

# Digital Literacy and Public Pedagogy

## Notes on the Digital Game as a Form of Literacy and Learning

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**T**HE INTRODUCTION of digital and electronic representation and communication technologies in the arts and sciences, popular culture, and education has evoked strong and often oppositional reactions with respect to learning and literacy. Some have welcomed the educational challenges of digital culture and emphasize its possibilities for individual emancipation and social transformation in the new media information age. From this perspective, the traditional cultural consumer and educational subject before the digital revolution is perceived more or less as a “passive” recipient and reader of static and finished cultural products that promoted a formal type of end-oriented learning and literacy through books, paintings, or films with discrete themes, meanings, and ideologies. Interactive digital cultural objects such as websites, DVDs, or online gaming environments are welcomed as unique learning environments where meaning is negotiated and constructed because users can manipulate, enter, explore, perform, or even partially create their own forms of literary and representational content (e.g., blogs, *Wikis*, *YouTube*, *Facebook*).

Other reactions are more critical. Because of its sophisticated techniques of multi-medial simulation and immersion, digital culture is accused of absorbing its recipients in an all-pervasive “virtual world” of visual representations experienced and understood by individual users as “all-consuming environments” instead of digital simulations offering up a shared cultural space that requires the negotiation of meaning among the constituent members of a learning community. Digital culture is believed to obliterate the distinction between reality and fiction by presenting the user with already “finished” images of a possible world. The fear is that the engagement and activation of the faculties of creative imagination and critical literacy are suppressed with the instant satisfaction of thrills and a delusional wonder of the educational subject in simulations. This diversity of opinions suggests that digital technologies are generating a profound change in the way we engage with the educational environments of cultural objects such as digital games that instantiate and require new forms of literacy through which we learn to read and interact with others and the world around us.

Since the 1960s, new digital techniques for the creation, processing, and distribution of text, images, and sounds have been applied to existing “popular” and “high” art forms and genres and

have profoundly changed their appearance, impact, and the ways we engage with representations and texts as educational environments. Digital technologies have enabled the rise of new forms of art and entertainment predicated on the possibility of interactive educational environments that often synchronize with the participants' movements or interventions, epistemological interests, and aesthetic desires. Digital culture has become the means for enacting forms of public pedagogy through which we learn to read and engage others and the world around us. The way in which the attention of public spectatorship is triggered by the educational potential of digital media environments and the kind of engagement that is solicited in the way we decode and respond to its representations seems to have changed likewise due to the proliferation of a digital culture: Nowadays even visitors to traditional institutions that perform a public pedagogy like museums are asked to *do* as much as to look and listen and read and to *experience* as much as to interpret and reflect on objects and texts.

Digital technologies have transformed cultural perceptions of learning and what it means to be literate. An important cultural phenomenon, the digital game, is as yet insufficiently understood as an “educational environment.” New media techniques mobilize audiovisual simulations and kinesthetic representations to teach by enveloping the user in digital educational environments. Recent digital communication channels such as email, the internet, video conferencing, and instant messaging have introduced the possibility of real time involvement of the audience in otherwise unidirectional forms of cultural mediation and information dissemination and have given rise to new forms of representation like multi-user online games, in which the participants are co-creators of fictional gaming worlds. New concepts such as *interactivity* and *immersion* have attempted to describe the nature of human perception and cognitive participation inaugurated by the technological innovations of digital media. But these concepts have been as elusive and problematic as they are suggestive in attempting to explain the phenomenology of user responses; therefore, their usefulness for understanding the effects of our engagement with digital media as a form of learning and literacy has been limited.

For example, the term *interactivity* was initially used with regard to computer interfaces that allowed for user input and control while running a program (in contrast to computers, which process preloaded data without interruption). The concept of *interactivity* in fact applies to all uses of modern human computer interfaces and has very little analytical value for understanding the effects of technology on the forms and structure of our cognitive and affective responses: how we decode representations within the medium, what we learn from them, and the ways our learning is affected. *Interactivity* suggests the possibility of an equal exchange between a digital interface, its programmed textual representations, and the user; whereas, many so-called “interactive media objects” merely allow the user to choose between several pre-determined paths or react to the movements of the cursor, without giving genuine control over the form or content of the digital domain. On the other hand, proponents a theory of *interactivity* have presumed that reading a novel or viewing of a painting or film is a passive learning experience—a form of spectatorship and not interaction. As theorists of reading response have pointed out, interactions with traditional narrative could not function semiotically without the active imaginative and cognitive “construction” of a mental text by the reader in the role of meaning maker. So, far from being the most distinctive feature of digital technology, the theory of *interactivity* amounts to very little insofar as it allows us to understand the unique complexity of the educational effects of digital technology upon us as literate beings and how we read *the* medium read *in* the medium.

The same kind of skepticism has been voiced with regard to the concept of *immersion*. Embodied forms of learning and entertainment like flight simulators, digital games, IMAX films, or

Computer Assisted Virtual Environments may give the spectator the feeling of *being in* the image and may exceed traditional media in terms of sensorial impact. Yet when one takes a closer look at the novelty of these new forms of digital representation and the genres they have invented, the impact of digital technologies appears to be not so radical after all, even though it may be technologically revolutionary. Older forms of commercial amusement in the nineteenth and early twentieth centuries, like circuses, panoramas, magic lantern shows, and dramatic spectacles, relied on the same sensorial immersion of the participant audience and forms of reading. It would be too hasty, however, to conclude that forms of representation used by digital and electronic communication technologies have made no difference in the way we learn to interpret and understand how to relate to real world phenomena and to each other. When considering the large scale effects of digital media on us locally and globally as educational environments, there has been a cultural transformation in the ways we have come to redefine learning and literacy. Many small shifts in our experience of digital representations and media have, in their cumulative combination, amounted to a qualitative transformation of the experiential field of learning and literacy. This research area is still in its infancy. Often accounts of the educational, cultural consequences of digital technologies as forms of learning and literacy are based on what are believed to be new media's inherent possibilities and future promise rather than on analysis of actual practices.

The heading "digital game" comprises all kinds of video games: p.c. games, console games, arcade games, games that are played offline or online, single-player, and multi-player games. Digital games are highly interesting research objects for several reasons. The strong cultural reactions evoked by new media in general are evoked even more vehemently by digital games, as is evident in the recent discussions of their supposed stimulation of aggressive behavior. Digital games use very sophisticated techniques for enhancing both the player's agency and sense of immersion and thereby exemplify new media culture's structures of engagement on the level of individual game-play. On the level of the culture as a whole, digital games are both an exponent and a vehicle of cultural transformation. Not only do they form a rapidly growing part of the popular culture industry, they also instigate transformations in other cultural domains such as education. Played in a multi-player fashion, online digital games engender new forms of social relationships and new forms of shared participation in cultural literacy and modes of learning. As games are used for instructional purposes in schools, industry, and the army or air force for training purposes, the playing of games is no longer constricted to a sphere outside normal adult life but forms part of the "serious" world of production and consumption, knowledge, and education.

This suggests that digital technologies may have changed the characteristics and cultural significance of learning and what it means to be literate—not to mention the nature of play itself. This significance may be broader than the acquisition of cognitive skills. Through the act of play, computer games prepare and "train" the general public for a "culture of real virtuality" in which digital literacy skills for decoding and understanding media simulations in our environment and knowledge of how to relate to them as public forms of learning or public pedagogy are required. Digital games constitute a strategic research site because they exemplify the transformations in perception and participation that are characteristic of the digital culture of learning and literacy. However, what these transformations are seen to consist of depends on what aspects of gaming are foregrounded and with what non-digital, cultural phenomena digital games are compared.

Digital media technology has transformed the nature of toys, games, and playing, and the way in which players interact with and participate in them. The increasing technological sophis-

tication of toys has changed the way in which we play and what we play, and the way in which toys, games, and play have been valued in general since the late eighteenth century. This historical line intersects with historical processes like urbanization, industrialization, and the birth of various child-related sciences. Against this historical background, the varied and rich tradition of reflection on the cultural and social meaning and significance of games and playing has to be surveyed in order to be able to consider how *digital* technology has changed what we play and how we look upon play. Extant theories of games and playing based on non-digital games are still useful when investigating digital games. Because digital games combine an innovation in the world of games with an innovation in the world of media technology, they do not only challenge current theories of the social and cultural significance of games and playing, but also prevailing theories of technology. What makes the participation and interaction in playing a digital game different from that in a non-digital game? And what is the role of technology in shaping this difference?

Digital games have changed tremendously since their initial introduction in the fifties. They've become more and more complex, popular, and contested. To illustrate this, the so-called "classic" digital games can be compared with contemporary digital games. Questions to consider are: What has changed in the scope of the fifty years since we know digital games?; How do players participate and interact with a basic, black-and-white game such as *Pong* (1972) compared to a full-color, highly complex, narrative-motivated, irony-laden, hours-consuming game such as *Grand Theft Auto Vice City* (2003)?; And how have the cultural appreciation and position of digital games shifted during the last decades? One of the central changes that is taking place, for example, concerns the way in which digital games are interlaced with institutions such as the army, education, museums, policy making, commerce, and industry. It is clear that there is a growing tendency to use the complex technology used for creating very realistic, immersive, and engaging game worlds outside the domain of entertainment. Different disciplinary approaches to digital games have erupted recently in artificial intelligence, cognitive psychology, media studies, philosophy, and critical theory, for example. What are the effects of this growing use of game-based simulations outside the world of entertainment, e.g., as a training facility or as a new way of producing knowledge or goods, on the valuation and place of digital games in culture and society?

The digital game "interface" encompassing the technology, user, and the socio-cultural milieu of both human and machine, as the performative site of game-play that enacts a public pedagogy through its means of educational and cultural transformation. Comparing forms of user engagement with digital games and other forms of textual, aural, haptic, and visual representation—e.g., participation and spectatorship with cultural objects such as books, paintings, music, and cinema—can reveal the complex phenomenological structure of user participation and perception to analyze and understand the way players' engagement with digital games is structured as a digitally mediated form of learning and literacy. The interface is the *sociotechnical site* imbibing the intricate and complex relations between the social and the technological fields of the players' experience. When the concept interface is not limited to the hardware and software interfaces but taken to include the player and the (social) environment in which the game is situated as well, it constitutes an outstanding subject matter to evaluate the theoretical perspectives used in the study. Constructivist theories of technology, in so far as they elucidate the engagement of the player with digital gaming technologies, examine technical tools in their concrete materiality and actual use, foregrounding the ways in which they transform actions and goals and are themselves transformed in practice. Any analysis must seek to complement those

conceptions of the effects of digital technology with analyses of the cognitive constitution of user responses that position the spectator in relation to internal textual or codic mechanisms of digital games and the interaction between these textual structures, the technological objects that represent them, and the social context. Concepts from phenomenology and models from semiotics and poststructuralism allow us to foreground the analysis on the intentionality and embodiment of the subject and the role technological mediation plays in the relations therein.

A focus on the *perceptual* aspects of digital games is tantamount to an analysis of the relation between immersion and agency in the construction of the game-space, elucidating the cultural transformations at stake when comparing digital games with earlier forms of (audio)visual representation and spectatorship, such as perspective painting and cinema. Investigating the complex phenomenological structure of participation and perception in digital culture requires us to focus on the spatial dimension of new media objects such as digital games. While spatiality has been the subject of much speculation and criticism in new media theory, little attention has been given to the complexity of its actual experience and its conception by embodied spectators who are using digital media apparatus as a form of literacy. The issue of content and structure within digital spectatorship and participation is far from resolved. It is expressed by the predominance of two accounts of the cultural significance of digital space that seem to oppose and to exclude each other. The first holds that, in comparison with more traditional spatial representations such as perspective painting and cinema, the space of digital media invites a sense of total absorption, as it positions the player/spectator *in* the space of representation and requires participant attention and activity *within* the space of the image to such a degree that the player/spectator is completely immersed in the virtual space and oblivious of the real world outside. The second account emphasizes the spectator's distance and control. Where traditional spatial representation relied on the willingness of the spectator to conform to a constructed point of view, spatial representation in digital culture allows the spectator the freedom to act, to move around, to make choices, and to manipulate or even construct the spectatorial positions suggested by the representation. Both accounts are too one-sided. Playing digital games seems to rely on the tensions and exchanges between the interface and user freedom to move within it.

New media theorists still show a tendency to overlook this complex phenomenological structuring of spectatorship because they focus on the virtual reality experience (VR). VR seems to promise that the virtual and the real could become one and that the illusion of immersion could be complete. Thereby, the material presence of the visible screen and its function to separate virtual from physical space would tend to lose its cultural significance. The continuing popularity of screen-based games shows that the opposite might be true. In spite of the technological possibilities to develop interfaces that go beyond the screen, digital game culture is still a "screen culture." In digital games, the visual acknowledgement of the screen has even come to demand a pivotal role. This recognition allows us to trace both continuities and discontinuities between "analog" and digital media culture as the haptic elements of touch screens or haptic simulations (e.g., Nintendo *DS*, *Wii*, Sony *PSP*) are increasing sought after. Thus, while the experience of space by the film spectator is produced largely *in spite of* the spectator's reflection on the materiality of the screen, the unreality of the film, and the active motor agency in relation to what is shown on the screen, the experience of space in digital games is produced *through* this active, embodied, and reflective position outside of the image. The spectator engages with the game space by moving an "avatar," by handling the virtual camera, by manipulating items, and by attending and reacting to two-dimensional displays onscreen. Each of these means immerses the spectator only on the condition of his or her active and deliberate participation of the visual



interface to the bodily and sensorial experience of digital space by the flesh-and-blood spectator in relation to the developer's model addressee.

The *social* aspects of digital gaming relate to the construction of new types of shared cultural participation and communality. New media not only transform old media and already existing practices but also the users and subjects of these media and practices. New media certainly have changed means and practices of gaming in several respects, but most of all they have transformed the social setting and the physical environment in which game playing used to take place and have introduced new social practices and forms of game playing. Whereas in earlier offline computer games the human adversary had been replaced by the computer's "artificial intelligence," online computer games have replaced the direct, face-to-face contact with fellow players by electronically mediated communication through a global network.

Much has been written about the opportunities electronic communication media have provided for experiments with virtual identities and social life. In online gaming environments, players can literally hide their identities behind the mask of the avatar by assuming an identity that differs from their real-world persona in significant respects like gender, age, ethnicity, and social status. There is a growing body of research on online environments as places, favored especially by adolescents, to experiment with social identities: how online computer games supplement the "real" social lives of their players; players' identifications with online personae; changes in players' social and communicative skills and behaviors in online gaming environments; players' problem solving skills and technical knowledge acquisition (e.g., programming skills); players' sensitivity to cosmologies, ontologies, belief systems, languages, rules, or habits that are markedly different from those rooted in their own cultural and social morays. Some gaming individuals or communities have been observed "from within" virtual environments to gauge the differences between the politics of online identity construction and those acted out in everyday life. Ethnographic research on internet based communities offers the researcher alternative means and sources like archived discussions of chatrooms, newsgroups, and discussion lists, as well as logbooks and, of course, email connections. Research dealing with online gaming practices has already demonstrated the usefulness and reliability of these and similar sources. A central role has been assigned to the relation of the interface to the bodily and sensorial experience of digital space by the flesh-and-blood spectator.

Current theories and methodologies in the social sciences and humanities have not yet developed adequate categories to describe, analyze, and interpret new media objects like digital games. Not only do digital games combine several media and involve all kinds of bodily and sensorial experiences, but they are events rather than objects, as they are not fixed once and for all, but change materially as a result of the interventions of their recipients, who may either act alone or in a social exchange with other players. The difficulty of intellectually grasping new media objects like digital games is exemplified in the recent debate around the narrative structure of games. Whereas the "narratologist" argument is that digital games can be analyzed in narrative terms, the "ludologist" argument claims that the crux of a game is the exercise of a range of cognitive, imaginative, and sensomotor skills, either for its own sake or in order to achieve a goal. An analysis of the digital game as a learning medium has to take this debate into account, and foreground other theoretical perspectives that in combination may allow for a deeper understanding of the ways in which players engage with and thereby modify the digital play. To account for the cultural impact of digital games as a virtual learning environment requires a new theoretical framework and vocabulary rooted in empirical research that can be used to construct a matrix capable of systematically representing cognitive and affective responses characteristic of

user engagement with the new media interface of the digital game. Its intellectual and scientific importance potential lies in the examination of user engagement with a new cultural phenomenon, the digital game, to understand the transformations regarding learning and what it means to be literate.

