A GAMER

Prescott Professor Ray Bédard turns play into instructional pay dirt for flight students

BY LAURIE DAVIES • PHOTOGRAPHS BY JEFF NEWTON

RAYNALD BÉDARD

ASSOCIATE PROFESSOR,
AERONAUTICAL SCIENCE

- Retired Canadian Air Force Navigator with 3,000 hours in the CP-140 (Canadian P-3 equivalent)
- Spent eight years in the CP-140 chasing and tracking Russian submarines "all over the North Atlantic"
- Earned Master's degrees in Engineering Acoustics and Electrical Engineering from the Naval Postgraduate School in Monterey, Calif.

HE MAY BE FROM THE OLD school of textbooks and rote memory, but Aeronautical Science Professor Raynald Bédard speaks the language of today's aeronautical students. In a word, that language is gaming.

The more sophisticated terminology, of course, is flight simulation. And with the help of Embry-Riddle students, Bédard is taking a popular video game called Microsoft Flight Simulator X to new instructional heights and is even under contract with Microsoft to develop training missions for a future version of Flight Sim. "He was the first one to see how this could be used for real training," says Mike Singer, marketing communications manager for Microsoft Simulations.

Singer is referring to Bédard's patent-pending System of Aircrew Rating (SOAR), a scoring rubric developed by Embry-Riddle computer science students that helps grade pilots flying within Flight Simulator X. The system not only grabbed Microsoft's attention but also is now attracting high-profile personalities such as Dale Snodgrass—the real F-14 pilot upon whom Tom Cruise's *Top Gun* character was based. Together Bédard and Snodgrass are using SOAR to hold virtual flying competitions.

"I'm just blown away by how much he accomplishes," Singer says about Bédard. "He gets things done. And the way he gets them done is not by doing them himself. He comes up with ideas and then finds passionate people to help him solve the problems he presents."

A VIRTUAL SUCCESS

One such Bédard idea under development is the Embry-Riddle Virtual Airspace (ERVA), a multiplayer environment where students studying flight, air traffic control, dispatch and other disciplines work together. The virtual learning environment can simulate 26,000 different airports at any time of day or night, under any weather conditions (including real-time weather) and with any variety of aircraft. Comprising the Airways Science Lab, a D-Box motion platform, a new Air Traffic Control Lab at the Prescott Airport, and an Airbus A320 simulator with the controls of a real cockpit, ERVA provides an interactive virtual space where flight students develop flight plans and navigation logs and then fly their work using simulators.

It's all part of Bédard's own brand of reality instruction. With ERVA, he hopes to provide a learning experience that speaks to the natural aptitudes of the typical Embry-Riddle student. "These students are naturally visual and kinesthetic. How did we teach them before? We lectured them. That's their least developed sense," he says.

That's why you won't find too many "traditional" lectures in Bédard's Basic Navigation class; in fact, he offers only five during the entire semester—and they are what he calls "micro-lectures" at that. Everything else is simulation. "Flying is not a Scantron exam. I've never seen an A, B, C and D cloud and then been asked to make a decision about which cloud I would fly through," he says.

LEARNING THROUGH PLAY

Bédard's inspiration for ERVA grew from a series of class projects. One was a Microsoft Flight Simulator mission he designed in which students flying over the North Atlantic in a Boeing 767 lost an engine and had to divert to Keflavik, Iceland. "Students were so engaged that we had to kick them out of class so the next class could come in. That's when the light bulb came on," Bédard says.

Shortly after, Bédard designed an exercise that would allow flight, air traffic control and weather students to interact on a flight from Phoenix to L.A. to Vegas on the Web-based Virtual Air Traffic Simulation Network, or VATSIM. But VATSIM is on a worldwide network, so a 12-year-old boy from New Zealand logged on and started controlling students' airplanes. "It was cool, but I wanted to have a little more control over my exercises. I said to two of my students, 'Can we create our own virtual network? I have no money and I'll give you three months to do it.' They begged, borrowed and almost stole, but they pulled it off in three weeks," Bédard says.

John Wightman, a May 2007 Aeronautics graduate, was one of those students. Today, Wightman provides technical support to keep ERVA humming. "Bédard likes to learn through play," Wightman says, smirking with the knowledge that sometimes the "play" requires hours of preparation. "It took us a long time to get to this point," Bédard acknowledges. "It doesn't get done in a coffee break."

And it doesn't seem to stop.

In February, flight students, air traffic controllers, dispatchers and weather students coordinated a 34-hour real-time flight around the world. They even talked of showing an in-flight movie and ending with dinner in Paris.

"Ultimately, we want to create a simulation research center here in Prescott. We have the support of the Arizona Department of Commerce and Embry-Riddle has been behind us all the way," Bédard says, getting lost in a dream world of multimedia platforms, avatars and partnerships with everyone from the FAA to forklift operators. Knowing Bédard, he'll tap into his student talent base to pull it off. "The good news is, this is not a fairyland of 'let's-go-to-Venus' type of research," he says. "They will graduate and use this every day."

The Embry-Riddle Virtual Airspace (ERVA) uses the latest simulator technology, like this D-Box Flight Simulator, to provide students with a "visual and kinesthetic" learning experience that speaks to their natural aptitudes.