



Using immersive tech for state-of-the-art medical education and remote learning

The University of Adelaide uses immersive technology to teach remotely, boost engagement, and build empathy.



Highlights

The University of Adelaide prides itself on offering state-of-the-art healthcare simulation facilities to its students. As such, it was looking into adopting mixed reality and immersive technology.

As part of a major renovation, it introduced a 7.5-metre diameter Igloo cylinder. This would complement its cutting-edge simulation facility.

The Igloo-powered Immersion Room is equipped with 360° immersive projection and surround sound. It has provided a wealth of benefits and has been used in:

- Providing simulation of patients in hospital wards and accident sites for students to gain hands-on experience
- Remote learning by providing virtual seminars in a way that retains the feel of the classroom
- Viewing 360° films following medical procedures in-context, from the stage of consent given, to follow-up
- Showcasing the stories of patients and their loved ones coping with illness or disease in an immersive environment

The University of Adelaide has been able to:

- Deliver higher levels of engagement among students by using a new, immersive technology
- Build empathy among students by witnessing patients along their journeys as part of all-new immersive experiences
- Deal with the COVID-19 crisis by offering a virtual classroom environment for medical simulation
- Create a bank of content that can be used to support the learning of students for many years to come



About the University of Adelaide

The **University of Adelaide** is one of Australia's most research-intensive institutions. With world-leading researchers, modern facilities, and an innovative culture, it's committed to delivering research valuable to local and global communities.

Its Faculty of Health and Medical Sciences is a world leader in health education and research. It seeks to improve healthcare in Australia and worldwide. As part of this, it includes simulation facilities to

deliver world-class learning opportunities to future health professionals.

Adelaide Health Simulation (AHS) is the most technologically advanced simulation facility in Australasia. It is the only Australian simulation facility accredited with the Society for Simulation in Healthcare for excellence in learning and teaching.

Adelaide Health Simulation also features an Immersion Room, powered by Igloo immersive technology.

The situation

Looking to the future to keep medical simulation facilities cutting-edge

The University of Adelaide's simulation facility educates students of the health professions to handle real-world clinical scenarios. The facility recreates hospital wards with resuscitation, neonatal, and anaesthetic equipment. This enables medical, nursing, health, and medical sciences students to gain valuable hands-on experience as part of their education.

Patient scenarios are simulated in one of two ways:

- High-quality mannequins that exhibit all the signs and responses of real people simulate patients of all ages.
- Actors are also used, made-up with injuries, and trained to exhibit appropriate symptoms.

To provide world-class teaching to its students of the healthcare profession,

AHS is committed to being a forerunner in cutting-edge technology. For two years, it had been looking into immersive technology to enhance its simulation facilities.



The solution



Virtual reality tech + immersive space = simulated environment

AHS had been researching similar installations from other institutions since first seeing CAVE technology. It realised its simulation facility could be supported with virtual reality and immersive technology, which could slot into its existing teaching.

As part of a major renovation, it committed to embracing virtual reality and immersive technology.

This included:

1. Creating 10 virtual reality suites equipped with VR headsets for groups of students to rotate between.

2. Purchasing an Insta360 Titan camera to capture 360° footage from hospital wards. This would be viewable in an immersive environment.
3. Investing in a 7.5-metre Igloo cylinder. This would prove to be crucial in enabling groups of students to make use of an immersive space at the same time. And, it would offer remote learning in a virtual classroom environment.



“We’re committed to experimenting with and keeping at the edge of mixed reality and immersion teaching modalities, and the Igloo is perfect for that.”

Associate Professor Adam Montagu, Director of Adelaide Health Simulation



Why the University of Adelaide was attracted to immersive tech

The University of Adelaide had set up VR headsets in 10 suites. But it found it was such an individual experience that it felt it would be a struggle for large classes to stay immersed. The solution of an Igloo cylinder became a natural progression as something that could be used alongside VR headsets. It offered a range of benefits:

Facilitating large groups of students

To combat the one-on-one nature of VR headsets, the University of Adelaide wanted to be able to fit large groups. It was able to build an Igloo to its exact specification to fit classes inside. It required a 7.5-metre diameter cylinder with six retractable laser and ultra-short throw (UST) projectors. To complete its use as a teaching tool, the Igloo cylinder was equipped with 7.1 surround sound, a wireless microphone system, and a pan-tilt-zoom (PTZ) video conferencing camera.

Being able to transport students anywhere

By being able to capture and play 360° film from anywhere, students could be transported to healthcare facilities that would be difficult to get them all into. This would give context to their teaching by showcasing what they were learning in an authentic environment.

Building empathy

Another use of immersive spaces that the University of Adelaide had researched in other facilities was the ability to more strongly build empathy. It could showcase how patients and families cope with difficult diseases in an immersive environment. This would be more valuable to students than just a lecture on the subject.

Ease of displaying content through existing software

The University of Adelaide found a major advantage of the Igloo cylinder to be that it already came with ready-to-use software. The Igloo Warper or Igloo Web applications, for example, could be used to load content quickly and easily. For less tech-savvy academics, the system could also be used with simple presentations from existing tools like Google Slides.

“It’s been our goal to transport any student to any destination in Australia - perhaps a rural environment or a hospital area they might find it hard to access. Being able to recreate that within our simulation lab with 360° video and immersion, and walk-in and really feel like they’re there, in that environment, definitely provides context to the learner.”

**Assoc. Professor
Adam Montagu, Director of
Adelaide Health Simulation**

How immersive tech was integrated into the University of Adelaide's Health Simulation Centre

The Immersion Room allows students to learn by participating in realistic medical scenarios. With projectors displaying a seamless 360° image of a hospital ward or an accident site, students can gain hands-on experience in a simulation of a real-life scenario.

The very first application delivered by the Immersion Room was during the height of the COVID-19 lockdown, and so involved turning the room into an interactive webinar and meeting space.

AHS created a virtual classroom environment using Igloo's compatibility with Zoom. The staff could lecture from the centre of the Immersion Room, with part of the 360° screen behind them used for presentations and live polls. Ahead of them, they could see each of their students, in the form of a montage of life-sized faces. As a result, everyone had a real sense of presence, with authentic interaction, and the opportunity for shows of hands or thumbs-ups.

Staff were able to show medical procedures like basic life support on a mannequin and ensure students understood all the way.

Using a 360° camera, AHS has also been able to get into hospital environments and film medical procedures, such as knee aspirations or joint aspirations, which students can see in context, from the consenting process to the follow-up, in life-size around them. This footage will be useful for students for many years.

As an empathy-building technique, the University of Adelaide first created content for a dementia experience. This involved interviewing patients, and families with loved ones who are experiencing dementia, and following their journey. This formed an incredibly powerful immersive experience.

It continues to find new, innovative uses for the Immersion Room. The use of immersive technology is becoming a significant mainstay in Adelaide Health Simulation. It's become integrated into the learning opportunities for students. Content is being created as part of a long-term plan and will be useful for years to come.



Evaluating the impact

Accompanying and supporting medical learning with immersive tech has boosted excitement and engagement around staff and students.

The Igloo-powered Immersion Room has enjoyed several successes. It proved to be crucial in providing a facility for remote seminars during the height of the COVID-19 crisis. It's now a key part of the University of Adelaide's Health Simulation facility. AHS continues to find new applications in offering medical simulation using the Immersion Room.

Impressions of the Igloo:

"The quality was amazing - it was like I was in the room with the people in the video."

"I really felt Igloo partnered with us and allowed us to deliver a technological solution that has exceeded my expectations."

Success of the Igloo:

"It's an exciting opportunity for the students to be involved with, especially this generation of students."

"I feel the Immersion Room gives students more of a real-life sense of what that environment would actually feel like."

"I have found it to be an excellent way of teaching. The students are engaging well, and what I especially love is that we can change scenes quite rapidly. This has enabled us to really condense learning content - students are loving it, we're loving it."

Using the Igloo:

"It's quite easy to adapt teaching using simple things like Google Slides, Street View, and Zoom video conferencing, so there are very common apps that we use already that integrate into the Igloo."

"We have academics who are not particularly technically-capable, who are able to walk in and use the room quite readily, with minimal technical support."

As for the future, the University of Adelaide is excited to continue using its Igloo-powered Immersion Room. It is looking forward now to potentially partnering with other universities making use of such technology.

“ *In summary, we're incredibly happy with the investment. It's an emerging technology and we're happy to be on that learning curve. Our students are enjoying it, our academics are excited by it. We're also hoping we can collaborate with other universities and other users of the Igloo system to learn what they've done, and share the ideas we have."*

Assoc. Professor Adam Montagu, Director of Adelaide Health Simulation



Keys to Success: The Igloo Perspective

At Igloo we have worked on many deployments of immersive technology. And we are always keen to advise customers, and also to learn from customers, about the factors that enable an Igloo to become an effective tool.

From our perspective, the University of Adelaide deployment has five main keys to success:

- 1 Formal integration into classes and workflows**

The University of Adelaide had been looking for two years into mixed reality and immersive teaching elements to complement its existing simulation facility. It was determined to make the most of its Igloo, and has integrated it into classes, simulations, and seminars as a crucial part of education. **Immersive technology is not just an add-on. It has become intrinsic to the University's simulation facility.**
- 2 Flexibility and lateral thinking**

The Igloo was launched just before the height of the COVID-19 crisis. With social distancing, it was impossible to get full classes inside. But, by adapting the Igloo for remote learning with everyday tools, teaching staff were able to hold seminars that students could get more out of than an online lecture. **By embracing the potential of immersive tech, they were able to turn a difficult situation into a new opportunity.**
- 3 A senior-level evangelist**

Assoc. Professor Adam Montagu, Director of Adelaide Health Simulation, has been a keen proponent of cutting-edge technologies to enhance the University's simulation facility. He has been invaluable at every stage for encouraging the project to move forwards and has been an outspoken advocate. **A senior-level voice secured support and uptake of the Igloo, before and after its installation.**
- 4 A long-term content strategy**

AHS purchased a 360° camera to film its own footage of hospital wards that would be difficult to get classes into. This gave the full context of certain medical procedures in the hospital environment. Most importantly, this footage can be reused indefinitely. **This content bank of medical procedures will benefit students of the healthcare profession over the years to come.**
- 5 A solid partnership with Team Igloo**

As it had such specific requirements, the University of Adelaide worked closely with Igloo. We have continued to support staff since the installation, with a point of contact available for them every step of the way. The University of Adelaide has fed back to us, and we've implemented its ideas. **A close partnership has been invaluable and continues to be after the installation.**



For more information

Igloo Vision is the Shared VR company

From bases in the UK, USA, Canada, and Australia, we work with clients worldwide. Our largest, fastest-growing market is education. So far, 25+ universities have installed Igloo immersive workspace systems, and many more installations are in the pipeline.

- Michigan State University
- University of Brighton
- Mid-Sweden University
- Cardiff University
- Arkansas State University
- Zhejiang University
- Florida International University
- Khalifa University
- California State University, Long Beach
- Ryerson University
- Deakin University
- University of Loughborough
- University of Essex

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