Evaluating the Readability of Instructional Visuals

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Text readability has developed from a crude means to classify subjective judgment on text characteristics, to a more theoretical position which compares these attributes with learner characteristics. Visual readability may be following a similar evolutionary path to that of text readability. The Picture Readability Index (PRI) developed in this study utilizes an interdisciplinary battery of methods adapted from the fields of linguistics, reading, and cognitive psychology. The PRI is designed to assess the readability of instructional illustrations. Readability refers to the success of the image as defined by its objective or caption. Images can be readable in the sense that they inspire cognitive and affective processing. Photographs with low readability inspire reactions that do not go beyond initial first glance responses.

Visual Preference

Visual preferences can operate at a subconscious level, which makes them ideal for use in marketing and advertising, but less than ideal for media evaluation procedures. Since the photograph is perceived as realistic, it easily deceives through any of a variety of technical means. It is the photograph's ability to deceive with impunity which defines its power in advertising and other forms of political and social influence. Decisions in the visual realm are often based on what "looks good," rather than what constitutes the best instructional image. Adoption decisions benefit from specific subject matter and pedagogical knowledge that are used in scrutinizing the content and reading level of media. This experience is often not applied to the criticism of realistic visuals because objects are thought to be real, objective and indisputable by abstract instructional criteria.

Adoption committees and media developers do not have the benefits of an organized and established body of criteria for the selection of realistic images. In media research, realistic visuals are usually included as part of models which consider many diverse delivery formats but do not concentrate on special attributes, such as the realism of photography (Fleming, 1967; Romiszowski, 1988; Fleming, 1979). Establishing criteria for the selection of images is an important challenge facing visual literacy. The purpose of this study was to identify research which can provide suitable structure and design for such a picture readability instrument. Virtually no research has been conducted spe-

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specifically in visual readability although visual literacy, visual information processing research and related concepts such as the advanced organizer will be explored in the following sections as they relate to the development of such a readability measure.

**Visual Literacy**

Visual literacy posits that different visuals communicate a different degree of reality. Thus, all images are not equally and easily readable. No single instructional image can contain all the attributes necessary for it to be appropriate for all instructional objectives. There are no universally communicable images. Rather, an illustration with certain attributes, shaped by a well-drafted caption, may be ideal for specific applications. One popular hypothesis on the perception of images is that they are rapidly and therefore easily readable. Visual literalists do not dispute the fact that visual information can be processed more rapidly than text information, but they do believe that this processing can mislead students. The assumption often is that the inclusion of illustrations and photographs will not hinder, even if they do not improve instruction. However, photographs can confuse as well as illuminate. Visual literalists believe that the solution to these problems requires students to learn a visual grammar which informs visual information processing (Pettersson, 1989).

An often cited study, used to refute the idea that visual literacy must be learned, is that of Hochberg and Brooks (1962). They kept their daughter from viewing photographs and drawings from birth to age two and found that “she was able to recognize both photographs and line drawings” (p. 625). Do we have at birth all the visual literacy we will ever possess? Studies of different cultures support the contention that students do learn to perceive their environments differently. Visual literacy is the sum of past experience and not built in (Mangan, 1978, p. 245).

Pictures provide more hooks in memory because they are often novel or unique. Visually literate people “internalize specific coding systems of a medium and apply them as tools of thought” (Salomon, 1978, p. 38). In the educational literature, Bruner (1966) and Piaget and Inhelder (1956) do not attribute much importance to mental imagery. In Bruner’s case, imagery is placed at a midpoint in the hierarchy of developmental theory in which the zenith is abstract verbal symbols. Bruner’s work is based on Piaget, who also considered mental imagery retrogressive to symbolic verbal development. These positions assume that manipulating symbols entails verbal symbols that are no longer mental images of objects. The visual literalist position assumes that both levels of symbolic processing are important.

Images that are stored visually and verbally are easier to recall. Images in the context of text force summation of cues between the two channels (Fleming 1979, p. 245). The verbal is processed as a serial experience, and the visual