We can no longer ignore the fact that a picture is not neutral.

Picture as visual text

by Ann DeVaney Becker

A picture is not neutral. The image within it has been organized by another human being, framed, shot through a lens, printed and presented within a border. It is an image "upon which meaning has already been conferred." (Nichols, 1981) Individual interpretation is embedded in each step of the photographic process, so a picture, paradoxically, may bring viewers a glimpse of an unknown image while distancing them from that real world image. In this complex process, interpretation continues after the making of a picture. Layered with meaning, the end product, the picture, is presented to viewers who read it and bring interpretation to what might now be called the visual text (Barthes, 1977a).

The hidden process of layering interpretation upon interpretation is apparent in the case of an advertisement. A viewer who drives past a billboard advertising toothpaste is acutely aware of the fact that the larger-than-life, sparkling white, capped teeth are there to persuade viewers to buy a particular brand of toothpaste. The absent graphic designer is not present but the verbal message, limited to the name of the toothpaste, is aimed at persuading the viewer to buy the product. Properties or characteristics inherent in the picture have accomplished the job. What was included in and excluded from the frame has meaning. Size and position of the focal point of interest are an interpretation, as are focal distance, angle and lighting of the picture. The graphic designer relies on structural units to communicate meaning. Viewers, or at least drivers, are accustomed to such visual assaults and are keenly aware of the intent of billboards.

Billboards are pictures which have the same properties as textbook images, or pictures used in instructional materials, or visual media used as stimulus materials in instructional technology research. In fact, the billboard image has the same properties as images defined and discussed in theories of learning from pictures. Yet instructional media designers, researchers, teachers and students often ignore inherent visual messages when using texts or instructional materials, when using pictures as stimuli in research designs, or when discussing the manner in which viewers process, store and recall information from a picture.

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Problem

In the past 20 years efforts have been made by instructional media researchers to employ differentiated stimulus materials in research designs. Significant growth in this direction can be assessed by the trend away from a comparison of undifferentiated stimuli, i.e., still vs. motion pictures, to comparison of characteristics within a medium, i.e., zooming vs. no zooming in a television lesson (Salomon, 1979), yet few people have been willing to approach a pictorial stimulus as a text which is read. Layers of interpretation are difficult to identify and investigators are often reluctant to grapple with the structural units of a picture. The task of interpretation, then, has been left to communication researchers and art and film critics; yet it is evident that not only museum photographs and films but instructional pictures are layered with meaning. That the task of decoding instructional pictures is difficult or that the task is hard to fit within the current research paradigm does not vitiate the fact that a picture is not neutral. If a picture is used as an undifferentiated stimulus in instructional technology research, layers of interpretation already present will confound the results of an experimental study unless these layers are accounted for. Explanations of learning from pictures also need to address the claim of picture as visual text.

Early research

World War II research forms a base for investigation in the field of instructional technology as it is known today. Instructional media researchers during and after World War II were in the thrall of operant conditioning as a model of behavior. Programmatic research (WWII) under a behavioral model brought some rigor to a field which previously had engaged in non-rigorous case studies. Pre-World War II film research, however, was conducted and sponsored by film makers, administrators, librarians, artists, photographers, as well as educators. These were the people who represented the emerging instructional media field in the early Department of Audiovisual Instruction. Not intrigued with the new directions in instructional media research and application, artists, filmmakers, librarians and others broke away to join their own areas of concern.

Certainly the post-World War II decades can be called the age of specialization in most fields, not only that of instructional technology. Specialization did encourage a rigorous pursuit of instructional media and learning issues, yet the growing insights of scholars in art, film and photography were generally excluded from that pursuit. Specialization within the respective fields has also introduced rigor to the exploration of interpretation of images. If instructional media researchers study and employ the same class of images as those used in photography, art and film, they might examine some techniques for interpretation of visual text with an eye toward incorporation and accommodation within their own field of study.

Identification of structural units

If the toothpaste advertisement and the textbook illustration can both be classified as pictures, what are the characteristics of pictures which might allow researchers to differentiate a visual stimulus within a research design? Which parts will allow the investigator to unpack the layers of interpretation inherent in a picture? This issue has been addressed in literature for decades. Rudolf Arnheim

(1969) lists ten parts of a picture which yield meaning within a frame. John Kennedy (1974) lists seven methods of line representation which interpret surface within a frame. Artists may speak of border, line, color and shape as structural units which give meaning to a painting while photographers speak of frame, focal point, focal distance, angle and light as structural units. The divergent names of these units do not suggest confusion as much as they suggest the use of borrowed structures. Film borrowed some of its structure from photography, and photography borrowed some of its structure from painting. All the visual arts share some structural units and apply these units in a similar manner. Such application is a code, so visual arts have some similar infrastructures and borrow codes from one another. Each visual art, however, does have some unique codes. The search, therefore, for the proper name of a structural unit may not be as important as its frequency of use and necessity in the construction of the work.

Eleanor Gibson (1969) in her seminal work on perception suggests frame, focal point, proximity, angle of approach and depth perception as key units of a photograph. If motion is added to the picture, additional units present themselves for interpretation, such as the plane of the image, the plane of the space photographed, and the plane of depth perception (Monaco, 1977). Structural units of motion, such as panning, tilting, and zooming and switches, such as cuts, fades, dissolves and wipes, are familiar.

Use of structural units

Beyond the mere description of structural units within a picture lies the more engaging issue of how these structures yield meaning. Like words in a sentence, they yield meaning because of their pattern of usage. Like words in a sentence, they yield primarily contextual meaning. And surprisingly enough, like words, these units are connotative as well as denotive, for example, space included within a frame may be defined by what is imagined to lie outside the frame.' The unit of frame, then, is highly connotative.

The word *code* has been used to describe the pattern of usage of these structural units. Calls for the study of codes in visual media have come from Wilbur Schramm (1977), Gavriel Salomon (1979) and Howard Levie (1978) among others. In his work on symbolic codes Levie (1978) discussed the relationship between pictorial codes and mental operations and suggested that visual literacy study focus on this relationship. A team from the University of Iowa's Visual Scholar's Program (Cochran et al. 1980) addressed the issue of meaning, especially social meaning, in the relationship between visual media and mental operations. Codes or usage patterns of structural units of the TV frame have also been recently addressed by Mettalinos (1979).

Outside the field of instructional technology, codes are often considered within the domain of semiotics, a general science of treating "sign systems" (de Saussure, 1966). Visual media, such as photographs, film, filmstrips and television, communicate through the use of visual signs and symbols and are ripe for semiotic analysis. One analyst, Roland Barthes (1982), has most recently addressed the question posed earlier, namely, "How do structural units yield their meaning in a study of photography?" These analysts attempt to describe the parameters of a sign system, such as photography, by close observation of the existing medium. Basic objectives of this type of analysis call for a logical description of the codes and signs that give meaning to the system. These codes and signs must be observed from the inside of an existing medium. One must understand how they are used and what they contribute to the whole system.

Although semiotic analysis[2] is diverse, that body of literature does yield some answers to questions posed previously about the description and patterns of usage (codes) of structural units within visual media. In other words, the semiotic literature might yield analytic techniques for interpretation of visual text which could be incorporated in instructional technology research. Which structural units and which codes have been insightfully described in the semiotics of visual media? Roland Barthes describes structural units and their relation to the culture in which they are found. Not only does his analysis include visual systems, i.e., photographs, street signs, and film, but music and writing as well. His sweep is broader than some other analysts, with emphasis on orders of signification. Since he deals primarily with order of signification, that is, levels of meaning in the work presented, his techniques lend themselves to the investigation of the social, cultural and ideological meanings embedded in visual media.

That is not to say he ignores basic units. His first level of signification is the representation of the image. He moves swiftly through it to second and third order significations where his contribution is strong. Units of meaning addressed in the second order are immediately social, i.e., myth or shared cultural meaning and connotation. His third order addresses the manner in which shared cultural meaning is organized into a belief or ideology.

Barthes has contributed an awareness of the social and inherently ideological meaning of any visual text. His contribution should not be and has not been ignored. Many current literary and media analyses are indebted to Barthes, but two outstanding treatments which owe a partial debt to Barthes are **Reading Television** (Fiske and Hartley, 1978) and **Ideology and The Image** (Nichols, 1981). Fiske and Hartley describe structural units of British television, their patterns of usage and social meaning. These authors tend to address smaller units than does Barthes, but their analyses are social. **Reading Television** unveils the "myths" or shared cultural meanings embedded in video images, describes television "reality" and compares the manner in which television interacts with the culture itself. The book is a fine antidote to the consideration of television as a undifferentiated treatment in an instructional media experiment, and it also argues clearly for the teaching of television reading or the interpretation of video in the classroom.

A more complex treatment of social meaning and visual media can be found in **Ideology and Image** (1981), which draws upon perception theory and psychoanalysis as well as Barthes' principles of semiotics to complete its task. Working quickly through communication signs, perception theory, and essentially the Lacanian perception of self, Nichols (1981) carefully relates this discussion to advertisements and then leaps to a analysis of many forms of cinema. His strokes are broad, but his message is clear. Prescriptive ideological values are embedded in all visual media.

Christian Metz (1974) may be cited for semiotic analysis of film that is more detailed and concerned with aesthetic as well as social meaning. Unlike Barthes, Metz

consistently addresses small units of filmic structure, such as shot. In fact, he describes patterns of shot and scene usage in a hierarchy. The description lies along two axes, syntagmatic, which considers the sign selected in the shot or scene, and paradigmatic, which considers the set of signs from which the shot or scene was drawn. Besides providing a rigorous model for analysis of film, which he calls his Grand Syntagmatic, Metz mounts compelling arguments for the language of film. After Metz, one cannot claim that visual media do not have their own communication system. That system may be called a language.

Relying on Barthes, Gianfranco Bettetini (1973) presents a detailed social, aesthetic and technical analysis of the language of film. He contrasts this film language with some television techniques.

The most thorough linguistic analysis of film has been made by John Carroll in **Toward a Structural Psychology of Cinema** (1980). Carroll leans heavily on transformational grammar and argues that film language is generative.

Codes and visual media

The description of visual codes is the domain not only of semiotics. Social scientists have concerned themselves with such description for some time. Erving Goffman (1979) uses the concept of "frame" to explore an ethnographic analysis of advertisements.

Worth and Adair (1972) in a famous study with Navajo Indians asked questions about which compositional style novices would use when asked to tell a story with film. They found that native narrative styles used to tell existing Navajo myths and stories emerged in film composition. In fact, certain grammatical structures were transferred intact to film composition. In other words, narrative codes embedded in Navajo myth dominated the new medium or supplied a borrowed infrastructure for their film.

A study similar to the Worth and Adair study was conducted by ethnomethodologists Beryl Bellman and Bennetta Jules-Rosette (1977) in Africa. They asked approximately the same questions of natives selected from two African communities in Liberia and Zambia. Questions about compositional style of novices were posed. Video cameras were given to the selected participants who then created their own stories on tape. Traditional narrative codes which appear in the oral literature of both of these tribes were transferred to the composition of videotape. As with the Navajos, the Africans' compositional style was narrative. When Bellman and Jules-Rosette conducted this same study with American TV production novices, it was found that their dominant compositional style was dramatic, not narrative. Bellman and Jules-Rosette gave a detailed reading of the units of motion contained in the narrative style of videotaping. Patterns which emerged on the tapes were extensive use of panning for establishing shots, slow panning throughout, an absence of zooms (whereas Americans used the zoom), use of dollying and use of hesitations. What they described for the first time were codes of narration in documentary videotape.

This paper has presented an argument for the consideration of any picture as a visual text. It has presented applicable descriptive analysis and research from investigators who have approached pictures as visual text and suggested that instructional technology research address itself to this "state of the art" analysis in visual media. The accommodation of visual text in instructional technology need not require a paradigm shift. Even through semiotic analysts use the time honored method of individual interpretation in their investigation, instructional media researchers could use existing observational methods. Precise observation is a social science method which provides verification and generalizability. The task is enormous but workable, and one can no longer ignore the fact that a picture is not neutral.

Reference Notes

1. For a thorough description of the meaning of a frame read Noel Burch's discussion of space within the cinema frame and imagined space outside this frame in **Theory of Film Practice**.
2. The scope of this paper does not include a basic explanation of semiotics, only examples of its application. For a basic discussion read Terrace Hawkes' **Structuralism and Semiotics**.

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