

## Creating low-cost, active and immersive Virtual Reality learning experiences

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This 50-minute experiential session explores the evolving affordances of low-cost Virtual Reality (VR) technologies to create active and immersive learning experiences. As part of the session, you will use your mobile phone with Google Cardboard to explore and evaluate a short, active, immersive VR experience. Next, you will learn how to create simple VR content using the Cardboard Camera mobile application. In the final part of this session, we will collectively, brain storm ideas and discover resources and tools that can be used to further your knowledge and extend your experience in using VR for active and immersive learning.

Keywords: Virtual Reality, VR, Google Cardboard, immersion, active learning

### Virtual Reality, immersion and active learning

Given the evolving affordances of Virtual Reality (VR) technologies and spaces, digital learning can now be experienced in ways that promote active and immersive learning. Immersion is a powerful kind of experiential learning as it gives ‘the subjective impression that one is participating in a comprehensive, realistic experience’ (Witmer & Singer, 1998). One key factor in creating immersive experiences, especially those that create a feeling of presence, is the engagement of multiple senses. Dede (2009) calls this ‘sensory immersion’. Virtual Reality which literally means ‘near reality’ (Virtual Reality Society, 2017) offers realistic, sensory immersion experiences through three-dimensional computer-generated virtual environments. That is, immersive VR experiences are simulated digitally to replace the user’s real-world environment. These immersive experiences can provide even higher learning impact by ensuring learners are active in their learning environment. Studies, such as Freeman and colleagues’ (2014) large scale meta-analysis, found the benefits of active learning are strong. As such, active, immersive VR learning has enormous potential to equip learners with the real-world knowledge and practice-oriented skills to succeed in their future careers and in other aspects of life.

Recent advances in VR equipment allow for more heightened sensory interaction with the virtual environment. For example:

- VR headsets – a device like a pair of goggles that goes over your eyes. Some of the higher-end headsets (like Oculus Rift) are connected to your computer and cheaper ones (such as Google Cardboard) use your mobile phone clipped into the actual headset.
- VR controllers – a device or gloves that allows for more interaction, and often haptic feedback, within a virtual reality environment. Such as, Oculus touch or gloves.
- VR treadmills – allows the user to physically run and experience more physicality in a virtual immersive environment. Such as, the Omni by Virtuix.

However, designing and creating active, immersive, VR learning experiences can be expensive and challenging. The purpose of this session is to discover low-cost approaches to developing and using VR in learning.

### The goal of the experiential session and how it will operate

This 50-minute experimental session aims to show how VR learning experiences can be incorporated into learning in ways that are simple and cost-effective. Attendees need only bring their mobile phone and headset (e.g. ear buds) to access the learning environment and install and use a few mobile applications to create and run the VR content. The session will operate as follow:

1. Introduce participants to the potential of active and immersive learning (5 minutes)
2. Engage participants in a short active and immersive VR learning experience using Google Cardboard (15 minutes)
3. Explore simple ways to use a Google Cardboard Camera to create a VR experience (20 minutes)
4. Collectively brain storm ideas and discover resources and tools that can be used to further your knowledge and extend your experience in using VR for active and immersive learning (10 minutes)

## Names and biographies of the organisers/facilitators of the session

**Mr Mark Bailye:** Mark is a Customer Success Advocate at Blackboard who is actively involved in spearheading and championing the use of new and emerging technologies to transform and enhance the learning and teaching experience in higher education. A thought leader and trusted advisor who provides pedagogical and andragogical insights to drive high quality learning and teaching activities in face-to-face, blended and online learning environments.

**Dr Caroline Steel:** Caroline is a Senior Strategic Consultant with Blackboard and a passionate higher education specialist with expertise in transforming educational institutions to meet current and future learner needs. She brings expert knowledge and thought leadership in the pedagogical application of new and emerging technologies for learning, teaching, curriculum and assessment for large scale, strategic change initiatives. Prior to joining Blackboard Caroline established a strong reputation in the field of digital learning and teaching as an innovative academic and leader. She retains an adjunct academic position at the University of Queensland.

## What attendees will get out of the session?

Attendees will have the opportunity to experience and evaluate a short active, immersive, Virtual Reality learning experience using Google Cardboard VR headsets. They will learn simple ways to use a Cardboard Camera with their mobile phone to create VR content. Finally, they will take away further ideas and resources that can be explored beyond the session to create their own active, immersive VR learning experiences for their own learning and teaching contexts.

## Who the session is aimed at?

Learner designers, academics, corporate trainers and those interested in designing low-cost active, immersive, VR learning experiences.

## How does the session fit the ASCILITE 2019 theme?

The session fits the conference theme ‘Personalised Learning. Diverse Goals. One Heart.’ because active, immersive, Virtual Reality learning experiences are focused on the use of technologies for sound pedagogical practices that can help equip learners with real-world knowledge and practice-oriented skills to excel in life and their chosen career. Through creating these kinds of learning experiences, learners have more opportunities to learn and practice in simulated real-world contexts.

The session also fits with Theme 1 ‘Visions and explorations in digital learning, pedagogies and spaces as the focus is to take a relatively new and expensive technology (Virtual Reality) and think about how it can be incorporated into pedagogical instruction and learning through the use of simple cost-effective equipment (Google Cardboard + mobile phone) and through guidance via collectively agreed design principles that will mitigate some of the challenges and complexities of designing for active, immersive, VR learning.

## References

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