Simulated Visuals: Some Rhetorical and Ethical Implications

Introduction
In July 2004, over a year after Hurricane Katrina ravaged the Gulf Coast, FEMA hired private contractors to conduct preparation exercises in New Orleans to ready the area for the event of a large-scale hurricane. Strategic workshops and drills were based on a computer simulation of a slow-moving Category 3 storm and Hurricane Pam and the catastrophic conditions that would result.

Although the Pam simulation predicted damage of Katrina-like proportions, the national, state, and local response to Katrina left much to be desired. How is it that no one was ready? Surely political priorities, professional ego, and other confounders played a role. This poster explores how the visuals from the simulation present structural and ethical issues that exacerbated the preparedness gap.

The table, map, and conceptual model (at right) are from workshop binders prepared by Innovative Emergency Management Inc. (IEM), the contractors who hosted the exercises. They illustrate plans and highest water levels during the simulated storm.

Simulation Shortcuts: The persuasive nature of simulations can make the subjectivity inherent to creating them. Simulatoins must make additions and eliminations and set seemingly arbitrary parameters in order to generate usable data (Winser 2001). While the Pam exercise envisioned the possibility that 300,000 people would not evacuate, phone and sewer services would be disabled, and 1,000 shelters would be required, they did not anticipate—or visually depict—a specific enough plan for the many factors that beleaguered rescue efforts.

Action plans gave general directives about managing the aftermath; however, the visuals left unaddressed many detailed specifics for addressing the magnitude of the catastrophe (US House of Representatives 2004). For example, this conceptual model does not factor in traffic, obstruction, or barriers in the rescue routes.

Virtual Meaning: Is the meaning of simulated visuals iconic (i.e., by resemblance) or indexical (i.e., by relationship)?

Even when simulated visuals do not exactly the real thing, they can still bear significant meaning. In this case, the similarity between the simulation data and what actually happened creates ethical tension.

Some argue that ethics hinge on our understanding of possible worlds (Smith 2001; Bordo 2000). Should we deem FEMA’s inaction unethical because Hurricane Pam was evidence enough for someone to believe that such destruction could take place? Or was FEMA ethically blameless because, while officials believed it could happen, the visual record of the simulation did not bring to their eyes a vivid enough possible world?

Visual Energy: Rendering simulated visuals in a user-friendly way poses a challenge to computational science (McCree et al. 1990). Simulations are opaque, insofar as they require a certain level of technical knowledge to understand. Simulated visuals, on the other hand, possess what Aristotle calls energy, since they materialize before our eyes obscure propositions and hypotheses. Energy is “the sort of thing which is perfected or completed in the very instances of its being enacted” (Newman 2002, p. 13). These visuals, then, were meant to instantiate a major crisis.

Inhumane Visuals: Sue Drage has argued that technical visuals breach ethical standards when they fail to account for the human factor behind technical information. “We must recognize the visual obligation of the visual component to support and promote a humanized and humanizing understanding of technical evidence. In other words, we should be able to humanize technical worlds” (Drage and Vois 2001, p. 266). For example, this map gives us computer-precise estimates of water levels at their highest levels. The map does not include population estimates at key areas of worst damage, such as Lower Ninth Ward and East New Orleans. Including these elements would have supremely implored for human life and culture onto the landscape of the natural disaster.

Mixed Visual Messages: Visual rhetoric has a unique capacity to persuade. Simulated animations are a hybrid between photography and illustrations—they have something of the realistic value—what Benjamin (1969) calls “aura” or authenticity of photographs, without exact verisimilitude. However, this map fails to capture the fine-grained surface details of the object—i.e., damaged buildings, and landmarks, cars and other recognizable objects under water.

The map makes an impression because it superimposes simulated water levels (indicated by the green-colored area) onto an actual map of Louisiana. The map does less of an effective job managing the visual design. For example, it does not maximize color: maps that can utilize color instead of a grayish blue to indicate flooding or red to denote hazardous damage.

Discussion
The Hurricane Pam visuals did not help communicate the event’s scope to the fullest extent. Simulated visuals are hypotethical or subjective (i.e., indicative of what could be or might be). Similarly, visuals engage modal possibilities (i.e., what one should do). If we cannot say that subjective evidence is enough with which to make final decisions, we can expect the evidence to broaden our assumptions and expectations about modal possibilities. visuals are inherently memorable and effective for conveying meaning. Therefore, we must hold simulated visuals to high rhetorical and ethical standards, since they possess the virtue (the worth and work-ings—if not the truth—if what they represent).