Serious Gaming: The Trainer's New Best Friend

By Michael Laff

Imagine navigating your way through southern Iraq in search of a village leader while possessing limited knowledge of the Arabic language. This scenario would be difficult to recreate without actually being in the country, but one gaming company has come extremely close.

Designers of *Tactical Iraqi*, California-based Tactical Language Training developed a training game to address one of the United States military's greatest needs: to communicate directly with Iraqis in their native language.

Players are tasked with locating a reconstruction project in an Iraqi city and must communicate in Arabic with locals to find the site and meet with the appropriate municipal leaders. If players learn to use the language and cultural gestures properly, they advance to the next round. If they do not, they are sent back to a learning module to refine their speaking skills.

The graphics recreate a challenging scenario in Iraq: Soldiers approach Iraqis they do not know in a coffee shop or at their homes and negotiate, which is a daunting task on the ground and in the game. There is no script, so the game characters have to follow what the player says.

as part of their training. They are not playing *Mortal Kombat* or *Madden* football; rather they are using games to mirror everyday situations they encounter in their work.

Ever since flight schools used simulation as a method for training pilots, the value of simulated activity has overlapped with the necessity of functional training. In contrast to its stereotype as stodgy and out-of-touch, the military embraced game-based simulations earlier than other institutions, according to gaming industry observers.

The demand for realistic training scenarios is the mother of invention in serious games. Nowhere is that more true than in training emergency personnel, where lecturing trainees on how to handle a crisis situation is a far cry from participating in an actual event. In the past, it was difficult to simulate a fire or natural disaster that required the evacuation of a building, but gaming technology can do it.

From language training to bank fraud detection, simulations can teach just about anything and make it fun.

The game was designed to provide a crash course to soldiers, who can learn at their own pace in a one-on-one setting without the high cost of language courses and the difficulty some individuals have with classroom training. Richard Koffler, vice president of client services at Tactical Language Training, says soldiers will not attain fluency but can build functional communications skills. He says that since the game was distributed widely to the Army and the Marines this summer, several thousand troops have been using the game to prepare for their service in Iraq.

"You practice conversation with the computer," Koffler says. "The role-playing method helps you to improve pronunciation. The game provides motivation because it's relevant to what they do."

While the difficulty of the Arabic language can test the patience of even the most devoted student, military officials discovered that soldiers can accomplish a great deal with 20 to 40 hours of training on the game, which includes a total of 100 hours of instruction.

A similar module called *Tactical Pashto*, which trains soldiers to communicate in one of the official languages of Afghanistan, is near completion. Military officials requested a French language game but not for improving relations between Washington and Paris. The French language version will be adapted for dialects spoken in Africa's Southern Sahara, where U.S. Special Operations forces are active, according to Koffler.

Adult gamers

The notion of video games as the sole preserve of teenagers idling away in an arcade is as outdated as *Donkey Kong*. Soldiers, as well as firefighters and physicians, now use them

Incident Commander, designed by Maryland-based BreakAway Games, replicates many of the variables that police and fire officials confront in a crisis. There are four possible modules, including a severe storm, a hostage situation, a bomb threat, and a chemical spill. Players assume the role of first responder to a crisis and must learn to communicate with others while making quick decisions. In the hostage module, players decide whether to negotiate with the hostage taker or enter the building. The series of decisions a player makes influences a chain of events. Other variables—such as ongoing media coverage of the situation—can be injected.

By combining the power of the digital games' ability to consume players' full attention with real work situations, developers are creating a new training tool. The end goal is to learn and practice, not to just be entertained. Games

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bring the tension and the need to act decisively, something that cannot be replicated in a textbook or a classroom. Josh Johns, marketing director for BreakAway, calls the tension in the chemical spill module "gripping."

"Games can create a training environment that is totally immersive," Johns says. "The technology available in games through simulation can be incredibly realistic. You can play any role or multiple roles. What's most important, you can fail safely and learn from it. It's a very affordable, very experiential way to learn."

A number of public safety officials tested the game and gave it their approval. One Illinois-based emergency technician played the game for a week before being sent to work in communities ravaged by Hurricane Katrina. As lifelike as the game can be, Johns said it is best used as a supplement to training and not as a certification tool.

Incident Commander is complete, and a number of municipalities are eagerly awaiting its release from the Justice Department, which provided seed money for its development and is distributing it free to public safety officials who demonstrate a need. The simulation is ideally suited for small to mid-size communities where live training requires heavy commitments of manpower and street closings, which is an expensive undertaking for most communities, according to Johns.

Armchair immunologists can try their hand at saving lives with another game, *Immune Attack*, which is produced by the Federation of American Scientists and allows medical students to work on patients in a game setting. The graphics resemble the immune system as seen under a microscope, and the player must identify the source of a virus and treat it.

Another medical simulation that received wide praise for its real life simulation is *Pulse!!* Designers used an existing hospital to provide the details of the patient rooms. The game is being tested for training at Johns Hopkins School of Medicine, the Yale-New Haven Medical Center, and the Bethesda

Naval Medical Center. Players can practice with simulated patients who display signs of injury or shock. Game designers are now working to replicate the body's interior as part of a nine-year effort to develop its capacity as a training tool.

Defining the term

Using the term "games" to describe training materials is a source of debate within the gaming industry. Businesses and universities are conservative institutions, so some experts suggest substituting another word that might create more traction. Henry Kelly, president of the Federation of American Scientists, called it a "PR" issue."

Kelly says that the U.S. Department of Defense is the best example of an institution that has adopted gaming to build team-working skills among its employees. The agency does not shy away from games out of fear that they could become a distraction.

"Some people may think that if you use a game and have fun then you can't be learning," he said. "The Department of Defense has been using war games forever. If you were to call it simulation-based instructional technology, people wouldn't understand you. The concept of games brings to mind a vivid image. It's a powerful way to communicate."

One reason why gaming has not taken a larger role in workplace training and education is because of the cost to conduct research and develop modules. The Federation of American Scientists is calling upon the federal government to fund research and development in gaming. Small entrepreneurial companies that develop games for entertainment simply do not have the financial wherewithal to make the huge investment that textbook publishers can for education and training audiences, Kelly says.

Serious games

The effectiveness of games in training and delivering content lies at the heart of what is called the "serious games" movement, which is led by advocates who believe that games can be effective training tools. A Serious Games summit was recently held in the Washington, D.C. area to showcase many of the game elements that are being used to train the military and other professionals.

While some fear gaming in the school or workplace, many games already play an educational role. One could argue that the increasing level of sophistication and the multiplicity of scenarios used in games are becoming more like a simulated environment and less like a game played merely for escape.

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Jan Cannon-Bowers, associate professor at the University of Central Florida's digital media department, prefers to use the term "synthetic learning environment," for a game or training module with a competitive framework that is used for teaching. The point of using games is to capture enthusiasm for learning while helping users master a particular skill.

"I think people will get there," Cannon Bowers says of accepting games for training. "Some people get it. The Marines get it. The whole field is anecdotal right now and not based on research. We need to prove these environments work. Nothing will persuade people more than good data."

In contrast to educators and corporate leaders who may look askance at anything called a "game," the current generation of teenagers and 20-somethings who were bred on video games are more likely to recognize the value of game technology for training, says Cannon-Bowers. She cites a retail training game for young hires, which taught basic work tenets, such as arriving at work on time and practicing customer etiquette. The game awarded points for customer satisfaction.

Cannon-Bowers is part of a team sponsored by the National Science Foundation that is working on developing a game to teach physics. It is based on the popular *Babylon* game that teaches students about the advent of writing.

Something for everyone

No one is left out in the gaming industry. It has even found a way to train auditors. BreakAway is developing a simulation—tentatively called *Virtual Bank*—that will train auditors how to spot bank fraud. Game developers tapped the knowledge of federal regulators who investigated the savings and loan scandals of the late 1980s.

The otherwise gray world of banking is enhanced with 3-D bank officials who are interviewed by players. The game also includes more than 1,000 fictional bank documents. By asking the right questions, players can snare senior bank officials in a fraud scheme.

The military also uses a game developed by BreakAway. Called *24 Blue*, it trains Navy personnel how to operate an aircraft flight deck safely.

Diners who leave a restaurant complaining about poor service and cold food can try their hand at *Restaurant Empire*, which allows players to hire wait staff, choose cuisine, design the restaurant, and undercut competitors when pricing meals. The game, developed by Maryland-based Enlight Software, is used at the Culinary Institute of America and at Cornell University and Williams College.

Enlight, which has designed games such as *Zoo Empire*, *Hotel Giant* for Donald Trump wannabes, and *SpaceStationSim* for NASA enthusiasts, achieved notoriety for its widely-praised *Capitalism* game. Used by business faculty at major universities, the game teaches all facets of operating a business.

"Our goal is to create a game that allows people with no experience in a particular field to learn an industry and have fun doing it," says Paul Lombardi, CEO of Enlight. "You can learn what it's like to run NASA—not at the level of high engineering but you can get the idea of managing the operation."

If you ever had the notion that you could run your alma mater better than the current university president, there is a game called *Virtual U* that teaches users how to run a university. Participants learn to juggle the demands of faculty salaries and campus parking. Players can decide to reduce faculty teaching hours or increase the research budget under the watchful eyes of a virtual board of trustees who submit performance reviews.

Workplace incentives

Games also are playing a greater role in tandem with internal office protocols. Wyoming-based Snowfly markets a series of

short, entertaining games that reward employees for workplace performance.

The most popular game is the casino, where players play cards and win play money without betting any winnings. Another favorite is *Carnival* where players attempt to bust balloons before an approving clown. Both games only last a few seconds so they can hardly be considered a drain on productivity.

"Once the company gets past the shock of 'Oh my god, we're building an online casino,' they see its value," says Brooks Mitchell, founder of Snowfly.

The games don't have to be rewards for major accomplishments. Instead they can provide a little boost in the day. As Mitchell points out, when employees are told to complete certain tasks, some will and some won't. Yet, when a small incentive such as time to play a game is added, the response rate increases dramatically.

"People talk about learning for the sake of learning, but incentives are a big missing link in the overall learning process," Mitchell says.

The entry of the digital generation into the workforce will go hand in hand with greater acceptance of gaming technology for use as a training tool. That's the view of gaming software advocates who acknowledge they have their own training to do to convince skeptics in academia and business.

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A generation ago, using a video to deliver training invited skepticism, but today it is standard practice. A similar history could emerge with game technology.

"The whole point of educational games is to capture the motivation needed for learning," Cannon-Bowers says. "They fit well with how people learn because they they require you to test variables, repeat behaviors and make associations with various patterns. We're still a few years away in the corporate world, but it should become a natural method of training." T+D

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