Seeing Is Believing: Using the Rhetoric of Virtual Reality to Persuade

Mark Ulrich
Stanford University

Virtual reality, media at its most vivid, is entering our lives and changing how we think and act through specific rhetorical techniques. This "virtual rhetoric" can be observed through experiments using head-mounted displays and position tracking systems to create persuasive and immersive virtual worlds. Through empirical, experiential, and theoretical lenses, this article describes the rhetorical mechanisms often present in virtual reality and urges the importance of understanding the subtle emotional and often manipulative aspects of virtual rhetoric.

> A passing fighter plane bursts into flames, falls out of its trajectory, and zooms directly toward him at twice the speed of sound. It plows into the Street fifty feet in front of him, disintegrates, and explodes, blooming into a tangled cloud of wreckage and flame, that skids across the pavement toward him, growing to envelop him so that all he can see is turbulent flame, perfectly simulated and rendered.
>
> Then the display freezes, and a man materializes in front of Hiro. . . .
>
> He is not seeing real people, of course. This is all a part of the moving illustration drawn by his computer according to specifications coming down the fiber-optic cable. The people are pieces of software called avatars. They are the audiovisual bodies that people use to communicate with each other.
>
> —Neal Stephenson, *Snow Crash*

Once the stuff of science fiction, virtual reality has arrived. The Nintendo Wii allows a player to swing his or her arm to make an avatar send a tennis ball flying over a net; iPhone users can download *Ball Pit* and start pointing their screens in all directions to find and destroy the virtual balls surrounding them; and websites such as SceneCaster enable people and organizations to create and share their own virtual worlds, such as shopping malls, dance clubs, or dream homes. The close cousin of virtual reality, augmented reality, combines digital data with the surrounding world: smartphone applications such as Layar use cameras and GPS to display information about a user's surroundings, so pointing a phone at a theater displays the schedule for tonight's show. Massively multiplayer online games such as Second Life and World of Warcraft allow people across the globe to interact in virtual worlds. Beyond these current commercial applications, university researchers, military personnel, and industry experts are now using head-mounted displays, tracking technology, and other advanced sensors and feedback devices to realize

Stephenson's vision and immerse users in three-dimensional, interactive virtual reality.

Virtual reality is a new, complex form of communication, and as in any other medium of communication, we can use rhetoric in virtual reality to convey arguments and change how individuals view the real world. Although the rhetoric of virtual reality has not yet been well defined, recent scholarship examining the rhetoric of images and video games can help form the basis of rhetoric in virtual reality. "Visual rhetoric" refers to the ability of images to convey arguments, primarily through invoking an emotional response. In this article, I introduce the concept of "virtual rhetoric" to examine how virtual reality persuades users. Because virtual reality functions primarily through visual feedback, virtual rhetoric functions like an augmented form of visual rhetoric. Additionally, data collected from a user allows a virtual world to customize itself in order to best convince the user. The vividness of virtual reality can give an audience a sense of immersion, enhance the emotional impact of a message, and bypass analytical arguments. The complex and subtle rhetoric of virtual reality functions primarily through this emotional impact and gives creators of virtual worlds unparalleled influence over the minds of their users. Because virtual reality's immersive and customizable nature leaves users open to unconscious manipulation and behavioral change, I argue that we must learn to be aware of rhetorical mechanisms in the creation and consumption of virtual rhetoric.

To outline the evolution of virtual reality and its increasing relevance to our daily lives, I first examine a wide range of applications and definitions of virtual reality as well as how people react to these virtual worlds. Many applications of virtual reality are beyond the scope of this paper, so I provide a narrower definition: virtual reality as head-mounted displays paired with tracking technologies. Because virtual reality is an emerging field, its rhetorical techniques have not been well defined or explored. I rely, then, on current research on the rhetoric of images as a platform on which to build a theory of "virtual rhetoric." Virtual reality tends to be processed more passively than less intuitive communication mediums such as prose or art; to examine the rhetorical implications of this passive processing, I use the opposing concepts of automatization and defamiliarization. My own experience serves as a case study that illustrates the power of virtual reality to be processed unconsciously and to produce a change in users' behaviors without their knowledge. I report on the subtle mechanisms through which virtual rhetoric can manipulate and pander to users. To conclude, I examine the potential applications and implications of using virtual rhetoric to change our opinions and behaviors. My hope is that a better understanding of virtual rhetoric will allow users to become more conscious consumers and actors in the virtual worlds they inhabit.

What Is Virtual Reality?

Every time we daydream, listen to the radio, watch the news, or talk on the phone, we experience some form of virtual reality. Any human-made representation of a reality that others can immerse themselves in, such as prose, paintings, photographs, movies, or video games, can be considered a type of virtual reality (Blascovich and Bailenson 24). Thus, numerous forms of virtual reality already exist in everyday life, and have existed for a long time. Audiences supposedly screamed in terror and scrambled out of their seats during the Lumiè re brothers' first film screenings in 1895 when they saw the image of a train moving towards them (Gunning 31). As movies achieve higher-definition visuals and sound with more realistic three-dimensional displays and better computer graphics, the sense of immersion increases, as evidenced by the recent

phenomena dubbed "*Avatar* blues." Although most moviegoers were only temporarily transfixed and awed by the movie's fantastically realistic quality, a CNN special reported that "James Cameron's completely immersive spectacle *Avatar* may have been a little too real" because some people became depressed at the thought of never actually reaching the beautiful alien world they had experienced for a moment (Piazza 1). The entertainment industry well understands the value of virtual reality: consumers enjoy immersive, alternate realities that require little personal effort and imagination. For example, visitors to Disneyland's Soarin' over California ride, which the company's website describes as "an exhilarating simulated hang-glider flight," pay to experience both the motions and visuals of hang gliding as they sit in moving chairs and watch an eighty-foot domed screen. Today, virtual reality has become increasingly interactive through game systems such as the Xbox Kinect, which uses sophisticated cameras to track users' motions, so that their "avatar" (the term popularized by Stephenson for the virtual representation of their body that appears on the screen) will mimic their moves as they play Dance Central (Leyvand et al. 95).

One of the most sophisticated and immersive technologies available today is the head-mounted display (HMD), which looks like a futuristic bike helmet featuring a screen covering each eye, effectively eclipsing the real world and immersing the user in a new, panoramic, three-dimensional world (see photo 1). The first primitive HMD was created in 1970 as a result of Ivan Sutherland's research at Harvard and MIT funded by the U.S. Department of Defense; HMDs have since been widely used and produced at the Wright-Patterson Air Force base to help pilots train in a risk-free, realistic environment (Schroeder 965). Today, top medical research and train-

Photo 1: An HMD (head mounted display) at the Stanford Virtual Human Interaction Lab, worn by Mark Ulrich (author), taken by Pamela Martinez on September 1, 2011.

ing institutions around the world, including Stanford University and Johns Hopkins University, use various applications of virtual reality to teach anatomy or practice surgery (Anderson et al.; Heinrichs et al.). Doctors can essentially have X-ray vision by examining virtual models of a patient's body created using three-dimensional imaging technology, and surgeons can practice on a virtual model of their patient multiple times before proceeding with the real operation (Peters). The cutting-edge applications of virtual reality have transformed aviation and medicine to better prepare professionals for life-or-death situations. But as virtual reality becomes quotidian, how will our minds process this novel medium?

Jaron Lanier, often described as "the father of virtual reality," started using the term in the late 1980s to describe "interactive computer-generated three-dimensional immersive displays" such as HMDs (Lanier 69; Schroeder 965). Modern virtual reality systems also use tracking technology to measure the location and orientation of the user's head in the real world, allowing the HMD to instantaneously update the display to conform to the user's perspective, so that when the user's head moves around, everything updates seamlessly. Additional sensors can be used to measure everything from stress levels (heartbeat, sweating) to facial expressions. Some virtual systems go beyond the visual stimulus provided by the HMD to include surround sound systems, haptic (i.e., touch) feedback such as moving floors or mechanical arms, and scent-producing machines. The vivid sensory stimuli and interactive nature provided by sensors all contribute towards making the virtual world vivid and realistic, increasing a user's sense of immersion. Though the themes of this article apply to most immersive virtual environments, a focus on this particular kind of virtual reality allows me to thoroughly explore, discuss, and compare similar case studies. Therefore, in this article, I use the term "virtual reality" to refer to the virtual worlds accessible through HMDs and tracking technology.

Although one can try not to process irrelevant stimuli, the more vivid that virtual reality becomes, the more one's brain will react to the virtual world as it does to the real world. In fact, fMRI (functional magnetic resonance imaging) scans reveal that watching movies (recordings of the real world) activates completely different areas of the brain than watching hand-drawn cartoons does (Han et al. 928). It may be illogical to feel fear inside a virtual world, but as an instinctual emotion, fear does not always function reasonably. In one virtual reality demonstration, popular for its ability to prove the convincingness of virtual reality, the user can walk across a plank that spans a gaping pit. In their book *Infinite Reality,* virtual reality experts and behavioral scientists Jim Blascovich and Jeremy Bailenson recounted their experience showing this demonstration to government policy makers in Washington, DC:

> One official became quite deeply immersed very quickly. He accidentally "fell" from the virtual plank and, realizing that he was about to "plummet" toward the bottom, physically lunged horizontally, desperately trying to grab the opposite edge of the virtual chasm to "hang on" for dear life. To our dismay, his mind abruptly returned to the physical world when he did a face-plant on the marble demonstration-room floor. (41)

The more vivid and immersive a virtual world is, the more one's mind reacts as though it is an actual experience. Even after designing numerous virtual worlds, when Bailenson and Blascovich visited the virtual reality lab of Fred Brooks at the University of North Carolina at Chapel Hill in 2006, they were still "tricked" by a virtual world that had better perspective-tracking technology than they were used to. When asked to walk on a plank across a pit, they could not override the

unconscious portion of their brains that believed they were really walking over a pit; they found themselves terrified and sweating. The more vivid a virtual world is, the more it feels like actual experience, and the more directly it influences emotions. Virtual reality brings novel rhetorical opportunities and challenges; it encompasses and expands the rhetorical techniques of other communication mediums.

Emotional Persuasion through Visual Rhetoric

Rhetoric, classically defined as the art of persuasion, has traditionally been discussed in the context of written works or spoken words. However, modern scholars have extended the study of rhetoric to include various other methods of communication. As the world becomes increasingly multimedia oriented, understanding how rhetoric functions in various media becomes paramount both in enabling people to persuade others and in preventing people from being unconsciously manipulated by the rhetoric of others. Pathos, part of Aristotle's triad of rhetorical tactics, can influence our humanistic side by inspiring sympathy and imagination, or it can influence our instinctual side by creating visceral associations. It is difficult, perhaps impossible, to distinguish between humanistic pathos and instinctual pathos, so in close examinations of pathos the fields of rhetoric and psychology collide.

In "The Psychology of Rhetorical Images," Charles Hill attempts to explain the results of numerous psychological studies indicating that "images tend to elicit more emotional responses while print messages tend to elicit more analytic responses" (30). He classifies images as distinct from text through their defining feature of "vividness," the amount of emotionally interesting and concrete information available, as explained by his "continuum of vividness" (31):

Most Vivid Information	actual experience
	moving images with sound
	static photograph
	realistic painting
	line drawing
	narrative, descriptive account
	descriptive account
	abstract, impersonal analysis
Least Vivid Information	statistics

Drawing compelling evidence from psychological studies in advertising, personal case stories, mock juries, and politics, Hill explains that the more vivid a medium is, the more likely the audience is to have a strong emotional response and be persuaded. Images can create vague associations—picture Ronald McDonald paired with hamburgers—which might be unacceptable if written down and logically analyzed (Burke 87). Vivid information can be processed holistically and instinctively, prompting the audience to "make a relatively quick decision, largely ignoring the more analytical, abstract information available in verbal form" (33). Since virtual reality functions primarily through images, virtual rhetoric can employ all of the techniques of visual rhetoric.

The Automatization of Virtual Rhetoric

The process through which virtual reality communicates information differs significantly from writing. Early twentieth-century Russian literary critic Viktor Shklovsky valued prose and

art for their ability to engage critical thinking and prevent the passive acceptance of knowledge. Shklovsky worried that too often people fail to critically examine their perceptions: "[I]f we examine the general laws of perception, we see that as it becomes habitual, it also becomes automatic. So eventually all of our skills and experiences function unconsciously—automatically." He describes automatization as an "algebraic method of thinking, objects are grasped spatially, in the blink of an eye" (4–5). Similarly, Hill writes that because of their vivid nature, images are "comprehended wholistically [*sic*] and almost instantaneously" (33). Shklovsky's humanist perspective anticipated what has now become documented by psychologists such as Robert Ornstein. He claims that at every moment, our senses take in a trillion bits of information, but we can only consciously consider about a hundred bits of information, so our subconscious must decide what information is most relevant. Our conscious minds are aware only of a "virtual shell of a world" that (mis)represents whatever natural selection has deemed most useful (12, 31). For instance, in the famous 1975 "invisible gorilla test," subjects were shown a video of players passing a ball; if asked to concentrate on how many times players wearing black passed the ball, about half of the subjects had no recollection of the gorilla that walked among the players and beat on its chest halfway through (Simons and Chabris).

The process of automatization causes our minds to naturally affirm what we expect, rather than invite creative and unintuitive thought. The consequence of automatically processing reality takes a very dark turn in Shklovsky's opinion, who reiterates Tolstoy's dramatic claim: "[I]f the complex life of many people takes place entirely on the level of the unconscious, then it's as if this life had never been" (5).The purpose of prose and art, in Shklovsky's perspective, is to "defamiliarize" reality; by "estranging" objects and complicating form, art makes perception long and "laborious." He views the mental gymnastics required for carefully reading complex prose as essential for creative and critical thinking (6). Prose lends itself to defamiliarization, Hill argues: "[V]erbal text, because of its analytic nature (being made up of discrete meaningful units) and because it is apprehended relatively slowly over time, is more likely to prompt systematic processing" (33). Conversely, virtual reality lends itself to automatization by using images. In Hill's continuum of vividness, we can see virtual reality as an attempt to become as vivid as actual experience and, therefore, as a medium that facilitates automatization.

Unconscious Change: A Case Study regarding Trees and Chainsaws

The Stanford Virtual Human Interaction Lab (VHIL), led by Professor Jeremy Bailenson and where I work as a research assistant, seeks to provide some insight into how virtual reality changes our thoughts and actions. In an interview with me in the summer of 2011, lab manager Cody Karutz explained the importance of investigating virtual reality from the perspective of a social scientist: "Virtual reality is becoming more accessible to people in their everyday lives, so it's really essential to start to answer these questions about how does an immersive experience really change your behavior . . . interacting with another virtual avatar for even just a few minutes can change your behavior in the real world." The many different effects of virtual avatars that VHIL has observed over the last decade include: people who are taller in the virtual world act more confidently in subsequent real-world interaction; people who see an older version of themselves in the virtual world are more likely to plan to save for their retirement; and people who experience their virtual representation either lose weight or gain it, depending on whether they exercise or remain immobile, are more likely to voluntarily work out in their real-life future

(Yee, Bailenson, and Ducheneaut; Fox and Bailenson; Ersner-Hershfield, Bailenson, and Carstensen). Virtual reality can be used not only to train and assist the best pilots and surgeons, but to persuade everyday people to act a certain way or make specific choices.

How the persuasive techniques of virtual rhetoric differ from those of written rhetoric can be better understood by the following experiment. Communications graduate student Sun Joo Ahn and Bailenson created an experiment to measure how virtual reality and written descriptions change people's pro-environmental perceptions and actions. They measured how environmentally friendly participants considered themselves before and after the experiment, and compared it with how people actually acted after the experiment. The experimenter would "accidentally" knock over a glass of water and ask the subject to mop it up using a nearby stack of napkins. Later, the experimenter tallied how many napkins the subject had used. Half of the participants were "reading subjects"—those who had read a description of cutting down a tree and imagined it happening—and the other half were "HMD subjects"—those who had used a head-mounted display to enter an immersive virtual environment (see photo 2). I had the chance to be an HMD subject and wrote about the experience shortly afterward:

> The lab is an ordinary room with a couple of complex gadgets and fancy displays, but when I put on an HMD, suddenly the room disappears and I am transported into a lush forest. As I move my head and glance around, the landscape adjusts in real time. I am holding what I know to be a mere bar of plastic attached to a mechanical arm that provides resistance and vibrates, but when I

Photo 2: Black and white version of screenshot taken on October 30, 2011 by Cody Karutz of the virtual tree world created at the Stanford Virtual Human Interaction Lab.

> look down, I am holding a chainsaw. Headphones make the sounds of birds chirping sporadically and water gurgling emanate from all around me. Soon I am instructed to move my chainsaw back and forth and start sawing down a tree. Two minutes later, the tree comes crashing down and broken branches fly. My conscious mind knows that this world is fake; I recognize that everything looks slightly cartoonish (though this characteristic of virtual reality will gradually disappear in coming years) and know that I am inside of a lab, but if I suspend disbelief it is easy to forget the outside world and immerse myself in the virtual one. I just killed a tree.

Proving the power of virtual rhetoric, the HMD subjects used significantly fewer napkins than the reading subjects, so Ahn and Bailenson concluded that "experiences within immersive virtual environments are more powerful than mere imagination [reading] in terms of transferring over to the physical world to influence actual behavior" (21). However, this does not entirely explain the results, because the HMD subjects did not have significantly different levels of self-reported environmental friendliness (in fact, the reading subjects self-reported as being slightly more environmentally friendly). Why did the HMD subjects' behavior towards the environment improve more than their conscious opinion? The rhetorical techniques of both simulations relied entirely on emotion; subjects did not get information detailing how deforestation causes many species to become extinct every year or contributes to climate change, and the simulation had no authority as authentic beyond the fact that it occurred in a lab. The participants simply experienced what it was like to personally take the life of a tree, something they had probably never done before. The experience made both groups more immediately aware of the environment, but it affected the behavior of the HMD group more.

This strange discontinuity between conscious opinion and behavior can be explained through Shklovsky's concept of automatization. Subjects who read a description of and imagined a tree being cut down went through the mental gymnastics required to activate their conscious mind and go through Shklovsky's "laborious" process of "defamiliarization," which caused them to consciously examine their thoughts (6). When asked to write down as many distinct details from the simulation as possible, the reading subjects were able to remember significantly more details than the HMD subjects. Although the HMD subjects experienced a much more detailed simulation, something comparable to the trillion bits of information offered by authentic reality, they could not remember as many details because "when users are intensely engaged in an experience, they are likely to pay less attention to and remember less of the information given during the engaging experience due to limited cognitive capacity" (Ahn and Bailenson 11–12). As Shklovsky's theory of automatization would suggest, the HMD subjects processed virtual reality passively, rather than critically examining the experience and trying to glean as many facts as possible. While in virtual reality, they were in a state of "limited cognitive capacity," in which their minds were forced to filter a trillion bits of information down to a hundred bits. In the process of this experiment, their behavior was changed more profoundly than their conscious minds realized.

The Subtleties of Virtual Rhetoric: Customizing for the User

In a virtual world, a user's actions and facial expressions can be instantly recorded and analyzed—while writers may attempt to anticipate the reactions of their readers, the virtual world can instantaneously change depending on a user's reactions. When entering a virtual world such as those described here, the user wears an HMD as well as sensors that constantly record his/her actions. Through color and infrared cameras, the virtual world can determine everything one could from a photograph—gender, body type, race, etc.—and more. Through automated analysis of facial expression, virtual reality can glean the emotions of a user at any moment, even determine what products a user finds interesting or humorous and is most likely to buy (Ahn et al.). One study examined how often the gaze of male participants would stray from the faces to the bodies of female avatars in various states of undress (Blascovich and Bailenson 49). By measuring a user's emotions or changing the virtual world to conform to the user's physical appearance or body language, virtual rhetoric can persuade more effectively without raising awareness of its manipulative nature.

The following two case studies illustrate the potentially effective and subtle persuasion of virtual rhetoric. During the 2004 U.S. presidential elections, Bailenson, Iyengar, and Yee conducted an experiment examining the potential effects of modifying avatars in the virtual world to make them appear more similar to the user. A week before the election, participants looked at photographs of George Bush and John Kerry and recorded whom they planned to vote for. However, for some subjects the picture of either Bush or Kerry had been modified: by mixing pictures of the candidate and the user in different ratios, the researchers created "morphs" that still looked predominantly like the candidate, but with eye and skin colors more similar to the voter's, the smile slightly changed. Not a single participant realized that the pictures had been modified, but indecisive participants were unconsciously biased towards the candidate who looked similar to themselves to a great enough extent to "change the outcome of the presidential election by a double-digit margin."

Other experiments have shown similar results. If someone subtly mimics the actions of another person in the real world, that other person is more likely to consider her/his opinion favorably. In Bailenson and Yee's "Digital Chameleons" experiment of 2005, a computer-controlled avatar, known as an "agent," tried to persuade users who entered its virtual world to support a campus security policy that would require students to carry their IDs with them at all times. In the control group, the agent simply gave the speech, occasionally moving his head in a natural fashion. In the experimental group, the agent's head movements mimicked the motions of the user with a four-second delay. The vast majority of the subjects did not report anything when later asked if the agent had been mimicking their actions, so the mimicry did not consciously affect their opinion, yet the subjects who had been mimicked were significantly more likely to agree with the new, stringent security policy. The rhetoric of virtual reality does not always function in a direct and recognizable fashion; only the most astute observers were even aware that they were being mimicked. The results of this experiment suggest that, through virtual rhetoric, people can automate and customize sophisticated body (and perhaps one day verbal) language techniques to encourage empathy and trust.

The Implications of Virtual Rhetoric

Examining how video games have been used to promote certain agendas may give us insight into how people in the future will attempt to use virtual rhetoric. In 2002, the U.S. Army released the controversial *America's Army* video game, in which American soldiers fight Middle Eastern combatants. It proved a brilliant propaganda move for the U.S. Army to attract admirers and new recruits, with over one million downloads only two weeks after its initial release (Hanlon). The game was designed to be "an honest representation of the service, especially regarding ethics, codes of conduct, and professional expectation," but some have accused the game of encouraging violent behavior and brainwashing young citizens to join the army (Davis et al. 9; Funk et al. 416). In a virtual reality race, China recently released a similar game called *Glorious Mission,* in which Chinese soldiers take aim at American enemies (Hiranand; McHugh). Technologically advanced media have also been used to persuade individuals to support terrorist organizations. Alarmed by this trend, NATO's Science for Peace and Security Program devoted an entire volume of *Series E: Human and Societal Dynamics* to the topic of *Hypermedia Seduction for Terrorist Recruiting* in 2007. Hezbollah's video game series *Special Force* (2003, 2007) glorifies the destruction of the Jewish state and the 2006 Israel-Hezbollah war; the cover declares that the game "embodies objectively the defeat of the Israeli enemy and the heroic actions taken by heroes of the Islamic Resistance in Lebanon" (Weimann 56; "Hezbollah Video Game"). Mahmoud Rayy, a Hezbollah official, said that the game would inspire resistance in young people by "allowing them to feel that they are in the shoes of the resistance fighters" ("Hezbollah's New Computer Game"). The rhetoric employed by both American and Hezbollah spokespeople, describing their games as an "honest representation" or "objective embodiment" of reality, shows the tendency of organizations to use games—human-designed, subjective games—in an attempt to influence users' beliefs about the real world. That the same recruitment technique could be used by the U.S., China, and Hezbollah shows that the message instilled by certain games can be easily manipulated by the game's creator. The contemporary uses of virtual rhetoric in games made by governments and organizations suggest that virtual rhetoric could transform the methods of persuasion used in advertising, politics, social reform, and even the judicial system.

In the film *Minority Report,* released in 2002 and set in 2054, when the protagonist John Anderton walks through the mall, every advertisement scans his eye, recognizes him, and calls out his name. Dystopian visions of technology such as this warn against the destruction of privacy and may cause users to take precautions and protect their information, but in 2010 Facebook creator Mark Zuckerberg said otherwise, claiming that privacy is no longer a "social norm," and that consumers do not object to companies collecting detailed profiles of them in order to create tailored advertisements (Johnson). By virtue of the sensors inherent to virtual reality, every advertisement in the virtual world could feature agents that look similar to you. Multiple advertisements could scroll by, and when your pupils dilate with excitement, the virtual world could customize itself to show advertisements more likely to suit your interests. Already, some vending machines in Japan can identify a passerby's age and gender and predict with 75% accuracy which beverage an individual from that demographic is most likely to enjoy and display a tantalizing image of it on a screen (Schwartz).

The experiments on morphs and mimicry discussed above have already demonstrated the

potential for political candidates to gain support by making their avatar's appearance more like that of their constituents or making their body language mimic the audience. But politicians now do much more than speeches and television ads to reach out to voters: the first official video game of a U.S. presidential candidate, *The Howard Dean for Iowa Game,* was created in 2003 by Gonzalo Frasca and Ian Bogost (Bogost 48). Imagine a world where political campaigns create virtual worlds for people to visit and experience the wonderful things that will happen if the candidates are elected, or the terrible consequences of their opponents' election. Rather than inspiring intellectual debate, it could invite partisan extremism by encouraging the emotional processing of politics. During speeches in the virtual world, every audience member can have a primo seat, experience direct eye contact, and perhaps shake the candidate's hand. Audiences can experience mob psychology in the excitement of cheering with the crowd—a crowd that may consist of agents instead of avatars and be entirely under the speaker's control. Each user could even receive a slightly modified form of the same speech, with multiple speech branches and durations depending on user feedback, replacing substantive political discourse with the ultimate pandering technique.

Its manipulative nature makes virtual rhetoric a double-edged sword. On the bright side, by sharing virtual worlds across the globe, perhaps we could better understand and appreciate the cultures of other nations, other demographic groups, or other ideological viewpoints. The vivid photographs of massacred civilians in My Lai and the torture endured by prisoners in Abu Ghraib helped expose Americans to "the terrible reality of war" and possibly changed the course of history by creating more empathy and awareness than a written description could (Browning). Virtual rhetoric could go beyond visual rhetoric to elicit emotional response. For example, charities could create virtual worlds that would allow users to step into the shoes of the people they have the potential to help, thus encouraging humanitarian efforts. On a darker note, virtual rhetoric could sway juries, because previous mock-jury studies have shown that juries tend to side with the lawyers who present the case with more vivid, imagistic language (Wilson, Northcraft, and Neale). Perhaps one day the most expensive law firms will be able to go beyond asking the jury members to watch a video of a computer-generated simulation and instead have them enter a virtual world and experience the crime, thus emphasizing the vividness of the presentation more than the evidence itself.

Virtual reality may create changes more fundamental to the nature of our human selves than whom we vote for or what we buy. Many of the early dystopian visions of virtual reality, such as William Gibson's seminal work *Neuromancer* (1984), characterize virtual reality as a possible refuge of escapists and sensation junkies. The intensity bar, the vividness of sensation required to provoke a reaction, seems to be constantly moving upward. Compare audiences of the nineteenth century, terrified to see black-and-white flickering trains moving towards them, to contemporary Americans watching the latest *Saw* movie as part of the growing trend critics have labeled "torture porn" (Edelstein). Blascovich and Bailenson described the terrifying effects the virtual pit world had on adults only five years ago. However, in 2011 I was in a virtual pit world and felt mostly curiosity, eagerly stepping into the void to see what would happen; I have witnessed many other teenagers do the same. As younger generations are perhaps becoming desensitized,

requiring more intense media experiences, the long-term efficacy of virtual rhetoric could be lessened.

Would this trend toward desensitization also change how we process authentic reality? It appears so, given that virtual reality exposure has helped to treat fear of heights, flying, and spiders by exposing people to their fear until they became desensitized (Emmelkamp et al.; Hodges et al.; Garcia-Palacios et al.). The same principle motivated the creation of "Virtual Iraq," a program through which soldiers can undergo virtual reexposure therapy as scientists re-create the images, sounds, and even smells of combatants' most traumatic experiences (Gerardi et al.; Halpern). In all of these cases, by repeatedly experiencing a virtual clone of reality, people become desensitized to actual reality. While very beneficial in cases where our visceral, humanistic response has turned against us, as is the case with phobias and post-traumatic stress syndrome, this desensitization is a form of automatization that could prevent people from experiencing the unexamined, simple wonders of reality that Shklovsky hoped to unlock through defamiliarization. A victim of "*Avatar* blues" wrote, "When I woke up this morning after watching Avatar for the first time yesterday, the world seemed . . . gray. It was like my whole life, everything I've done and worked for, lost its meaning." Theorizing about the cause of "*Avatar* blues" and the effect of virtual worlds, psychiatrist Dr. Stephan Quentzel said that utopian virtual worlds make "real life seem more imperfect" (Piazza 2).

By unconsciously changing their behavior as they automatically process conglomerations of sensory data, individuals can hopefully one day use virtual reality to persuade the illogical portions of their mind, and learn to finally quit smoking or hit the gym. On the other hand, because the vivid and subtle qualities of virtual rhetoric lend themselves to emotional and manipulative persuasive techniques, users must remain vigilant against advertisers and propagandists eager to use almost undetectable means such as morphs or mimicry to change their opinions. The nineteenth-century French novelist Gustave Flaubert declared: "There is no truth. There is only perception." To what extent can virtual reality be used to control our perceptions, and, by extension, our ideas of truth? How can we make ourselves conscious of rhetoric that speaks to our unconscious self? Historical trends in advertising indicate that immersive virtual reality will be used by organizations with questionable intentions regardless of our actions. Therefore, we must understand the phenomenon in order to embrace its potential to improve our behavior and encourage empathy while also guarding ourselves against manipulation.

Works Cited

Ahn, S. J., J. N. Bailenson, J. Fox, and M. E. Jabon. "Using Automated Facial Expression Analysis for Emotion and Behavior Prediction." *Handbook of Emotions and Mass Media.* London: Routledge, 2010. 349–69. Print.

Anderson, James, et al. "Virtual Reality Training in Interventional Radiology: The Johns Hopkins and Kent Ridge Digital Laboratory Experience." *Seminars in Interventional Radiology* 19 (2002): 179–89. Print.

Bailenson, Jeremy, Shanto Iyengar, and Nick Yee. "Facial Identity Capture and Presidential Candidate Preference." *Proceedings of the 55th Annual International Communication Association* May 2005. Web. 15 July 2011.

Bailenson, Jeremy, and Nick Yee. "Digital Chameleons: Automatic Assimilation of Nonverbal Gestures in Immersive Virtual Environments." *Psychological Science* 16 (2005): 814–19. Print.

Blascovich, Jim, and Jeremy Bailenson. *Infinite Reality: Avatars, Eternal Life, New Worlds, and the Dawn of the Virtual Revolution.* New York: William Morrow, 2011. Print.

Bogost, Ian. *Persuasive Games: The Expressive Power of Videogames.* Cambridge, MA: MIT P, 2007. Print.
Browning, Michael. "War Photos That Changed History." *Palm Beach Post* 12 May 2004. Web. 15 July 2011
Burke, Kenneth. *A Rhetoric of Motives.* Berkeley: U of California P, 1969. Print.
Davis, Margaret, et al. "Making *America's Army*: The Wizards Behind the U.S. Army's Hit PC Game." *America's Army PC Game Vision and Realization: A Look at the Artistry, Technique, and Impact of the United States Army's Groundbreaking Tool for Strategic Communication.* Ed. Margaret Davis. San Francisco: U.S. Army and the MOVES Institute, 2004. 9-15. Print.
Edelstein, David. "Now Playing at Your Local Multiplex: Torture Porn—Why Has America Gone Nuts for Blood, Guts, and Sadism?" *New York Magazine* 28 Jan. 2006. Print.
Emmelkamp, P. M., et al. "Virtual Reality Treatment versus Exposure in Vivo: A Comparative Evaluation in Acrophobia." *Behaviour Research and Therapy* 40 (2002): 509–16. Print.
Ersner-Hershfield, H., J. Bailenson, and L. L. Carstensen. "Feeling More Connected to Your Future Self: Using Immersive Virtual Reality to Increase Retirement Saving." Poster presented at the Association for Psychological Science Annual Convention, Chicago, 2008. Print.
Fox, J., and J. Bailenson. "Virtual Self-Modeling: The Effects of Vicarious Reinforcement and Identification on Exercise Behaviors." *Media Psychology* 12 (2009): 1–25. Print.
Funk, J., et al. "Playing Violent Video Games, Desensitization, and Moral Evaluation in Children." *Journal of Applied Developmental Psychology* 24.4 (2003): 413–36. Print.
Garcia-Palacios, Azucena, et al. "Virtual Reality in the Treatment of Spider Phobia: A Controlled Study." *Behavior Research and Therapy* 40.9 (2002): 983–93. Print.
Gerardi, Maryrose, et al. "Virtual Reality Exposure Therapy Using a Virtual Iraq: Case Report." *Journal of Traumatic Stress* 21 (2008): 209–13. Print.
Gibson, William. *Neuromancer.* New York: Ace Books, 1984. Print.
Gunning, Tom. "An Aesthetic of Astonishment: Early Film and the (In)Credulous Spectator." *Art and Text* 34 (Spring 1989): 31–45. Print.
Halpern, Sue. "Virtual Iraq: Using Simulation to Treat a New Generation of Traumatized Veterans." *New Yorker* 19 May 2008: 32-37. Print.
Han, Shihui, et al. "Distinct Neural Substrates for the Perception of Real and Virtual Visual Worlds." *NeuroImage* 24.3 (2005): 928–35. Print.
Hanlon, Mike. "America's Army Game Approaches Five Million Downloads." *Gizmag* 24 Jan. 2005. Web. 15 July 2011.
Heinrichs, Leroy William, et al. "Simulation for Team Training and Assessment: Case Studies of Online Training with Virtual Worlds." *World Journal of Surgery* 32.2 (2008): 161–70. Print.
"Hezbollah's New Computer Game." *WorldNetDaily* 3 Mar. 2003. Web. 15 July 2011.
"Hezbollah Video Game: War with Israel." *CNN.com* 16 Aug. 2007. Web. 15 July 2011.
Hill, Charles A. "The Psychology of Rhetorical Images." *Defining Visual Rhetorics.* Ed. Charles A. Hill and Marguerite Helmers. London: Erlbaum, 2004. 25–40. Print.
Hiranand, Ravi. "Chinese PC Game Takes Aim at American Soldiers." *CNN.com.* News Stream, 21 May 2011. Web. 15 July 2011.
Hodges, L. F., et al. "A Virtual Airplane for Fear of Flying Therapy." *Virtual Reality Annual International Symposium, 1996: Proceedings of the IEEE* (1996): 86–93. Print.
Johnson, Bobbie. "Privacy No Longer a Social Norm, Says Facebook Founder." *Guardian* 11 Jan. 2010. *Guardian.co.uk.* Web. 15 July 2011.
Karutz, Cody. Personal interview. 1 July 2011.
Lanier, Jaron. "Virtually There." *Scientific American Magazine* 12 Apr. 2001: 66–75. Print.
Leyvand, T., et al. "Kinect Identity: Technology and Experience." *IEEE Computer* 44.4 (2011): 94–96. Print.
McHugh, Molly. "Chinese Video Game 'Glorious Mission' Chooses US Army for Its Enemy." *Yahoo News* 18 May 2011. Web. 15 July 2011.
Minority Report. Dir. Steven Spielberg. Perf. Tom Cruise. DreamWorks Pictures and 20th Century Fox, 2002. Film.
Ornstein, Robert. *MindReal: How the Mind Creates Its Own Virtual Reality.* Boston: Malor Books, 2008. Print.
Peters, Terry. "Image-Guided Surgery: From X-rays to Virtual Reality." *Computer Methods in Biomechanics and Biomedical Engineering* 4.1 (2001): 27–57. Print.
Piazza, Jo. "Audiences Experience 'Avatar' Blues." *CNN.com.* CNN Entertainment, 11 Jan. 2010. Web. 15 July 2011.
Schroeder, Ralph. "Virtual Reality in the Real World: History, Applications and Projections." *Futures* 25.9 (1993): 963–73. Print.

Schwartz, Rob. "Vending Machines That Read Your Mind." *CNNGo.com,* 29 Sept. 2010. Web. 15 July 2011.
Shklovsky, Viktor. "Art as Device." *Theory of Prose.* Trans. Benjamin Sher. Elmwood Park, IL: Dalkey Archive Press, 1991. Print.
Simons, D. J., and C. F. Chabris. "Gorillas in Our Midst: Sustained Inattentional Blindness for Dynamic Events." *Perception* 28.9 (1999): 1059–74. Print.
S*oarin' over California Webpage*. Walt Disney Company, 2010. Web. 22 May 2011.
Stephenson, Neal. *Snow Crash.* New York: Bantam Dell, 1992. Print.
Weimann, Gabriel. "Using the Internet for Terrorist Recruitment and Mobilization." *NATO Science for Peace and Security, Series E: Human and Societal Dynamics,* vol. 25, *Hypermedia Seduction for Terrorist Recruiting.* Amsterdam: IOS Press, 2007. Print.
Wilson, Marie G., Gregory Northcraft, and Margaret Neale. "Information Competition and Vividness Effects in On-line Judgments." *Organizational Behavior and Human Decision Processes* 44 (1989): 132–39. Print.
Yee, N., J. N. Bailenson, and N. Ducheneaut. "The Proteus Effect: Implications of Transformed Digital Self-Representation on Online and Offline Behavior." *Communication Research* 36.2 (2009): 285–312. Print.