

Moving from Print to Digital Media

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"The more things change, the more they stay the same."

It is quite routine for people to talk about the uniqueness of the Internet and, indeed, of any digital medium. We agree that there are substantial differences between digital and print media—not only in the technology and conventions of each, but in the way digital media allow 'writers' to make full use of all the resources available through computers: sound, color, still images, and video, as well as spoken and written text. But, at least when it comes to transactional discourse (as opposed to poetic or expressive), people who work in both print and digital media want to create messages that an audience will consider clear, compelling, and worth attending to. Consequently, we believe there are certain responsibilities and strategies that are important for both print and digital media.

Specifically, we want to argue that in each medium it's important for 'writers' to:

- * Engage their audience
- * Sustain their audience's engagement with the text
- * Give cues as to the structure of their text
- * Explore the topic in ways that are appropriate to the audience, the writer's intended purpose, and the complexity and significance of the topic
- * Create a voice that is appropriate for the audience, purpose, and topic

An understanding of these responsibilities—and the strategies that enact them—can not only guide the composing process but can also help assess the strengths and weaknesses of a particular text, whether in print or digital format. Given the focus of this volume, we will illustrate our claim by looking at a digital narrative. We

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believe, however, that the same claim can be made of any type of transactional discourse.

What's Changed: A Digital Narrative

Currently, there are relatively few Web-based narratives that take full advantage of resources computers make available to both 'readers' and 'writers.' Indeed, many existing Web-based narratives are essentially print texts made widely and immediately available. One notable exception to these narratives appears on a CD-ROM that recounts the role the physicist J. Robert Oppenheimer played in creating the atomic bomb. This narrative makes full use of all the resources available in a digital environment, not only creating a powerful narrative but also illustrating one direction Web-based narrative could profitably take.

The table of contents for this CD divides the narrative into twelve 'chapters,' but for our purposes we can more succinctly describe it as consisting of a brief Introduction followed by (roughly) three segments:

Oppenheimer's early years, beginning with his childhood and ending at the point where (at age 25) he takes a joint appointment in theoretical physics at Berkley and Cal Tech (ch. 1 & 2).

The development of the atomic bomb, beginning with Oppenheimer's reasons for becoming involved in the atomic bomb project and ending with the detonation of the test bomb (ch. 3-8).

The consequences of the bombing of Hiroshima, beginning with the physical and emotional devastation brought to citizens of that city and ending with the emotional and psychological effects on Oppenheimer and his colleagues (ch. 9-12).

Due to limitations of time and space, we shall focus on just a few segments of the narrative to show how the creator(s) of this narrative meet(s) the responsibilities listed above.

Engaging the Audience

The introductory sections of this narrative actually uses several strategies for engaging the audience. But for the moment, we will focus specifically on ways the narrative:

- * **Reiterates and reinforces questions** a reader might have in mind before coming to the narrative
- * **Creates conflicts or dissonances**, principally by
 - Creating ironies, within the spoken text and between the spoken text and the accompanying visual images
 - Juxtaposing violently contrasting images

We will consider this introductory section in some detail, not only because it displays some powerful strategies for engaging an audience's attention, but because it also provides a richer understanding of our subsequent discussions of other strategies.

The entire narrative is set in motion by an implied question raised at the end of the introductory section. Hans Bethe, a Nobel laureate in physics and a colleague of Oppenheimer, raises the issue of how an otherwise gentle, ethical, civilized man could help create such a horrendously destructive weapon. On the face of it, this question is all too predictable. Anyone who has viewed scenes of the destruction in Hiroshima might reasonably ask how anyone other than some ethical monster could have created such a horrifying weapon. But in this context, Bethe's remark has especial power and resonance. It recognizes the horror of the bomb without demonizing the man who was crucial to its development.

In analyzing this introductory segment, our principal question is: how did the author of the film engage us, making Bethe's implied question so compelling that we were willing to view the rest of the narrative? Since there is very little written text in this film, we will focus our analysis on a series of spoken comments (from a Narrator and from Oppenheimer's friends and colleagues) and on the visual images that accompany these spoken comments. To give some sense of the interplay of words and images, we will provide written transcripts of these comments and show some of the visuals that accompany these comments. On the CD, many of these images are in color, creating an effect we cannot reproduce here.

Narrator:

In August of 1945, the city of Hiroshima was destroyed in nine seconds by a single atomic bomb. The man responsible for the bomb was a gentle



and eloquent physicist named J. Robert Oppenheimer. This is the story of Robert Oppenheimer and the atomic bomb.

Immediately after these remarks from the Narrator, the film moves to a video clip produced several decades after the bombing of Japan. This clip shows Haakon Chevalier—a scholar in French literature and a friend of Oppenheimer—reading from a letter he had written to Oppenheimer shortly after the bombing of Hiroshima. He is seated in a comfortable home study; although Chevalier is wearing a black suit, the colors of the study and the surroundings visible through a study window are soft, almost pastels. After the images of Chevalier, the screen is filled with a succession of other images, beginning with close-ups of Oppenheimer's face.

Stenson Beach, California.
August seventh, 1945.

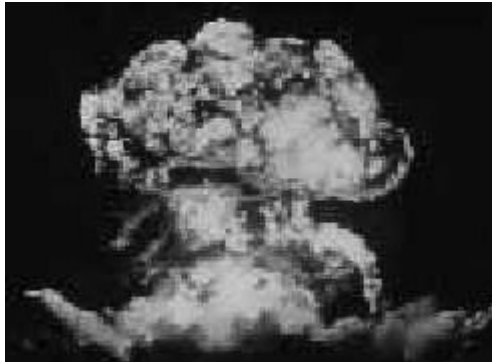
Dear Oppi,
You're probably the most famous man in the world today, and yet I am not sure that this letter will reach you. But if it does, I want you to know that we are very proud of you. And if it doesn't, you'll know it anyway. We've been irritated by your reticence the past few years but, under the itchy surface, we knew it was all right, that the work was progressing, that the heart was still there and the warm being we have known and cherished. I understand now, as I could guess then, the somber note in you during our last



meetings. There is a weight in such a venture that few men have had to bear. I know that with your love of men, it is no light thing to have had a part, and a great deal of part, in a diabolical contrivance for destroying them. But in the possibilities of death, there are also the possibilities of life. You have made history. We are happy for you.

After letting us see and hear Chevalier reading from his letter to Oppenheimer, the film jumps, with no comment or even a transition, to a film clip of an interview with Hans Bethe, the Nobel laureate and friend and colleague of Oppenheimer.

You may well ask why . . . uh . . . people with a kind heart and humanist feelings, why they would go and work on weapons of mass destruction.



To return to our earlier question: How does this introduction set us up to feel the full impact of Bethe's question at the end of this section? How does the introduction make us care enough about Oppenheimer to invest the 90 minutes or so required to view the entire narrative? In large part, the answer comes in the ways the introduction establishes a number of problems or dissonances,

many of which have to do with the issue Bethe raises. These dissonances usually take the form of ironies or incongruities, both within the spoken text and between the spoken text and the visuals that accompany it.

At the outset, the Narrator's comments juxtapose the destructiveness of the weapon ("the city of Hiroshima was destroyed in about nine seconds") with the humanistic values one might associate with the phrase "gentle and eloquent." Far more compelling, however, are the incongruities created while Chevalier reads his letter to Oppenheimer. Our awareness of these incongruities arises in large part from the disparities between the understanding Chevalier possessed at the time he wrote the letter and the fuller understandings Chevalier and the film's audience possess several decades after the bombing of Japan.

These disparities are hammered home through a series of visual images that appear just as Chevalier reads particular segments of the letter. At the very moment Chevalier reads the phrase "we are very proud of you," the film shows a picture of Oppenheimer that seems diametrically opposed to the celebratory implications of the phrase "very proud." The picture itself is in black and white, a stark contrast to the cheerful, pleasant colors of the office in which Chevalier is shown reading the letter. Oppenheimer's eyes are downcast, his brows slightly knit, his face somewhat gaunt, with shadows playing over his face. After this picture is initially introduced, the camera returns to Chevalier, staying with him until he utters the phrase "the warm being we have known and cherished," at which point the camera returns to Oppenheimer with an even tighter focus on the gaunt face of Oppenheimer. Chevalier may be proud; Oppenheimer seems distraught, haunted.

A somewhat different incongruity occurs as Chevalier continues reading. In the phrase "the somber note in you during our last meetings," Chevalier indicates some sense of what might have been troubling Oppenheimer, but the enormity of those troubles becomes clear in the series of images that accompany the reference to a "somber note." This series of images displays an atomic bomb blast, beginning with an enormous yellow ball of fire, almost like an enormously magnified sun coming over the horizon. The series concludes with a scene near the end of an atomic explosion: the orange and deep maroon cloud that results, framed by black clouds that give new depth of meaning to the word *somber*.

Much the same thing happens when Chevalier acknowledges that "it is no light thing" to have helped create "a diabolical contrivance" for wreaking mass destruction. At this point, continuing

through Chevalier's concluding remark "We are happy for you," the film displays gray and white photographs of Hiroshima literally reduced to rubble. It may be, as Chevalier notes, "in the possibilities of death, there are also possibilities of life." But it is hard to imagine those possibilities in the total devastation that we are seeing while Chevalier concludes his letter.

These ironies and conflicting visual images leave us unsettled, looking for some resolution—in short, engaged and ready to go on and hear/see the rest of the narrative.

Sustaining the Audience's Engagement

In trying to sustain the audience's engagement, this film actually uses a number of powerful strategies. We will talk in detail about only one strategy that figures prominently in this film:

Moving **from information that is known** or unsurprising
to information that is new, surprising, or perhaps even
unsettling

This strategy, apparent throughout the film, is entertainingly displayed in a segment that describes daily life at Los Alamos, the town Oppenheimer created in order to house everyone associated with the project.

Visually, this section opens with still photos and black and white film of Quonset huts, dirt roads, trailers, and row upon row of identical small buildings, all set in the isolated New Mexico desert. The author could assume that many people in the film's audience would have seen World War II era photos of army camps, which some of these scenes resemble. So the author has established the 'given' for this segment visually, with familiar photographs.

The author also uses the narrator and sound bites from early residents of Los Alamos to move from given to new. In the passages below, notice how the film starts with descriptions that are not remarkable in any way and moves to observations that are surprising:

Narrator: Oppenheimer had brought scientists and their families fresh from distinguished campuses all over the country. Ivied halls. Soaring campaniles. Vaulted chapels. Los Alamos was a boomtown. Hastily constructed wooden buildings. Dirt streets. Coal stoves. And only five bathtubs.

Resident Voice Over: There were no sidewalks. The streets were all dirt. The water situation was always bad.

Narrator: One young physicist was Robert Krone.

Krone: It was not at all unusual to open your faucet . . . and have worms come out.

In this passage, we see how the narrator is creating a scene out of things we already know: We know the scientists were distinguished; we know they built the community in the desert; we know (without having been told) that a town, hastily-built in the desert during a war, is likely to be austere. But the type of details that he leads us to are unexpected: “only five bathtubs”; “worms come out.” There’s an inherent humor in this situation—although probably not for the people who endured living in Los Alamos.

At this point, the audience may begin asking a new question: How did these people live under such conditions? And the narrator has a surprising answer for us. After describing how Oppenheimer had many of the scientists bring their “best and brightest” students with them, the narrator describes an environment where the students worked side-by-side with their mentors. While this information is ‘new,’ it is still familiar and follows logically from what we have been told to this point. However, one of those mentors, in a modern-day interview, tells us:

Voice over: And for them [the students] it was just the most marvelous time of their lives.

This is an unexpected twist—we’ve just learned about the hardships of Los Alamos, and someone suggests they were having a good time. And it’s not just one person’s opinion. Another person who was at Los Alamos comments:

Voice over: People worked hard. Scientists worked around the clock. And the people made up for the lack of big city life—and there was a lot of partying.

What’s been happening here is that the film has created a familiar pattern—another kind of ‘given.’ The audience begins to expect these periodic surprising details. And they are not disappointed. We cannot describe this section as fully as we would like, but we do want to point out one more example of given and new, one that occurs at the very end of the section describing life in Los Alamos:

As we are being shown a wall of black and white photos of the people who worked on the project, the Narrator says:

Their average age was 29, and their job was to construct a mechanism which would trigger in a millionth of a second a violent chain reaction. They had two dance bands, a soda fountain, Boy Scouts, Girl Scouts, a radio station with no call letters, a cyclotron, and 7000 fire extinguishers.

Even here, the author is trying to surprise us: a town that we've come to see as both austere and fun-loving, a town that has only five bathtubs, has "a cyclotron and 7000 fire extinguishers." This time, the 'new' information that follows the familiar 'given' information, reinforces the return to the topic of the bomb and creates in the audience a strange sense of awareness of just what an unusual place Los Alamos was.

Revealing the Structure

The CD containing this film makes information accessible by superimposing the film in a three-inch by five-inch box over a graphic of the atomic bomb, with navigation buttons (*Help, Find, Commentary*, etc.) at the bottom and along the right side of that graphic. The narrator also uses transitional elements of the sort one might find in any text: *but, in the meantime, therefore . . .* But the film itself is especially notable in the way it creates and fulfills expectations by

- * **Repeating patterns** in spoken language
- * **Juxtaposing** visual and verbal text, and
- * **Juxtaposing** discordant visual elements

The preceding discussion of given and new has suggested one important pattern. At the sentence or paragraph level, the author consistently moves from that which is familiar or predictable to that which is incongruous and surprising. In the segment of the film discussing the development of Los Alamos, the incongruities tend to reflect a wry sense of humor. Thus we are surprised—but not entirely unprepared for—the movement from given to new in the narrator's explanation of the cramped living conditions at Los Alamos:

The physicist Edward Teller had brought a piano and played Beethoven late into the night. From his cramped quarters in a four-family dwelling, he could disturb more Nobel laureates at once than he could have anywhere else in the world.

As we have already seen, the introductory segment of the film sets up a pattern of juxtaposing visual and verbal elements, with the visual elements dramatically enlarging upon the spoken text. This pattern recurs throughout the film. We will say more about this in the subsequent discussion of the film's 'exploration of the topic.' For now we want to briefly mention a third kind of pattern, that of juxtaposing violently conflicting visual elements.



This pattern appears frequently, but no more dramatically than the point at which the film moves away from a segment describing the pleasant, carefree vacations Oppenheimer and his colleagues shared at a ranch in the mountains of New Mexico. This segment ends with a bucolic scene that the black and white picture below cannot fully convey. The sunlight shimmers on leaves and grass that are just showing the first golden colors of autumn.

While this beautiful scene is still showing, the film brings in the sound of some music, barely audible at first, then crescendoing enough to make it clear that we are listening to a military band playing a march. Just as we recognize the nature of this music, the Narrator introduces a new segment of the narrative that will explain Oppenheimer's involvement in the creation of the atomic bomb.

Narrator:

But far from the
Pecos Moun-
tains, was Adolf
Hitler . .



The sudden shift from autumnal colors to grainy, black and white photos would be, in itself, jarring enough. But the impact is increased by the content of the black and white photo and the angle from which the photo is taken: the camera looks up at Hitler, catching his knit, black eyebrows and scowling demeanor, showing him in the midst of a harangue to an enormous crowd. The ferocity of his appearance and the power and domination suggested by the camera angle reiterate a claim borne out by subsequent history: This man represents a powerful manifestation of evil. This sort of juxtaposition of radically different visuals has happened before in this film, and it will happen again. The specific content of this juxtaposition may surprise us, but it is perfectly compatible with a pattern we have come to expect and will continue to expect throughout the film.

Exploring the Topic

Two of the film's strategies for exploring the topic are implicit in what has already been said. First, the film **draws on a wide range of sources both visual and textual**. The visuals include old, black and white photos and film clips as well as recent footage of people and places involved in the project. Textually, in addition to including comments from Oppenheimer's brother and his colleagues, the film includes comments from an army private who was brought to Los Alamos to help with construction, as well as from people who lived in and around Los Alamos while the bomb was being constructed.

Second, the film **explores the topic by creating ironies and juxtaposing startlingly different images**. This is, we think, not only a way of communicating a point but of exploring a topic and formulating the ideas one wishes to communicate. It is a logical extension of the medieval logic of *si et non*, yes and no, good news and bad news.

Rather than comment further on these two strategies, we want to note one other strategy: **using visuals to elaborate on an explicit claim and, at the same time, develop an implicit argument.** In the section that addresses the question, “Why did Oppenheimer become involved in the atomic bomb project,” the film presents the views of several of Oppenheimer’s colleagues, including a video clip of an interview with one of Oppenheimer’s critics, the physicist Freeman Dyson.

Freeman Dyson:

I suppose that he was profoundly impressed with the precariousness of the allied situation. After all, most of his friends were Europeans, many of them in countries that had been occupied by the Germans. The Germans looked as though they were the wave of the future at that time.



These images are part of a film clip that begins with German soldiers passing in review on an armored personnel carrier and ends with an aerial shot of an enormous crowd gathered to hear one of Hitler’s speeches. The cumulative effect of these images is to elaborate on Dyson’s reference to the Germans’ appearing to be the “wave of the future.” Spoken text and visual images together, then, imply something like the following claim: Even a critic of Oppenheimer’ can find valid reasons for Oppenheimer’s becoming involved in the effort to develop a weapon of mass destruction. If such a critic can find such justification for this sort of effort, then, presumably, so can the viewers.

Creating a Voice

In addition to establishing expectations as to content, as mentioned above, the introduction also creates a clear voice, a set of strongly implied attitudes toward its audience and subject. From the introductory section, the film lets viewers know that the filmmaker is neither sentimental about Oppenheimer nor willing to flinch from horrendous realities. The violence of the explosion seen in the opening is reiterated near the end of the narrative, not only through further images of the mushroom-shaped cloud and images of miles of ruined buildings, but also through specific images of human suffering, images that are almost too horrific to look at closely.

Nonetheless, the film consistently avoids melodrama and overt sensationalism. Throughout the narrative, **key players are allowed to speak for themselves, usually in the measured, thoughtful tones one might expect from people of maturity** (all of the speakers shown on camera are well into late middle age or older), people who have taken the opportunity to reflect carefully on what they have experienced. Similarly, the voice of the Narrator is essentially the voice of understatement. While the Narrator's voice does not seem flat or indifferent, **the inflections of that voice never explicitly or tacitly acknowledge the wide fluctuations of terror and despair that the film conveys.**

Without attempting to valorize Oppenheimer or plead for the audience's sympathy, the film displays a respect not only for Oppenheimer's intellect and character, but also for the suffering he endured in the last several years of his life. The film ends by **letting us see and hear from Oppenheimer** one last time, and, for the first time in the narrative, **letting us hear Oppenheimer speak.** His comments occur in an interview he gave near the end of his life. The power of his comments derive, at least in part, from the fact that this is the only time in the entire narrative that Oppenheimer himself has spoken about any of the events of his life:



We knew the world would not be the same. A few people laughed, a few people cried, most people were silent. I remembered the line from the Hindu Scripture, the *Baga-vad Gita*. Vishnu is trying to persuade the prince that he should do his duty. And to impress [the prince], [Vishnu] takes on his multi-armed form and says, "Now I am become death, the destroyer of worlds." I suppose we all felt that, one way or another.

In this scene there are plenty of reasons one might feel pity for Oppenheimer. He seems physically diminished, a far less vital, attractive person than the Oppenheimer displayed in earlier segments of the film. Further, at this point the audience knows that Oppenheimer's career has been destroyed—at least in part because of the attacks by Senator Joseph McCarthy and by his former colleague, the Nobel laureate Edward Teller. Yet there is no implicit or explicit plea for pity—not from the way the scene is filmed, nor from the words Oppenheimer speaks, or the straightforward sound of his voice. He is a man of great brilliance whose actions have arguably created good in ending the war and yet have unquestionably caused enormous human suffering. The narrative lets the audience appreciate fully the complexity of such a man and perhaps respect the courage involved in his acknowledging the ethical consequences of his actions.

What Remains the Same

Our analysis of this digital narrative has been based on the assumption that there are significant ways in which audiences are audiences, no matter whether they are reading a print text, sitting around a campfire, surfing the Web, or viewing a CD. No matter what the situation, audiences share some of the characteristics Janice Redish attributes to readers of print texts:

Most audiences must be 'won' by the author. Only a relatively few audiences (e.g. teachers, subordinates, or other 'captive' audiences) are obliged to pay attention to a given document. The rest may ignore the document or stop paying attention whenever they choose.

Audiences relate new information to what they already know. The only way they will understand or even pay attention to a text is if it relates in some way to things they know, care about, worry about, desire, fear

Audiences have to know where they are and where they are headed. This is true in print text and even more so in digital media. An audience may tolerate a certain amount of uncertainty. But when people are lost in cyberspace, they are really lost.

Audiences expect to gain something from a text, and for transactional discourse, that something is information. Maybe readers just want new information that bolsters existing ideas, beliefs, or biases. Maybe they want a new perspective on an old issue or some new information about a new topic. But they want something.

Audiences make inferences about who is 'talking.' Both theory and research indicate that people routinely respond to the *voice* (personality/attitudes/values/tone) implicit or explicit in information they receive (Elbow). If the voice is agreeable and credible, they are likely to attend carefully. If not, people will pay little attention or even refuse to pay any attention at all. In a spoken presentation, one's sense of voice may derive in part from the literal sound of someone speaking. But in any case, a voice entails a set of attitudes toward both subject and audience. These attitudes may or may not be attributable to an individual 'speaker.' But audiences respond to them, and 'writers' must consider the attitudes that are explicit or implicit in their work.

As means of accommodating these audience characteristics, the Oppenheimer narrative displays a number of strategies that: 1) should be familiar to rhetoricians and composition specialists; and 2) apply as well to print narratives as to digital narratives. Here we want to summarize those strategies and add a few others that have proven useful to us as we have analyzed a wide range of print and digital texts.

This effort to '*win*' an audience may take place throughout a text (see discussion of 'given to new,' below). But this is especially important at the beginning of a text, where authors can engage readers by using such strategies as:

- * Identifying a problem or question that the audience already cares about
- * Challenging something the audience knows or values
- * Pointing out an irony or inconsistency

- * Showing an audience how a specific text solves a problem that matters to them or enables the audience to accomplish a goal they particularly value
- * Creating a conflict (tension, dissonance) that relates to what the audience knows, values, or needs

As we have already indicated, the movement from *given to new* can be a means of keeping an audience's attention once it has been won. And, as the notes below will suggest, the effort to move from given to new can also contribute to one's effort to explore a topic.

At the sentence level, the movement from given to new consists of beginning a sentence with information that the reader already knows or that is relatively unsurprising and moving to information that is new, surprising, perhaps even unsettling.

At the discourse level, moving from given to new means

- * **Sequencing information** so that the early part of a section or paragraph begins with information that the reader knows or cares about; later parts of the paragraph or section move to information that is less familiar, more surprising, perhaps more unsettling information
- * **Answering questions** the reader is likely to ask
Using a format or other visual cues that the reader is familiar with or prefers
- * **Explaining unfamiliar concepts** or surprising claims with examples the reader knows, respects, can relate to
- * **Creating a voice** the reader knows, likes, respects
- * **Posing a question** (problem, dissonance, conflict) that arises from what has already been said

In helping an audience see *where they are and where they are headed*, both print and digital media can make use of the same strategies, including:

- * **Creating (and fulfilling) expectations by**
 - Asserting or strongly implying the point(s) they wish to make
 - Providing forecasting terms and transitions
 - Creating a distinctive voice that implies (visually and verbally) *what* is to be said and *how* it will be said

--Establishing and following a pattern (e. g., in page or screen design; in presentation of arguments; in a distinctive voice)

*** Making the text accessible by using**

- Headings and subheadings (which may take the form of links in an electronic document)
- Typographical emphasis (e.g., italics, bold, color, font size)
- Navigation aids (such as tables of contents, indexes, button bars, tabs)
- Iconic cues

*** Indicating or clearly implying connections** between various segments of the text by

- Using some sort of transitional phrase indicating temporal, logical, or spatial relationship
- Referring to some phrase or idea that has already been mentioned earlier in the text

In order to provide an audience with the *information* they want and need, 'writers' can explore their topic by using such strategies as:

- * Making judicious decisions about when and where to elaborate (or refrain from elaborating)
- * Drawing on multiple sources of data
- * Showing or implying relationships among different claims or data
- * Implicitly or explicitly helping the audience notice incongruities
- * Anticipating the audience's likely questions, uncertainties, or divergent perspectives

A *voice* or a set of attitudes toward the subject and audience can come from several sources:

- * The literal sound of a voice reading or speaking;
- * The type of graphic elements and words one chooses;
- * The use of various combinations of all the strategies mentioned with regard to other concepts cited above.

There can be no doubt that we, as teachers of writing, must accept, deal with, and encourage the use of new technologies if we are to fairly prepare our students for the writing tasks they want and need to accomplish. Moreover, many of us have already embraced the possibilities that the new technologies promise to deliver to writers in all media. What this means is that, for the moment, each of us probably falls into one of two camps: the reluctant participant or the enthusiastic promoter.

For the reluctant participant, which, we confess, is the role that most closely fits us, the application of familiar concepts to unfamiliar texts may provide a way to more easily assess the strange documents students are now producing. For the enthusiastic participant, we hope this serves as a reminder that we have some common ground to stand on as we not only foster innovation, but also teach students to use these new tools carefully and gracefully.

Works Cited

- Elbow, Peter. "Introduction: About Voice and Writing." *Landmark Essays on Voice and Writing*. Davis, California: Hermagoras P, 1994. xi-xlvii.
- Else, Jon. *The Day after Trinity: J. Robert Oppenheimer and the Atomic Bomb*. CD-ROM. New York: The Voyager Company, 1995.
- Redish, Janice. "Understanding Readers." Eds. Carol M. Barnum and Saul Carliner. *Techniques for Technical Communicators*. New York: Macmillan Publishing Company, 1993. 14-41.