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UNMC iEXCEL Transforms Health Care Education

Products used in this case study

MT Canvus®, MT Canvus Connect & MultiTaction iWall®

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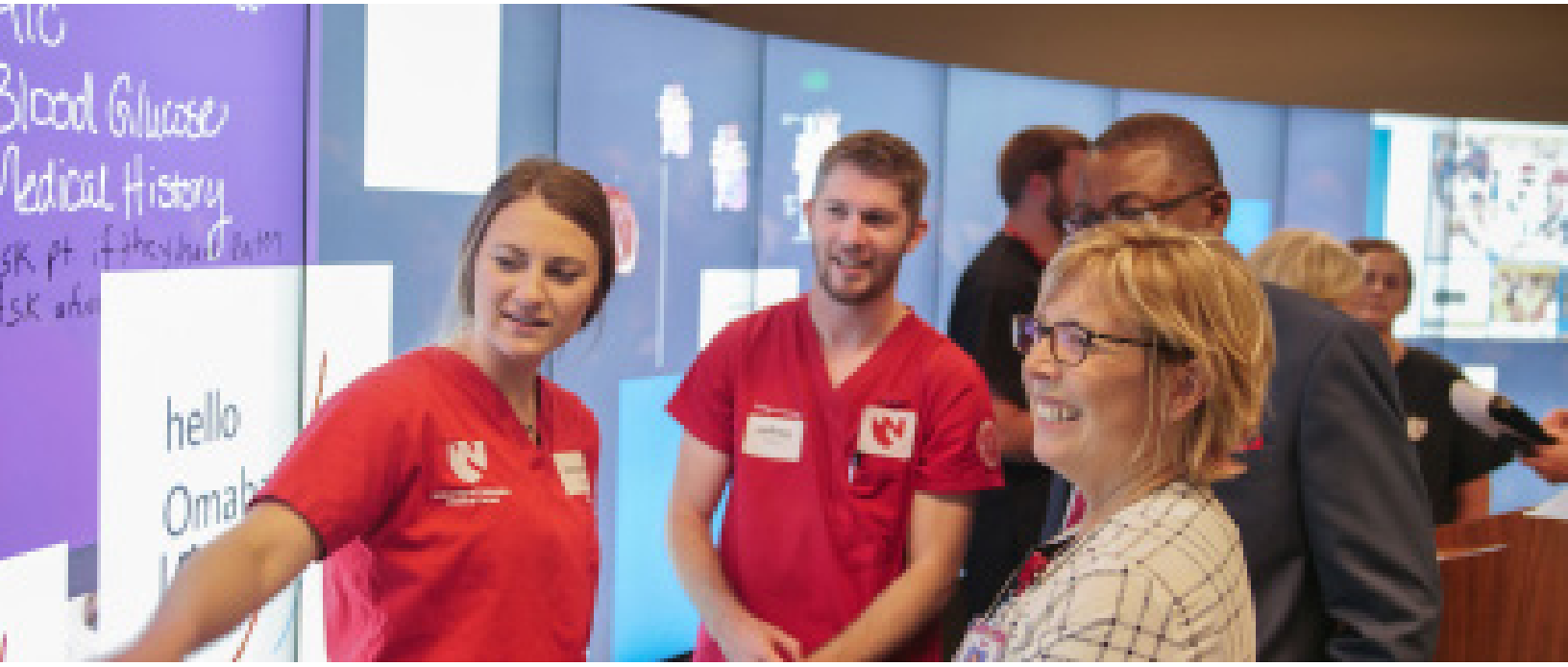
The Interprofessional Experiential Center for Enduring Learning (iEXCEL) is a bold, visionary initiative at the University of Nebraska Medical Center (UNMC) designed to transform health care education.

Through iEXCEL, learners acquire knowledge, and experience hands-on training in a wide range of realistic but simulated healthcare environments. Using a wide range of simulation technologies they can practise and become proficient in procedural and professional skills before encountering real-life patient care situations.

The majority of simulation centers in healthcare are uni-disciplinary, but the iEXCEL center accommodates all healthcare disciplines including medicine, nursing, pharmacy, dentistry and allied and public health, so learners can work together from the very beginning of training. Specialized training to become proficient in their individual professions is still very necessary, but there is also the importance of effective interprofessional collaboration and team functioning to consider.

Opening early in 2018, a new five-level, 192,000 sq.ft. building, the Davis Global Center will become home to iEXCEL. AVI-SPL was selected as the technology integrator for the project. We spoke with Bill Schmidt, AVI-SPL Sales Director and Visualization Advocate, and Dr. Pamela Boyers, Associate Vice Chancellor for Clinical Simulation, iEXCEL.



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The Goal

While the overall mission of iEXCEL has everything to do with enhancing the outcomes of training and patient care, an important aspect of the vision is to provide digital learning experiences that encourage students to interact, engage in critical thinking and be guided through competency based learning experiences.

"We are changing the paradigm of how we teach," says Boyers, "When providing care it is necessary to be very active and engaged with patients and their families. Beyond conducting procedural skills, you must have excellent critical thinking and communication skills and work well in teams. It is very hard to learn this range of skills from books, lectures and PowerPoints."

We want to provide highly engaging learning experiences that better suit the way the learners of today absorb and apply information

At the beginning of the project, the University asked a series of questions:

- **What technologies are emerging that will stimulate new ways of learning, teaching and conducting research?**
- **How can we bring learning alive and truly immerse and engage students in the learning experience?**
- **What lessons can be learned from other High Reliability Organizations (HROs) - especially those that have adopted visualization and simulation technology to improve outcomes?**

iEXCEL's goal is to continuously learn from other HRO's and apply valuable lessons learned to health care training. One of the initiatives of the center is to accelerate the adoption of modeling and simulation in health care education.

"We are most grateful to industries, such as, oil & gas and automobile manufacturing, as well as the military for sharing some of their best practices," explains Boyers, "We find that most are using modeling and simulation to address safety, costs and quality.

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iEXCEL's Remote Learning Mission

A key component of the vision for iEXCEL is to fulfill a state-wide educational mission. Within the state of Nebraska, there are many rural and underserved communities, and iEXCEL desires to serve these remote communities and offer the same standard of training and technology across the state. "It is really important to ensure that one healthcare center in the state does not have all the technology advantages, so the ability to share is paramount," says Schmidt.

The Solution

A 12 panel MultiTaction iWall was installed in Omaha at the iEXCEL center, and the first remote learning project is complete with the installation of an iWall 450 miles away, in Scottsbluff.

Nurses and Dental Hygienists at the Scottsbluff satellite campus can now connect in real time with Omaha via the iWall collaboration software, MT Canvus and Connect.

There is a server at each iWall location, and a third server to run Canvus Connect. Schmidt explains, "The bandwidth required for one iWall running Canvus to talk to a second iWall running Canvus is very low, yet it provides a great deal of functionality."

iEXCEL plans for iWalls at several other sites in the State of Nebraska, with upcoming installations planned for Lincoln, and then Kearney. "With this network of iWalls, the students and faculty will be able to collaborate easily and in real-time across distance," says Schmidt.

In Omaha at the Sorrell Center Visualization Hub, UNMC Chancellor Jeffrey P. Gold, M.D. and Pamela Boyers, Ph.D., associate vice chancellor for iEXCEL, use a laptop at left to talk to faculty, staff and students in Scottsbluff through an iWall connection. On the left of the screen is the connection to Scottsbluff.

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Engaging the Faculty is Critical Because They Must Also Adopt the Technology

The University carefully planned how they could best support the faculty in working with the iWall, by making sure there was sufficient technical creative support to drive adoption. iEXCEL has hired a multidisciplinary visualization team to generate teaching modules.

A critical part of the equation is engaging faculty members to help them port the lecture-based curriculum they used in the classroom into an interactive experience on the iWall. Thus, instead of a lecture on diabetes, the creative team works collaboratively to develop that teaching module.

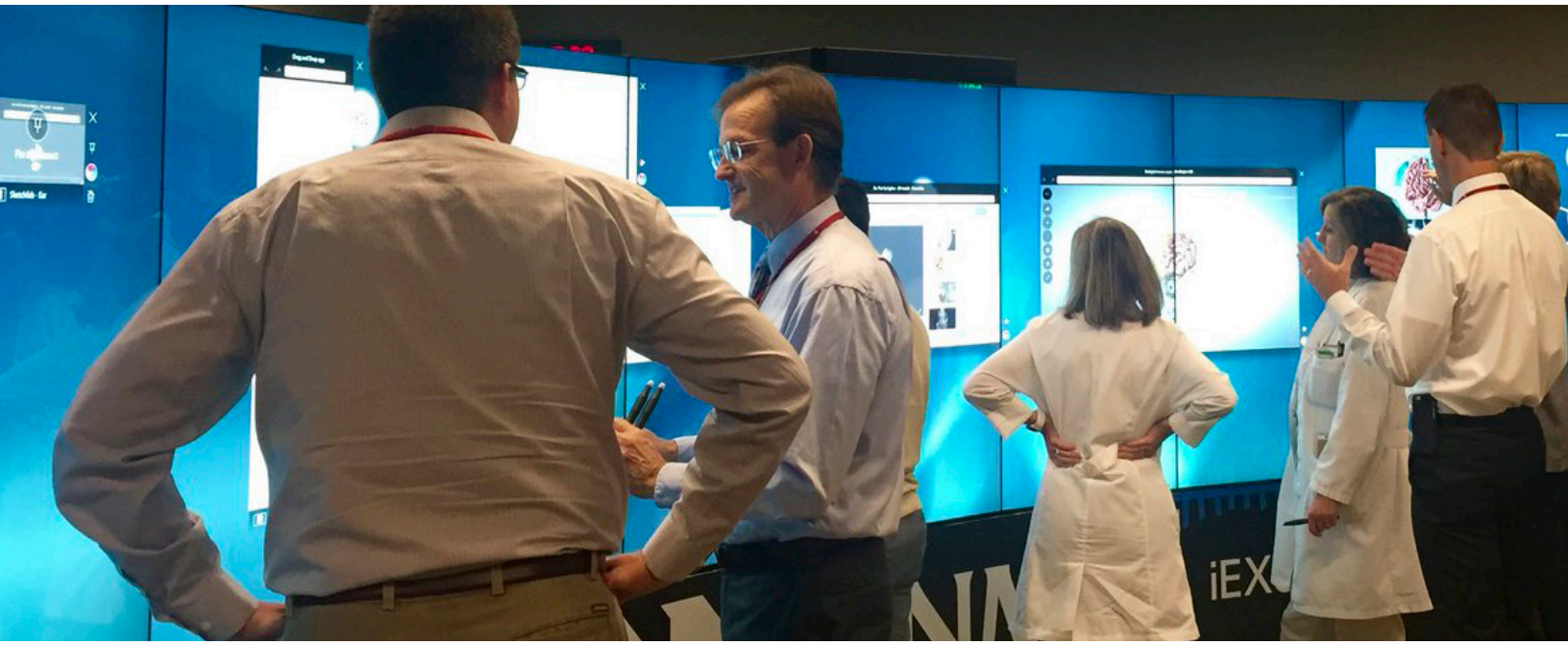
The creative team includes a 3D animator, computer programmer, a graphic designer and medical artist with experience in the medical visualization field.

All of the content for the iWall is created in collaboration with the clinical subject matter experts. When you put this team together, they arrive at brilliant ways to depict the human body or organs without having to use actual patients' material, to assure that patient confidentiality is strictly preserved.

Now that the early adopters have created example modules, others see what is possible and module creation is gaining momentum.

"There is still much work to do to produce increasingly sophisticated modules," Dr. Boyers reports. Ultimately, iEXCEL wants to get to the point where competencies can be assessed using the iWall.

iEXCEL is in the early days of producing teaching modules for the iWall, and the faculty sees tremendous promise for making lessons more exciting and interactive.



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Conclusion

UNMC's iEXCEL makes Nebraska the hub of some of the most revolutionary thinking in the world of medical education. Their mission to accelerate the adoption of modeling and simulation technology will reshape the way in which medical education is delivered.

About MultiTaction

MultiTaction designs advanced visualization and collaboration solutions to improve the way the world works. Its award winning 3D optical recognition multi-touch displays, and innovative software suite are used by some of the world's largest corporations, museums, educational institutions and entertainment companies. With solutions deployed in over 50 countries and offices across the United States, Asia and Europe.

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