

Networks of remediation

Pp 65-69 in *Remediation: Understanding New Media*, Jay David Bolter and Richard Grusin

Television, film, computer graphics, digital photography, and virtual reality: our culture recognizes and uses all of these technologies as media. This cultural recognition comes not only from the way in which each of the technologies functions in itself, but also from the way in which each relates to other media. Each participates in a network of technical, social, and economic contexts; this network constitutes the medium as a technology.

WHAT IS A MEDIUM?

We offer this simple definition: a medium is that which remediates. It is that which appropriates the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real. A medium in our culture can never operate in isolation, because it must enter into relationships of respect and rivalry with other media. There may be or may have been cultures in which a single form of representation (perhaps painting or song) exists with little or no reference to other media. Such isolation does not seem possible for us today, when we cannot even recognize the representational power of a medium except with reference to other media. If someone were to invent a new device for visual representation, its inventors, users, and economic backers would inevitably try to position this device over against film, television, and the various forms of digital graphics. They would inevitably claim that it was better in some way at achieving the real or the authentic, and their claim would involve a redefinition of the real or authentic that favors the new device. Until they had done this, it would not be apparent that the device was a medium at all.

The cultural studies of popular media (for example, *Media Culture* by Douglas Kellner) have been right to insist on close ties between the formal and material characteristics of media, their “content,” and their economic and social functions. Indeed, the various elements are so tightly bound that they can never be entirely separated; a medium is a hybrid in Latour’s sense. To say, for example, that the commercial funding of American television is the cause of its insipid content (or induces individuals to identify with dominant ideologies, or whatever) is already to separate the technical form of television (as the creation and distribution of programs on television sets) from its economic expression. In fact, commercial financing is an inseparable aspect of the medium of American television, as are its many social uses (TV dinners, occupying the children, defining shopping habits). We do not mean that one could not design a different system, say public financing, but rather that, in the unlikely event that it were ever established, public financing would redefine American television as a technology or medium. This does not mean that the mode of financing *causes* American television to be what it is, but rather that the character of a technology such as television is articulated through a network of formal, material, and social practices.

Whenever we focus on one aspect of a medium (and its relationships of remediation with other media), we must remember to include its other aspects in our discourse. In the case of film, for example, when we look at what happens on the screen (in a darkened theater), we can see how film refashions the definitions of immediacy that were offered by stage drama, photography, and painting. However, when the film ends, the lights come on, and we stroll back into the lobby of, say, a suburban mall theater, we recognize that the process of remediation is not over. We are confronted with all sorts of images (posters, computer games, and videoscreens), as well as social and economic artifacts (the choice of films offered and the pricing strategy for tickets and refreshments). ⊕ **p. 173** These do not simply provide context for the film itself; they take part in the constitution of the medium of film as we understand it in the United States today. We must be able to recognize the hybrid character of film without claiming that any one aspect is more important than the others. This is the claim implicit in most cultural studies analyses of popular media: that film and television embody or carry economic and cultural ideologies and that we should study media principally in order to uncover and learn to resist their ideologies

In the past fifty years, we have seen the digital computer undergo this process of “mediatization.” The programmable digital computer was invented in the 1940s as a calculating engine (ENIAC, EDSAC, and so on); by the 1950s, the machine was also being used for billing and accounting in large corporations and bureaucracies. At that time, proponents began to understand the computer as a new writing technology; that was in fact the message of the artificial intelligence movement, which began as early as 1950 with A. M. Turing’s famous essay, “Computing Machinery and Intelligence.” The important cultural contribution of artificial intelligence was not that the computer could be a new kind of mind, but rather that it could be a symbol manipulator and could therefore remediate earlier technologies of arbitrary symbol manipulation, such as handwriting and printing.

As long as computers remained expensive and rare, available only to a limited group of experts in large institutions, their remediating functions were limited. In the 1970s, the first word processors appeared, and in the 1980s the desktop computer. The computer could then become a medium because it could enter into the social and economic fabric of business culture and remediate the typewriter almost out of existence.

Although the computational device itself, even the “user-friendly” word processor, was not a medium, that device, together with its social and cultural functions, did constitute a new medium. (Furthermore, in the 1980s and 1990s the digital computer has taken on new technical and social functions and is being constituted as a second medium, or series of media, for visual or sensory representation.)

The cultural work of defining a new medium may go on during and in a sense even before the invention of the device itself. The technologists working on the device may have some sense of where it might fit in the economy of media, what it might remediate, as fifteenth- and sixteenth-century printers did in their project to remediate the manuscript and as the inventors of photography did in the nineteenth century. Or they might be working on a device for a different purpose altogether, and they or someone else might realize its potential for constituting a new medium. In some cases the potential might emerge only slowly as the device evolved and changed (as with radio and the telephone). All sorts of cultural relationships with existing media are possible. The only thing that seems impossible is to have no relationship at all.

(Kellner, 1995). Although it is true that the formal qualities of the medium reflect their social and economic significance, it is equally true that the social and economic aspects reflect the formal or technical qualities.

THE MATERIAL AND ECONOMIC DIMENSIONS OF REMEDIATION

The economic aspects of remediation have already been acknowledged and explored by cultural theorists. Each new medium has to find its economic place by replacing or supplementing what is already available, and popular acceptance, and therefore economic success, can come only by convincing consumers that the new medium improves on the experience of older ones. At the same time, the economic success of workers depends on the new medium's acquired status. Thus, web designers currently command higher salaries than technical writers and graphic designers for print; it is in their interest to promote the belief that digital media can not only replace printed documents, but vastly improve on them.

Similarly, the whole entertainment industry's understanding of remediation as repurposing reveals the inseparability of the economic from the social and material. The entertainment industry defines repurposing as pouring a familiar content into another media form; a comic book series is repurposed as a live-action movie, a televised cartoon, a video game, and a set of action toys. The goal is not to replace the earlier forms, to which the company may own the rights, but rather to spread the content over as many markets as possible. Each of those forms takes part of its meaning from the other products in a process of honorific remediation and at the same time makes a tacit claim to offer an experience that the other forms cannot. Together these products constitute a hypermediated environment in which the repurposed content is available to all the senses at once, a kind of mock *Gesamtkunstwerk*. For the repurposing of blockbuster movies such as the Batman series, the goal is to have the child watching a Batman video while wearing a Batman cape, eating a fast-food meal with a Batman promotional wrapper, and playing with a Batman toy. The goal is literally to engage all of the child's senses.

We can also consider repurposing in microeconomic terms as the refashioning of materials and practices. When artists or technicians create the apparatus for a new medium, they do so with reference to previous media, borrowing and adapting materials and techniques whenever possible. Thus, Gutenberg and the first generation of printers borrowed the letterforms and layout from the manuscript and con-

structed the printed book as the "manuscript only better." They borrowed the materials too. Paper had long been used for manuscripts, and techniques of binding remained the same (Steinberg, 1959). After winning their rather easy battle of remediation, printers in the late fifteenth and early sixteenth centuries moved away from the manuscript model by simplifying letterforms and regularizing the layout. A manuscript page was dark with the ink of letters formed by hand; these printers learned to use ink sparingly to achieve a highly legible page. In the case of photography, Talbot, one of the pioneers, justified his invention because of his dissatisfaction with a contemporary device for making accurate perspective drawings by hand, and the name "camera" was his remediation of the *camera lucida* (Trachtenberg 1980, 27; Kemp 1990, 200). Film technicians and producers remediated both photography and the practices of stage plays. We have noted that early films were once called photoplays, which expresses this combined remediation; the term *mise-en-scène* was also borrowed from stage production to refer to the film director's control of the visual appearance. In computer graphics, paint programs borrowed techniques and names from manual painting or graphic design practices: paintbrush, airbrush, color palette, filters, and so on. World Wide Web designers have remediated graphic design as it was practiced for printed newspapers and magazines, which themselves in some cases have reappropriated the graphic design of the World Wide Web.