Making Things Public: Democracy and Government-Funded Videogames and Virtual Reality Simulations

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ABSTRACT
This paper discusses two computer graphics-intensive projects at the University of Southern California that are being developed with funding from the U.S. military: *Tactical Iraqi*, a computer game designed to accelerate a soldier's acquisition of spoken Arabic to assist in volatile tactical situations, and *Virtual Iraq*, a virtual reality simulation intended to lessen the effects of Post-Traumatic Stress Disorder among combat veterans. Both initiatives have received extensive national media coverage and may serve rhetorical as well as pedagogical or therapeutic ends by making individual, private digital experiences aimed to effect the personal education or rehabilitation of military personnel accessible to a wider public. This paper examines the debate in the serious game development community about working on behalf of government-funded projects that support current military efforts. It also considers the potential for what Bruno Latour has called "object-oriented democracy" that these games and simulations could represent.

Categories and Subject Descriptors
K.4.1 [**Public Policy Issues**]: Ethics

General Terms
Design, Human Factors.

Keywords
Public Rhetoric, Digital Experience, Virtual Reality, Computer Game, Foreign Language Learning, Exposure Therapy.

1. INTRODUCTION
In "Welcome to the Desert of the Real" written in the days after the September 11th, Slavoj Žižek expressed his belief that the gap between "traumatic event" and "symbolic impact" could force Americans to appreciate the everyday violence and privation of the rest of the world, from which he claimed the U.S. had been shielded by an artificial but ideologically comforting socio-economic, political, and cultural virtual reality environment. "If there is any symbolism in the collapse of the WTC towers," Žižek writes, "it is not so much the old-fashioned notion of the 'center of financial capitalism,' but, rather, the notion that the two WTC towers stood for the center of the VIRTUAL capitalism, of financial speculations disconnected from the sphere of material production. The shattering impact of the bombings can only be accounted for only against the background of the borderline which today separates the digitalized First World from the Third World 'desert of the Real'" [Žižek 2006] His title refers to a famous moment in the movie *The Matrix* in which the once-comfortable hero Neo is finally shown the brutal substrate behind the virtual reality environment in which almost all of his fellow citizens are still deeply immersed. On one level, the simulation industry could be held accountable for the September 11 attacks, because hijackers had trained extensively on flight simulators in order to pilot the planes that flew into metropolitan landmarks. However, terrorist attacks within U.S. borders have impelled military planners to invest in ever more virtual worlds in response.

Since the U.S.-led invasion of Iraq in 2003, the American government has focused development efforts on several computer generated environments that are intended to recreate the embattled nation's terrain – as well as its built environment – in games and simulations designed specifically for military personnel. These alternative worlds are often populated by computer generated versions of Iraqi citizens, and sometimes these representations employ intelligent tutoring techniques to make the user's interactions with these digital puppets more realistic.

Two specific projects currently being developed by the University of Southern California with funding from the U.S. military have garnered considerable coverage in the mainstream national media: *Tactical Iraqi* from the Information Sciences Institute and *Virtual Iraq* from the Institute for Creative Technologies. Both programs specifically aim to enhance the user's memory: *Tactical Iraqi* is designed to prompt soldiers to remember specific Arabic words and phrases; *Virtual Iraq* is intended to trigger psychologically powerful memories in combat veterans suffering from Post-Traumatic Stress Disorder to condition them to develop appropriate and healthy compensatory mechanisms. Of course, there are significant design differences between the two projects. One is a game, and the other is a simulation; one is pedagogical in its orientation, and the other is

therapeutic; one uses third-person perspective, and other uses first-person. Yet, there is also significant overlap between these virtual Iraqs, which were developed by research and development teams in close physical proximity to each other in Marina Del Rey, California, and both use pre-existing, off-the-shelf game technology that has a history in the consumer market.

The publicity for these projects has stimulated considerable debate in professional and scholarly communities devoted to serious games and simulations about the appropriateness of lending their intellectual capital to these military-funded endeavors. Critics of software development related to the war in Iraq argue that producers, designers, and programmers are collaborating with an invading army by contributing their code to members of the military hierarchy. Defenders of the projects argue from a position of pragmatism: they point out that 1) such programs aid working class soldiers on the frontlines not policy makers in the power elite, 2) many programs are specifically designed to reduce civilian casualties, and 3) the Internet and a plethora of other technological advances now enjoyed in cyber-culture were once the products of military planned and funded projects. For example, Manuel Castells, like many historians of the digital age, shows the defense industry to be a key player in the theory and practice of software development throughout its entire evolution [Castells 2001].

Nevertheless, this distrust of what Simon Penny has called "The Military-Entertainment Complex" runs deep, both in the academy and in hacker culture [Penny 2004]. To counteract this militaristic influence, considerable energy has been devoted to developing alternatively themed games about nonintervention or peaceful mediation of late, such as *A Force More Powerful, PeaceMaker*, and graphically less ambitious games like *September 12th* or *Madrid* [Vanden Heuvel 2005]. However, these games receive relatively little attention in the mainstream media, except in the context of discussing violence in commercial gaming.

Not all of the cultural conflict between parties working in these new digital media may be necessarily directly related to specific geopolitical catalysts like the invasion and occupation of Iraq or to the deepening of a civilian/noncivilian divide in knowledge work. As Stuart Moulthrop observes, the "declaration (or acclamation) of war may distract attention from preexisting conflicts inherent in information culture" [Moulthrop 2004]. In other words, stakeholders arguing about the morality of participation in projects like *Tactical Iraqi* or *Virtual Iraq* may actually have more fundamental disagreements about making meaning within a shared disciplinary field. These verbal opponents might even disagree about how technology works upon society in general. For example, some may be instrumentalists who see specific technologies as tools that can be directed by the conscious will of individuals and cause particular changes by intervening in the material world; others may be functionalists who think that cultural institutions use technology mainly to promote social stability and group norms.

2. TACTICAL IRAQI: GAME OVERVIEW

Tactical Iraqi is a language-learning software course and educational videogame that originated at the Center for Advanced Research in Technology for Education (CARTE) at the Information Sciences Institute of the University of Southern California. Researchers at CARTE had previously authored a range of imaginative but seemingly disconnected distance learning initiatives that featured computer generated animated agents, software capable of speech analysis, and programs organized around the presentation of pedagogical drama.

After the invasion of Iraq, it became possible to test large-scale applications of CARTE research to the problem of foreign language learning. A critical shortage of Arabic speakers existed in the U.S. armed forces, and the theater of conflict was coalescing around stressful and confusing situations of urban warfare, military occupation, and post-conflict reconstruction in the face of persistent insurgency.

Tactical Iraqi is envisioned as part of a larger Tactical Language Training System (TLTS) under the umbrella of the DARPA Training Superiority program, which is intended to develop "just-in-time" training technologies incorporating intelligent tutoring, simulations, and games into preparation for combat readiness. Another "just-in-time" military videogame, *Ambush!*, was launched even more rapidly -- after just six months -- to assist soldiers in locating roadside dangers, such as improvised explosive devices (IEDs), whose presence could be signaled by anything from a seemingly innocuous dead camel to an electric toy [Walker 2005]. Like *Tactical Iraqi*, *Ambush!* took advantage of an existing platform, the commercial game *Operation Flashpoint*, and used a networked multiplayer system to model interactions between members of a military convoy.

The current version of *Tactical Iraqi* includes elements of traditional computer-based tutorials and language recognition software, a PsychSim multi-agent system, and an *Unreal Tournament 2003* game engine. The Mission Game (Fig. 1) of *Tactical Iraqi* is an interactive story-based 3D game where learners practice carrying out a designated mission through a specific avatar, Sergeant John Smith. In an earlier version of the game, the mission was to rebuild a damaged water plant with the assistance of a "Shiite leader of uncertain loyalties" [Murr 2004]; the present iteration involves rebuilding a girls' school. The game uses a "third-person shooter"-style interface that is limited to input from a keyboard, microphone headset, and mouse. As John Smith, the player navigates through a computer generated landscape of streets, cafés, and private homes that are rendered with naturalistic lighting, texture mapping, and modeling of 3D masses. He is also able to interact with flat objects, such as business cards or photographs, and those rendered in three dimensions, such as eyeglasses or cups of tea. In addition to this virtuosity of "perceptual realism," the game is intended to have what Alison McMahan has called "social realism," which is constituted by "organizing rituals and ceremonies" [McMahan 2003]. For example, many rites in the game involve formulaic greetings and the social consumption of nonalcoholic beverages.

Negotiating through Smith's transitions from public to private spaces via his Unreal Puppet poses particular challenges to verbal and nonverbal communication, particularly when trust is limited and the action takes place on a stage with multiple spectators, all potentially antagonistic when given the wrong cues. The learner's limited language proficiency can restrict access to certain critical spaces, and even in the public zone of

the *agora*, the environmental bubble where cultural exchanges and mutual appropriation is permissible [Ostwald 2001], Smith is subject to humiliation that can be reported back to his superior officers and to verbal abuse by native speakers that can include being called a "son of a bitch" (or literally "dog son of a dog") or a "donkey." There are no weapons or martial arts tricks available; the player's only tools are spoken words and gestures, although an Arabic-speaking female member of the squad can prompt appropriate responses and make suggestions.

Figure 1. Asking for information from two pedagogical agents in the Mission Game in ***Tactical Iraqi***

Paralinguistic learning is an important aspect of the Mission Game, because the cultural meaning of particular gestures has consequences for speech acts. Some connections between paralinguistic signifier and signified would be counterintuitive to U.S. military personnel. For example, a "thumbs-up" can have a highly insulting meaning, while removing one's eyeglasses demonstrates knowledge of a regional gesture of respect.

The Skill Builder (Fig. 2) is a set of interactive exercises organized around practice drills in the target language, in which learners say words and phrases and listen to and respond to sample utterances. Vocabulary is chosen to be appropriate for the social context. A virtual tutor evaluates the learner's pronunciation and syntax and gives feedback that provides encouragement and forestalls negative affectivity in the learner.

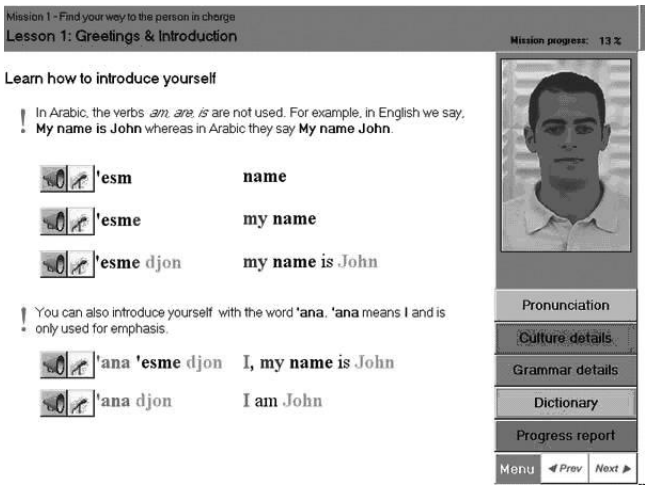

Figure 2. A coaching section in the Mission Skill Builder in *Tactical Iraqi*

The Skill Builder initially proved to be an important factor in achieving measurable improvement in the learning outcomes of military experimental subjects post-test. [Johnson et al. 2005].

A speech-enabled Arcade Game (Fig. 3) gives learners further practice opportunities in Arabic. In the Arcade Game rapid response time is more important than it is in the Mission Skill Builder or the Mission Game. Principal Investigator Lewis Johnson also concedes, "You had to put in something you blow up" to provide an enjoyable videogame experience. In the Arcade Game, objects can be picked up by correctly naming directions, and "enemy" elements of different colors periodically appear to be destroyed.

Figure 3. The aerial view of the speech-enabled Arcade Game **in *Tactical Iraqi***

Although ostensibly intended for speeding up the acquisition of prepositional and descriptive phrases, the Arcade Game has none of the social interactions that are simulated by the Skill Builder or the Game and directly equates linguistic competence with destructive force. According to virtual theorist Janet Murray,

this kind of digital experience is particularly compelling, because arcade-style action provides a "tight visceral match between the game controller and the screen action. A palpable click on the mouse or joystick results in an explosion. It requires very little imaginative effort to enter such a world because the sense of agency is so direct" [Murray 1997].

In addition to these photorealistic arenas of play -- from third-person, first-person, and God's eye viewpoints respectively -- the learner has a number of other resources available. Yet the learner is not truly independent. He or she knows there is constant surveillance by other stakeholders in remote locations. The experimenters and potentially the player's commanding officers can compare the player to other learners with specialized tools. The Performance Assessment Module collects data at each learner's machine, transmits the information to a central TLTS database, and produces individualized performance scorecards with multi-dimensional benchmarks based on aggregated data.

3. VIRTUAL IRAQ: SIMULATION OVERVIEW

Virtual Iraq (Fig. 4) also adapts off-the-shelf game technology for military users. However, unlike *Tactical Iraqi*, *Virtual Iraq* employs what Michael Heim has called "strong" VR [Heim 1998], because the user wears an immersive head-mounted display. In addition to visual information, the participant is exposed to the sounds, sensations, and even smells associated with progressively more harrowing combat-related experiences from duty on patrol in Iraq. Although forcing patients to relieve traumatic experiences might seem counterintuitive to generally held assumptions about psychic healing, such programs have been shown to be highly effective, particularly in conjunction with traditional talk therapy [Rizzo et al. 2005]. This kind of exposure therapy facilitates not only memory-construction but also the essential narrative activities that foster psychological integration after traumatic events. In addition, VR provides an objective and consistent format for documenting the sensory stimuli that the patient is exposed to that is not possible when the therapist must extrapolate from limited verbal information supplied by the patient that describes his or her internal state. Finally, less social stigma may be attached to therapeutic activities associated with videogame play or activities of "training" associated with conventional masculine gender roles.

Exposure to traumatic cues can be carefully calibrated in the VR therapeutic environment, but the immersive nature of the experience typically leads to a strong sense of what John Steuer has described as "telepresence" in which "vividness" and "interactivity" are maximized [Steuer 1992]. In *Virtual Iraq*, computer graphics are projected in a Head-Mounted Display (HMD), and the user can decide where to look in the virtual environment. This visual information is augmented with motion tracking, localizable sounds, vibration platforms, and, in some scenarios, scent delivery technology. Patients can travel through this virtual world on foot or via motor vehicle. The therapist can manipulate a "Wizard of Oz" interface to increase the verisimilitude of the patient's experience by adjusting the weather conditions or time of day to best approximate the trauma scenario.

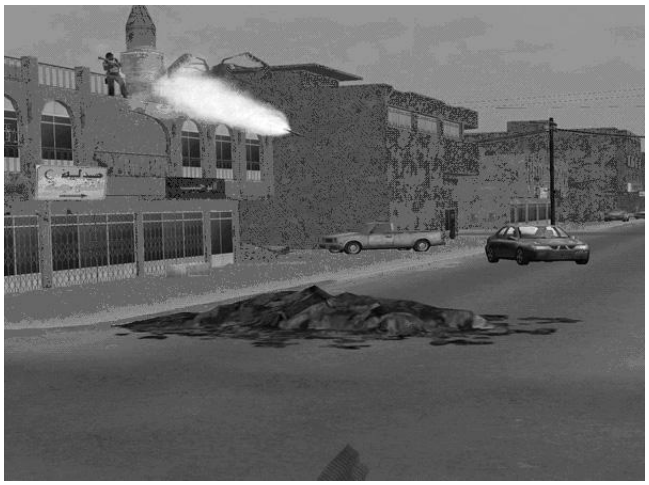

Figure 4. A scene from *Virtual Iraq*

Virtual reality therapy has been already used for Post-Traumatic Stress Disorder (PTSD) in many political contexts that replicate a variety of geographic locales [Pair et al. 2006]. Those in New York who suffer from PTSD from the September 11th terrorist attacks might have been treated by reliving the experience with the *Virtual World Trade Center* developed by the Program for Anxiety and Traumatic Stress Studies at Cornell University. *Virtual Bus Bombing*, which was developed by the University of Haifa, allows Israeli citizens to grapple with witnessing suicide bombing attacks. VR technologies were first developed for veterans in *Virtual Vietnam*.

In addition to using work from other VR therapy researchers, the designers of *Virtual Iraq* integrated art assets from *America's Army* and *Tactical Iraqi*, the *FlatWorld Simulation Control Architecture*, NDL's Gamebryo engine, and considerable content exported from the game *Full Spectrum Warrior* to increase both vividness and interactivity for participants. Ironically, this use of *Full Spectrum Warrior* shows how game development can come full circle, since the X-box game being repurposed by researchers originated from a military training game.

More generally, at a time when we seem to be living in what Ann Kaplan has called a "trauma culture," the lived space of deliberative experience could be at risk, because the mass media almost infinitely replicate traumatic scenes of spectatorship in cinematic reconstructions to depersonalize and dissociate violence and recast it as melodrama that can serve particular nationalistic agendas. Yet, Bob Rehak has argued that it is precisely the alternation or even simultaneous experience of "participatory and spectatorial" digital experiences that gives game environments their value for human subjectivity [Rehak 2003].

4. TESTING THE PROTOTYPES: THE CULTURE OF PRIMARY RECEPTION

Without initial access to the source code, the development team at ISI's CARTE told reporters that it took the game designers working on the *Tactical Iraqi* mod almost eight months to

remove coding that directed graphic displays of violence or gore. Even after it appeared that the *Unreal* arsenal of weapons had been confiscated, Principal Investigator Johnson admitted that "one of the testers discovered that if he stomped on other characters, they would explode in blood and guts" [Handy 2005]. Designers have since acquired a source license for the *Unreal* engine and have moved farther with removing all *Unreal Tournament* content.

Despite widespread cheerleading for the tremendous potential of videogame learning [Gee 2003; Squire and Jenkins 2003], preference for this particular medium of instruction is far from universal. Research has shown that even when videogames are popular with a particular instructional demographic, such as college students [Jones 2003], it does not follow that the players themselves perceive any connection to learning or expressly desire educational content in play.

Thus, the initial trust problem encountered by *Tactical Iraqi* researchers involved players who avoided the game space entirely, often by hiding out in the Mission Skill Builder. Project documents indicated that "the learners were generally reluctant to start playing the game, because they were afraid that they would not be able to communicate successfully with the non-player characters" [Johnson et al. 2004]. Rather than anticipating that play would be a pleasurable experience, "Learners usually started playing the game only when experimenters insisted that they do so" [Johnson et al. 2004.]

To overcome this problem, researchers focused on replicating introductory social rituals in the virtual environment and applying forms of conventional etiquette to the world of the simulation. As the research team from *Tactical Iraqi* writes, "We found that if the experimenter introduced them directly to the game and encouraged them to try saying hello to one of the characters there, they got engaged, and were more confident to try it" [Johnson et al. 2005].

Other types of players were eager to engage with the game, but were not as enthusiastic about language acquisition tasks. When asked to participate in game play by researchers and commanders, this group of players chose to "game the system," by joining collaborative activities that postponed rather than promulgated learning. One paper acknowledged that the game "when played in beginner mode gave learners the impression that they simply needed to memorize certain phrases to get through the game. After the first day the subjects showed up with printed cheat-sheets that they had created, so they could even avoid memorization" [Johnson et al. 2005]. Like gamers who aspire to exploit a system's shortcuts by relying on "cheat codes" to conclude the game more rapidly [Perron 2003], these Fort Bragg soldiers had decided to take advantage of systemic loopholes and subvert the very learning process central to the game.

In October 2004, another test was scheduled at Fort Bragg that was deemed to be much more "successful" than the first. Test subjects were drawn from an all-male group from the U.S. Army Special Forces. To the experimenters, these men seemed to represent a superior class of learner and were characterized by researchers as having "intelligence greater than the average soldier." Those who evaluated the game claimed that this particular group worked with *Tactical Iraqi* as a single, coherent unit more effectively. These soldiers were praised for making "better use" of the Mission Game and for not relying on "cheat sheets" [Johnson et al. 2005].

It could be argued that these soldiers were more like the John Smith envisioned by the game designers, since in his backstory Smith is a sophisticated specialist in "economics and public finance" in the military who has launched a career as a "financial and loan consultant" when off-duty back in the U.S. Perhaps these Special Forces subjects were able to endow the burley, bumbling Smith of game play with some of the incipient, intangible, exceptional qualities that Smith's designers had endowed him with in his backstory.

Although initially there were plans to create a parallel version of the game with a female protagonist, Major Kate Jones [Murr 2004], game developers are no longer actively pursuing a version with a female mission leader. Researchers cited cost and design issues, the demographic features of the typical service person, and a perceived female acceptance that the armed forces were dominated by the ideology of a single gender. However, from the perspective of applied linguistics, this permanent postponement seems an area of serious concern, especially given research that identifies significant gender differences in Arabic language use, particularly in studies by Hassan [1989] and Bakir [1986].

Nonetheless, promotional materials about *Tactical Iraqi* prominently feature endorsements by female service people for the program, including female instructors from West Point and Fort Carson, Colorado. Yet what Arab linguist Amy Perkins seems to be asserting is actually the suitability of the game for those of the *opposite* sex. As she says, "These guys aren't going to sit in class learning Arabic."

Certainly, a substantial body of criticism now exists about the manifold benefits of playing and learning across gender lines through videogame play. As Gee and many others have argued, transgender play is both common and educational, so female service people playing as Smith may be empowered and enlightened by the experience [Gee 2003].

Furthermore, the *Tactical Iraqi* program features a female voice in the Skill Builder that encourages awareness of gender difference in the tutorial mode. And in the Mission Game, Sergeant Smith is accompanied by a three-dimensional Sergeant Samia Faris, whose presence is acknowledged from the opening scene at the Hai Al-Nahar café and whose cultural knowledge as a "native speaker" cues the learner about how to properly engage in Smith's identity building in Jasim's house.

In its most recent testing phases, the pool of human subjects for *Tactical Iraqi* was even expanded to include adolescent civilians. In a February 2006 interview Principal Investigator Johnson said, "I think it's fair to say the younger you are the more natural it is. We've tried the program also with teenagers, and it's really remarkable to watch. You know that before long they've already made contact with the local leader and are ready to sit down and plan the reconstruction. They really take to it" [NPR 2006]. *Tactical Iraqi* has now spawned its own privately held company that specializes in tactical language training and is making forays into the commercial market.

Testing with human subjects has made less progress in the *Virtual Iraq*, although the first large-scale clinical trials are currently underway. Because of the immersive nature of the environment, considerable development time was necessary to create and integrate art assets and design scenarios, and human subjects protocols required significant investments of project time.

5. SECONDARY MEDIA RECEPTION: SHOWING NOT TELLING

The news media has presented considerable coverage about both these simulated environments. Items on *Tactical Iraqi* appeared in *Newsweek*, *USA Today*, *The Los Angeles Times*, *The New York Times*, *National Geographic*, and *Forbes* and on the BBC, National Public Radio, and ABC News [Tactical Iraqi 2006]. *Virtual Iraq* was featured in broadcast news stories from the BBC, NPR, CNN, ABC, CBS, Reuters, and even Al Jazeerah and in print in *Newsweek*, *The Washington Post*, *The Nation*, and *Le Figaro* [Rizzo 2006]. This coverage is almost uniformly positive and never presents contrary viewpoints from advocates for traditional language learning or talk therapy. However, since news stories about new technologies tend to emphasize characteristics that promote ideologies of progress, this slant is not distinctive to these projects.

What is perhaps more significant about this coverage of military digital experience is the way that this publicity creates the possibility for a particular form of public display that purports to show that difficult, if not intractable, problems are being addressed during the war effort. The problems that seem to be ameliorated in both weak and strong VR environments include foreign language incompetence, combat-related PSTD, the threat of roadside attacks by improvised explosive devices, physical immobility from dismemberment or spinal cord damage, and – for battlefield medics – inadequate preparedness for real-life triage situations. Critics could argue that displaying virtual problem-solving is not necessarily the most effective way to solve actual problems, and that these games and simulations may function as a distracting show or spectacle.

In print culture, mentions of these projects can even migrate from the genre of the news report to the genre of the editorial or opinion piece in which the commentator expresses wonder at dazzling digital tools. For example, in a *Los Angeles Times* editorial, policy analyst Max Boot praises this added dimension of military training and the translation of pedagogically structured orientations into virtual space. Specifically, he uses the example of *Tactical Iraqi* to argue that situated learning enables participants to develop forms of cultural literacy that soldiers would otherwise be lacking. Boot enthuses about visiting "the Expeditionary Warfare School, where captains study Arabic by playing a sophisticated computer game complete with animated characters" [Boot 2006]. Boot claims that this computerized language instruction exemplifies the critical training that simulates "the human terrain" of the theater of conflict in Iraq.

Television broadcasts tend to be even more laudatory than print in publicizing these game adaptations, for many of the same reasons that pre-packaged Video News Releases (VNRs) may be aired: the researchers' video of game play or sample animations of the digital experience offers no-cost footage that illustrates an interesting news story, which appeals to a range of youth-oriented constituencies. In one ABC News broadcast, announcer Bill Blakemore reads directly from the testimonials on the *Tactical Iraqi* website, which include the improbable claim that a typical soldier would learn more Arabic "in one day" with *Tactical Iraqi* than a "whole tour in Iraq" [ABC 2006].

Of course, techniques for embodied language learning are nothing particularly new; they predate digital virtual environments by decades. For example, in the 1970's Bulgarian psycholinguist Georgi Lozanov championed "Suggestopedia," a technique that emphasized the learner's embodied physical state, bodily comfort, and sensory perception to encourage receptivity and to lower learning anxiety and resistance [Lozanov 1979]. Suggestopedia also used game play and encouraged learners to assume an identity within the target language, just as foreign language software simulations do [Losh 2006]. In some ways, *Tactical Iraqi* represents a more timid form of embodied learning: curricular materials only attend to auditory and visual stimulation, and learners are restricted to occupying an identity that is on the periphery of membership in the target language not at its center.

Videogame pedagogy advocate James Paul Gee has argued that situated learning environments can be created with tools from traditional classrooms, given that the right set of productive learning practices are in play [Gee 2003]. Similarly, the conditions for some forms of successful virtual reality exposure therapy should also be replicable in conventional psychodrama scenarios.

Videogame technology also situates the participant via movement in space and recreates the experience of walking through a virtual landscape. Thus it draws upon an even older technique of rhetorical simulation: the method of loci or *ars memoriae*. According to advice in ancient and medieval rhetorical manuals, the loci were physical locations, usually in a familiar and highly articulated public edifice, such as a church or marketplace. To use the method of loci, one imagines walking through the building several times, viewing discrete landmarks within it, in the same order each time. After several repetitions, the assumption is that one should be able to visualize each of the places in a logical sequence reliably and thus remember the associated content. Thus, to memorize a speech, the text was broken into pieces, each of which was symbolized by vividly imagined symbols. In the mind's eye, the orator placed each of these images into the loci., so objects of discourse could then be recalled in a precise order by imagining walking through the building again, visiting each of the loci sequentially, and viewing each of the images, thereby recalling each piece of the speech in the proper order [Carruthers, 1990, Dudai 2002].

Theory about the method of loci has been updated to apply to hypermedia and interactive multimedia, by claiming that that recent forms of spatial organization provide "semantic context" in which communications can be made more intelligible [Wong and Storkerson 1997]. Similarly, Ian Bogost argues that the experience of the *flâneur* wandering through urban landscapes is

useful for understanding the "configurative structure of procedural texts" like videogames as well [Bogost 2005]. Bogost believes that this gives the reader/player/user a "set of options" for negotiating contemporary human experience in which the "chance encounter" can be "embodied as a unit of cultural currency."

The *Virtual Iraq* simulation itself was developed from another modern day form of the method of loci that was used by Rizzo's team with both stroke victims and children with attention deficit hyperactivity disorder. Patients could negotiate around the spaces of virtual living rooms, offices, and classrooms to locate specific objects that were situated in the virtual space. However, in the virtual environment of combat, the mnemonic assets acquired in moving through the 3D world are associated with emotional rather than cognitive function

What Michel de Certeau has called the "rhetoric of walking" may also explain some of the appeal of these programs to the mainstream media. However, the "human terrain" that Boot is concerned with, which can now be inhabited through virtual reality interfaces, would ideally allow for certain forms of improvisation impossible in media representations so that individuals' "tactical" practices opposing regulation in the inhabited spaces of the built environment could respond to the physical and social landscape with certain forms of situated experimentation and resistance [de Certeau 1983].

6. BACKLASH FROM THE BLOGOSPHERE: THE RHETORIC OF ETHICAL DILEMMA

When the BBC ran an online feature praising *Tactical Iraqi* on February 19, 2006, it unintentionally triggered a furious debate in the blogosphere. At first the reaction was either positive or subdued. Nick Montfort of *Grand Text Auto* describes the piece as a "great" article and praises project team member Hannes Vilhjálmsson [Montfort et al. 2006].

The reaction was very different on *Watercooler Games*, a forum for discussing persuasive gaming in politics, advertising, education, and public health. In his opening salvo in answer to the BBC piece, weblog editor and game developer Gonzalo Frasca declares that all ethical designer-programmers should cut all ties to military projects like *Tactical Iraqi*. In his act of public shaming, he castigates those who were involved with defense projects as collaborators and closes with a virulent malediction against them that excludes them from his interpretive or productive communities. "You are not and will never be my colleagues. The Army money that funds your projects is tainted with blood and what you are doing is just simply wrong. Unlike the poor guys taking the bullets in the frontline, you guys had an education. You should know better. Shame on you!" [Frasca et al. 2006].

Even before debate erupted at *Water Cooler* Games, Mark Marino had published his discomfort with his own divided allegiances on *WRT: Writer Response Theory*: "Part of my trouble is that I'm torn. Having seen the system and having learned a few words through it, I must say that I like it as a teaching system. I like that it isn't a shooter. Also, I like the words 'cultural sensitivity.' The trouble is 'cultural sensitivity' becomes a new kind of operational system in the command and control schema of larger military objectives" [Marino et al. 2005].

However, several *Water Cooler Games* readers quickly argued against Frasca from an instrumentalist position. Their postings emphasize an interpretation in which *Tactical Iraqi* serves as a tool intended to forestall violence and armed conflict rather than a tool to prepare for it. One commentator stresses the necessity of "the ability to communicate with Iraqis." Another prefers to "supply" Arabic as "one of the more innocuous and ultimately healing things" thinkable. A third writes that soldiers "have a far better chance of realizing the human impact of what's been done there, and finding ways to help instead of hurt, if they can communicate with the people there" [Frasca et al. 2006]. In this view of language, translation serves as an absolute good and harmful speech acts are unimaginable.

Frasca takes issue with their claims that translation is always an absolute good and even tries to use their very instrumentalism against them. He responds to these assertions of benign intent and execution with his own skepticism and insists that there is "no such thing as an ideological neutral piece of software." In keeping with Lev Manovich's work on "transcoding," Frasca seems to believe that technology shapes cultural coding as well as the more apparent inverse formulation. Rather than accept the instrumentalist view of his opponents, Frasca retorts with a unit operations reading of their discourse and the discourses of the *Tactical Iraqi* researchers in the media: "Breaking the process into small pieces is a very old military technique for convincing accomplices that they are not doing nothing wrong. Each little piece of the process seems harmless but the whole process can be monstrous" [Frasca et al. 2006]. Then, in what seems to be self-conscious hyperbole, he explicitly compares the game's proponents to Nazis who were just following orders.

USC Institute for Creative Technologies member Andrew Stern, who also represented *Grand Text Auto*, subsequently interjects himself into the debate from his perspective as a researcher currently receiving defense funding himself. Unlike the instrumentalists, he appeals to Frasca's pragmatism and to his understanding of the complexity of systems. "As you know, military funding (e.g, DARPA) is relatively pervasive in computer science in general, helping fund many researchers, including some you know. (The project I'm consulting on is Army-funded.) Such research, like the interactive narrative research I'm working on for ICT, can be applied to many other domains. (Wasn't the Internet itself originally a military-funded project, to create a robust computer network in the event of nuclear war, that the world now reaps the benefits of? The morality of this stuff is complicated.)" [Frasca et al. 2006].

Rather than examine the effects of programs like *Tactical Iraqi*, Stern focuses his rhetorical strategy on the causes of other software development projects. Like Moulthrop, Stern also acknowledges that debate about participation in the war effort among game developers and critics might relate to other pre-

existing epistemological conflicts: "Perhaps my participation in such projects is a form of implicit approval of the war, but it's also potentially helping improve the situation, and the results can theoretically be applied to help other battles, such as, oh, the Ludology vs. Narratology conflict."

In answering Stern, Frasca grants Stern's complexity argument some credence and acknowledges their common membership in a community of friendship and scholarship – although he teases Stern about his narratological alliances. Yet he remains adamant that moral decision-making is still at issue. As Frasca writes, "I would never doubt about your intentions but I still think that you made a wrong choice. As a friend, my only comment to you is that I think that most of these people cannot be trusted and I recommend you to stay away from them. The safest choice, in my view, is to step aside" [Frasca et al. 2006].

At this point, fellow blog editor Ian Bogost tries to mediate in the dispute by pointing out the interconnectedness of distributed digital media interests and the way that those networks might implicate Frasca himself. Bogost argues, "Among the more pacifist folks I know, one of the 'strategies' for dealing with the ethical issues DARPA and other military funding raise is to think of such research as subversive: they'll take the military funding and use the resulting research for initiatives that undermine the military. I wish I had some examples to point to for the discussion, can anyone suggest some?" [Frasca et al. 2006].

Bogost's rhetorical question remains unanswered on the *Water Cooler Games* comment page, but at this juncture *Tactical Iraqi*'s Vilhjálmsson himself chimes in. He explains his general rationale in terms of behavioral rewards, both for his labor as a game designer and for the work of the soldiers who play the game.

"Being a peace activist myself, I had to overcome a great deal of stigma before accepting technical lead on the project. But two things in particular made this easier: (1) When I met in person a group of soldiers that had just returned from duty in Iraq I was struck by their awareness of the mess they were in and their desperation to get out of there alive - and to them, being able to make friends not enemies was absolutely crucial for their own survival. It was this cry for help at a very personal level, not at the level of government, that touched me. (2) The game rewards non-violence over violence - in fact, you fail the game immediately if things start to take a violent turn. I got a certain kick out of removing all weapons from this Unreal Tournament mod. I was pleasantly surprised to see that the soldiers were not too annoyed by this, instead they really got into the groove of finding out how to say things like 'pleasure to meet you.' I hadn't seen anything like it since I first saw a group of die-hard FPS veterans huddled around The Sims playing doll house. In my mind, coming up with an engaging alternative to violent gaming is a challenge worth tackling" [Frasca et al. 2006].

7. MAKING THINGS PUBLIC

As a new genre, games like *Tactical Iraqi* have the potential to connect the personal to the political and to integrate the actions of individuals engaged in particular speech acts with the rhetoric of the nation-states that they represent. Such games could conceivably represent the forefront of an emergent social realism that Galloway argues is essential if videogames are to be recognized as a mature aesthetic form and as an ethical expression of artistic communication and mass instruction [Galloway 2004].

Furthermore, the world of *Tactical Iraqi* is not a zero-sum game. The success of John Smith depends on his satisfying the social needs of others. In fact, his "health" in the game is measured by the attitudes of the other autonomous agents on the screen. Trust is both the precondition of play and the currency of the game in mimetic and diegetic play. Although it is intentionally a simplified abstraction of the mental state of the agents, the trust-meter demonstrates the importance of a central assumption of linguistic exchange. As Brown and Levinson have said, citing Lewis, "No one could even learn a language in a society where there was an assumption that no one told the truth" [Brown and Levinson 1987].

Moreover, *Tactical Iraqi* is not a conventional military combat game. It does not express values of selflessness or heroism or even loyalty to the nation-state. Other military simulations appear to emphasize how strategic choices by key personnel and commanding officers affect other agents in the game, and that in situations of extreme risk it is sometimes necessary to make difficult utilitarian calculations to preserve team members and to foster ideologies of loyalty or patriotism. In many ways, however, the other members of Smith's squad are less important for his success in the mission than the Iraqi civilians he encounters, independent agents upon whom he depends for local cooperation and material supplies. As an agent of reconstruction, not of combat, Smith is put in a difficult position from the outset of the game. In the background narrative, it is explained that the girls' school Smith is rebuilding was actually damaged in a firefight between an American patrol and Fedayeen fighters. Thus Coalition forces nominally assume responsibility for the civilian consequences of combat in the world of the game.

To their credit, both *Tactical Iraqi* and *Virtual Iraq* open a door to traditional private spaces to the larger public and allow outsiders to see inside the classroom or clinic. As Michel Foucault has argued, regulation by professional disciplines polices vision and only permits certain authorized specialists to see into otherwise privileged spaces and realms of the body and psyche [Foucault 1963]. Videogames and simulations make these sites of linguistic conflict and psychic trauma visible to those outside the educational or medical establishments.

Indeed, Principal Investigator Rizzo has argued that his work on *Virtual Iraq* can be read as a form of political resistance, because it makes the hidden costs of warfare visible to the public. He even attributes the interest of the foreign press in his project to this subversive aspect of the program.

Of course, as public renderings, these virtual Iraqi vistas and labyrinths aren't copies or exact replicas of public and private spaces in the real world. Although the architecture and topography of the virtual world exploits the surface realism of the *Unreal Tournament 2003* game engine, *Tactical Iraqi* does not attempt to recreate actual locations in Iraq in its 3-D

environment. Despite the fact that game designers worked from photographs of remote locations in the Middle East, the experience of "virtual tourism" is constrained. In other words, *Tactical Iraqi* does not attempt to recreate specific buildings or landmarks, unlike the simulated doubling of public spaces from foreign countries in games like *Tony Hawk's Underground 2*.

To maximize relevance for mission-transference, it was apparently necessary for the designers of *Tactical Iraqi* to create a sufficiently generic Iraqi playscape to prepare soldiers who could be deployed anywhere in the country. Elements of an earlier game set in Lebanon, *Mission to Arabic*, were also part of the design history of *Tactical Iraqi*, so that the game may unintentionally further a digital experience of postmodern cultural pastiche. Moreover, researchers plan to apply the *Tactical Iraqi* game to other contexts in the Middle East and even intend to offer instructional modules in other languages, such as Pashto, which would be designed for service in Afghanistan, where the natural ecology and man-made space is very different from Iraq.

Software developers in *Virtual Iraq* similarly avoided mimetic realism and sought to create generic rather than specific landscapes to heal their client's wounded psyches. In other words, despite being in control of a multi-sensory barrage of hyper-real stimuli, the ideal therapist still wants there to be some neutral canvas on which the patient could recreate details from his or her memories of the seminal crippling traumatic event.

8. OBJECT-ORIENTED DEMOCRACY

In his explorations of the visual culture of civic life, Bruno Latour means more by "making things public" than the common idiomatic meaning of the phrase might suggest. He is also interested in exploring the broader, more traditional notion of *res publica* and considering how "things public" are literally constructed for and received by political audiences. Using the language of software development, Latour characterizes a range of political and scientific representations, which are "representative" and "realistic" to varying degrees, as manifestations of what he calls "object-oriented democracy." For Latour, "democracy" can be seen in terms of its Greek etymology, as a form of civic participation that is as much about division as it is about a unitary ethos [Latour 2005].

Games like *Tactical Iraqi* and simulations like *Virtual Iraq* can serve as "things public." They reveal conflicts and contradictions from which civilian voters and taxpayers are generally shielded. 3-D environments created for videogames can encourage practices of study and debate about these concrete, albeit virtual, objects. Like other simulation environments created for the U.S. military, they may ultimately also become shared spaces that include visitors from the public.

Latour is writing about obviously public spaces: "Scientific laboratories, technical institutions, marketplaces, churches and temples, financial trading rooms, Internet forums, ecological disputes – without forgetting the very shape of the museum inside which we gather all those *membra disjecta* – are just some of the forums and agoras in which we speak, vote, decide, are decided upon, prove, are being convinced. Each has its own architecture, its own technology of speech, its complex set of procedures, its definition of freedom and domination, its ways of bringing together those who are concerned – and even more important, those who are not concerned – and what concerns them, its expedient way to obtain closure and come to a decision" [Latour 2005].

The virtual objects, social puppets, built environment, physical terrain, and perceptual spaces of this computer-generated Iraq can take the user into the realm of public matters while also exploring the private spaces associated with the user's own memories: intimate spaces of private living and traumatic spaces of violent combat.

For example, in the fourth scene of *Tactical Iraqi*, "At Jasim's House," the user must navigate through the spaces of a private home. There the learner must orient Smith in a range of kinship relations. The learner can even offer to show Jasim a photograph of his "family" back home in the U.S.. Should the learner omit the social niceties of establishing Smith's personal background when faced with Jasim's polite but mildly probing questions, Jasim will refuse to use his authority as a "senior official" to help the mission, because the learner has too abruptly initiated "business" discourse before a sufficiently intimate rapport could be established.

By making these intimate, humanizing spaces of private life visible in Iraq, the members of the general public who are likely to admire the impressive government-developed technology might at the same time see a virtual home worth preserving rather than treat Jasim's house as something to be exploded in traditional shooter play.

In other words, creating political spectacles can have positive as well as negative implications. If government-funded videogames and virtual reality simulations serve as forms of public display, as critics we need to grapple with how best to interrogate that visibility and understand the potential for rhetorical exchanges, although we may well have to wait for political spectacles that are more sophisticated than the current military offerings.

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Making Things Public: Democracy and Government-Funded Videogames and Virtual Reality Simulations

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Figure 1. Asking for information from two pedagogical agents in the Mission Game in *Tactical Iraqi*

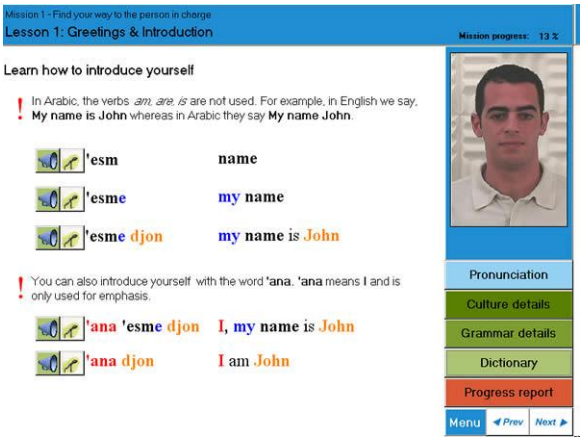

Figure 2. A coaching section in the Mission Skill Builder in ***Tactical Iraqi***

Figure 3. The aerial view of the speech-enabled Arcade Game in ***Tactical Iraqi***

Figure 4. A scene from *Virtual Iraq*