

## Case Study: WSU Nursing Program



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**The Scenario:** She can hear his labored breathing as soon as she enters the room. She presses the stethoscope to his chest and picks up the erratic heartbeat. Odd noises are coming from his stomach. Then, he speaks. “I think I’m having a heart attack”. Whatever her next words, her patient isn’t listening. He is SimMan, a custom built life sized mannequin capable of showing every symptom in the book for nursing students at Washington State University in Spokane. The people who are listening are her instructors and fellow students, who are in the next room, very much alive and keeping an eye on her every move.

This simulated “first encounter” experience is just one facet of a brand new, state-of-the-art Nursing Center that opened on WSU’s Spokane campus in January 2009. “This new building was an opportunity to design classrooms the way we wanted them to be,” says Saleh Elgiadi, Director of Information Technology Services, Academic and Research Technology. “The classrooms were designed to allow full participation by students because this campus is developing into a health sciences campus for the whole university. We are seeing an increasing use of distance education and other health center programs. “

**Reality Check:** The simulation suite actually consists of three rooms. The examining room where the simulation takes place, an observation room where fellow students watch the event and a third room where nursing instructors are controlling the encounter with the simulation computers, inputting everything from sounds to symptoms. “By having the operator in another room, not seen by students, and being able to govern the whole system in that fashion, we can finally use our SimMan, SimWoman and SimBaby the way they were supposed to be used,” says Associate Professor Roberta Emerson, RN, PhD. “We’ve never had the tools we have today.”

Through the work of AV designer Bill Watt of Avidex AV in Spokane, the suite’s audio system allows students and instructors to interact without interrupting the simulation in progress. Watt incorporated a ClearOne Converge Pro 880 audio matrix mixer into the system to make audio seamless from room to room. “I integrated an intercom system through the Converge Pro using the I/O ports and audio ports to provide communication between the operator in the control room and the instructor in the Sim room,” says Watt. “I also used the Converge Pro to provide audio to students listening in the observation room and for recording purposes.”

**Making it Simple:** While the Simulation Suite is a front line nursing tool for the university, it is not the only new technology incorporated into the building. Four Distance Education classrooms are equipped with the latest HD audio and video

conferencing capabilities, linking students at six WSU sites on a daily basis. As the largest nursing program in the state, and the second largest in the western US, WSU felt it imperative to stay abreast of the latest teaching technologies. The key was to keep the system simple and consistent for educators and students alike. "When faculty moves from one building to another, and one distance education room to another, they see the same thing," says Elgiadi. "That was important and it's a very intuitive design."

An instructor begins each class by choosing either Presentation Mode or Distance Ed mode on the AMX control panel mounted on the teaching station. From there, the system takes over, turning on all technology needed for local classes or to reach classrooms at other sites. Each of the two larger classrooms, which hold over 100 people, are equipped with two ceiling mounted Panasonic projectors, three Sony HD Cameras with pan/tilt and zoom capabilities, two 46" NEC Monitors for side-by-side display, a Polycom videoconferencing codec, a Wolfvision document camera ceiling mounted above the demonstration table, and 50 to 60 Shure Push to Talk microphones, one for every two students. When any student pushes the mike button, the camera automatically zooms in on that location, putting a face to the voice for the instructor and other students. ClearOne's Converge Pro 880 audio mixer and six Converge Pro 8i expansion units handle the audio from all PTT mikes and any lavalier or gooseneck mike used by the instructor. The two smaller classrooms have scaled down versions of the same system.



"We chose ClearOne because we know its capable of controlling 60 microphones intelligently," says Bill Watt. "The processing to make this all work was extensive and I was only comfortable with ClearOne." The Converge Pro also brings echo cancellation technology to the table for clarity, noise cancellation to handle ambient room noise, and first microphone priority to focus the audio and enhance clarity of the high definition signal. "Audio is very important," says Elgiadi. "When you're a student at a distance in a health sciences program, you can't really afford to miss words here and there. You can't have any sort of interference that will botch the content for you. You want clear, consistent audio throughout."

**No Room for Failure:** For Patricia Butterfield, Professor and Dean of WSU's College of Nursing, the distance education technology opens up a world of possibilities without getting in the way of their primary task-teaching. "What we've committed to is that distance delivery is never a correspondence course," says Butterfield. "It's always got to have the same rigor and vitality of a face to face course. We can't dumb down the content. That's why we need the right combination of tools in the tool box."

There was a time when distance education instructors had to repeat every question so remote sites could hear it. "The new system picks things up so much better," says Emerson. "It saves a lot of time and a tremendous amount of frustration that students at remote site were experiencing when they couldn't hear what was going on."

With distance education classes running 14 hours a day, Elgiadi says it is "mission critical" for this technology to be up and running flawlessly at all times. In the past, every distance education classroom had an operator on duty to deal with problems. "Now, we have the controller sitting in a control room operating four classes at one time," says Charlie Niemi, Branch Manager for Avidex AV in Spokane. "From a manpower perspective you've freed up your resources to do other things. If something goes wrong, the controller can call up the system and push the right buttons and correct the problem from where he sits. It's all computerized and digitized." A larger control room at the Academic Center across campus is equipped to handle distance education classes in all curriculums. Avidex AV upgraded two additional Distance Education classrooms in the Academic Center based on the success of those in the Nursing Building.

**Webcasts and podcasts:** The addition of a Sonic Foundry Mediasite streaming video recorder in every classroom has assured students they will never miss a class. The Mediasite system takes its audio from the Converge Pro 880, which allows the entire class to be recorded as it happens, then posted on line where students can log in and watch, or download to an MP3 player.

“Imagine, as a student, you can go to class, interact and engage, instead of having your head in your notebook taking notes,” says Niemi. “Then you can go back home and review the class online or on your handheld device. We’re anxious to see what effect that might have on student retention and grades. It’s expected that it’s going to elevate the learning process.”

Patricia Butterfield knows that many of her graduate students could not have quit their jobs elsewhere to come to Spokane for classes. Distance Education technology of this caliber lets the university take the classes to them without losing anything in the translation. “Younger undergrad students are the generation that might take this technology for granted. They’ve walked in to this amazing system,” says Butterfield. “But our older students remember where we’ve been, and can appreciate the magic of what we do now.”

