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MULTIMEDIA LITERACY

The term *multimedia* is among several terms that have been associated with literacy to emphasize that literacy extends beyond reading and writing the alphabetic code, and should include a variety of audiovisual forms of representation. Associating multimedia with literacy also highlights a belief among many scholars and educators that conceptions of literacy and how it is developed should not focus exclusively on printed materials, but should include electronic media that have moved into the mainstream of communication, especially at the end of the twentieth century. Implicit in these views is that research and practice related to literacy must be transformed to accommodate new ways of accessing, processing, and using information.

Related Concepts

Kathleen T. Tyner argued in 1998 that in the information age the concept of literacy has been simultaneously broadened and splintered into many literacies in part because "the all purpose word literacy seems hopelessly anachronistic, tainted with the nostalgic ghost of a fleeting industrial age" (p. 62). Associating the term *multimedia* with literacy is consistent with that trend, although it might be thought of as encompassing a diverse set of related and sometimes ill-defined terms used in scholarly, and often popular, discourse. For example, related terms highlighting media and forms that go beyond the alphabetic code include *media literacy*, *visual literacy*, *technological literacies*, *metamedia literacies*, and *representational literacy*. Broader terms, such as the following, might also be included in this set because they typically acknowledge the role of diverse media and new technologies in broadening conceptions of literacy: *multiliteracies*, *information literacies*, *critical literacy*, and even the negatively stated term *cultural illiteracy*. Narrower terms such as *computer literacy* and neologisms such as *numeracy* also reflect expanding views of literacy, but such terms focus on specific skills and abilities.

Past and Present Conceptions

Broadening the scope of literacy, specifically in relation to diverse media, is not entirely a phenomenon of the late twentieth and early twenty-first centuries. Interest in how new media might affect conceptions of literacy can be traced to the widespread use of electronic audiovisual media such as television and film in the first half of the twentieth century. For example, Edgar Dale, well known among a earlier generation of educators and researchers for his work related to literacy, discussed the need for critical reading, listening, and observing in contending with the new literacies implied by audiovisual media of the 1940s.

Nonetheless, beginning in the latter decades of the twentieth century, the impetus for broadening the scope of literacy has been the increasing integration of digital technologies into the mainstream of everyday communication and the inherent capability of those technologies to blend diverse modes of representation. New modes of digital communication exist not only in parallel with conventional printed forms, but they have replaced or moved to the margins conventional forms of reading and writing. For example, the obsolescence of the typewriter,

the ascendance of e-mail as the preferred alternative to diverse forms of correspondence on paper, the emergence of the Internet as a prominent cultural phenomenon, and the appearance of the electronic book represent a steady yet incomplete and unpredictable progression away from conventional printed forms. Likewise, students in the early twenty-first century routinely encounter digital information employing diverse audiovisual media presented in formats that are more interactive and dynamic than printed texts, although those encounters have been more likely to occur outside the school, as revealed in a national survey sponsored by *Education Week* in 2001.

Nonetheless, the opportunities for seeking out and creating such texts in schools have grown steadily. For example, the availability and use of the Internet, applications for creating digital documents and presentations, and similar digital activities has increased substantially since the mid-1990s. The parallel increase of electronic texts in academia, which includes electronic versions of dissertations and the gradual recognition of electronic journals as respected outlets for rigorous scholarship, suggests a continued expansion of multimedia forms into the mainstream of literate activity at all academic levels.

A further impetus to broadening the scope of literacy in relation to multimedia is the shift from viewing literacy primarily as a set of isolated, minimal, functional skills for reading and writing in schools: Literacy is a much larger sociocultural phenomenon that has implications for personal agency and for a nationalistic competitiveness and globalization. The imperatives for literacy, the definitions of its importance in world of the early twenty-first century, and the ideas about how it might best be developed have changed rapidly in both a technological and a sociocultural sense. Multimedia literacy, and the constellation of contemporary literacies that it encompasses, implies a broad conception of educational imperatives and an understanding that digital transformations of reading and writing go far beyond the development of technological competence.

Thus, multimedia means can be thought of as an orientation of perspectives and values about a variety of literate activities across the sociocultural spectrum. For example, in law and ethics it may mean a transformation of concepts such as plagiarism, intellectual property, and copyright. In government and politics it may mean a transformation

of the possibilities for shaping or controlling public opinion through the dissemination of information. In economics it may mean a transformation of commerce and how people purchase goods and services and how they manage their personal finances. In mass communication it may mean the transformation of how news organizations gather and disseminate information and who has access to it. In popular culture it may mean a transformation of the pragmatics of writing and reading texts such as determining what is acceptable and unacceptable when using e-mail. In education it may mean a transformation in what is considered a text, how texts are written and used, and ultimately perhaps the goals of education and the roles of teachers and students. Such potential transformations and how they might be accommodated in educational endeavors define the broad imperatives for considering literacy in terms of multimedia.

Theory and Research

On a theoretical plane, it is challenging to define precisely the relation between multimedia and literacy. What exactly comprises literacy has always been debatable and has increasingly been so in light of sociocultural perspectives. But, defining precisely what is meant by the term *multimedia* is equally challenging. That challenge is reflected in what might be considered a grammatical redundancy or, at least, an ambiguousness. Media is technically a plural form of the word *medium*, making multimedia somewhat redundant in a literal sense. Yet, media in popular usage has become a collective noun that originated in the field of advertising to designate agencies of mass communication. Whereas considering multimedia in relation to literacy may include an understanding and critical analysis of mass media in the collective sense, it implies much more in light of the digital forms of representation. That is, digital forms of representation often blend what might intuitively seem to be individual media into combinations heretofore not possible or feasible. Doing so, however, begs the question of where the boundaries are between media. Put another way, what precisely is a medium? Is a medium elemental in terms of a perceptual mode? That is, might audio and visual presentations be different media? Or, is a medium defined in terms of its technological materiality? That is, the writing of a conventional essay with pen, pencil, typewriter, or word processor employs the use of distinctly different media with potentially dif-

ferent effects. Or might a medium be defined in terms of technological capabilities? That is, a picture or video on a television and computer screen may be identical in appearance, but they are not necessarily equal in their potential opportunities for viewer interaction, and might, thus, be considered different media. Or, does identifying an individual medium require considering all these differences in some ill-defined way? Addressing these and similar questions and issues may be important in translating how literacy might be seen in terms of multimedia into agenda for practice and for research. In other words, knowing what a medium is and what individual media, if any, comprise a means of communication seem fundamental to understanding literacy from the perspective of multimedia and how such literacy might be developed.

In 1979 Gavriel Salomon offered a well-developed and often-cited theory of media and learning relevant to these questions and issues, and it illustrates the type of theory that might be useful. It is useful in part because it transcends more superficial, popular definitions of media that are linked to longstanding forms of communication, and it more readily recognizes and accommodates rapid changes in the technologies of communication. In his scheme a medium can be defined, and thus analyzed and reflected upon, as a configuration of four elements: symbol systems, technologies, contents, and situations. Symbol systems and the technologies used to present them are intertwined and critical because they define the cognitive requirements for extracting information from a medium and consequently what skills become necessary for those who wish to use the medium successfully. In this view, a conventional musical score and a topographical map are different media because they require different cognitive skills for extracting information. Symbol systems and technologies also importantly set the limits of the degree to which a medium can assist those who do not have the requisite skills to extract useful information. For example, Salomon demonstrated that the technological capabilities of the film camera (now also the video camera), specifically the capability to zoom in for a close-up, could increase attention to relevant detail among learners who had difficulty doing so on their own. Contents and situations, the remaining components that define a medium, are more socially defined correlates than necessary qualities of individual media. For example, textbooks rarely have overt advertisements (con-

tents), although they could, and breaking news events are rarely viewed in a movie theater (situations), although they indeed used to be. Thus, among its other advantages, this theoretical perspective accommodates both cognitive and sociocultural dimensions of multimedia and literacy.

There are other relevant theoretical perspectives that might define multimedia and guide research. Research and practice in relation to multimedia literacy has frequently been ad hoc and atheoretical, however. Further, within mainstream literacy research there have been relatively few published studies guided by an awareness of new technologies and media. The body of research focusing on literacy is overwhelmingly aimed at the conventional use of printed materials. However, three studies illustrate the range of possibilities for research in this area and the type of approaches that may lead to important understandings about literacy in terms of multimedia, including learning from texts, integrating multimedia into instruction, and expanding students' sociocultural awareness of textual information. For example, in 1991 Mary Hegarty and colleagues used a cognitive perspective to demonstrate how students with low mechanical ability learned more from text describing a machine when its operation was animated on a computer screen than when it was shown as a series of static pictures in a conventional printed text. Ruth Garner and Mark G. Gillingham, using case studies, documented in 1996 how literate activity as well as the roles of teachers and students changed when e-mail and Internet access were introduced into classrooms. Jamie Myers and colleagues described in 1998 how involving students in creating multimedia hypertexts about literacy and historical figures such as Pocahontas led to a critical stance toward various sources of information.

Further Thoughts

For the early twenty-first century, considering literacy in terms of multimedia relates directly to important changes and trends in conceptions of literacy beginning in the late twentieth century. This perspective makes particularly poignant the shift from printed to digital texts and the implications of that shift for reconceptualizing literacy in light of new and diverse modes of communication. Yet, incorporating multimedia into conceptions of literacy remains imprecise and has yet to provide an unambiguous guide for theory, research, and practice.

See also: LITERACY, *subentry on* LEARNING FROM MULTIMEDIA SOURCES; MEDIA AND LEARNING; TECHNOLOGY IN EDUCATION.

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DAVID REINKING

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