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# Augmenting Digital Lean Training with Virtual Reality (VR)

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## Problem Statement

6S, a Lean process improvement methodology has been taught and adopted hospital-wide since 2007 to drive efficiency in the hospital. Classroom training was converted to Digital Learning in 2020. One year post digital learning implementation, feedback was mostly positive. However, learners shared two major impediments to their learning, which this project aims to address.

**1) Just reading about examples was not sufficient to teach them how they could apply 6S**

**2) High likelihood of forgetting the concepts learnt due to lack of hands-on experience**

## Project Aim

1. Provide practical experience in a safe & controlled environment where staff can gain confidence to work on real-life projects.
2. Overcome operational constraints of needing to find suitable settings (e.g., clinic, pharmacy) and coordinate time for training.
3. Maintain the accessibility that microlearning provided : Learning anytime, anywhere.

## Potential Solutions

Continue to deliver instructional content via Digital Learning but augment with practical experience to reinforce learning. The following approaches (a, b, c) were considered and evaluated against our project aims (1, 2, 3):

	1. Practical experience	2. Overcome operational constraints	3. Learn anytime, anywhere
a) Face to face	✓		
b) Virtual classroom (e.g. Zoom)	✓	✓	
c) Virtual Reality	✓	✓	✓

Virtual Reality was identified as the best approach to augment 6S learning experience.

### Instructional Content via Digital Learning

1. Lean in Healthcare
2. DOWNTIME
3. 6S

Staff to complete their digital learning through mobile devices.

### Augmented Application via Virtual Reality

4. 6S Application in different settings

Staff experience Waste Walk and 6S application in VR

## Outcomes and Impacts



100%

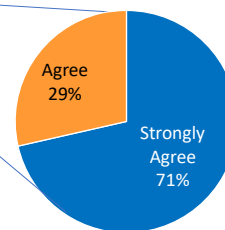


VR improved understanding of the 6S concept

100%



Enjoyed the experience



Staff feedback that the VR experience was intuitive, realistic, and engaging. It provided our staff a safe environment to try 6S in healthcare contextualised scenarios.

*"Love the part where there is a comparison of before and after."*

*"I was able to explore and interact with objects in the clinic. The visuals were so crisp and the sound was so realistic that it felt like I was really there."*

*"The VR session is very intuitive and I learnt a lot along the way."*

*"Leveraging VR, I can apply the knowledge almost immediately in the simulated environment. Even when I do make mistakes, they don't have real-life harmful repercussions to patients, other staff, or myself – hence ensuring psychological safety to learn without fear."*

## Lessons Learnt

### Scenario Curation Takes Time

As the 1<sup>st</sup> formal VR training in TTSH, we required more time to look into the following:

- Scenarios should be carefully selected and adapted and cater to a diverse group of staff.
- Drawing up credible storyboards relevant for staff's learning is an iterative process requiring close collaboration.
- Use targeted publicity and integrate the VR practical experience into staff's learning paths for maximum uptake.

### Less is More

We started with a direct translation of real-life scenarios into the VR environment to make the scenario more immersive. However, we learnt that in VR, keeping the environment and number of interactable elements minimal helped learners focus their attention to the learning objectives.