Chapter 106
New Visual Literacies and Competencies for Education and the Workplace

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ABSTRACT

This chapter examines how new visual literacies allow students to create meaning and develop competencies needed for the 21st century. Today's generation is continually exposed to visual and digital media. Through empirical work, this chapter highlights how emerging visual technologies such as big data, infographics, digital badges, electronic portfolios (ePortfolios), visual social media, and augmented reality are facilitating the development of technology-related skills required for students in academics and in the workforce. Each visual technology platform will be examined for their usefulness in promoting engagement, subject-matter knowledge, and collaborative learning outside the traditional classroom approach.

INTRODUCTION

The design of visual information is not a new concept. Historically, humans have been utilizing images to communicate with each other for thousands of years. From pictograms on cave walls to Egyptian hieroglyphics to modern day data visualizations, humans have utilized graphic depictions as a representation of information (Krum, 2013). In fact, visual information is one of the most effective forms of communication for humans (Beegel, 2014; HP, 2004) more than 80% of learning takes place visually when compared to what's read in text alone. We are a society barraged with images through advertising, television, and the Internet. According to Lester (2013), "Something is happening. We are becoming a visually mediated society. For many, an understanding of the world is being accomplished, not through reading words, but by reading images" (p. 423). Thus, the use of visual imagery is significantly changing what it means to be literate in the 21st century (Hattwig, Bussert, Medaille, &, Burgess, 2011).

Visual literacy is the ability to ascertain and use images. According to The Association of College and Research Libraries, *visual literacy* is a group of skills that "enables an individual to effectively find, interpret, evaluate, use, and create images and visual media" (Hattwig, et. al. 2011, para. 2). Visual literacy is the combination of both images and text. And, "although visual perception seems to precede any textual explanations, the combination of images, media, and new technologies will require students to be multi-literate" (Delello & McWhorter, 2013, p. 2).

For example, to the uninformed tourist, a road sign (See Figure 1) may not be recognizable as a hazard but certainly may make the difference between safety and loss of life. By being visually literate as to the meaning of the road sign (entering a tsunami-prone area), the traveler will be able to more readily adhere to natural and man-made warnings should a tsunami be of imminent danger. According to Lester (2013), street signs that indicate dangerous conditions are icons that represent a safety issue requiring acute visual literacy skills to insure the safety of the individual and possibly others in the vicinity.

The traditional notion of literacy in the form of reading and writing is expanding as new technologies become available. In fact, Leu, Kinzer, Coiro, & Cammack (2004) reported that the definition of literacy is a moving target, changing at a pace never before experienced due to the prolific growth of information communication technologies (ICTs) and the demands of society. The world as we know it is influenced by both images and technology. And, we will need visual and technological literacies to understand and process the volumes of data in this age of information (Burmark, 2002).

Overview of the Research

Pritchard and O'Hara (2009) suggested that "in addition to being able to communicate in oral and written form, to be considered truly literate, one must be able to think critically, reason logically, and use technology" (p. 15). This view is reinforced by the International Reading Association (2002) in its position on literacy and technology, which stated: "Traditional definitions of reading, writing, and viewing, and

Figure 1. Tsunami Hazard Sign to denote a tsunami evacuation area
Image in Public Domain. Source: http://commons.wikimedia.org/wiki/File:TsunamiHazardSign.svg

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