

SUMMARY

- Examines how cinema techniques influence the use of motion on the computer screen.
- Demonstrates the application of cinema techniques in the on-screen presentation of technical information.

Looking to Cinema for Direction: Incorporating Motion into On-Screen Presentations of Technical Information

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ADAPTING TO A NEW ENVIRONMENT AND DEFINING NEW MEDIA

We live in a culture addicted to the production, use, refinement and marketing of newer, faster, better, bolder, and ever more sophisticated gadgets. This addiction to newness, efficiency and speed pressures consumers to continually toss away old gadgets and immediately purchase new ones. This churning gadget obsession is what keeps technical communicators employed because consumers must continually learn how to use all their new gadgets and therefore we always have something new to teach the readers of our documentation. But our roles as technology educators and documenters are complicated by the fact that nearly everything we teach users about is continually undergoing revision and change.

When the gadgets are objects that users can hold in their hands, the change from one version to the next is often just slow enough to allow us to produce timely printed documentation that properly documents the use of those objects for at least one cycle in the revision process. But because software gadgets can run through a string of many version numbers in a matter of months, the printed documentation process is unable to keep up with the pace of change and so many technical communicators have left the stillness of the page behind and have thrown themselves completely into the motion of the screen; many technical communicators are now working as creators of online documentation and as interface designers for a wide range of screen-based information systems.

The page is the quiet and stately home of composed text and still illustrations. The screen is a disruptive home of dancing images and instant transitions that transport users from one shimmering horizon to the next. When technical communicators move from page to screen, they arrive in an entirely new neighborhood that requires them to adapt to new methods for communicating with their audiences and new techniques for structuring information. This article is designed to help technical communicators understand how the screen actually works and to then offer recommendations for how to produce effective presentations for a medium defined by the display of motion.

Throughout this article I refer to the products that technical communicators design for the screen as “new media works” and “interactive computer screen presentations.” But what do these terms mean? I define a new media work as a stand alone, on-screen system that uses a cohesive collage of many different media formats working together to present a cohesive statement or to present a clearly defined purpose for the user. For example, a new media creation is a Flash animation sequence for a large web site that explains the goals and scope of the site to the first-time visitor. A new media creation is also a self-contained piece of software that, when run by the user, goes out into the network searching for malfunctions and speed roadblocks, then reports to the user what it has found through a series of screens that use animated visuals and moving lines of text as part of the report. A new media creation is also an online help system that answers user’s questions about a piece of software using screens that present textual information connected to animated tutorials which can be paused, skipped

through, or replayed.

An interactive computer screen presentation is similar to a new media creation, but instead of simply presenting information to the user, it also allows users to change and/or work directly with that information or allows the user to create entirely new information—the focus is on interaction, not simply on presentation. An interactive computer screen presentation is the troubleshooting part of an online help system that asks the user a series of questions, runs system checks based on the user's responses, and then asks the user even more questions while the system is being repaired in the background. An interactive computer screen presentation is the interface design for a 3D modeling program that uses the metaphors of clay sculpting and an artist workshop to dictate what the system's tools look like and how they work together in the hands of the user. An interactive computer screen presentation is also often surrounded by, and to some degree also dependent upon, the other systems and interfaces that share space with it on the screen.

I often refer to information designers, new media designers, interface designers and technical communicators interchangeably all through this article. I do understand that this can be confusing, but I use these terms interchangeably to make the point that when we start designing work for the screen, many of the fields we may have once thought were separate have now started to combine, sharing skills, responsibilities and missions in the process. Developing projects that depend upon the effective presentation of moving images and text on the screen asks technical communicators to acquire new skills and to acquire a new understanding about the media they work with. Additionally, the fact that so much of what the technical communication profession now creates relies, in one way or another, upon the proper use of moving images means that the technical communication profession needs to broaden, once again, how our field is defined.

LEARNING TO THINK AS A FILM MAKER

Many technical communicators would claim to be quite knowledgeable about writing and manipulating text, and many of us also feel confident about how to effectively use static imagery in connection with our texts. But I argue that most of us would claim no true skill as film makers, and would admit to only an amateur's understanding of the complexities of cinematic presentation—we know what we like and find enjoyable as audience members (story, characters, plot and scenery), but are poorly prepared to discuss or critique cinematic techniques of presentation much beyond the level of what we would find in a local newspaper movie review.

And yet, technical communicators are now often asked to create professional works for the screen using only an amateur's understanding of the medium, leaving many of us equipped with print-informed compositional skills that we can apply to just one small part of the on-screen presentation process (Buckingham 2003). As a result, a good deal of the information displayed on the screens that surround us every day has been designed by technical communicators and other information and interface designers who have often had little or no training in film production, and no motion picture editing experience of any kind (Zimmerman 2001). We now have a gadget-filled world accompanied by a preponderance of badly informed screen designs that often make already devilishly complex systems even more difficult to use.

The goal of this article is to help technical communicators learn how to adapt to this new neighborhood of design and production by making effective use of cinematic motion techniques to properly present technical information for screened presentation. To help with this adaptation process I will:

- examine how the computer screen is actually a moving collage of many different formats, primary of which is the moving picture format.
- explain how the cinematic screen is understood by viewers and how that understanding can then be used to present viewers with a large amount of complex but well ordered information.
- conclude with a set of recommendations for effectively applying a few basic cinema techniques directly to technical communications practice.

USERS LEARN FROM PRIOR MEDIA

Even though many users do complain of having to continually learn new gadgets just to get through everyday life, most users have, at the same time, become fairly adept at using screen-centered devices, even though the user interfaces presented on these screens sometimes vary a great deal from device to device, from activity to activity, and continues to change (some would say, evolve) a good deal from year to year or even from month to month (Norman 2004). One of the reasons many users may be able to adjust fairly easily to a continually changing collection of interfaces is due to the fact that when users interact with what they see on screen they are relying upon skills of comprehension they acquired from viewing moving visual information contained inside the framing structure that we know of as the cinema screen.

The modern computer screen is essentially a cinema screen that has been pulled off the wall and away from the confines of the theater so we can now set the screen atop our desks, clutch it in our hands, or slip it into our pockets. But as designer and critic, Jessica Helfand, has noted many times, what we now call "new media" (the recent trendy term used to define the type of work created for this newly portable and personal cinema screen) is actually not a new media at all, it is simply an extension of many different media elements gathered together into smaller, more intimate, and more invasive packages that now seem to appear everywhere (Helfand 2001). Many new media designers and critics go on to note that interactive media presentations on the computer screen are actually collages of many mediums working in tandem, or in the case of poor design, many conflicting mediums working against each other (Gillette 2000), (Andersen, et al. 1993), (Burnett 2004). Therefore, even though the screen we use for presenting interactive computer interfaces is directly descended from the cinema screen, it is important to remember that the computer screen is also a collage of screen presentation and framing elements that long predate the development of motion pictures.

Users can often surmise what they need to do to interact with screened, interactive interfaces because computer interface design has been built upon previous methods for the framing of textual and visual information adopted from painting, live theatrical presentation, and still photography (Laurel and Mountford 1990, Norman 1999).

Computer interface designers learned how to effectively pres-

ent text on the screen by adapting techniques of paragraphing, categorizing, titling, indexing, notating, and linear collating from the production of books, tablets and scrolls (which are frames and screens of a kind). The use of the printed page and its related technologies has become second nature to literate users and therefore the frame of the page and its static presentation of text has served as the basis for the organizational metaphors that we still commonly use to describe many screen-based interface elements and even when describing computing itself (web *pages* that allow for *scrolling*, *tab* dividers that provide access to different *folders* that contain *files*, *volumes* that store data, and processors which *write* data into a system) (Bolter 1991).

Graphical interface designers have also borrowed widely from techniques of presenting proportion, color and depth learned from painting and still color photography (Packer and Jordan 2001) as well as borrowing some interactive techniques from the presentation of information in live theater (Laurel 1991). Therefore, even though many of the graphical interfaces and software objects that appear on the computer screen may claim to be “new” in their specifics, in general application they do all build upon presentation techniques that are old hat for most readers, viewers, and audience members.

Even though the computer screen may be used as a static device that can, for a short time, resemble a printed page or a still painting, the computer screen still only presents an abstraction of those media formats. As Walter Benjamin would note, with some updating to account for the computer screen, once a page has been reproduced on a screen, it is no longer a page, in the same way that a painting presented on a computer screen is no longer a painting (Richter 2002). Reproduction and translation from one medium to another makes the original into something altogether new or at least altogether different (Benjamin, et al. 1996).

SCREENS DEPEND ON MOTION

Even if interface design and the interactive components of a software screen presentation do begin with static formats, when these formats are intertwined with the remediation collage of the computer screen, they often require the essential binding element of motion to hold that collage together (Bolter and Grusin 1999). Initially static data such as text and illustrations inherit motion as part of the remediation process, and therefore how viewers, readers, or users interpret these newly altered elements (texts, paintings, photographs) depends on how the system’s designers present those element’s newly acquired motion on the screen.

Integrating full-motion, film-like methods of visual presentation into a screen presentation does make the final construct appear more alive, more present and therefore also, it is assumed, more compelling and interesting for users, and this is often why designers are often asked to incorporate motion into at least some part of any screen presentation (Rieser, et al. 2002). In the most basic sense it is often assumed that if a picture is worth a thousand words, then moving pictures must be worth thousands more. It is true that adding cinema-like motion to an interactive system intensifies the way that users view and process information, an intensity that is extremely aggressive, demanding and nearly all encompassing, often overwhelming all other methods for presenting text and graphics (Baehr 2001), (Bergman 2000), (Chang 2003). Cinematic presentation is undeniably efficient at compressing a tremendous amount of information into an engrossing and persuasive format.

The key point to realize, however, is that simply presenting any information (textual, graphical) on a computer screen means that information will always acquire some element of motion so it is not possible to simply use motion only as “part” of a production when, in fact, the entire screen production (and everything that appears on the screen) is driven by motion.

The primary issue for designers who realize that they are now using motion throughout their entire creation on the screen is deciding what kind of motion is essential for the effective presentation of information, and deciding what kind of motion is simply a distraction, or worse yet, what type of motion can be so confusing it drives away viewers. A film maker’s solution for determining how to present motion revolves around the knowledge that when motion is used in true cinematic fashion to efficiently communicate information about time, space and direction, it is never distracting (Stoehr 2002). To improve what we do as professional technical communicators we need to educate ourselves as film makers so we can have more control over the motion inside our screen presentations. This shift in identification and training can be difficult for information designers and technical communicators who have, thus far, only been trained to frame or mediate information through the static format of the printed page.

The fact that many new media designers and technical communicators do not have any specific film training does not seem shocking—most professional information designers don’t have any training in film and its related technologies because, until very recently, they haven’t needed it. We are a society designed to consume filmed images that speak at us through the dynamic screen in one-way conversations (DiSessa 2000). The television and the movie screen show us things, but (until very recently) viewers have not been asked to show anything back into the system. Therefore, most of us don’t communicate through the system of motion pictures with any parity, and we don’t interact with the system as creators but instead remain fairly permissive and passive viewers of screened information (Lunenfeld 1999), (Wagman 1998).

Professionals with extremely specialized training have, for a long time, controlled the production and distribution of moving images, and most of these professionals (with a few exceptions) have not been considered a central component of our field. Until very recently, the field of technical communications has largely stayed outside the system of cinematic production—we may occasionally make use of film in our work (e.g. adding a few “how to” film clips to an online help system), working as somewhat sophisticated consumers who use film as an add-on to our process instead of as the central, guiding focus for what we do as information designers and technical communicators. But if we are going to remain effective as professional communicators who now reside in a technical landscape increasingly defined by cinematic means of presentation, we must start thinking of ourselves, at least to some degree, as film makers (Zimmerman 2001).

ESSENTIAL QUESTIONS GUIDING THE USE OF MOTION

To help us decide how to effectively incorporate cinematic techniques into an interactive information system or as an important part of a system’s interface design, we need to first answer a few fundamental questions:

- 1) How does the way we view the motion picture screen influence how we use the interactive, cinema-like screen? Essentially, how do viewers see the screen?
- 2) Where do we look to in the history of cinema to find the essentials of film defined in a way that is still relevant for use today not only for modern cinema but also for interactive computer screen presentation? Essentially, what can the experience of early film teach us?
- 3) What is the best way to use motion so that motion is not distracting, but instead becomes a vital part of leading viewers toward the information we want to present? Essentially, how does cinema clarify motion and intention?
- 4) What is the best way to present the sense of depth, space, time and order of a system's information structure through the three-dimensional information space made possible by the effective use of cinematic technique? Essentially, how does cinema help us improve new media design?

QUESTION ONE: HOW DO VIEWERS SEE THE SCREEN?

Many of us may not consider ourselves as film makers, but we certainly are well trained to be effective consumers of the moving image in a world saturated by screens. We are acutely aware of the screen when sitting in a cinema theater or when watching a television, but with the arrival of pervasive computing, screens have crept, often unnoticed, into even more areas of our lives (Joyce 2000),(Rosello 1994). All around us screens flicker as animated images and onrushing streams of moving text swiftly slide from corner to corner, from top to bottom, from virtual page to page, pulsing with color, fading between light and shadow as these screens refresh themselves, draw and erase, flicker with life then dissolve into darkness. Some screens are silent, but many are accompanied by sound. Screens beep, sing, click, and hum, often in direct response to our engagement with what passes before our eyes.

VIEWERS SEE THE SCREEN AS A CONVERSATION

Many screens talk with us through a fairly crude, stutter-step conversational exchange, pausing the flow of information across the screen to ask us direct questions. Yes or No? Save or Delete? Go Back or Go On? We click on a button to signal our response, an accompanying beep confirms our intentions, the screen flickers then shows us something new. But what, exactly, is a screen? And how is motion used to create this sense of conversation between the viewer and the screen?

In Lev Manovich's important work in the field of new media theory, *The Language of New Media* (2001), Manovich swiftly summarizes many years of visual media design and receptivity theory into his definition of the "classical screen" (Manovich 2001). He notes that the modern period of Western culture is "...characterized by an intriguing phenomenon—the existence of another virtual space, another three-dimensional world enclosed by a frame and situated inside our normal space. The frame separates two absolutely different spaces that somehow coexist." He then defines the classical screen as "a flat, rectangular surface...intended for frontal viewing—as opposed to a panorama...it exists in our normal space, the space of our body, and acts as a window into another space. This other space, the space of representation, typically has a scale different from the scale of our normal space." (Manovich, 2001,

pp. 95-97) This is the screen that we have become accustomed to for the presentation of still images framed in painting or framed by the borders constraining a photograph or an illustration on the printed page.

When we introduce motion into this frame, the classical screen becomes, according to Manovich, a "dynamic screen" that imposes a specific viewing regime with the viewer, capturing the viewer's attention as a crystal ball does in story, taking the soothsayer on a journey that continually presents a new horizon while also offering, or at least implying, an unlimited field of view leading up to the next horizon. The dynamic screen, like a crystal ball, can also show visions of futures yet to come, visions of contemporaneous reality, and visions of worlds long past. And much like the crystal ball of fable that only shows "part" of the event (usually leaving out vital information to give a scene "context") the dynamic screen provides a highly subjective presentation of what appears inside the visible "frame."

Once motion is incorporated into the classical frame, images presented inside the frame and on this now dynamic screen are no longer neutral (if they ever were: a great many media theorists, especially Barthes, would debate the supposed neutrality of the static image) (Barthes and Balzac 1974). Manovich claims that "...the screen is aggressive. It functions to filter out, to screen out, to take over, rendering nonexistent whatever is outside its frame." The most important element that is intimately connected to the presentation of motion on a dynamic screen is the element of time since time and motion which are intimately linked with how we perceive and navigate the world (Aleksandrov and Gorskii 1991).

VIEWERS SEE THE SCREEN AS A PARALLEL TIME FRAME

The presentation of motion through time allows for the accurate recreation of a consciousness navigating through space, a space that exists in a specific time of its own (the time of the recording). But the time presented in a dynamic frame is different than the time presented in a classical frame for a painting or a page of text because a dynamic screen presents images that "live" in their own, ongoing and active time frame that seems to exist for the viewer in parallel with the viewer's own time. Screen time and "real" time exist in parallel as long as the screen remains active and filled with moving images.

Even with rather extreme differences in how they represent time and space, the classical screen and the dynamic screen are similar by serving strictly as one way forms of communication—presenting information from the world inside the frame out into the world of the viewer, and then beyond into the frame of the viewer's consciousness (Dalle Vacche 2003). It is in this last transition, when motion from the frame escapes into the frame of the viewer's consciousness that the unidirectional sense of "communication" becomes somewhat misleading to the viewer of the dynamic screen.

The regime of viewing that the dynamic screen promotes does draw the viewer in and, to some degree, makes the passive viewer feel connected to what she is seeing, thereby implying that there is also a degree of give-and-take, a meeting of consciousnesses that is part of the process of viewing moving images on the screen (Metz 1974). This implied sense of participation or this meeting of minds (the mind of the viewer meeting with the consciousness

that seems to inhabit the moving images on the screen) accounts for why lonely people turn on the television in an empty house for “company” and partly explains why audience members shout back at the movie screen to warn characters of the man with a knife hiding behind the bathroom door. We shout at the movie screen or seek the companionship of a flickering television screen because in some primal way we believe someone is there with us when the screen is lit, that there is some degree of consciousness in the screen itself.

VIEWERS SEE THE SCREEN AS CONSCIOUS

The presentation of motion on a screen and thereby the connection of that motion with its own time implies to the viewer that an active consciousness is giving life to the images that the viewer sees; the presentation of motion progressing through time tricks viewers into believing that someone is showing them the world on display at exactly the same time when the viewer sees it. This sense of parallel and to some degree “paired” consciousness that accompanies the presentation and viewing of moving images on a screen is what gives film and television their undisputed and highly seductive powers of persuasion (Mellencamp and Rosen 1984), (McLuhan 1962). But what happens when we revise this screening system yet one more time, adding true interaction with the screen, such as when we use the computer screen? And what happens when that interaction is negotiated through a shifting series of screens, within screens, within screens, as we now we see with all modern graphical user interfaces and in interactive on-screen information systems?

INTERACTIVE SCREENS ALLOW USERS TO TOUCH ANOTHER TIME FRAME

We now interact directly with our screens through a variety of input devices including even being able to touch the physical construct of the screen itself, and by implication, often therefore touching one or more of the virtual “screens” floating within the physical frame of the gadget on our desk or in our hand. Being able to actually “touch” the images on the computer screen and move them around, rearrange them, delete them, shifts users from being a passive viewer of the time and motion presented on the screen, to becoming part of the time and motion of the screen itself—interaction between a user and the elements on the screen shifts the user directly into the life of the screen itself.

Once users step into the world of the interactive screen they exist in the time of that screen where they can read texts, view video images, turn on and off various functions, pull down items, put things away, move items atop or below each other, and can then move backward, forward, up and down throughout the system. When connected to the Internet, users can also travel to far parts of the globe where they interact with distant collections of screens, pages, and windows that seem to also coexist in time and space with the user’s local screens, local pages and personal set of windows.

As users employ, guide and respond to the on-screen motions of a software system they break through the wall of the screen and step into the “movie” of the system itself and this is where the true power of cinema can best be put to use in the presentation of information. If the world of information that users step into is conceived, from the start, as a film, as a truly immersive form of cinema, then the experiences that the user has and the environ-

ments that she visits as she navigates through this “virtual” world will be consistent, reliable and persuasively communicative. In other words, if designers think of everything they create for the screen as a form of cinema, and employ the language of cinema extensively all through their work, then the information systems they create will be more effective and immediately “useful” for that system’s users.

Deploying cinematic technique properly allows designers to provide users with a finely nuanced sense of depth, space, time and order well beyond what is possible by using the static forms of presentation allowed by the printed page or the static image. Interactivity is motion. Cinema has developed the most sophisticated techniques for presenting motion on the screen. Therefore cinema must become an essential component for designing effective on screen presentations.

The incorporation of cinematic motion into information presentations means technical communicators need to begin thinking about how to present visual setting (establishing shot), spatial orientation (master shot), pacing (editing), motion vectoring (cutting to follow action), and shifting spatial composition for emotional and intellectual effect (montage).

QUESTION TWO: WHAT CAN THE EXPERIENCE OF EARLY FILM TEACH US?

To find a set of techniques that can better guide us as technical communicators and designers, we need to look at some of the basic techniques that guide film makers in constructing persuasive worlds for the cinema screen. The problem with looking for these fundamentals is the fact that we are now surrounded by extremely sophisticated cinematic formats that often intermix many techniques at once, therefore making the fundamentals difficult to immediately recognize. But by looking back to the start of film, when cinematic techniques were just beginning to develop, we may find it easier to examine some film fundamentals that we can then bring forward into our own work as designers.

EARLY FILM RECONSTRUCTED THE IDEA OF MOTION

Film as we know it now essentially began as a documentary format and was often advertised for its scientific possibilities and its ability to “honestly” document real life. This promotion of film as a semi-scientific form for careful documentation was a concerted effort to separate the early medium from the peek-show, vaudeville-like entertainment and low-class venues where its visual progenitors had mostly been put on display (Grant and Slnowski 1998). Promoting film as a serious component of science certainly made it easier to raise research and development funds from “respectable” sources and it has also endowed the medium with an element of “truth telling” that has never quite disappeared no matter how fanciful and fantastic films have become (Mellencamp and Rosen 1984). The writings about film from many early film makers are often filled with the sense of mission toward truth telling and documentation that is strikingly similar to the mission of the dedicated technical communicator. The focus of much early film was on making the presentation of the moving image as life-like and as “real” as possible.

EARLY FILM CONSTRUCTED CINEMATIC TIME AND SPACE

Because early film was brittle, cutting it was difficult. But as the format improved filmmakers began to connect different strips of film (shots) together as they worked through the first experiments with film editing. Film makers discovered that when their edited shots were arranged various repeating sequences they were able to impose an external “beat” on the individual shots and this type of editing is what eventually came to be known as montage. The projection of the filmed image itself, uncut, can connect the viewer to the “space” and “time” of the image simply by presenting moving images on a screen. But it is editing and montage that allow the film maker to expand and fully explore the dimensions of space and time surrounding her moving images (Metz 1974).

Even though constrained by how often they could edit a single strip of film, early filmmakers were still acutely aware that editing strengthened their presentations. Many early film discussions about the medium deal directly with the relationship between consciousness and the filmed image, and then go on to note that this relationship is made even more apparent through judicious editing (Colebrook 2002) (Williams and Gledhill 2000).

The majority of cinematic techniques that early film makers discovered when first using and discussing their new medium are still relevant and are widely used today as the underlying essential components of every competent cinematic presentation (Flaxman 2000). In the same way that we still refer to the rules or “poetics” that Plato, Aristotle and Cicero established for constructing a persuasive oral or textual argument, film makers today still depend upon the classic techniques of cinematic construction established by the medium’s first artists and developers.

QUESTION THREE: HOW DOES CINEMA CLARIFY MOTION AND INTENTION?

Film making eventually became a highly complicated technological endeavor, requiring the assistance of many people with different specialized skills and access to large amounts of capital; but when it was in its infancy it was a fairly simple medium that did not require extensive, specialized technical skill and therefore what passed through the lens onto film was often under the complete control of one or two people who also often considered themselves to be artists or documenters of a kind (Metz 1974).

The first decade of film’s development was as close as the medium came to the sensibilities of painting in terms of being truly the expression of a single artist working with a single medium. Additionally, the turn of the century was the age of the artist as a provocative and somewhat influential social critic, as technological innovator, as counter-cultural rabble rouser, as visual rhetorician, and as the author of many a passionate manifesto (I. Ureneva, et al. 1981). In early 20th century Russia the role of the artist as revolutionary and social thinker was paramount and many of these artists were often quite articulate in text as well, therefore giving rise to some of the most technically practical and theoretically influential writings about how the new medium of film could be put to use to influence diverse audiences.

The Russian filmmaker, Sergei Eisenstein (1898-1948), is considered one of the world’s first truly important narrative and polemical filmmakers, and is also credited (incorrectly) with inventing the film montage, or sequencing of specifically timed edits for emotional impact. Many of Eisenstein’s films have survived and are still studied in academic film programs, not only because they were early examples of editing for emotional impact and narrative control, but also because his film work is still quite astounding, evocative, and emotionally compelling.

Eisenstein is important not only as a filmmaker, but as a writer and theorist who practiced his trade while also developing the theories that informed it, therefore making him ideal as a source for a useful, practical set of techniques for properly and persuasively assembling and then presenting screened motion. Eisenstein is important because he was an innovator in the medium itself, but was also the author of a number of insightful manifestos and poetics that still influence filmmakers nearly as much as the images he captured on film (Christie and Taylor 1993). The primary reason Eisenstein’s works are still studied and referenced today is the same reason we return to Aristotle’s *Poetics* when teaching writing: Eisenstein firmly established the rhetoric, the techniques, the “poetics” for the moving image that has taught all subsequent film makers how to clarify the motion and time of real life into a cohesive, persuasive and memorable visual statement that exists in a time and with a life of its own on the cinema screen.

CINEMA DEFINES RHYTHM THROUGH MONTAGE

One of Eisenstein’s most important written works was a book-length presentation of his theories about film poetics, *Film Form*. This book is, in fairly equal portions, a polemical statement about the power of film as received by the individual viewer combined with a Marxist-centered discussion of how to use that power for persuading mass audiences through the judicious organization of some fairly simple montage sequences (Eisenstein, et al. 1998). While many people today would consider the Marxist sentiments in this work as somewhat quaint, the set of guidelines for creating effective montage that Eisenstein proposed in 1929 and the persuasive visual rhetoric he derived from it remains quite relevant. What then, are Eisenstein’s thoughts about montage?

The first thing that a viewer notices about any montage is that it creates a visual “beat” or a sense of pacing for the entire sequence of images. This beat either builds upon the internal pace established by the motion of images across the frame in every individual component of the collage, or it imposes a completely different beat structure of its own, or it works as a combination of the two. Montage techniques derive their rhythm through repetition and from imposing a structure in time that is slightly external to the time of the images themselves, thereby strengthening the sense of consciousness that is already an inherent artifact of the screened moving image.

In brief, there are five techniques Eisenstein recommended for building various effective visual beat structures through montage:

1. Metric
2. Rhythmic
3. Tonal
4. Overtonal
5. Intellectual.

METRIC MONTAGE ESTABLISHES PARITY

Metric montage arises from the physical aspect of cutting film itself. Using metric montage, a film maker assigns a certain number of frames to the display of one thing, and then assigns the same amount of frames for displaying something else, thereby creating parity or equality between the images power of representation. For example, imagine that a film maker wants to show the events that lead to a dog chasing a cat. The film maker first wants to show that the dog sees the cat and is thinking about chasing it. At the same time, the film maker wants to show that the cat knows it is being watched by the dog and is therefore considering running. To demonstrate that the dog and the cat are considering the upcoming chase with same degree of attention, the film maker uses an identical number of frames to display a close-up of the cat's face as he does to display the face of the dog. Once the chase begins, and the film maker cuts back and forth between the cat and the dog, the shots of each animal may be shorter, but through the use of metric montage, the amount of time (frames) devoted to each remains the same.

The process of creating a metric montage is an obvious element of film production, and is the first thing editors learn when cutting film, but in new media work it is often ignored because designers often don't realize they are working within a cinematic medium and therefore are often moving from shot to shot as they "direct" users through the various screens or "scenes" in their projects. Therefore, this basic cinematic technique for establishing equality is often mismanaged, not by jumbling many different paces at once, but instead by making everything in a system appear at the same rate—the equivalent of cutting together an entire film so that every shot in the film takes up exactly the same amount of screen time.

When first determining how long a specific shot should appear on screen, most print-trained designers who do not think as film makers, often try to achieve a type of overall metrical parity with their design, making sure that everything remains on the screen for the same amount of time. This effectively flattens the presentation of information, making everything equally important, and therefore also making everything identical and hard to distinguish with any form of hierarchy. A classic example of this misapplication of metric montage is a standard PowerPoint presentation used in a public kiosk, set to automatically click through every slide using a set rate, thereby making everything equally important, and possibly also equally boring.

Technical communicators organize their texts with heading structures, call out boxes, captions, and headers and footers to visually identify the levels of importance for the information on the page. When preparing technical information for screen presentation we should attempt a similar form of information ranking through the proper use of metric montage. If the information briefly appears, it is clearly of secondary concern, and shots of text and graphics that appear for a longer period of time on the screen are of more importance. If those longer shots all appear for identical periods of time, then the viewer assumes those shots, and the information they contain, are of equal importance. Screen time can therefore be used almost exactly the same way we use textual classification systems—short screen time equals titles, longer screen time equals major headings, longest screen time equals the body text or the most important piece of information on the page.

RHYTHMIC MONTAGE FOCUSES INTERNAL RHYTHMS

Rhythmic montage creates a "beat" driven by the length of the shots themselves (as with metric montage), but a rhythmic montage is also created by the motions of key elements inside the frame that move (with rhythm) during the length of each shot. The example Eisenstein refers to in *Film Form* comes from the step sequence in his film, *Battleship Potemkin* in which he created a rhythmic montage showing the boots of soldiers marching down a wide set of stone steps, advancing on protestors gathered below. As the soldiers descend they also raise their weapons and prepare to shoot into the unarmed crowd. Because the motion of the boots inside each shot has a beat of its own, the length of time that the film maker shows the boots varies depending on how long it takes each foot to raise and then strike a step. The strict rhythm of the soldier's boots that marks their approach is played off the disorganized and therefore un-rhythmic movement of the protestors—this contrast of rhythms immediately gives visual power to the soldiers and reveals the weaknesses of the protestors who are about to be overcome and killed.

This sequence is commonly also referenced as a demonstration of how cinema can effectively compresses an event that takes place in a large space, with many actions occurring simultaneously, into a single, manageable screen space that presents one specific statement about what is happening. But it is the rhythm of the soldier's boots and the cutting of the film to match that rhythm that drives viewers through the sequence.

Rhythmic montage allows a film maker a greater freedom in structuring the cuts from one element to the next and allows the content of the images to drive the beat just as much as the length of the shot itself. Rhythmic montage is used a great deal in the presentation of dance on screen, thereby letting the beat of the dancers themselves drive the cutting forward.

For new media designers, the use of rhythmic montage means becoming aware of the internal beat created by the elements moving through or across a specific scene or component part of a new media object, and then matching the cutting from scene to scene, or part to part, to best adapt to the beat established by the already-existing motion of the specific elements. Cutting away too soon, or not letting the action of a scene complete itself before moving into a new area breaks down this beat and therefore leaves the viewer feeling some important sequence has been interrupted, or that something is wrong with the presentation technology. But more importantly, by using rhythmic montage effectively, the new media designer can call attention to the internal rhythmic structure of a section of the work, allowing users to focus on the activities associated with that rhythm. An obvious example of this is the beat structure established by the montage of moving from screen to screen (or essentially, from shot to shot) when using a familiar ATM machine to get cash.

Most ATM users are able to adapt fairly quickly to the different locations of screen elements that provide the basic functionality of a standard ATM (get cash, view account information, deposit money) because not only does the key set of functions remain fairly consistent from system to system, but so does the beat structure established by how long each screen remains after an action has been indicated by user interaction with the system. While color, composition, and textual arrangement are all memory cues for users in system design, users most easily remember the beat of a familiar physical or visual process (Attneave 1972). With

an ATM machine, the montage beat of screen information (visual) is directly connected to the beat of pushing the system's buttons (physical)—insert card, pause, select *withdraw money*, select *checking account*, select *twenty dollars*, pause, retrieve cash, retrieve card, pause as system resets (beat—pause—beat, beat, beat—pause—beat, beat—pause: an almost melodic structure). A well designed interface for an ATM machine should ensure that the visual beat of the on-screen information is closely connected to the physical beat of using the machine itself and that the system follows the beat structure most ATM users have come to know through thousands of previous uses (Norman 1988). If the visual beat of the system's screens or "shots" is familiar for the user the system will feel easier to use and will give the user more confidence the transaction has been secure and successful.

What immediately would capture a user's attention when using a new ATM system would likely not be the introduction of new screen elements, but instead an interruption with the pace of the rhythmic montage that the user has come to associate with the use of trusted ATM systems. A disruption in the pace immediately indicates to the user that an entirely new shot has been added to the familiar sequence (a new screen that asks additional questions from the user, or that provides additional information about the transaction). Or a disruption in pace indicates to the user that something is wrong with the transaction, and that a warning screen of some kind has just appeared, is about to appear, or worse yet, that something mechanical has gone wrong with the machine itself. For the interface designer, being able to work within the constraints of the rhythmic montage inherent in most ATM interfaces may be a more important when updating the system's design than determining the arrangement of the textual or visual elements on any individual screen.

TONAL MONTAGE STIMULATES MEMORY OF EXPERIENCE

Tonal montage follows the cognitive reaction audience members have to certain presentations of real world experiences. For example, if the images show an environment filled with fog, then we know from experience that people become more hesitant to move forward quickly, and more suspicious of their surroundings when surrounded by fog so they move ahead slowly. Therefore, when creating a montage of elements that deal with fog, the cutting for the sequence needs to be slower, lingering on specifics to help "guide" viewers through the environment, and also (if the film maker wants to heighten the sense of hesitancy and caution), providing cuts to elements that are so brief they only suggest what is there as if those shots were themselves dissolving into the murk of the fog.

For the new media designer, employing tonal montage means being aware of the how people navigate through and understand real world environments, then look for those "real world" elements in the on-screen work and cut with them (presenting them in montage) in a manner appropriate for heightening the natural cognitive response to those elements. The goal here is to help the user make a link to real experience by matching the time of on-screen presentation with the way time is structured when experiencing the same event or action in real life.

Consider the creation of an interactive web site for an artist's retreat along the coast of Eastern Florida. This retreat is known for existing apart from the rhythms of the modern world. There are no

phones or televisions in the artist cabins, and all the studios and cabins surround a communal eating hall where the artists gather every night to cook and share a meal. The retreat is surrounded by many acres of undisturbed wetlands that connect directly to a long stretch of preserved beach along the Atlantic shore. The pace of the location is measured by the weather, the ocean tides, and the work that the artists create in isolation but then share in public workshops every other day during their stay.

When creating the Flash-generated web site for this retreat, the new media designer should match the rhythms of the physical location with a tonal montage that follows the rhythms of the retreat. Images of the beach and wetlands serve as backgrounds for the site, slowing shifting from one "shot" to the next in a tonal montage matched to the rhythm of ocean waves and lazy afternoon breezes. But when the user selects an option to learn more about the workshops—discussion sessions that can be rather frenetic and fast-paced—the snapshots taken at a recent workshop click by quickly, a fast slide show that matches the tone of the fast-paced workshop sessions. The user can choose to explore through the site using a map that appears on every screen, simulating a self-guided tour of the location itself. The overall tonal presentation is slow, using rhythms matched to the quiet surf, the breeze, and to a wandering exploration of a new place. In the same way that a filmed documentary of the retreat would use a nature-centered tonal montage for cutting together shots of the place, the web site is constructed with the same, nature-timed tonal montage in mind.

OVERTONAL MONTAGE REINFORCES EXPERIENCE

Overtonal montage follows the cognitive component of the tonal montage, and then adds emotional response to it through additional montage elements that repeat or strengthen the original intention of the basic tonal montage. For example, when cutting together a sequence of people going to sea in small boats, the "reality" of the situation means that audiences members are going to be already aware of the "beat" of the ocean waves, of the sense of drifting, the sense of pushing through the water, and of the emotions of being the small element cast adrift on a "force" much stronger than a single person or even a small group of people.

The original tonal montage cuts from person to person, from boat to boat, using the underlying "beat" of the waves for guidance and the raising and falling motion of elements in the frame. Overtonal montage therefore cuts together longer sequences that follow this essential wave/beat structure, and perhaps linger on shots of the sky where clouds are building and include lengthy shots of the ocean itself spreading into the distance, and showing long shots of the people on the boats that make them small specks of motion set atop the much larger and more powerful motion of the ocean itself. This form of overtonal montage heightens the sense of powerlessness and isolation that might make the audience begin to worry about what is about to happen to those people on the small boats.

For the new media designer, overtonal montage means looking at the entire presentation of motion throughout the length of a system's presentation to see if the "beat" for the montage is in tune with, or somehow accompanies the already present tonal montage elements in the work. Expanding on my example of the web site for the artist retreat, an overtonal montage would work with the opposition between the rhythms of the workshops (frenetic, spontaneous) and the rhythms of the surrounding natural environment (cyclic, pulsing), playing them off each other in an

overtonal montage of increasing conflict (fast—slow, slow—fast, fast—slow, slow—fast, fast, fast—slow) as the user progresses through the site, representing the state of mind of the average artist who visits the retreat and finds that her artistic rhythms speed up as her work develops and benefits from the fast-paced exchanges with other artists. While individual tonal montages serve to match specific elements of the site to aspects of the physical location, the overtonal montage serves as the “statement” of the piece itself.

INTELLECTUAL MONTAGE ENCOURAGES VIEWERS TO TAKE ACTION

Intellectual montage is a montage technique Eisenstein positions as the final culmination of all elements of montage working together to motivate the viewer to take action in support of some kind of socially progressive cause. This is essentially an effective use of all the previous forms of montage that encourages the viewer to think about things from a fresh perspective and, most importantly, to then take action based on this new point of view.

Intellectual montages that combine a powerful combination of metric, rhythmic, tonal and overtonal montage techniques are most apparent in high-end television commercials and in music videos (which are also commercials of a sort). The goal of all these intellectual montages is to create a “need” for a specific new gadget of some kind. The directors and editors of these commercials now use Eisenstein’s montage techniques to perfection in a way that would certainly horrify Eisenstein since the techniques he developed and championed are now being used to feed and support the very capitalist systems most of his life’s work attempted to discredit and defeat.

The essential power of intellectual montage is vitally important to the new media designer and to the technical communicator since this form of montage encourages the user (viewer) to take specific action. Interactive information system depends on properly guiding users toward the specific information they seek inside the system. Using intellectual montage techniques in an interactive information system is a very efficient method of guiding users, through cinematic motion, exactly to where the designer wants them to go. In the example presented above, the web site designer for the artist colony has been hired because the retreat wants to attract more artists to the apply—the site wants to “sell” the retreat. Intellectual montage can be used throughout the site as a selling and guiding technique.

A useful application of intellectual montage throughout the site would combine metric, rhythmic, tonal, and overtonal montage elements to not only sell the web site user on the value of the retreat, but to also encourage the user to take the next step of asking for more information, or even going as far as signing up for a stay at the retreat. To do this, the site designer would make use of metric montage in the early parts of the site to create a hierarchy of information, with shots that briefly appear at the start to build the title for the site, then using slightly longer screen time to display the major categories of the site itself. Tonal montage would then be used to give the user a “sense” for the rhythms of the actual location, followed by the use of overtonal montage to lead the user through the experience of creative awakening that a stay with the retreat would foster.

Once the user has been convinced of the value of the retreat, he can be directed into the registration section of the site that follows

a rhythmic montage similar to the pacing of an ATM machine asking for name, contact information, credit card information, and concluding with the step of pushing the “submit” button. The intellectual montage has therefore done its job by convincing the user that a stay at the retreat would be valuable and so the site deserves to receive more information or even money from the user—the user has been encouraged, through the use of montage, to fully explore the site, to understand how the artist retreat functions, and to then take action based on this new understanding.

CINEMATIC FRAMING GUIDES VIEWERS THROUGH SPACE

While editing different shots into a persuasive montage is a key part of presenting motion on the dynamic screen, the composition of the elements inside the frame of each one of those individual shots is equally important. Effective cinematic presentation relies not just upon the use of motion and montage, but also in the construction of carefully composed shots that use the rules of visual composition and ordering developed from centuries of painting and still-image representation (Blakesley 2003). Techniques learned from painting and still photography have educated designers in how best to direct the eye across a composition through the use of color, size and by using a vanishing horizon to present depth and thereby a sense of spatial orientation and ordering (indicating to viewers what is close, and what is far away, inside the space of the frame). As technical communicators, we already know how these rules of composition apply to the printed page especially when incorporating graphics with text, therefore we are already familiar with many of these standard precepts for static visual presentation, especially when we apply them to providing “directional” clues to our users (Farkas 2000).

The dynamic screen is concerned with framing not just for the ordering of elements in the frame but for forcing viewers to look in a certain direction, at a specific time. In the three dimensional information space of cinema, objects move in and out of frame, and the frame itself moves through the environment that it presents, continually shifting the composition of all the elements it contains while it moves, continually forcing the viewer to recalculate where the frame “is” inside any filmed sequence, forcing the viewer to imagine what is just past the frame, what is just about to appear from the left, right, above or below, and what is just about to vanish from view (Rieser, et al. 2002). The movement of the frame through the space that it presents positions the viewer in the privileged position of the camera operator. By placing the viewer behind the viewfinder of the camera, cinematic presentation strengthens the impression that what appears on the screen is the view of a parallel time and space that is actively being “seen” by the consciousness that lives in the screen.

For the classic screen, color and size are used to draw the viewer (reader’s) attention to a certain part of the page or canvas, this is a process of hinting that relies upon the viewer (reader) to actually taking the initiative to look in the intended direction. For example, the classic screen uses brighter color to draw the viewer’s attention over darker color, and the representation therefore of light asks the viewer to look away from shadow. This look can take place at any time, and it varies between viewers and readers who all approach the work at their own pace. Because the classic frame is static, if the reader looks away for a moment, glancing up at the corner of the page, or to the center of the canvas, she can always look back where she started since the frame and the images it contains are

not moving, the images are not going to go away or slide off the page. While the designer of the classic screen can set guideposts for the viewer, it is the viewer who still directs how she progresses through the information and the “space” that is being presented on the screen.

The dynamic screen of cinema forces the viewer to take most of the frame in at once, second by second, since elements in the frame do move, sometimes very quickly, and so the frame itself directs the viewer toward specific items, one at a time or in clusters, using a pace completely determined by the film maker. The filmmaker says to the viewer, “I want you to look here now, and see this point here, now look here, and keep looking because I have told you (through a voice off screen) that someone is going to appear from the left. Here he is. Now, follow him.” The frame effectively takes the viewer by the hand and leads him on a tour of the time and space being presented in the film, and does not let go of the viewer’s hand until the tour is complete.

Effective cinematic presentation depends upon the film maker being a careful tour guide, always providing purposeful and confident direction. Poor cinematic direction means the filmmaker doesn’t recognize the power she has over the viewer and is not truly in control of the frame, eventually leading the viewer to become lost or confused, and therefore eventually the viewer steps out of the stream of action, and the film essentially vanishes or at least ceases to exist for the viewer (Metz 1982). It is this tour guide aspect of cinematic framing that should interest us the most as technical communicators, since this is also what we want to do as designers of useful screened information systems: we want to guide users directly toward the information they seek, using a firm, confident and persuasive hand throughout the entire trip.

CINEMATIC FRAMING DEFINES SPATIAL RELATIONSHIPS

The dynamic screen radically renegotiates the concept of the vanishing horizon from the classic screen. As the dynamic screen guides viewers through an environment, the horizon continually shifts, requiring viewers to constantly orient themselves as the frame moves. If the composition of single shots (and the overall composition of an edited sequence) provides the viewer with a basic orientation in the environment, the viewer can track the motion of the horizon throughout a fairly complex series of shots. When the scene (and the viewer) shifts in time and space to an entirely new environment, the orientation process begins again. In a standard film, this orientation process is constructed through the use of establishing shots. An establishing shot is often an expansive medium or extreme long shot that shows the viewer all the key elements that will play a role in the upcoming sequence. The establishing shot is used to provide the viewer with a horizon to track, and also provides the user with basic orientation for any action that will take place in the upcoming shots. For an example of this, let us consider the way that an iconic Western movie would open its story.

When we first see the Stranger in the White Hat, an establishing shot displays a broken down high desert town huddled in the distance. The train station stands to the left of the town, along the left edge of the screen. The rail line runs away from the town and the station, tracking along the left of the frame, approaching the Stranger in the White Hat and then going past him, out of frame and directly toward us, the viewers. The horizon shimmers in a

horizontal line across the center of the frame. We may even have a hint of smoke drifting into the sky from behind the town, foreshadowing events to come but also giving us further orientation to the environment, indicating the depth of the town itself and letting us know there is more between the town and the empty desert stretching to the horizon.

Establishing shots give us an indication along which lines (vectors) most of a sequence’s action will occur. The lines of the shot I have just described indicates to viewers that the Stranger is going to ride his horse into town parallel to the train line, moving away from us toward the town, toward the horizon, and closer to that line of smoke which probably means he is moving closer to danger and the first major action of the film. Establishing shots tell viewers about genre, they give information about the spatial orientation of the world inside the screen, and they also provide clues about the major direction for most of the film’s action.

Every important sequence for any competent film begins with an establishing shot of some kind, if not immediately, at least within two or three shots in the sequence and before any major action occurs. Without an establishing shot, the audience members have no idea where they are, no idea how the elements in the environment are oriented, and therefore the audience does not have any indication where to look for action crossing the frame. When users first use a new software system they want to be introduced to this new environment in the same way that viewers of a film want to be oriented to the world in the film. As soon as a system starts up, users want to know what kind of software they are using (genre), they want to know how all the actions for the system are organized (spatial orientation), and they want to know where most of the action for the system is going to take place (direction).

When a system’s graphical interface first flickers to life, an establishing shot is essential for orienting the user to the world she is about to enter. The construction of an opening sequence should provide the user with a quick overview of all the elements she will encounter as she uses the system. Ideally, when a piece of software is started for the first time, the “splash screen” or establishing shot is actually a series of shots revealing how the system works as the interface for the system assembles itself before the user’s eyes. Each major menu appears in the center of the screen then slides the left while to the right a quick montage of images appears, demonstrating some of what can be accomplished by using elements on the menu to the left. When the montage finishes, the menu slides up into the interface becoming an active and useful part of the system. This would be a highly cinematic method of combining an establishing shot with a tutorial, and it likely would become annoying after the second or third viewing. So, once the user becomes acclimated to the system, she can turn off this feature and instead dive directly into the interface itself.

COMPOSITIONAL OPPOSITION ESTABLISHES ORDER AND STRUCTURE

Once an establishing shot, or series of shots, have been used to define the spatial relationships of the world presented on the screen, composition can be used again to play one set of spatial relationships against each other as an ordering system. Elements that seem closer, and therefore larger in the frame, can be used to indicate levels of importance—large and close indicating greater importance over small and further away indicating secondary importance. In *Film Form* Eisenstein discussed some of these forms

of compositional opposition as forms of visual conflict.

Graphic Conflict—the combination of diametrically opposed elements in a frame, such as a hard element against a soft one. In Hitchcock's *Psycho* (1960), the shower sequence uses the opposition of the hard surface of the knife appearing in the same composition with the woman's soft skin. The opposition of textures in a new media layout, with angular (hard) objects arranged over curved (soft) objects presupposes a sense of harsh interaction or movement that is indifferent to the other items.

Conflict of Planes—the way elements in the frame face each other, with one taking a "higher" plane, therefore giving it prominence and a position of power in the arrangement. When moving objects toward or away from each other, placing one in a scene shows that it "dominates" the other elements on a lower plane. When Scarlett O'Hara appears to Rhett Butler (*Gone with the Wind*, 1939) on a higher plane, from above Rhett on the stairs of her mansion, Scarlett is placed in a dominant position, even though she is the smaller element in the frame, simply because she has "position" over the man below her. As she descends the stairs her power diminishes. In a new media work, bringing an object to the "front" of the screen, slightly higher than other elements indicates to users that this element not only is available for use, but indicates that it also has control over the other elements visible in the screen.

Conflict of Volumes—the introduction of one (or more) elements in the frame that takes up more space, more volume, than other items, and which is also in direct contrast to an opposing, slimmer element. A slim homeless man in a frame will seem to be dominated by an overweight banker. The domination is produced visually not through the social position of the subjects, but instead by the space they take up in the "world" of that frame. Volume also can indicate speed, assuming that the slimmer object would move faster. In a new media work, especially when using three-dimensional modeled elements, viewers expect a certain ponderous motion from elements that take up more volume, and speed from those with less volume. Power and domination between the objects will also be assumed, with more power initially given to the item with more volume.

Spatial Conflict—an obstruction to our view, or the construct through which we look is given prominence and influences everything else that we see. In one of the "memory" sections of Orson Wells' *Citizen Kane*, the audience watches Kane's parents sign away their child to a rich man who seeks an heir. While watching the parents plan the child's future, the composition arranges a window that allows us to watch the child Kane playing outside in the snow with his sled (Rosebud), oblivious to how his life is about to change. The house dominates the shot and is dark (while the outside snowfield is light, lively), foreshadowing that the change to come may ultimately not be in Kane's best interest. The house is also confining while the outside is free and open, indicating the two paths Kane's life could take. In a new media work, the construction (window, porthole, web frame, browser window) through which the user views or works with other elements determines how the user will interact with the elements being presented. The designer can provide use the frame within a frame to not only draw the user's attention to the area inside the innermost frame, but to also clearly identify the fact that the information in the innermost frame is descended from the information that comprises the outermost frame.

STORYBOARD FRAMING CHARTS DIRECTION AND SHAPE

Setting up all the montages and compositional oppositions for an extended sequence or for an entire film requires a detailed knowledge of all the motion of the film's sequences will interact with each other throughout the "time" of the film. To help chart all this action film makers often resort to using storyboards that lay out, like a comic book, all the major actions for long sequences, or even lay out all the major shots for an entire film. A storyboard not only demonstrates the composition of elements inside a frame, it also indicates the direction of action (the vectors) screen elements will take throughout a scene, and indicates the shifting location or movement of the frame itself. Reviewing all the frames of a storyboarded sequence allows filmmakers to carefully consider where to place the camera to capture the most effective establishing shot, and the storyboard can help the film maker decide if the overall progression of the film's motion guides or points viewers in the right direction. For the presentation of a cinematic, interactive information system, the use of a storyboard can be vital for helping a designer create establishing shots, montage sequences, and specific forms of framed motion; a storyboard helps the designer see how the users will interact with the screen elements across the entire length of a project.

Storyboarding every "sequence" or "scene" in an interactive information system allows an information designer to chart the "direction" of how that system's information is going to arrive on the screen, and where it will exit as users are done interacting with it. A storyboard can help the designer see if the overall direction of a piece is primarily rising action with many shots that include action moving up across the screen, or if the primary direction of a piece is from left to right. Once a designer has examined all the lines of action for a sequence, the designer can then better assess how well all the information presented in the system is being ordered for the user, and how the relationships between the moving elements strengthen or weaken the overall "statement" of the piece.

QUESTION 4: HOW DOES CINEMA HELP US IMPROVE NEW MEDIA DESIGN?

The limited amount of motion available for screen presentation in early systems limited the degree that cinematic technique could be applied to the design of most systems and therefore how motion was presented on screen was often not considered vital for dictating how users interpreted what they saw (Schneider-Hufschmidt, et al. 1993). But screen and computing technology has continued to improve to the point where full motion video and film can now be presented just as smoothly on the computer screen as it can on the television or standard cinema screen. Computer screens have now truly become cinematic devices and so everything that appears on these screen should follow some basic cinematic rules for directing, ranking, and pacing. The information designer, the technical communicator, and the new media developer must now begin thinking as film makers and ensure that the works they create for the screen function as effective pieces of interactive cinema.

CINEMA DEFINES THREE-DIMENSIONAL INFORMATION SPACE

Just as film makers do when first imagining their films, technical communicators need to consider the three-dimensional information space they are creating for their users through cinematic

display. The most important thing to remember about this space is that users will indeed be moving through it and so the technical communicator needs to ask a few basic questions about that space:

- How large is the information space?
- How are elements in this information space related to other elements in terms of what is close to the frame and what is far away?
- What is the central focus of the action for this space and for the overall system, and how does that action influence how elements should enter and then leave the screen environment?
- Is there more than one central information space (environment) for the system, and if so, then how will users know they are being moved to these different spaces?
- How does the transition from one space to the next affect the pacing of the entire presentation, and is this pacing in conflict with the other rhythms established elsewhere in the work?

The answers to all these questions can be found by looking to solutions already provided by film through the use of the basic building blocks of cinema: framing, editing, montage, and compositional conflict.

CINEMA GIVES SHAPE TO ACTION, INTENTION, AND DIRECTION

When thinking as film makers, the technical communicator can establish a sense of the system's cinematic life, and make use of film's building blocks for effective information presentation by:

- Building effective montages to set the pace of a system's action so users know what to expect and "trust" even when they encounter new information as they move through the system.
- Using metric, rhythmic, tonal, overtone, and intellectual montage to establish the ranking of information and to match a system's interface design with a real world experience, thereby encouraging the user to take a specific action.
- Orienting the user to the spatial relationships and spatial hierarchy of the system's information through the use of establishing shots that show a user how the system is organized and to establish expectations for where the user can go inside the system when seeking specific types of information.
- Using visual conflicts of composition to rank information for the user and to lead the user coherently from one on-screen "space" to the next.
- Designing the overall experience with a consistent presentation of motion so the user will know when she has begun a system, when she has progressed through the center of the system, and when she has finally come to the end of the system.
- Charting the entire shape and pacing for a project through

the use of extensive storyboards that not only track the static composition of individual screens, but also chart the motion of elements within each shot and the motion of the user progressing from scene to scene.

I realize it may seem extremely time consuming and somewhat unproductive to apply every component of this type of cinematic analysis and motion pre-design to something as conventional and seemingly static as a textual online help system. In many cases, approaching our current on-screen design work through a print-informed sense of design still can produce useful on-screen products. But the presence of cinematic presentation is already a central part of interactive screen presentation for gaming, entertainment software, and web promotion and PR, and it is only a matter of time until users begin to expect similar cinematic sophistication from help systems and practically everything else they interact with on the screen.

The power of cinema lies in its ability to compress a vast amount of information into an easy-to-understand visual and textual format that offers a realistic and highly persuasive window into another world. This is also what we hope to accomplish as technical communicators as we make a great deal of complex information easy to understand through compression, editing, and reformulation to then provide our readers and viewers with a view into a new world of information. Because we already share many of the goals of the film maker it makes sense to begin to learning from film making practice to further strengthen what we write, organize, develop and present on the interactive cinema screen. **TC**

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