scope of communication in what many have called an “informational revolution.” In an attempt to understand this phenomenon, Donald Leu has identified three distinct relationships between literacy and technology: (1) transformative change, in which technology regularly and systemically changes literacy through the evolution of literacy-based technological advances; (2) transactional change, where technology and literacy interact and change each other as new technologies generate new potential and implementation initiates variations to the technology; and (3) deictic change, which is a constant state of change of both technology and literacy demonstrated through human impact with new technologies. This is manifested in most cases by immediate human adjustment to the implementation vision of these new technologies. The result is a continuous change process that impacts planning, potential, and performance.

In both transformative and transactional change, there is some delay time in the impact between the arrival of new technology and the implementation literacy needed to make the technology useful for teaching and learning. This delay can provide time for analysis, practice, and infusion into the learning experience. The reality, however, is that this delay produces significant variations in interpretations of the technology, its application, and implementation in the teaching and learning process. This diversity can and does erode the effectiveness and impact of technology in classroom instruction. Recent research has shown that the results of this time delay may have many root causes, but at the center, two situations have demonstrated significant impact: (1) a lack of opportunity to develop an understanding of the potential presented by the innovation, and (2) a lack of teacher experience with new technologies, exploring, experimenting, and learning how these tools can enrich the learning experience. Further study is needed in this area to identify why education is experiencing confusion and less focus on how new technology and subsequent new literacy can enrich the learning opportunity. Perhaps it is the lack of expertise in schools and school districts to provide professional development for teachers on the use and application of emerging technologies in the instructional environment. Perhaps it is the lack of time to deliver professional development and practice with the new technologies and new concepts for instruction, or a combination of both. Regardless, these delays in the face of deictic change have been problematic.

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/technology-infused-instruction/30205

Related Content

Educational Chances for Cultural Expressions out of the New Technologies: EU Policies and the Case of Contexts in Archaeology

Enrico Proietti (2012). *International Journal of Digital Literacy and Digital Competence* (pp. 32-48).

www.irma-international.org/article/educational-chances-cultural-expressions-out/67533

Transformation of Individual Learning Through Informatics and Information Technology Activities in Primary School

Valentina Dagieneand Vaiva Grabauskiene (2011). *International Journal of Digital Literacy and Digital Competence* (pp. 1-14).

www.irma-international.org/article/transformation-individual-learning-through-informatics/58358

Fostering Early Literacy Skills With Technology

Pamela M. Sullivanand Marianne Baker (2018). *Information and Technology Literacy: Concepts, Methodologies, Tools, and Applications* (pp. 1494-1505).

www.irma-international.org/chapter/fostering-early-literacy-skills-with-technology/189011

Digital Competence Assessment Across Generations: A Finnish Sample Using the Digcomp Framework

Fawad Khanand Essi Vuopala (2019). *International Journal of Digital Literacy and Digital Competence* (pp. 15-28).

www.irma-international.org/article/digital-competence-assessment-across-generations/236671

History of AI: Key Milestones and Figures, Highlighting the Evolution of AI From Its Early Beginnings to Its Current State

A. Elavarasiand A. Periyanyaki (2026). *Developing AI Literacy in Students* (pp. 87-132).

www.irma-international.org/chapter/history-of-ai/390393