Chapter One

Introduction

A Few Words about Interactivity

Greg M. Smith

The Seduction of the Potential

Multimedia, hypermedia, and CD-ROMs all offer the potential to reshape storytelling—or so we are told. New media will someday allow us to navigate in a virtual story world, to choose what events we are interested in, and to alter the course of those events. Such new texts will transform what might be called the “reader” or “spectator” into an “interactive player” who controls the flow and direction of the text. Instead of being passive recipients of stories, we will be cocreators and participants in the narratives of the future, which will allow us to “travel” to new and compelling virtual worlds full of choice. “You ain’t seen nothing yet,” we are promised.

Critics writing about new technology have tended to emphasize the vast “potential” of hypermedia and multimedia. All too often, however, the realities of actual CD-ROMs fall short of the utopian visions promised by such writing. A CD-ROM praised for its “virtual reality” can be difficult to install, slow to run, and frustrating to navigate. If we confuse the promises of a new medium with the pitfalls and payoffs of actual texts, it becomes difficult to see exactly what a new medium (such as the CD-ROM) really does.

Their technological drawbacks notwithstanding, CD-ROMs today provide fascinating experiences. Without being grounded in actual texts and/or specific reception contexts, however, CD-ROM criticism can easily miss what is fascinating about these particular CD-ROMs. Without being anchored in specific examples, critics can fall into the
trap of echoing the self-promoting rhetoric of CD-ROM developers.

On a Silver Platter asserts that multimedia and CD-ROMs are actual media and are no longer merely potential media. We need no longer spend the bulk of our time speculating on what forms these media will take, since interesting examples now exist. We should recognize that there are complex CD-ROMs out there that are just as worthy of analysis as films or literary texts. We need to acknowledge that these multimedia texts are being integrated into real people’s lives in ways that deserve to be studied. This anthology is intended to announce a kind of “coming of age” of CD-ROMs as a commercially, socially, and aesthetically significant medium worthy of close critical attention by media scholars.

When academics do examine particular new media texts and the contexts of their reception, they frequently examine somewhat avant-garde texts that seem to hold the keys to the radical potential of new media. For instance, Michael Joyce’s hypertext Afternoon, a story has received more scholarly attention than the blockbuster CD-ROM Doom, although only a fraction of new media users have heard of Joyce’s innovative text. By scrutinizing relatively noncommercial multimedia art texts, academics continue to emphasize that these new media are more interesting for their potential capacities. To this way of thinking, avant-garde texts are more likely to give us a glimpse of the medium’s future promise than more commercial products would.

Scholars have also given significant attention to the online world of the Internet, particularly the interactivity of chat rooms, IRCs (Internet relay chats), and MUDs (multiple user dungeons/domains). Sherry Turkle’s (1995) and Allucquere Rosanne Stone’s (1995) fascinating ethnographic inquiries into the social world of the Internet have called into question basic concepts of personal identity. In a chat room we can explore what it might be like to occupy another subjectivity by creating a range of alternate electronic selves, destabilizing the notion of a unified personality. Such interactions allow us to ponder the meaning of race, gender, and sexual orientation in a virtual environment. Such experiences offer the promise of at least temporarily escaping the “meat” of one’s own body (to use William Gibson’s term from Neuromancer) in favor of a less constraining realm of freedom. Turkle’s and Stone’s work reports (and, at times, criticizes) chat room participants’ optimism about the possibility of radically destabilizing age-old gender and race categories. Although Stone and Turkle at times criticize and qualify this optimism, they are obviously drawn to the subversive potential this new realm presents.

What seems to be neglected between the avant-garde and the online is the multimedia form that has come to be the most commercially successful: the CD-ROM. Quake or Wing Commander may not offer the radical restructuring of narrative form that Afternoon does or the possibility for identity-reconceptualizing masquerade that online chat rooms do. However, this relative lack of subversive potential does not make them insignificant. In fact, CD-ROMs exert a powerful influence on the way we think about new media.

Our understanding of multimedia is shaped by exaggerated hype, of course, but it is also formed during our interactions with actual CD-ROMs. We come to understand what “interactivity” is through our experiences with these texts. The widespread use of CD-ROMs, at a time when new media are being defined, makes them significant.

On a Silver Platter examines particular CD-ROM texts and the contexts of their reception. Particularity is the watchword for this collection. Through this particularity, the authors hope to complicate the utopian discourses about new technologies, and make more grounded assertions about the present and future of the medium. I argue that close attention to encounters with such early texts can yield invaluable hints of what is to come. Since the future is an outgrowth of the present, particular attention to present multimedia can give much more insight into the future than broad prognostications about the medium’s potential.

My hope is that by engaging in criticism of current multimedia texts, media scholars can help define the future of these new media. Academic media studies tends to wait until long after a medium has become widely accepted before it gives the medium close critical attention (for example, film studies emerged in the 1960s and television studies in the 1980s). By neglecting to provide detailed criticism of new media texts, scholars pass up the opportunity to shape the future of media.

Just as encounters with popular texts can shape the future of a medium whose conventions are still being defined, so can criticism articulate understandings that are only implicitly voiced in the commercial sphere. Our definition of multimedia is shaped by publicity discourses and actual interactions with CD-ROMs, but it can also be affected by criticism that opens up new ways of thinking about the
medium. Media scholars should learn the lessons of their past and intervene early in the development and reception of multimedia by doing what they do best: analyzing texts and contexts with specificity and insight. On a Silver Platter presents scholarship that does exactly that.

The Betamax of the Nineties

A book about particular CD-ROMs runs the risk of becoming obsolete when the CD-ROMs are no longer in wide use. In fact, some have argued that CD-ROMs themselves are an endangered species. Although CD-ROM drives are now standard equipment on most new computers and CD-ROMs are the dominant multimedia format in sales, there are factors that seem to presage the death of the silver disc. Although the early advantage of the CD-ROM was its ability to store a seemingly enormous amount of data, the individual CD-ROM's memory capacity is now becoming too limited as the complexity of programs increases.

Already it feels like a single CD-ROM is not enough. As I eject and substitute individual discs while playing a five CD-ROM game, I am reminded of turning vinyl records over on my now-defunct turntable, and I can feel the imminent obsolescence of the new medium. The greater storage capacities of the DVD (digital video disc) may eventually allow it to replace the CD-ROM as the medium of choice. Or perhaps Internet CD-ROMs will gain superiority by providing the user with a basic platform, which then points him/her to the Net to access the full database (which the manufacturer can update without issuing new CD-ROMs).³

What if CD-ROMs do become obsolete? Even then, I believe that understanding them is crucial to understanding multimedia, because early attempts to work in a new medium have long-lasting effects on the later history of that medium. Historians investigating the early practice of cinema have discovered how these early films shaped the norms of the classical cinema. As early film practitioners experimented in making texts, they slowly built a set of conventions for how to shoot and edit a scene, and these conventions were internalized by audiences and filmmakers alike. The fundamental expectations for what a film is and how it tells its story were formed before 1917.

Although these pre-1917 films may seem outdated to modern audiences, they were important in shaping the subsequent development of the medium. Similarly, even if CD-ROMs become relics, they will still exert an influence on later interactive media, because it was with CD-ROMs that many of us got our first taste of computer "interactivity." During these early interactions with CD-ROMs, we are developing conventions for what interactivity is, and these conventions will undoubtedly shape the future of the medium.

A medium's potential does not exist somewhere in space waiting to be discovered. It is created through the practice of making marketable texts for a mass audience. Although the future of new media may seem to lie in more radically innovative texts, modern media history tells us that the broad understanding of a medium is formed through early widespread experiences of commercialized texts. Perhaps more than anywhere else, we learn what this new concept of interactivity is by playing/using actual CD-ROMs, and in new media, first impressions have a lasting bearing on later expectations.

Those who suggest that CD-ROMs are a relatively unimportant temporary solution while we wait for high-speed Internet access are making a fundamental error. They confuse the importance of delivery systems with the importance of development systems. Development systems are the tools used by software designers to create interactive texts. They include graphic rendering programs, animation software, sound design systems, and multimedia authoring programs such as Macromedia Director. Delivery systems, on the other hand, are the tools for getting the finished text to the consumer. Internet Web access is one such system, and CD-ROMs are another.

Even if future texts are no longer delivered on CD-ROM, the process of designing such interactive texts will strongly resemble the process of designing a CD-ROM. No one believes that HTML, the simple language for creating World Wide Web pages, is a sufficiently subtle format for creating intricate interactive texts such as Myst. Even if Myst's descendants are delivered to customers via high-speed Web connections, creating these texts will be more like designing a CD-ROM than designing a Web page. Designing CD-ROMs involves much more complex and expressive capabilities than are possible with HTML or Java, so the CD-ROM will continue to be the model for designing complex interactive texts, regardless of how those texts are delivered. Even if CD-ROMs as delivery systems decline, they will
continue to exert their influence for the foreseeable future as exemplars of complicated, nuanced interactive texts.

*Designed and Bounded*

The subject of this book, then, is defined less by the actual medium in question (the CD-ROM) than by the nature of the experiences the medium offers. Even if CD-ROMs as a physical medium vanish in the not-too-distant future, players/users will continue to play *Sim City, Command and Conquer*, or their descendants. How do we talk about the experiences CD-ROMs offer without linking them to a particular physical medium? If we will no longer play CD-ROMs, what will we be playing?

The experiences currently provided by CD-ROMs are quite different from the interactivity provided by online chat. First, the CD-ROM presents itself as a strongly designed object. People interact with *Doom* in order to experience the particular blend of violence and mayhem designed into the *Doom* universe. Like a film or television program, the CD-ROM has been authored and constructed to provide different audience members with similar experiences. Such CD-ROMs are designed by a few people to be experienced by many, and these few-to-many media bear the imprints of their creators. Although they are sometimes described as “virtual reality,” they are much more highly shaped by human intent than any real world. They have been authored to make the fictional world more interesting; the dull parts of reality have been left out. Such CD-ROMs are compelling not just because they present a realistically cohesive world but because that world has been shaped and designed to provide significant payoffs for our time investment.

Of course Internet chat rooms are purposefully designed too. They are established with the metaphor of four interior walls, and they promote a particular kind of interaction (simulated conversation through real-time typing). However, they are not strongly designed. People do not “visit” a chat room to experience a cleverly designed universe. They use chat rooms as neutral spaces in which to “meet” other people interested in similar topics. The appeal of a chat room is not in the “room” itself but in the discussions one has with people who share your interests. The room itself is not compelling, although the conversations one has in it may be.

The difference between a strongly designed object (like a CD-ROM) and a weakly designed object (like a chat room) is like the difference between a furnished house and an unfurnished one. When entering a furnished house, one reacts to the design and decorating of the space, which bear the imprint of the owner’s tastes. The furnishings convey what activities are expected in those rooms; clearly the bedroom is for sleeping and the dining room is for eating. When one enters an unfurnished house, one gets more of a sense of the possibilities of the space. A particular room might be used either as a bedroom or a dining room, and the tone of the house is only broadly defined by the architectural design. The pleasures of an unfurnished room lie in its possibilities; the pleasures of a furnished room reside in the sense of an already actualized design concept.

The furor over “interactivity” has often emphasized the “design-your-own” possibilities of future media. What fun it will be to create our own stories, bend narratives to our will, wield a creator’s power over a virtual world! And yet it is hard to imagine such do-it-yourself narration ever entirely supplanting the experience of a well-authored world, primarily because it’s just damn hard to create a compelling world. We go to strongly designed texts like CD-ROMs and movies and television programs because we want to experience a story/world that has been well-made for our consumption. We may enjoy holding up our end of an online conversation, but that also requires considerable mental and social effort. A large part of the lure of CD-ROM texts is the promise of experiencing a virtual world that is more interesting than we probably could design for ourselves. Just as inexpensive home video equipment did not destroy the Hollywood video market, just as the relative ease of writing on a word processor did not create a surge of new novelists, the ability to “roll your own” texts will not supplant the desire to experience a text that has already been well-made for you. In spite of the growth of other kinds of interactive experiences, there will always be a market for the strongly designed medium.

CD-ROMs share with films and novels this sense of being strongly designed. However, they significantly differ from those other media, which attempt to prescribe a sequence of narrative events. The distinc-
tion between the two is not a strong dichotomy between the older “linear” and the newer “nonlinear” media, as I will argue later in this introduction. Rather, I suggest that these media differ in the boundaries they establish for the player’s/viewer’s/reader’s interactions with the strongly designed medium.

I would like to describe “interactivity,” as it applies to strongly designed computer media such as CD-ROMs, in terms of boundaries. In many (but not all) cases, multimedia offers an interactivity that is less strongly bounded than that of books, films, videos, and so forth. The difference is not that one medium is interactive while the other is not. A more fruitful way of thinking is that interactivity among strongly designed media differs according to certain parameters. The next sections will focus on the parameters that define the experience of CD-ROM interactivity.

To talk about “boundaries” may seem like a strange way to discuss multimedia, since the hype over multimedia rarely mentions the constraints of the new medium. But according to theorist Rudolf Arnheim (1957), the boundaries and limits of a medium are as crucial to its definition as the medium’s potentials.

In film, for instance, the image cannot exceed a stable boundary: the size of the screen. This certainly is a limitation on what the film medium can and cannot do. For Arnheim, however, such limitations created a new parameter for aesthetic expression: offscreen space. Since the medium necessarily distinguishes between offscreen and onscreen space, the filmmaker can play with this parameter in aesthetically powerful ways. Horror filmmakers, for instance, can toy with our expectations of when the monster (lurking just outside the onscreen space) will appear. Arnheim emphasized that the potential for film to play this game of cat-and-mouse is made possible by the limitations of the medium.

Arnheim, however, did not emphasize the way a medium evolves through actual practice. He generally treated the film medium as a Platonic ideal whose potentials were waiting to be uncovered. While I wish to follow Arnheim’s instinct in showing the relationship between a medium’s boundaries and its capacities, I do not wish to duplicate his idealism of media characteristics. A young medium, as I asserted earlier, develops its “unique” properties as developers create new texts and readers interact with them. This means that the definitions of multimedia or hypermedia or strongly defined objects are not based solely on their aesthetic potentials. Instead, our definitions of new media are forged largely in the commercial sphere, where economic factors play an enormous part.

The form of interactivity that exists today is shaped by the desire to create CD-ROMs that encourage consumers to buy them, play them, and then buy more. This simple fact has a strong (though often ignored) effect on the kind of interactivity we experience in playing current CD-ROMs. Our understanding of interactivity is shaped as much by commercial forces as it is by the hypothetical aesthetic potential of the medium itself. The evolving definition of interactivity is shaped by social, economic, and aesthetic forces, and the following discussion seeks to tease out these forces so we can examine them more closely.

The Fantasy of Interactivity: Active Choice and Control

The word “interactive” is used so frequently to publicize CD-ROM products that it has become a defining characteristic of the medium. Yet this defining characteristic seems to have no central definition. “Interactivity” seems like the Supreme Court’s description of pornography: I know it when I see it. It is both a goal to which CD-ROMs aspire (and thus a description of the medium’s future) and a description of the present state of the medium. This term gains meaning as it is used and circulated. As more and different CD-ROMs appear on the market, they influence our understanding of just what interactivity is. It is a term defined by practice: through the interchanges among players buying and using CD-ROMs, mass media writers describing them, and designers creating them.

One project for the scholarly study of CD-ROMs is to propose potentially useful ways to conceptualize interactivity. The rest of this introduction attempts to enumerate some of the things that are meant by the word “interactive” as it applies to multimedia today. By becoming more specific about what interactivity means, I hope to de-mystify the term a bit. In some cases, the qualities we value as interactive are not particularly new, although commercial publicity tends to portray the new medium as groundbreaking. Specificity helps us
see the continuities between CD-ROMs and already existing media; vagueness encourages us to reiterate the hyperbolic advertising aimed at selling more “interactive” products.

It seems to be easier to describe what is not interactive. Interactivity, as structuralists would argue, is defined in opposition to other things, not in terms of any intrinsic qualities. Thus it is important to look at the kinds of media that CD-ROMs are clearly differentiated from.

CD-ROMs constantly position themselves as having qualities that you can’t find in the dominant media of our time: film and television. Selling this difference, whatever it is, becomes a way of creating a new market and providing it with product. It is against the social context of the dominant current media that we should begin to read the concept of interactivity.

The discourse of interactivity can be read as a criticism of the perceived shortcomings of film and television; CD-ROMs, it is implied, provide what those media cannot. Interactivity is obviously meant to be opposed to passive ways of receiving media, and so this term is part of a long discussion about the “passive” watcher of film and television. The concept of passive viewing suggests that you don’t have to do that much when you watch film/TV. You sit back in your recliner/theater seat and let the sea of images and sounds wash over you. The TV couch potato or the film viewer doesn’t have to do much except stay awake in order to keep up with what’s going on screen, according to this way of thinking. The movie or television program continues regardless of whether you are conscious and alert or dozing in your seat.

This understanding of the media is part of their appeal. If you want “mindless entertainment” at the end of a hard day’s work, then television, conceptualized as a passive form, can provide the goods. Similarly, much of the appeal of many current Hollywood blockbusters is the pleasure of letting the movie take you on a “roller-coaster ride.” You are strapped in and propelled through the narrative without much control over what will happen, which can provide thrills without requiring much activity on the viewer’s part.

Yet this understanding of popular film and television as essentially passive pleasures has negative ramifications for those media. In a culture that values action, a passive art form is necessarily given lesser status. Watching hours and hours of television is something that many of us do, but a passive conception of television makes it seem like a
guilty pleasure. We know that we really should be doing something, and since television watching is obviously “doing nothing,” it must be a waste of time.

Interactive CD-ROMs are clearly not television and film, understood in this way. They do not proceed if the user dozes in his/her chair. They require physical and mental action from the viewer in order for the CD-ROM to proceed. Unlike film and television texts, most CD-ROM games come to a standstill if the player falls asleep. They require constant participation by the player, either at blitzkrieg speed (as in shoot-em-up games such as Quake) or at a more deliberative pace (as in Zork and its progeny).

Although the physical action required for most games is minimal (moving a mouse or a joystick), it is significant compared to the couch potato’s inertia. The couch potato’s lack of physical activity is easily equated with his/her lack of mental activity, causing this figure to be vilified. The fantasy of interactivity in CD-ROMs positions the player as more mentally active than a couch potato, and the fact that the mouse/joystick user is more physically active echoes this assertion. Even the slightest degree of added movement that comes with using CD-ROMs can be read as a signal that we are progressing away from the couch potato syndrome. But if one steps aside from these rhetorical shadings, just how different is using a computer mouse from using a TV remote? The concept of interactivity emphasizes the distinction between mouse clicking and remote clicking, instead of noting the possible continuities between the two.

Another significant context for understanding CD-ROM interactivity is the discourse of “control” and the mass media. Widespread discussions of the effects of television violence on children, subliminal advertising, and media-related stalkings are predicated on the belief that television can influence behavior, often toward the antisocial. In these discussions television is a medium that is outside our control at the very least, and at most a medium that controls people, particularly the unstable or the gullible.

Interactive multimedia revels in the fact that you the user are in control. You can travel to any virtual space you want on the CD-ROM. You can stay there as long as you want, doing whatever you choose to do, according to the ideal conceptualization of CD-ROMs. You are behind the controls of Microsoft Flight Simulator, and so your commands propel the CD-ROM. In Sim City you have the godlike powers
to create natural disasters and wipe cities off the map. CD-ROM games often offer the fantasy of extending our control to technology that far exceeds most of our real grasps: jumbo jets, interstellar cruisers, and laser rifles. They can offer a simulated feel for what it must be like to have control over a superbly trained body, such as a black belt karate fighter. While television can only offer control of what stations to watch, the CD-ROM promises the fantasy of control over an entire world.

Such fantasies call upon central ideological values in the hypercapitalist society, such as "choice." Having a "choice" is perceived as necessarily better, allowing us to exercise our freedoms. The concept of democracy enshrines choice as a basic principle, and capitalism has refined this rhetoric to make choice a fundamental principle of business. Markets should be relatively "free" because this will encourage more competition and therefore more choices for the consumer (and more choice is better). Choice is such a central value in modern America that the government rejected a national health plan largely because of an argument that it might limit Americans' choice of which doctor to see.

Commercial media also use the rhetoric of choice to sell their wares. Cable television, for instance, rose to prominence largely based on this rhetoric: more channels, more choices, therefore better television. The fantasy of five hundred possible channels offering five hundred different options seems to be the current goal of cable television's pursuit of choice. Yet CD-ROMs differentiate themselves from television by emphasizing choice. Television offers only the choice among different channels, but the activity remains the same: passive watching. Television may offer you "fifty-seven channels" but, as Bruce Springsteen sang, often the viewer finds there's "nothing on." Although cable systems emphasize the number of choices they present to viewers, CD-ROMs activate an implicit criticism of this kind of choice as being too limited, too monotonous.

The fantasy of interactivity offers a choice of different kinds of activities, not just one (watching). Interactive players can run, leap, punch, drive, fly, shoot, and fuck within the virtual worlds of the CD-ROM. Players have choices about where they travel within those worlds as well as choices about what they do when they get there. But there is a bit of slippage in this conception of the CD-ROM player's activity. It is our emissary to the virtual world who runs, leaps, punches, and so on; we the actual players are only clicking a mouse or moving a joystick.

The concept of interactivity, applied to current CD-ROMs, blurs these distinctions, emphasizing the range of choices presented to our computer avatars instead of admitting how few choices of activity they present to our bodies. Technological optimists can do away with such quibbles by saying that the mouse and the joystick are only temporary solutions that will be supplanted by true virtual reality gear. The hyperbolic rhetoric of interactivity, tied into the ideology of choice, makes it all too easy to substitute a possible conception of the future for a description of current CD-ROMs.

Although the description of film and television as essentially passive media still has great power in social discourse, in academic circles this conception has been overturned by decades of writing by media studies scholars. There are no such things as passive media, cultural studies scholars assert. The process of making meaning is an active one. Texts are not containers full of predetermined messages; instead they require us to complete the cues provided by the film/television programs, so that we make meanings for ourselves.

Ideology enables us to make some of these meanings. Based on a few cues given by a commercial (a smiling baby), we are able to summon a whole host of ideological labels (innocence, helplessness, etc.) to apply to this image. In this sense, making meaning is always active. Similarly, the structure of narrative (particularly classical narration) encourages our mental activity. By encouraging us to keep asking, "What's going to happen next?" classical narration creates expectations that we keep revising as we receive new information. When a beautiful young woman in a horror movie goes to take a late-night shower, we expect the worst to happen to her (based on our previous genre experiences), and a filmmaker can use our hypothesis to create tension. This image of the spectator hypothesizing, observing, and revising portrays the film and television viewing process as much more active than outward appearances might lead us to believe.6

Reader response theorists and scholars of fan behavior have emphasized the enormous range of meanings that actual viewers can assign to texts and the many uses they can make of a popular culture text. We are learning that fans can do many different things with a film or television text rather than just watch it from beginning to end,
particularly if they take advantage of the capabilities of the videocassette player. People watch videos and turn them off before the ending. They rewind horror videos and watch the gory sections over and over again. They tape The Simpsons and watch portions in slow motion to look for jokes hidden among the images. They turn the sound down on The Wizard of Oz and play Pink Floyd’s Dark Side of the Moon as a substitute sound track. They intercut Kirk’s and Spock’s lines from Star Trek to create a homosexual romantic scene. By learning more about what fans do with texts, we academics are learning just how “interactive” mainstream media can be. Not only do people “actively” make meaning from texts, but they also interact with texts in quite complicated ways to make new, reshaped conglomerates.

If almost all media require “active” processing and can be used “interactively,” how can it possibly make sense to talk about “interactivity” as a defining quality of any one medium? If a person with two VCRs, some cable, and a stack of porno and Star Trek tapes can create erotic gay space fantasies, how is that so different from using Steven Spielberg’s Director’s Chair, a CD-ROM that lets you edit together clips from raw movie footage? How can we talk about the “interactivity” of a medium, considering the range of fan interactions?

It is instructive, I think, to differentiate between the things people do with texts and the practices a medium seems to call for. When you watch network television you are clearly encouraged to keep watching the same channel, lured away from the remote control button by never-ending promises of what’s “coming up next.” Similarly, a film in a theater clearly announces how you should watch it: by staying in your seat without smoking or talking. These messages about how to watch television or films communicate much to society about the nature of those media, and these messages powerfully shape how we conceptualize those media. Film announces that it should be watched with a certain physical/verbal passivity, which shapes the way we think about the movies.

So many of our actual media practices violate these metamessages that one is tempted to downplay their importance. After all, people do talk and move around in a movie theater, and people do channel surf through their cable systems. And yet in our social discourse about the nature of movies or television or CD-ROMs, these messages about what interactions the text seems to encourage are important. When I discuss with my students the practice of editing together a Spock and Kirk romance, inevitably one of them will say something like, “But the creators never intended that to happen.” And that student is quite right. When we read a text, we also gain a sense of how we’re “intended” to read that text, and undoubtedly certain fan interactions with Star Trek texts violate those suggestions of what we’re “supposed” to do with the episodes. At the metalevel it’s clear that we’re “supposed” to watch a horror video from beginning to end, although in practice actual viewers can fast-forward to the “good parts.”

The distinction between what actual viewers do with texts and what the text seems to call for them to do is not a hard and fast distinction, since it is necessarily changing. If enough people engage in a media practice, that activity can become an institutionalized assumption that guides both viewers and producers. For instance, the practice of zipping through commercials has become so common that commercial producers have shifted strategies to encourage viewers to stop zipping and watch their particular commercial. The producers of The Simpsons, knowing that fans use slow motion to watch tapes, hide jokes in the program’s minutiae for those viewers’ pleasure. The nature of the activity that a medium calls for is constantly evolving, but that does not mean that we cannot talk about those activities in productive ways. We can only talk about film and CD-ROMs and interactivity and passivity at a particular point in time.

At this point in time, CD-ROM interactivity is defined both by ideological fantasies of control, choice, and activity and by actual experiences of particular CD-ROMs. A central assertion in this volume is that we can best understand the medium by looking at individual instances, because it is through individual encounters with CD-ROMs that the fantasies and the realities of the medium collide (or interact, if you will). Slowly, piece by piece, close attention to individual CD-ROMs gives us a fuller sense of what interactivity is, and this book starts along this long process.

**Interactivity with Objects**

In the meantime, however, we still need an initial framework to discuss interactivity that is not too strongly tied to commercial hype or too steeped in unself-conscious ideology. What, then, is interactivity in CD-ROMs today? It is clearly not the passivity, lack of control, and
lack of choice that we associate with the "intended" way of watching film and television. Nor is it merely the fantasies of choice, control, and activity that the industry's public relations has emphasized.

Let us begin with one of the more influential early definitions of the concept: the version of interactivity that guided development at MIT's Media Lab (as articulated by Andrew Lippman). According to Lippman, interactivity is "mutual and simultaneous activity on the part of both participants, usually working toward some goal, but not necessarily" (in Brand 1987, 46). What Lippman envisioned as the model for interactivity was the conversation: two people, each one processing the words of the conversation at the same time, each able to interrupt the other, yet both proceeding in a mutually agreed on direction.

This means that it is possible to discuss the "thread" of the interaction, an organizing principle that shapes the direction of conversation, without necessarily specifying a predetermined goal. Even the participants themselves cannot predict the outcome of a conversation, although conversation is an organized give-and-take, not a random collection of non sequiturs. The "mutual, simultaneous" activities of both participants in a conversation make the conversation's actual course impossible to chart. Similarly, the actual "thread" of the interactions between a software program and an individual user should be impossible to predict.

To his credit, Lippman did not think of conversation as a stilted exercise in turn-taking, where two people alternate expressing themselves in complete sentences. Lippman is clear that a real conversation involves interruptions, and so interactivity involves more than just alternation between participants. While his definition has much to his advantage, there is a flaw at its core. When Lippman envisioned the conversation as a model, he thought of a particularly rarefied form of conversation. Conversation to Lippman necessarily assumes that both parties find the conversation interesting. By placing the metaphor of "conversation" at the center of his definition, Lippman relies on a fantasy of what conversation is: a rich and free interchange of engaged minds.

However, real-life conversations only infrequently live up to this standard. Real conversations all too frequently veer into directions that we do not like and cannot control. When my Aunt Sophie starts discussing the details of her lumbago, I can't run screaming from the room without causing a major family incident. Real conversations are often dominated by the mundane but unavoidable details of everyday living: who will pick up the children at school, or who should remember to bring home the tater tots from the grocery. In addition, real conversations occur within the structure of existing power and relational structures. Rarely do conversations occur between participants of equal power, and therefore one person often dominates a conversational topic, making the interaction rather one-sided. Conversations between me and my supervisors are limited by the power relations, which keep me from expressing my opinions of them freely. Lippman's valorization of conversation as a central model for interactive software ignores the all-too-real fact that we often seek out interactive games as a way of avoiding such conversation.

Part of the pleasure of playing a CD-ROM is that it is not at all like real conversation. If a CD-ROM interaction veers into territory I find too frustrating, I can shut down the program with no long-term social consequences. CD-ROM interaction promises pleasures that are usually far removed from the mundane. In general, I feel that I can control my movements within the virtual space of a CD-ROM—and when I can't control them, I usually find myself in interesting territory anyway. In real-life conversations, the opposite is all too often true. A real-life conversation is much less dependable than a good CD-ROM.

Lippman's model echoes the nostalgic valorization of "conversation" that circulates in criticisms of popular culture. In the good old days before television, we are told, families engaged in rich conversation with each other about all kinds of topics. Before that, the same argument could be made about the good old days before radio. Somewhere in our mythic past, there was such a thing as good conversation. But in all likelihood, conversation had the same capacity for boring us then as it does now. The fantasy of conversation that guides Lippman may be powerful, but it is only tenuously rooted in reality.

Although it is perhaps easier to conceptualize interactivity as modeled on interactions with other people, this intuitive fit may do more harm than good. Instead I assert that interactivity is better conceptualized as interaction with objects, not with people.

This notion may seem counterintuitive at the start, since our interactions with objects seem quite one-way. Throwing a rock seems more like an "action" than an interaction. But the objects in a CD-ROM are no ordinary objects. They operate under a basic principle for multi-
media design: any depicted object, whether an image of a person or a rock, is potentially capable of an enormous range of response to our actions. A rock thrown in the real world is propelled through the air toward a target. One might predict that if the rock is clicked on it will be hurled toward a target, but in multimedia you never know until you try it. A rock in a CD-ROM may respond to clicks with a giggle, an explosion, a fart, a trumpet fanfare, or a song-and-dance. CD-ROM designers are not bound by the technology to linking rocks to throwing; they can just as easily link rocks to rolls, or rocks to clocks.

Within the world of the designer, this capacity for response is made possible by what is called "object-oriented programming." Designers think of a person's interactions with the computer as a range of possible "events" that occur to "objects" the designer defines. The designer's job is to associate responses to events. If a user presses the escape key or clicks on a rock, those are events that call for responses by the program. Any response can be linked to any event. One could potentially link the help function to clicking on the rock or the rock-moving function to the escape key.

An important part of defining an object that is "mouse-able" is delimiting the object's logical boundaries. An object, logically defined to the program, need not be exactly the same as an object onscreen. One can make two logical objects (having two separate responses) out of what appears to be a single onscreen object (for instance, one can define a click on a sword handle and a click on the sword blade to provide two different responses). The fact that that area appears to be inhabited by a single onscreen object is not crucial. From a player's point of view, a CD-ROM can be inhabited by monsters and warriors; from a designer's point of view, it is composed of events and objects. When one defines a mouse-able object, one is really defining an area to be clicked on.

This way of thinking about programming fundamentally reshaped the structure of the CD-ROM's virtual space. In the real world, we expect that human agents are capable of a wide range of responses, but that objects have relatively limited responses to our actions. If I throw a rock I might hit a window or a police officer, but the rock won't make off-color suggestions or snicker at me. In the real world those capacities belong to humans alone.

What object-oriented programming does is to give objects and people/characters in a CD-ROM a kind of radical equality. There is no reason why CD-ROM people/characters should be able to snicker and objects should not. After all, both are nothing more than areas defined on the screen. It takes no more effort to make a CD-ROM rock snicker than it does to make a CD-ROM character snicker. In the world of the CD-ROM, "people" and "objects" are equally capable of responding.10

Lippman's discussion of interactivity as conversation makes sense if one assumes that only humans are capable of rich response. However, when you reconceptualize objects as being capable of initially unpredictable responses, this radically reshapes their possibilities for interactions.11 People in conversation can be undependable in creating a rich conversation; objects can be programmed to be quite dependable in their interactions.

Once we stop comparing interactivity to a conversation between people, we shift away from Lippman's dependence on both parties in the conversation doing "mutual and simultaneous activity." The CD-ROM player cannot necessarily tell if the computer is performing a task or sitting in a wait state, nor is the player particularly concerned with the computer's processes. What a player is concerned with is: what am I capable of doing to the objects onscreen and what can they do to me (or my emissary to the virtual world)? What matters is the interface, not the processing that goes on behind the scenes.

Three factors shape our interactions with CD-ROM objects: what the player can do to objects onscreen, how the objects respond, and whether the objects can initiate actions.

What can the player do to objects onscreen? The obvious answer, in most cases, is that all the player can do is click on objects. But many games translate the click into different virtual actions. Moving the mouse to a particular area on the screen can change the mouse's function from a gun to a grabber that can hold things to a specialized function (such as striking a flame when the mouse touches a match onscreen). Often these different mouse actions are given different mouse icons: a target for the "gun" function, a hand for the "grabber" function.

In the real world we tend to have a wide variety of options available. I can use my hand to grab, to slap, to tickle, and to wave. Even tools that have a seemingly straightforward purpose (such as a hammer) are not limited to their primary use. For instance, in the real world I can use a hammer as a paperweight. But in the CD-ROM world, our range of possible actions toward objects is quite limited.
You can usually use a match only to light a virtual fire, not to clean your virtual teeth. The quality of interactivity depends on the possible actions we can perform on objects.

What then can the object do to respond to our actions? As mentioned earlier, a CD-ROM object, unlike a real-world object, is potentially capable of an extraordinary range of responses. Out of these seemingly infinite responses, which one(s) actually comprise an object's reaction? Are they predictable (does the monster explode each time I fire at it?), or do they vary? How many possible responses does an object have?

What can these objects do to us (or our avatar) without our prompting? Can they initiate an interaction? Can they prompt us to make a response? Can a monster attack us, or do we have to seek it out? A shoot'em-up game like Duke Nukem depends on an enormous number of objects that initiate attacks on us. In a more leisurely game like Riven, objects rarely demand such immediate attention; instead, we have to search them out for interaction.

These three factors determine much about our interaction with the CD-ROM. Does the CD-ROM depend mostly on our finding the correct actions to drive the program (e.g., 7th Guest)? Does the CD-ROM's pleasure come largely from the interesting/idiomatic responses we get to our actions (the Living Books series)? Is the CD-ROM driven by actions initiated by the program, demanding our response (Duke Nukem)? The text then can set up a cyclical interaction: our action, the text's reaction, the text's instigating action, our reaction to it, and so forth. Or the text can de-emphasize one portion of the cycle. For instance, many CD-ROMs depend on the action-response cycle (you click, it responds), rather than initiating an action without our bidding. Due to the nature of multimedia, CD-ROMs sometimes switch among these different interactive modes, and the CD-ROM critic must be sensitive to such shifts.

**Interactivity with the Narration**

The initial unpredictability of CD-ROM objects is the first fundamental that shapes the quality of our interactions with CD-ROMs. The other fundamental interactive possibility is the ability to interact with the narration. Narration is the way the story (the narrative) is told. A particular story can be told with a variety of possible narrations. Two different stage productions of a play can present different narrational strategies in interpreting the same text. Different viewpoints, order of presenting events, tones, and emphases in narration make for a different experience of the story.

The possibility of interacting with the narration creates infinitely more complexity. Not only can the same story be told in different ways, but interactivity presents the added possibility of changing the story itself. Interactivity with the narration implies more than just reinterpreting the same narrative; it also brings the possibility of new and different story events. Interacting with the narration allows CD-ROMs to reshape the events that make up the story.

Interaction with the narration can take several forms in CD-ROMs. First, CD-ROMs can provide several different perspectives on the action. For the film and television director presenting a scene, the choice of which camera angles to use and what order to present them is a matter of controlling information to the audience. Do we get to see the ticking bomb under the table, or does the film withhold this information? How early in the scene should the audience discover the hidden bomb? Do we see one actor's frightened face but not another's? The director's/editor's/cinematographer's jobs are made up of many minute choices of perspective to present, and each choice has a bearing on what information an audience has and when they have it. The process of giving and withholding information (largely done through controlling perspective) can give the film or television program suspense, pathos, or surprise.

Interactivity of perspective in a CD-ROM seems to imply that we have a broad range of choices in viewing a scene. Ideally, it would seem, we should be able to "walk" freely through a scene, choosing what perspectives we find most interesting at the moment, somewhat like a museumgoer browsing through a statuary garden. (I refer the reader to Alison Trope's chapter for more discussion of the relationship between museums and CD-ROMs.) We should be able to look at the various characters/objects from many sides, and we even should be able to look under the table to check for hidden bombs. In actuality, the limitations of CD-ROM memory capabilities mean that we cannot see all possible perspectives on the action, or even all desirable perspectives. The CD-ROM designer, like the film director and editor, must choose which perspectives to allow the player to have. What
objects can we move all the way around? Can we look above, below, or inside it?

An added difficulty for the CD-ROM designer is that the player often expects to get a broad range of perspectives, particularly in more recent games. If we are given too few choices of perspective we feel that the viewpoints have been preselected for us (as in a film). When playing 7th Guest, you have no choice but to be whisked through the scenery by steadicam camera movements. The designer places boundaries on what we can spend time examining. However, if the designer gives too many possible “camera angles” on the action, he/she potentially sacrifices the narratively powerful option of withholding information from us. If the designer lets us see the bomb under the table, then he/she cannot dependably create a surprise explosion the way a film director can.

The range of viewpoints we are given, therefore, shapes our gameplay. If the CD-ROM “cuts to a close-up” of only those objects that will help us solve a puzzle, then we can be confident that most object close-ups will provide narratively significant information. This provides a different form of interactivity from a program that lets the player see a range of viewpoints, even those that contain no information crucial to puzzle solving. In such a CD-ROM, the attention to detail will be different, since one never knows which objects will be significant. The choice of which perspectives to offer the viewer may be based on the medium’s memory restrictions, but it also affects the way we interact with the virtual space.

A second form of narrational interactivity involves interacting with the series of events. By “event” I mean a story occurrence that has lasting, irreversible effects on the game: solving a puzzle, picking up an object that will be needed later in the game, killing a character, and destroying or building a structure. Simply picking up an object (a wooden stake, for instance) is not necessarily an event; however, picking up and carrying a wooden stake you will need later is a story event. Your capabilities as a player have changed, as you will discover if or when you encounter a vampire. An event changes the game’s status.

Narrational interactivity can allow us to choose which events will be important in our story and in which order we will witness those events. Early “interactive” print books offered the ability to choose which events made up a particular reading of a novel. Using a tree structure, the book presented a series of decisions for the reader to make, which influenced which events made up the story (“If you want Bill to call for help, go to page 45. If you want him to run away, go to page 61”). Interactivity with events at least opens up the possibility of choosing which events the story will comprise.

At present there are few commercial CD-ROMs that act on the early promise of tree-structure print narratives and hypertexts to allow different collections of events to make up the CD-ROM’s “story.” In most CD-ROM games, the player must witness/accomplish all narratively significant events. You must collect all the significant objects in order to escape the house, or you must successfully navigate all levels of play, or you must visit all important virtual sites. If you leave out any one of these narratively significant events, you cannot win the game (without the help of secret “cheat codes,” which allow knowledgeable players in some games to bypass the restrictions). The interactivity of events presented in commercial CD-ROM games tends to remain fairly limited, at least in comparison with other earlier interactive texts.

The fear seems to be that if designers did not force players to complete all the tasks, the players might miss some of the spaces and puzzles the designers worked so hard to create, and so they would not get their “full money’s worth” for the CD-ROM. However, if more CD-ROM games allowed us to select which events will make up our particular story (instead of requiring us to experience all narratively significant events), this might extend the playing life of the game. Rarely does a player revisit and replay a game such as Myst, which requires you to visit all the sites and solve all the puzzles before you “win.” Why should they? All the information in the CD-ROM has been exhausted. But if the game allowed us to choose among particular series of events leading to different outcomes, we might be more inclined to interact with the game again to experience a new and different set of story events.

The possibility to choose different narrative events was publicized as an early potential of interactive media, but this possibility seems to have fallen by the wayside as developers create CD-ROMs. The reason for this, clearly, is economic. There is no fiscal advantage to encouraging users to revisit a CD-ROM like 7th Guest. Commercial Web sites and television series encourage people to revisit them so they can continue to reach the consumer with their advertising messages. A
CD-ROM, however, is purchased once, and the producer receives no more money from the player who frequently revisits the disc than from one who does not. Therefore, the structure of interactivity currently dominant in commercial multimedia de-emphasizes an interactivity with events that might encourage revisiting the disc.

Economic factors, as mentioned earlier, are crucial in shaping our current conception of interactivity. However, we should not lose sight of the possibility for interactivity with events demonstrated in hypertexts and tree-structure books. New delivery systems may restructure the economics of the strongly designed object, and we need to remember the capacities that are neglected by the current economic system. If producers begin to put a metered charge on access time to a central game site, the economics would favor a kind of interactivity that encourages players to revisit the site over and over (such as an emphasis on interactivity with events). We need to recognize the way commercial forces shape our current understanding of interactivity so that we are not trapped into a single way of conceptualizing interactivity.

What today’s commercial CD-ROMs do offer instead is the ability to interact with narration concerning the sequence of events. If we are required to visit all the sites on a CD-ROM, at least we are able to visit them in an order of our own choosing. This differentiates multimedia products from film and television texts, which clearly specify the order in which we see and hear things.

On first impression this ability to rearrange the sequence of events seems to be one of the primary differentiations between film/television and CD-ROMs, with CD-ROMs providing almost unlimited freedom to perform actions in a player-determined order. However, CD-ROMs, like film and television, also restrict and set boundaries on the sequence of actions. CD-ROMs can place restrictions on the sequence, requiring us to do certain activities before we are able to do others. Perhaps players can function in a cave only after they have successfully obtained a torch, or maybe they can find a secret passageway only after they have read a book left by the owner.

Such events in CD-ROM games tend to be contingent but not chained. A film/television narrative chains together contingent events to create a seemingly airtight sequence. If a man wants to solve his wife’s murder, he must find the one-armed killer; to find the one-armed killer, he needs address information on amputees; to find this information, he must break into a hospital; and so on. Each of these events is contingent on previous events, and these contingencies are chained together so that any large failure jeopardizes the overall goal (to find a killer). In a CD-ROM there may be contingent events (you must find the torch before you can go in the cave), but failure to accomplish any one event does not necessarily bring the whole story to a halt. It merely prevents you from accomplishing the contingent event. There are usually plenty of things to do in the meantime: other sites to visit, other contingent events to accomplish.

The CD-ROM does not present infinite freedom to change the sequence of events. In fact, the restrictions that a CD-ROM places on your ability to change the event sequence are crucial to the quality of the interactivity. More restrictions tend to bind the narration toward a single story line, and fewer restrictions give a wider horizon of interactivity.

More interactivity is not necessarily a better idea. Restrictions create tension or give a sense of accomplishment. Part of the reason one feels pleasure when unlocking a particular puzzle in a CD-ROM is that you know it’s not easy. You know you had to accomplish several other tasks before you solved the puzzle, and these contingent events are necessary to provide a sense of achievement. Commercial CD-ROMs tend to balance the emotional payoffs of restricted, contingent events with the implied ability to influence the overall sequence of events.

CD-ROMs, then, present us with the possibility of interacting with the narration by changing perspectives or rearranging the sequence of events. In addition, interactivity with the narration involves the possibility of selecting different goals. In most CD-ROM games, the overall goal is specified for the player. In Phantasmagoria the player must stay alive and send the serial killer to his bloody grave. In Myst one must solve the mystery of what happened among Atrus, Sirrus, and Achenar. The player has no choice concerning what goal to pursue. There may be other mysteries to solve on Myst Island or other supernatural phenomena to investigate in Phantasmagoria, but the player will never get a chance to investigate them. The goal has been irrevocably set by the narration; there is no opportunity for us to interact and change that goal.

In this area of interactivity, CD-ROM games lag far behind other kinds of CD-ROM programs. For instance, the genealogy databases that Pamela Wilson investigates in her chapter allow the “player” to
investigate any number of questions. Such a database necessarily has to be open to a wide range of goals, since it is marketed to a broad audience seeking answers to many different genealogical mysteries. The goal for an interaction with a family history program is determined by the particular user. Although such CD-ROMs are not as flashy as the 3-D graphics and gore of *Diablo*, they are more interactive in the singular sense that they allow us a choice of goals.

CD-ROM games could learn from the interactivity in these other programs. Since CD-ROM games cannot duplicate the full complexity of a real world, they will never be able to provide an infinite story space with an unlimited number of story goals for us to investigate. However, allowing us to choose game goals may encourage players to revisit the virtual spaces. Knowing that other stories and other goals can be investigated on Myst Island might encourage me to return there. Just as amateur genealogists return to their CD-ROMs to pursue new goals, other CD-ROM players could be lured back to the games with the promise of pursuing alternate goals.

Once again, economic factors currently do not encourage this kind of interactivity, since there is no fiscal motivation to encourage viewers to revisit most CD-ROM games. The different economics of family history CD-ROMs encourages designers to emphasize a different kind of interactivity. Economics and utopian discourses interact to shape the ways designers create interactive discs.

*Interactivity: Overarching Factors*

In summary, the concept of interactivity may be broken down into two broad categories: interactivity with objects and interactivity with the narration. Interactivity with the narration allows us to change perspective, select and sequence events, and select goals. Interactivity with objects depends on what we can do to the objects, how they can respond, and what they can do to us.

These two sets of factors determine much of the nature of interactivity with a CD-ROM. Two other important, overarching factors affect the quality of both our interactivity with objects and our interactivity with the narration.

First is the number of options available to the player at any one time. As Lippman has noted, interactivity depends on the *impression* that we have an infinite series of choices available to us. This impression, for Lippman, is the difference between the selective and the interactive. In a selective game one has only a very limited sense of possibilities at any given time. For instance, early *Adventure*-type text-based games restricted the player to a few possible movements (up, down, right, left, forward, backward). Such games offered options, but in Lippman’s terms they were selective, not truly interactive. By this definition the “interactive” books that allowed us to choose one narrative path over another are selective and not interactive. Interactivity gives the impression that we have many possible options at any given time. Of course a CD-ROM cannot present a truly infinite array of options, but it does not have to. To feel interactive, in Lippman’s sense, a CD-ROM must only convince us that there *seem* to be infinite possibilities for the player’s actions.

I do not wish to continue Lippman’s labeling of certain programs as selective and others as interactive. The impression of infinite choices (as in many modern CD-ROM games) adds an interactive quality, but so does the ability to choose different plot events (as in interactive tree-structure books). To say that one is selective and one is interactive is too coarse a distinction. Instead we can say that they are interactive in different ways, that they emphasize different interactive factors. Discussing the specific forms of interaction helps us describe a text more precisely.

Most commercial CD-ROMs tend to give a sense of infinite choice by emphasizing our ability to interact with objects and (to a lesser extent) our ability to rearrange the sequence of events. As noted earlier, CD-ROMs often restrict our ability to change the sequence of events (in order to cause tension, provide a sense of accomplishment, etc.). They tend to counterbalance this restriction by allowing us to click on and interact with many objects, thus helping to give the game a sense of infinite possible options at any given time. The *total* number of possible combinations for clicking on objects or accomplishing events seems infinite, thus making more modern CD-ROM games seem more interactive than, say, a tree-structure novel. The multiple pathway novel has one kind of interactive advantage (the ability to choose different events), but it has less of the overarching impression that we have infinite options.

The other overarching factor that affects interactivity is the frequency of the interaction. Does the CD-ROM encourage fast-paced
interaction, or does it tend to evoke a slower interchange of actions? Thus far our discussion on interactivity has emphasized the kinds of interactions between player and CD-ROM. The frequency of those interactions can be just as important a factor in the quality of our interactive experience. Both Doom and Myst are highly interactive texts, but one of the primary differences between them is the pace of the interaction. Doom actually offers a relatively limited choice of action: basically we can move in various directions, and we can shoot at demons using different weapons. There is less of the sense of infinite possibilities for action at any one time. However, because the demons come at us so rapidly, forcing us to respond, the interaction between player and object is highly charged. The pace of the interaction helps boost Doom’s interactivity. Myst, on the opposite extreme, tends to evoke a slower pace of interaction. Because few objects in Myst demand our immediate response (as the demons in Doom do), we interact with objects less frequently. To compensate for this lack of quick pace, Myst emphasizes the sense of having almost infinite choices of what to do on these islands.

Using these concepts, one can begin to describe the nature of interactivity with a CD-ROM more precisely. Myst offers no choice of goal and makes certain events strongly contingent on others (particularly concerning solving the puzzles), giving us a limited capacity to change the sequence of events. It offers a fairly large (though far from infinite) range of perspectives on objects, and the slow pace evoked accentuates our ability to manipulate certain objects. Doom, like Myst, offers no choice of goal. Unlike Myst, however, it offers a relatively limited set of actions toward objects. It counterbalances this limitation by the fast pace of objects (demons) acting toward us, provoking a series of rapid responses by the player. Doom also offers a fairly large set of perspectives on objects, but because of the breakneck pace, the breadth of perspective is relegated to the background of our awareness.

This is by no means a complete description of the games. Certainly there are many factors that contribute to our overall experience of the two games: the violent nature of the action and the horrific monster imagery in Doom, the detailed realization of environments and the complexity of puzzles in Myst. Yet these factors do not contribute to the interactivity of these games, though they certainly are important to the pleasure of games. Although interactivity is praised as being the primary payoff of playing a CD-ROM, it is by no means the only pleasure, and in some cases may not even be the primary pleasure. The emotional/cognitive payoffs of playing a CD-ROM also come from its interweaving of themes, tones, moods, voice (ironic, authoritative, etc.), and style. These factors play a large part in the pleasure we gain from a CD-ROM, although they are not necessarily interactive qualities. The overwrought horror style of imagery in Phantasmagoria is crucial to the experience of the game, even though such stylistic concerns can be viewed independently of its interactive qualities. To explain a CD-ROM’s interactivity is not to explain the entire CD-ROM, although publicity emphasizes the medium’s interactivity.

Interactivity is only one quality (although an important one) that shapes our experience of multimedia. We as critics need to be able to separate the hype about interactivity from the structure of CD-ROM texts, recognizing what pleasures and frustrations come from interactivity and what experiences come from other factors. Learning how to describe the nature of these games’ interactivity is a useful starting place for the real work of analysis: examining the details of the text or of the particular interaction between a player and a CD-ROM text.

The Essays

The first essay opens up many of the issues that will be examined throughout this anthology. Janet Murray and Henry Jenkins examine several Star Trek CD-ROMs, discussing the tension between the interactive potential of the technology and the commercial desire to target a particular audience. Using a mixture of close textual analysis and ethnographic inquiry into a well-known fan community, Murray and Jenkins look at the differences among corporate-designed Star Trek products and other electronic fan practices (such as Trek chat rooms), and they argue over the forces that constrain and facilitate certain kinds of fan interactions.

My essay looks at another attempt to adapt a text with a devoted fan community into a successful CD-ROM. I use Monty Python and the Quest for the Holy Grail, the CD-ROM adaptation of the midnight movie classic Monty Python and the Holy Grail, as a case study to examine certain questions. How does one translate the linear medium
of film into the nonlinear medium of multimedia? Are there certain kinds of films that are more easily adaptable? If so, what qualities might make it easier to translate a film to CD-ROM?

After dealing with science fiction and parody adaptations, this anthology turns its attention to horror. Angela Ndalianis investigates how Phantasmagoria borrows from modern horror films. Beginning with current film theories on audience engagement with slasher films, Ndalianis discusses how these theories of interpretation should be adapted to discuss the more fluid interactions called for by nonlinear horror texts.

Brian Kelly and Scott Bukatman discuss how particular CD-ROMs reconfigure imagery of a different sort. Kelly and Bukatman discuss the fascination with predigital machinery that characterizes much of digital culture. In an essay whose topics range from windup toys to cutting-edge CD-ROMs, they restate the CD-ROM as machine, as an interface involving both bodies and memory.

With Ted Friedman’s essay, the anthology begins to examine how CD-ROMs transform our understanding of space and place. Friedman looks at how Civilization II encourages us to “think like a computer,” giving us a new perspective on narrative, time, and space that enables a map to become the hero of the story. But underlying this radical restructuring of textual interaction is a far-from-radical ideology of nationalism and imperialism, as Friedman details.

Alison Trope explores how various CD-ROM technologies have encouraged a reconceptualization of the idea of the museum. Since a CD-ROM museum is not limited by the physical constraints of walls, it can play with the notion of what a museum is. Discussing a range of traditional and nontraditional CD-ROM museums, Trope examines how these CD-ROMs negotiate the tension between the utopian possibilities of the technology and the constraints of working within the contexts of cultural institutions. Surveying museological discourses, she reminds us that CD-ROMs are always produced within an institutional context, not in a universe of pure aesthetic potential.

Pamela Wilson discusses how CD-ROM and Internet technologies are combining to change the concept of the archive. Examining the practice of family history, Wilson discovers a postmodern industry that combines major software producers (such as Broderbund) with amateur genealogists. Her ethnographic research shows how these technologies are being used to establish a new kind of “kinship,” making them important in the identity politics of a seemingly rootless era.

Vanessa Gack also uses an ethnographic approach to her research. She studies two children who are participating in an after-school program entitled the 5th Dimension, which includes a computer gaming environment. Closely examining the way these two children interact with games, with each other, and with other children, Gack discusses different strategies of mastery these children demonstrate. Situating the gaming environment within the already existing social environment, she looks at the ways computer games continue and alter social relations.

Finally, we come to the space that is most familiar to academics: the classroom. Leslie Jarmon, perhaps the first person to have a dissertation accepted in CD-ROM format, conveys her experiences in using CD-ROMs in academic environments. A strong advocate of the advantages of CD-ROM technology, Jarmon discusses how new technologies have revolutionized the way she teaches. Lisa Cartwright also shares her experiences in teaching a class that asked graduate students to submit their final scholarly project on hypermedia. For Cartwright, this experience was a decidedly mixed bag. Although several students produced interesting projects, Cartwright reminds us of the institutional factors that make teaching such classes difficult.

Altogether these essays demonstrate the advantages of sticking closely to CD-ROM texts, the contexts in which they are made, and the contexts in which they are used. This close attention gives a portrait of both the shortcomings and the potentials of CD-ROM technology today.

NOTES

1. For discussions of Afternoon, a story, see Moulthrop (1989) and Bolter (1991).

2. In addition, this delay causes media scholars to lose a great deal of primary information about the reception of texts when they must deal with archival material instead of available contemporary sources. This makes the history of the medium difficult to write because there are few trained scholars examining the phenomenon as it occurs.

3. Or perhaps CD-ROMs will follow the path taken by VHS videotape. Having gained a broad chunk of the market, VHS remains the dominant
videotape format in spite of numerous other challengers that provide better picture and sound. Perhaps CD-ROMs, like VHS, can provide enough satisfying functionality to keep consumers from feeling they need to purchase more hardware.

4. Similarly, Noé Carroll (1985) argues that much of the power of movies is attributable to the fact that they organize their imagery with "economy, legibility, and coherence . . . to a degree not found in everyday experience" (93). The movies have developed devices to focus our attention on narratively crucial phenomena, encouraging us to ignore tangential information, which gives the movies an urgency not found in most daily life.

5. Some CD-ROMs (such as Doom) allow the player to compete against other players online, blurring the straightforward distinction between online interactivity and strongly designed objects. However, I believe that it is more useful to consider online Doom play to be more like the experience of interactivity in a strongly designed object. What a player is experiencing is the thrill of hyperviolence designed into the Doom universe. The fact that you may be playing someone in an office across the country certainly adds to the overall experience of playing Doom, but it does not change the basic interactivity of the experience. You may have more (personally) at stake knowing that you're competing against an actual human being, but the game itself is not radically different. As far as the interactivity of Doom (and other online/CD-ROM games) is concerned, it matters little whether you're playing a person or the computer. What changes in these instances has less to do with the strongly designed object and more to do with the framework for interpreting the game play.

6. This discourse, like that of interactivity, can best be understood in its context. The concept of "active" reading was created in opposition to the dominant understanding of media consumption as passive. The use of the word "active" in this sense is an attempt to give value to the viewer's mental processes, instead of continuing to devalue them as "passive." The term "active" contains more rhetorical force than it does analytic insight. Few would disagree that we add ideological shadings in interpreting imagery or that the expectations and anticipations are central to our screen experiences. To realize that viewers do such activities is not particularly surprising, at least not as surprising as hearing these processes called "active" in the context of a "passive" conception of media. Like the uses of the word "interactive," the academic use of the word "active" is both truthful and an exaggeration. We do engage in such complicated mental processes sitting in front of the screen, but few who consider these media to be "passive" would deny that these processes are engaged. By labeling these activities "active," academics say less about the viewing process than they do about the value placed on that process.

7. If one discussed media at the height of the nickelodeon, one might have discussed film as a highly interactive medium, since the nickelodeon was a place where audiences verbally and physically interacted with each other and with the screen. Until the exhibitors tried to attract a more genteel audience than its largely immigrant clientele, there were no rules about sitting down and being quiet in the movie theaters, and the interchanges created a significantly livelier experience than the one we now associate with the movies.

8. In discussing CD-ROM interactivity, I will lean heavily on examples from CD-ROM games because games tend to make the richest use of interactive capabilities. However, games do not make the best use of all interactive factors, and in these cases I refer to non-game texts. This introduction is about strongly designed CD-ROM texts, not about CD-ROM games alone, although the market is so driven by games that these products dominate our evolving understanding of what interactivity is.

9. Of course online chatting (in chat rooms, multiple user dungeons/domains [MUDs], e-mail discussion lists, and online bulletin boards) has been credited with reviving the long lost art of conversation, but these forums are nowhere near interactive in the way Lippman describes. They are turn-taking affairs (chat rooms often rely on signals such as "otu"—"over to you"—to show that one has finished a thought). One can meet interesting people on the Net that one never would have encountered elsewhere, and the anonymity possible in chat rooms allows people to try on races, genders, sexual preferences, and so forth in ways that are fascinating to explore. These online conversations, however interesting they are interpersonally and theoretically, do not rethink the structure of interaction. They primarily allow you to extend your conversational realm outside a conventional distance-bound sphere and to explore more flexible, alternate, multiple subjectivities within those conversations.

10. This argument about the equality of persons and objects in multimedia echoes a similar argument about the nature of silent film (and particularly silent film comedy). Neither humans nor objects were allowed to "speak" in a silent film; this took away a primary advantage that human characters generally enjoy over inanimate objects in fiction. Because characters in a play can speak, they are more likely to engage our sympathies than onstage props are. The realm of silent film put people and objects on equal footing, which might help explain the omnipresent struggle between humans and recalcitrant objects in silent film slapstick.

11. When one first clicks on an object, its response is unpredictable, but thereafter the object tends to respond in a robotic, repetitive fashion. Most objects in a CD-ROM, when clicked on, give only one response, which you can repeat over and over again by repeated clicking. There are exceptions where single objects respond in multiple ways to multiple clicks, but the
memory constraints of the CD-ROM do not always encourage such multifunction programming. As these constraints loosen, I expect multimedia to explore further the possibilities of objects responding in multiple ways to our interactions.

WORKS CITED


Chapter Two

Before the Holodeck

Translating Star Trek into Digital Media

Janet Murray and Henry Jenkins

Over the past three decades, *Star Trek* has offered viewers a succession of compelling and ever more sophisticated models for the future of digital media, starting with the voice-activated computer and working through the holodeck, the holosuite, and most recently, the holonovel. The various *Star Trek* series consistently depict the ways a future culture will work and play within digital space, as Picard dons a trenchcoat, Data pits his detective skills against Moriarty, Bashir saves the world as a James Bond–like superspy, and *Voyager’s* holographic medical program does battle with Grendel. The holodeck and its descendants represent an immersive and fully interactive environment, which allows ship crewmembers the chance to enter into fantasy environments, assume fictive roles, and escape from the mundane reality of always having to go where no one has gone before.

And, of course, as regular viewers can tell you, every time anyone uses the holodeck, it crashes or malfunctions.

This last feature may be its strongest commonality to the digital media currently on the marketplace. Contemporary CD-ROM games, as consumers regularly complain, take forever to install, are full of bugs, and offer only limited interactivity. Compared with the technological wonders of the holodeck, we are, to borrow a memorable phrase from the original series, working with “stone knives and bear-skins.”

We might, however, view the situation a bit more optimistically. Imagine that we are publishing this collection in 1895 and that only last year the Lumière’s produced their heart-stopping image of a train