

Invitation to Join Virtual Reality Pilot with 360 Video



Introduction

Virtual reality (VR) can enable someone to virtually visit a foreign place, or experience a situation from someone else's perspective. It can therefore give learners a sense of presence. It can also stir the learner emotionally, commonly referred to as *virtual empathy*. It used to be difficult to harness the power of these important characteristics in a traditional classroom setting, but now VR can take on this important role. What if you can examine the hieroglyphs in the tomb of an ancient pharaoh up close with your students? What if you can recreate and study a crime scene in VR? What if you can place your medical students in the shoes of a patient? Wouldn't that enrich their educational experience?

We envision many opportunities for every discipline. We want to encourage you to come discuss them with our team of experts from the Centre for Innovation's New Media Lab.

Invitation to join our pilot

Are you curious about what virtual reality - more specifically, 360° video - can do for your education? And do you want to explore this in practice? Then join our pilot from the Centre for Innovation's New Media Lab to start your own 360 VR project! Use this opportunity to create an enriching, engaging VR experience for your students. We invite you to share your project idea through this [form](#).

Timeline & application

Be sure to submit your idea before **September 24th**. The projects that join this pilot will be created and produced between October 2017 and May 2018. We expect to present the end results of the pilot in the **summer of 2018**. You can read more about the conditions of the pilot and the potential of 360 VR below. Would you like to learn more about this opportunity? Come to our orientation meeting about the pilot on **September 14th**, from 11:00 to 13:00 in Leiden (Plexus, Kikkerzaal). The session will consist of a presentation, as well as the opportunity to test your ideas in a break-out session.

Information about the Pilot on 360 VR at Leiden University

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Introducing 360 VR: What is it, and what are its groundbreaking features?

Virtual reality can enable someone to virtually visit a foreign place, or experience a situation from someone else's perspective. Due to the use of a special 360 camera, we can record in a 360° radius. These separate images are then stitched together. When viewed on an appropriate platform (e.g. YouTube or Facebook), the video can be viewed in all directions. To take the experience one step further, the viewer can put on an Head-Mounted Device (HMD) such as a Google Cardboard or VR goggles, and simply turn his or her head to view the video in all directions. Additionally, we also add *spatial audio*, or '360 audio'. This means that sounds are placed within a space, they're not just omnipresent. Due the inherent multimodal perception of images and audio, spatial audio adds to the immersivity of a 360 video, as the human brain also uses sound to perceive its position in a 3D space.

Over the past years, VR has become more prevalent in our society: from VR games to cinematic 360° videos, from training scenarios to therapeutic tools. VR has become very accessible, as most modern smartphones are capable of displaying some form of VR. Even the more powerful head-mounted devices such as the Oculus Rift and the HTC Vive are within reach of the consumer. VR has emerged as a viable technology for entertainment, business and humanitarian efforts.

But what about (academic) education? At Leiden University, we've been exploring 360 VR for some time now. We have run and are running several pilot projects:

- ➡ For our Massive Open Online Course [Heritage under Threat](#), we created a case study about the impact of [living on a UNESCO heritage site](#).
- ➡ Together with the Leiden University Medical Center, we are creating a 360 VR experience of a kidney transplantation, to prepare medical students for the hectic procedure in the operating room.
- ➡ The Red Cross wanted to prepare and inform students better about the laws of war. Together with Q42, we are creating a VR app for Android and iOS, featuring realistic combat situations.

These pilot projects have been promising. We feel that 360 VR has much to offer academic education. However, further exploration, coupled with research, needs to be done.

Benefits for education

There are many benefits of 360 VR for the learning process, but the two main benefits are presence and virtual empathy. With *presence* we mean that students can experience a situation that ordinarily isn't accessible to them. Students can observe situations that are too far away, out of reach, or that take place behind closed doors. For example: watching how a team of surgeons works, like the kidney transplantation mentioned above.

In some situations, there are multiple things happening at the same time. The student should be able to experience the situation more than once, gaining more experience every time. This experience can be supplemented with instructions from the educator.

With *virtual empathy* we mean affecting the user emotionally. In this case, the VR experience is not just meant for observation, it's meant to provoke an emotional response. For example: witnessing and studying a difficult conversation between a psychologist and a client. Watching it multiple times can give the student the chance to get used to the difficult situation and to observe its different aspects.

The most powerful educational VR experiences are the ones that benefit from presence *and* virtual empathy. Our project with the Red Cross is an excellent example: the violent situation provokes an emotion of fear or panic in the viewer. However, after multiple viewings these feelings can be brought under control and the situation can be analysed and observed, leading to a correct assessment and conclusion.

Your project

In order to add powerful educational VR experiences to Leiden Universities' teaching palette, we are looking for curious and motivated academics that would like to join our 360 VR pilot. In particular, we want to hear your ideas for a learning experience, in which 360°

video can create an added value for your students. You can use this [form](#) to share your project idea. Please describe your project with the help of the following sections:

- Give us some details like your name, the course you want to use the video(s) for, the study and the faculty.
- Describe the learning challenge your students are facing.
- Describe the learning outcome(s) you want to reach with your 360° video(s) and added learning activities. Include as well how you can measure the learning outcome(s), or how you can assess that students have reached the learning outcome(s).
- Describe the situation(s) you want (a) 360° video(s) of. In what way can 360° video contribute in tackling the learning challenge?
- Describe how the video(s) will be implemented in your education.

Furthermore:

- check if your plan fits in the *scope* we set (see below).
- check the *planning* of the project. When you join the pilot you commit to the dates that are set (see below).

Scope of the pilot projects

Because 360 VR is such a new, untested technology in educational settings, it's difficult to estimate the amount of time and energy that's needed for a project. Moreover, we've found that recording and editing time vary wildly per project. Therefore, we can only give general guidelines, and we'll have to assess the scope on a per project basis.

Keep in mind that a 360 video isn't limited to only one shot; the video can transition between several shots. Possible scenarios include:

- One longer video, applicable to one learning situation.
 - o Suitable for scenarios that take place over time, e.g. a medical operation
 - o Suitable for scenarios that feature a strong story, e.g. anthropological studies
- Multiple short videos of one learning situation.
 - o Suitable to highlight the same situation from different perspectives, e.g. a court case from the perspective of the judge, lawyer, prosecutor and the defendant.
- Multiple short videos of different learning situations.
 - o Suitable for teaching students to apply the same knowledge in different situations that can vary in difficulty, e.g. performing experiments in a chemistry lab.
- Interactive 360 video. Interactivity can add another layer of engagement with the student. Depending on the type of interactivity, the scope of the project will increase exponentially.

- Suitable for scenarios where the student has to try and select the best outcome, e.g. safety training in a laboratory.

Conditions to join the pilot

The decision to start a project together will be based on the following criteria:

1. Expected (measurable) learning outcome for your students.
2. 360 VR is the best technology for the learning situation, more so than regular video, images, etc.
3. The project outcome is realistic.
4. The scope of the project is realistic.
5. You are motivated to discover the possibilities of this medium for your educational practice.
6. You have support from your faculty/institute to spend time on this pilot.

Additionally, we'll be looking for a balanced project load over the different faculties, as well as varied learning experiences. Due to the experimental status of this pilot, we can only take on a small number of projects. The number of projects will depend on the scope of the ideas we receive.

Important data

For applicants

- 14 September: orientation meeting & workshop, from 11:00 to 13:00, Leiden, at Plexus building. (see below for further information).
- 24 September: deadline for applications.
- 30 September: decision by New Media Lab who will join the pilot.

Application ready? Send it to oll@fgga.leidenuniv.nl

For participants

- October 2017 kick off sessions
- October/Nov 2017 design sessions (reserve one full day)
- Nov - May 2018 development, application & evaluation
- June 2018 presentation of results

Expectations

The academics who will join this pilot can expect a team of experts from the Centre for Innovation, supporting them in the process of developing and creating a 360 VR project, as well as support for the integration of the project into their education.

However, this technology is still in an early stage. We'll do our best to support your needs, but the benefit for scientific education has not yet been proven. We cannot guarantee that your project will be successful, which is why your project will be part of an exploration to try to test the efficacy of 360 VR in education.

We expect you to put in the effort to make the project a success. Besides that, we expect you to cooperate with our researchers to make the learning outcomes measurable. Finally, we ask you to give at least one presentation for your colleagues at Leiden University about your experience with 360 VR.

Research

As the exploration and implementation of new technologies such as 360 VR offers unique opportunities for learning in higher education, we're currently setting up new research studies. Accordingly, the learning interaction and the outcome for your students will eventually be monitored besides the standard course evaluation, to collect further data about the learning experience.

Orientation meeting

Would you like to know more about the process of this pilot or the opportunities of 360 VR? Or do you want to discuss the possibilities for your specific field with us? Come to our meeting on **September 14, from 11:00 to 13:00** in Leiden at Plexus (Kikkerzaal). Besides joining our presentation, you have the opportunity to discuss and test your ideas in a break-out session with one of our experts.

Point of Contact

Do you want to apply? Or do you have any further questions? Please send an email to the New Media Lab via Leontine van Melle L.r.van.melle@fgga.leidenuniv.nl