

## Keyboards First. Then Grenades.



Minh Uong/The New York Times

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Published: May 1, 2011

ORLANDO — Brig. Gen. Harold J. Greene only has to look around his house to realize the challenges the Army faces in engaging young soldiers. His children, he says, are always “buried in a cellphone or an iPad.”

General Greene, a senior official in the Army’s research and development engineering command, is among a cadre of high-ranking officials pushing for the military to embrace technologies that are already popular among consumers, like smartphones, video games and virtual worlds. The goal is to provide engaging training tools for soldiers who have grown up using sophisticated consumer electronics and are eager to incorporate them into their routine.

At a time of shrinking budgets, these tools are viewed as relatively inexpensive supplements to larger, costlier training equipment while also providing a surprisingly realistic training experience.

The military is already using some video games for recruitment and to train soldiers, and it has started experimenting with virtual worlds, as well. The tools are developed specifically for military use.

In addition, the Army recently held a contest for soldiers to determine who could develop the best smartphone app.

Among the apps now available on [an Army Web site](#): bugle calls, body fat calculator, Army creeds, sniper awareness and capture avoidance. (Most apps are for both the [iPhone](#) and [Android](#) phones, but some are for just one system.)

“We have to adapt to where they are,” General Greene said, speaking of the need to appeal to young soldiers and teach them in ways, and on devices, they are accustomed to. “This is something we absolutely have to do.”

But efforts to vastly expand the use of virtual games and everyday electronics have run into a slew of obstacles, not the least of which is a military bureaucracy slow to embrace change.

Security concerns about soldiers using wireless devices on the battlefield are one problem, because transmissions have to be encrypted. Another obstacle is the lingering belief among some high-level officials that games, gadgets and avatars simply have no place in the military.

For now, the budget for video games and smartphones for military training is a relative pittance. For instance, the Army spends roughly \$10 million to \$20 million a year on licenses, modifications and development of Army games.

“Budgets are always an issue,” said Frank C. DiGiovanni, director for training readiness and strategy at the Defense Department. “What I’m trying to do is demonstrate these are extremely effective.”

Mr. DiGiovanni made his remarks at GameTech, a five-year-old convention that was held here in Orlando in March. It showcases the military’s expanding use of simulators, video games, virtual worlds and smartphones.

Besides the video games that allow soldiers to rehearse for combat, vendors were offering devices that provide cultural and language lessons, medical training and shooting practice.

While GameTech is tiny by convention standards, with just 775 participants and 29 vendors, several participants said they considered it major progress that such an event was being held, given the skepticism military leaders displayed toward video games a decade ago.

“When I started with this in ’99, you couldn’t use the word ‘game,’” said James Korris, chief executive of Creative Technologies and a creator of one of the first military video games, Full Spectrum Warrior. “They were training guides, cognitive development tools.”

“GameTech?” he added. “Who would have thunk it?”

The military is partly responsible for the growth of the video game industry. For decades, it has created increasingly sophisticated simulators and computer-based war games.

Some of the people involved in the creation of those products went on to work for video game manufacturers, taking their expertise with them. Then, as commercial video games became more sophisticated, the military began borrowing ideas from them.

For instance, in the mid-1990s, some Marines tinkered with the popular Doom video game, replacing fantasy weapons with real ones and monsters with soldiers. A few years later, the military collaborated with academia and game developers to create Full Spectrum Warrior, which was designed to mimic combat.

Virtual training will never replace the live training that is still so essential, military officials said. But it allows soldiers to practice many times without the expense of big equipment or the risk of using live ammunition.

And the effectiveness of video games has improved drastically, officials said.

An oft-cited example is VBS 2, which was first bought by the Marine Corps in 2001. The game-based simulator, which runs on laptops, was created for the military by two Czech brothers and the leader of an Australian heavy metal band.

While the graphics aren’t as sophisticated as some commercial games, VBS 2 has an open platform that allows soldiers to plug in new details — say from a recent mission — so that its database of potential situations is constantly growing. In the last 14 months or so, user input has increased 1,200 percent, officials said.

The latest version can import detailed aerial and satellite imagery so Marines can rehearse in virtual 3-D copies of their places of deployment.

“Once they get into combat, they have seen almost every possible scenario,” said Leslie Dubow, project director for Games for Training, the Army’s acquisition program for games. She said the Army bought the licensing rights to VBS 2 for under \$10 million.

“You can’t simulate the dust, dirt, heat and stresses that you inevitably feel in combat situations,” said First Lt. Roy Fish, 34, a platoon commander based in Camp Leatherneck, Afghanistan, “but I think the simulation gets as close as you’re ever going to get in North Carolina to Afghanistan.”

Speaking by phone from Afghanistan, Lt. Fish, who first trained on VBS 2 in 2008 at Camp Lejeune, N.C., said the virtual simulator had saved lives in the field. Using the abbreviation for an improvised explosive device, he said, “Every time we go outside the wire and react to an I.E.D. or small-arms fire, it all translates to what we did in the simulator.”

When his Marines are done with the simulation training, he said, they are “sweating from head to toe. It’s amazing how realistic it was. It’s literally the same exact terrain.”

Lt. Fish emphasized that game-based simulators like VBS are not video games like Call of Duty. “We try not to make training fun for Marines,” he said. “If you don’t take it seriously, someone will die.”

Virtual worlds offer some of the same benefits, without the gaming aspects. For instance, virtual worlds could potentially allow instructors in Afghanistan to provide training to young soldiers in the United States, giving them an idea of the landscape and even introducing them to local officials, said Jeff Mills, project coordinator for virtual worlds at Katmai, a military contractor.

Mr. Mills said a virtual world could also be used to instruct mechanics back home on how to fix airplanes or tanks.

While he is optimistic, he said the military had a long way to go before virtual worlds were routinely used in training.

“We really have a poor track record at the moment of taking advantage of this,” he said.

The military has also been slow to embrace smartphones, but they have a number of high-ranking advocates, including Lt. Gen. Michael Vane, from the Army’s training command.

He said current training for soldiers often involved sitting in a classroom for 45 minutes watching a PowerPoint presentation. Smartphones, he said, would provide “content to a soldier at the point of need,” meaning that because soldiers would have the phones with them at all times, they could receive immediately useful information.

In describing the utility of smartphones, officials cite an app recently created for the [Army’s Blue Book](#), which describes basic duties and responsibilities for Army officers. The app took three days to create and relatively little money; a recent printing of the Blue Book took 135 days and \$750,000.

The Army recently conducted a pilot project that provided some soldiers with smartphones. But because of security concerns, the phones’ wireless capability was shut off, and soldiers complained that they wanted them to be more interactive.

“We’re not sure how it’s going to go,” said Mike Piercy, a senior management training adviser in the Army’s acquisition arm for simulation, who deals with smartphones. “But it’s going to go.”

A version of this article appeared in print on May 2, 2011, on page B1 of the New York edition with the headline: Keyboards First. Then Grenades.

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