

# ARDMS Virtual Reality

## Learning and Assessment Modules – Initial Usability Testing

### Key Findings and Outcomes

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## Project Overview

Inteleos partnered with Vantari VR to develop ultrasound learning and assessment modules in Virtual Reality

### Usability studies conducted in Fall 2024 at three educational institutions:

- Chippewa Valley Technical College
- Seattle University
- Montgomery College

### Two modules tested:

- My First Scan (MFS) tutorial
- Abdominal Aorta content module

## Research Methodology

- Used modified think-aloud protocol with individual sessions
- Two-person research team: facilitator and producer
- Participants were first-year sonography students, mostly with no prior VR experience
- All participants were female, ages 18-33

## Results

### My First Scan (MFS)

- 59% of participants were first-time VR users
- Sessions lasted 12-30 minutes
- 89% felt immersed in the experience
- 81% reported feeling like they were doing a real scan
- 95% believed skills would translate to real-life scenarios
- Average satisfaction score: 4.03 out of 5

### Abdominal Aorta Module

- Participants showed increased comfort and skill in second VR session
- Average satisfaction score: 3.78 out of 5
- 93% expressed interest in trying future VR modules
- 96% were glad to participate and would do so again

## Improvements and Iterations

### MFS Module Improvements

- Lowered simulated patient bed height for better ergonomics
- Modified transducer rotation instructions to use thumbstick instead of wrist movement
- Enhanced console button legibility with larger text and better contrast
- Added “Show Me” resources for additional guidance

### Abdominal Aorta Module Enhancements

- Implemented mandatory MFS review before Abdominal Aorta module
- Introduced V-pad feature for live guidance and feedback
- Added reference images for assigned scans
- Adjusted scoring parameters between testing sites

## Next Steps and Recommendations

### Immediate Actions

- Update MFS with features developed for Abdominal Aorta
- Develop additional “Show Me” resources
- Address remaining interface issues
- Improve anatomy rendering accuracy

### Development Priorities

- Create new scoring methodology
- Complete anatomy development for all abdomen modules
- Refine button and touchscreen interactions
- Enhance V-pad functionality

### Long-term Goals

- Proceed with development of remaining abdominal modules
- Plan development of OB/Gyn modules
- Continue iterative improvement based on user feedback
- Maintain focus on positive customer experience (CX)

