Pentagon using advanced video games as training tool

The Battle of Waterloo may have en won in the playing fields of Eton, t the battles of tomorrow may very ll be won in the electronic game ardes of America.

Working with computer experts and ctronic game designers, the research n of the Department of Defense has nt $2 million to $3 million developing all, portable training devices that ar an unmistakable resemblance to arcade game "Tank Gunner."

"I don't know why we're worried ut parity with the Russians," joked a ifornia designer of electronic games.

"We've got zillions of skinny, 11-year-old kids training furiously in the game parlors."

He may have been joking, but the Defense Department is dead serious.

"The problems of training and performance problems in the Army are very real in a volunteer army," said Craig Fields, assistant director of systems sciences for the Defense Department's Advanced Research Programs Agency.

By using many of the same controls, graphic displays and sound effects that have rocketed electronic games into phenomenal popularity, and by allowing trainees to rack up a score, the Pentagon is hoping to motivate the trainees to practice and improve.

"We've gone to great lengths to make this fun," said Fields, whose agency has been working on the project about two years. "And we'll teach them about actual combat at the same time."

Lawmakers responded enthusiastically to the idea after Fields brought a tank simulator to a congressional hearing. "When we show these to people, they can't stop playing 'em," he said proudly. Fields believes the Army, Air Force and Navy likely will request a few dozen of the devices in their upcoming budgets.

"A general saw it and told me, 'This is great; we can set them up in armories in Brooklyn and the Bronx and the guys can play against each other,'" Fields said.

Although the Advanced Research Programs Agency has developed training devices that simulate aerial refueling, missile-firing and the operation of various combat vehicles, it is pushing hardest to win approval for a tank gunnery simulator. Five such simulators already have been assembled in the agency's Virginia facilities.

The device's viewfinder and instrument panel are identical to the one a soldier would encounter in a conventional tank. He could play either by himself or in conjunction with a captain, commander and another gunner. He could play against the computer or against another player.

Inside the viewfinder, film footage rolls by, depicting actual East German, West German or Middle Eastern terrain, rife with enemy tanks. "You fire and experience the same lead and lag time you would with tank fire," said Azad Madni, director of Advanced Information and Decision Systems at Perceptronic Inc., the Los Angeles company awarded the contract to develop the concept.

"They'll learn a lot about the trajectory of shells, time of flight, time it takes to destroy an object," Madni said. Microcomputer chips are programmed with an assortment of offensive or defensive responses to the trainee's moves.

"These simulators go far beyond arcade games," said a designer who worked on the simulator before he left Perceptronics. "One side can launch six missiles; the others can respond, try out evasive maneuvers, bring in MiGs. The computer knows the capabilities of all the equipment and weapons. There's a lot more options."

Making training cheaper was as much a concern as making it more fun, Fields said.

"Conventional simulators are very expensive. They can cost anything from $1 million to $15 million," he said.

"There aren't many of them and the amount of time any one person gets to spend on them is limited."

But spending that much money on realism wasn't necessary, the department decided. "We realized we didn't have to mimic the exact conditions of a combat situation: the temperature inside the tank, the vibration and shaking from the shells," Fields said.

Coinciding with that realization were technological advances in the state of the art of video-computing. Inexpensive microchips developed for games made it possible for the simulators that the defense research agency is hawking to be made for $10,000 to $15,000 each.

"We've piggybacked on the developments advanced by the entertainment industry and on the large assembly lines that are turning out components cheaply," Fields said.

Fields is confident the defense branches will decide to make full-scale use of the simulators, both in formal training classes and as after-hours diversions in military base recreation areas.

"They're as much fun as the arcade games and they teach something that can really be applied," he said.