

# Jisc Edtech Challenge

a virtual learning environment without a screen

## The VLE of the future

an interactive, collaborative space for independent learning without constraints of time or location

Idea submitted by **Mary McVey** from the University of Glasgow in collaboration with Emma Jackson, Iona Wallace, Jessica Pena Paladines, Moray Smith, Oliver Delree, Sara Berent, Sinead Russell, Yik Lok Chung

### Description

Our idea combines the method of Loci for individual and collaborative student learning, an interactive learning method which can be accessed via the VLE removing barriers of time or location.

#### How will it work?

The VLE would be accessed through smart devices and virtual or augmented reality headsets. Students, wearing the headsets, will walk around a space that is familiar to them and using the method of Loci assign names, dates or processes to familiar objects or routine actions e.g. a journey to class.

- The method of Loci has been shown to improve students' learning and can help students remember important details concepts and processes. By being interactive, this can result in deeper learning and engagement with 'dry topics' found in all subject areas.
- There is potential for a 'multiplayer' implementation: students could interact with the notes and spaces with other students in order to help them visualise their learning from another point of view and encourage peer learning.
- Students on their own could explore the space built by someone else, student, staff, employer or expert from a non-educational setting.

This technology would be feasibly available for mobile devices with varying levels of immersion:

- Users could access it via the camera on their phone
- Users could place their phone in augmented reality goggles (a cheaper alternative to VR)

## What does it solve?

Implementing the Loci method within the VLE makes it available to students and could revolutionise the way they study. Access to this method of learning would help users assimilate long, complicated and purely theoretical information required for their coursework. We anticipate that this technology could be used for many aspects of learning in any subject area:

- Remembering (series of dates, mathematical rules and long biological pathways).
- Understanding complicated concepts by taking a more visual and interactive approach to learning.
- Creating and revisiting mind-maps, updating them as the student progresses through their education programme.
- Interacting with other users to facilitate collaborative learning and discussions.
- Establishing strategies for users struggling with learning disabilities that might require a more immersive approach to knowledge assimilation.
- Involving users facing inclusion issues due to barriers such as funding, inaccessible facilities or discrimination.

On a personal level, each user would be provided with a maximum level of flexibility and comfort in their learning, using their own personalised living space and familiar environments as learning environments. The idea behind the loci method is based on the principle of immersive learning, where your living space becomes a database of ideas and concepts.

This technology further promotes change of learning paradigms:

- Different layers allow users to study various concepts within the same space, which would be impossible if they were to use e.g. traditional post-it notes.
- People can create mind maps and add elements to the space as they progress through their course and slowly but surely build up insight into “the Big Picture”.
- This technology can be used by the teaching staff to pre-build virtual labs, practical assessments and study rooms and use these in their teaching to explain complicated parts of the coursework in a more visual and engaging way.

We suggest that entering foreign spaces could be a further stimulation introduced in the learning process.

The ability to visit a fellow student’s space to revise will overcome financial and logistical barriers for students who have to travel a large distance to university. With this method, sharing notes and mind maps is as easy as it gets.

## Who will it benefit and how?

It could be beneficial to almost all users. Our study shows 60% of students feel the Loci method could help with their concentration. It is engaging and promotes active rather than sedentary learning. Students at the University of Glasgow estimated that 80% of their study was alone and passive; we want to change that to enhance the overall study experience.

### Accessibility and Inclusion:

- The technology can be used by lecturers by programming an existing environment e.g. a laboratory or a lecture theatre and sharing it with students.
- The technology could be used to facilitate online learning for distance learning students.
- Students with physical disabilities preventing participation in field trips or lab work could access the content virtually.
- Students can share their spaces with each other, increasing communication between classmates.

- The same technology can be implemented as a way of tackling dementia and empowering older adults in their own homes or those in care.
- For those with learning disabilities such as dyslexia, dyspraxia and ADHD could benefit from this technology in particular, as it creates an engaging learning environment, and connects concepts with familiar physical objects for improved recall, as well as promoting an order to facts, concepts or events.

We see this as an enabling technology which can be applied to drive radical change in the capabilities of all users.

Results from a survey of students at the University of Glasgow show:

- 80% of study is sedentary and solitary
- 60% of students feel the Loci methods could help with their concentration
- 72% of students think the Loci method could be implemented within their course
- 96% of students work together during study, with the main technology used to communicate currently being group chats. The majority of students feel working together is useful.

The VLE as we know it is going to change, and how staff and students use it is going to change. We have presented our idea of how the VLE of the future can be used to facilitate learning in an interactive and collaborative way, while removing barriers to learning. Allowing students to utilise technology in this way will improve their readiness for the workplace using technology to encourage subject specific learning, digital literacy and collaboration skills in an enjoyable format.

Thanks to this proposal, learning becomes an active, engaging journey through concepts, rather than the passive act of reading and memorising; immersing yourself in the study space, rather than just using it as a place to sit. It promotes physical activity, collaboration, and overall a more enjoyable experience for the person using it!

#### **Supporting resources:**

- An Immersive Memory Palace: Supporting the Method of Loci with Virtual Reality <https://pdfs.semanticscholar.org/c79c/cbd98c6cde05a99f9bf7329fb2f7553505ae.pdf>
- Immerse your Brain! A prototype of some kind of VR implementation of the Method of Loci <https://vrjam.devpost.com/submissions/36371-immersed-your-brain>
- Macunx VR: An Early Implementation of the Method of Loci in a Virtual Environment <https://www.kickstarter.com/projects/macunx/macunx-vr-memory-palaces-in-virtual-reality>  
<https://www.youtube.com/watch?v=1SXX7i6jGsl>
- Memory Palace Video: <https://www.youtube.com/watch?v=p9lOqd1LpkA>
- Qureshi, Ayisha & Rizvi, Farwa & Syed, Anjum & Shahid, Aqueel & Manzoor, Hana. (2014). The method of loci as a mnemonic device to facilitate learning in endocrinology leads to improvement in student performance as measured by assessments. *Advances in physiology education*. 38. 140-4. 10.1152/advan.00092.2013