VR MAKER’S TOOLKIT

SCHOOLS’ GUIDE TO MAKING 360° AND VIRTUAL REALITY PRODUCTIONS

– Case GLOVR

Toolkit written and produced by Lyfta
This is a guide to creating small-scale virtual reality (VR) productions in educational settings.

The guide is based on a case study called GLOVR, an innovative collaboration between Kuopion Klassillinen lukio high school, the immersive learning startup Lyfta, Joensuun Yhteiskouluun lukio high school and the NGO platform Service Centre for Development Cooperation (KEPA). 140 high school students received one week of VR production training in Finland during the autumn of 2017. The students created six VR productions on different UN Sustainable Development Goals. The objective of the project was to approach the themes of sustainable development and innovative learning using immersive storytelling and virtual reality technology.
THE OBJECTIVES OF GLOVR

1. To promote and recognize global citizenship and to encourage each student’s role as a global citizen.

2. To understand the potential of technology in making impact and to understand virtual reality technology as an important skill for the future.

3. To share the learnings around Finland and globally with partners such as Finnish National Agency for Education, KEPA, Plan International Finland, NEST centre (in Finnish), Mobie Oy (in Finnish), #FinEduVr and Lyfta.

THE TARGET AUDIENCE

The primary target group of the guide are high school teachers, but other teachers are welcome to use and adapt the guide according to their needs.

This guide will give useful instructions on how to carry out VR content creation training for students, especially for a teacher with some technological expertise. The next version of the guide will go more into detail and be even better suited for a teacher who needs more support with new technological solutions.
In recent years, fast advancements in technology and the emergence (or some might say the comeback) of Virtual reality have had a big impact on digital storytellers. It's difficult to say when VR storytelling actually began. According to some, the roots of VR stretch back to the 1800s. Others might argue that the beginnings of VR came in the 1960s with Morton Heilig's Sensorama prototype, a sensory experience predating digital computing. In the same decade, the first HMD (head-mounted device) was created, but it was so heavy that it had to be suspended from the ceiling.

Using VR content in education can add genuine value to students' experiences. VR can give access to places and situations otherwise unreachable. In VR, it's possible to fly an Antonov An-225 (world's biggest airplane), explore the depths of the oceans without running out of oxygen, or take someone else's perspective. And much, much more.

Even if VR has a long history, it's still an emerging technology in education. Creative, innovative and skilled developers are needed to take the technology to new levels.

Moreover, many schools are expressing an interest in not only using VR content but also creating it. In a world where advanced technological literacy and know-how are becoming a norm, students should have an understanding of software beyond the user experience. Fast technological developments have made it easier, lighter and cheaper to tell stories in VR. Nowadays, anyone can make a VR film. Filmmakers and digital storytellers have embraced VR and experimented with ways to make the audience feel more: to have sensory experiences connecting them to the story on a deeper level. VR has also made it possible to understand people's realities around the world, without the need to travel. The possibilities with VR are only beginning to emerge with technology improving day by day.
On the other hand, most innovations – no matter how brilliant – are worthless unless enough people can be convinced of their value and usefulness. And if they are, it might still be difficult to predict the consequences. Classic examples include Thomas Watson, president of IBM, in 1943 stating that “there is a world market for maybe five computers” and Darryl Zanuck, executive at 20th Century Fox, in 1946 predicting that “television won’t be able to hold on to any market it captures after the first six months because people will soon get tired of staring at a plywood box every night”.

In order to be convincing and to be able to make enlightened predictions, we need to be curious, understand people from different backgrounds and tell powerful stories.
 Lyfta is a Finnish-British educational technology company that rebuilds real-life stories into interactive 360° storyworlds that can be explored on computers, tablets and VR headsets. On Lyfta’s platform teachers can find a wealth of beautiful, engaging and immersive content to capture the hearts and minds of their pupils, making it easier to introduce and delve into complex topics.

Lyfta has world-class expertise in education, training, filmmaking, digital storytelling and virtual reality productions about sustainable development themes. Lyfta’s founders have been working with 360° and VR storytelling since 2010 and are seen as some of the pioneering 360° documentary makers in Europe. For more information about Lyfta’s services please visit their website on www.lyfta.com.
Kuopion Klassillinen lukio, commonly known as Klassikka, is a non-graded upper secondary school in Eastern Finland. It is also one of the 15 upper secondary schools in Finland with the Olympic Committee Sports Academy Programme. The students are 16-19 years of age. There are just over 600 students in the school, including 190 athletes, and some 38 teachers and 15 trainers.

At Klassikka there is a great variety of courses to choose from. In addition to a wide selection of courses in natural sciences and languages, it is also possible to study for entrepreneurship, robotics or stress management. To balance the theoretical subjects, there is a choir and a band where students can develop their musical skills. In addition, the students have access to the latest technology, including up-to-date computers, a 3D printer and virtual reality headsets.

International relationships are important at Klassikka and provide possibilities for students to experience international exchanges. The students and teachers are fluent with English language, so visitors feel welcome and well-understood. Klassikka is also the top high school in Finland in lecture capturing, virtual reality storytelling, 3D printing, robotic coding and gamification on high school teaching.

For more information on Klassikka high school visit their website on: https://klassikka.onedu.fi/web/international/
Lyfta’s role in the GLOVR project was to provide expertise in storytelling and VR content creation technologies. Lyfta designed the training program and facilitated sessions with the students.

The collaboration was carried out as a one-week training course in VR storytelling. The focal objective was to make engaging VR productions on the UN Sustainable Development Goals (SDGs). The participants were 140 first-year high school students and six teachers.

The Hackathon started by Lyfta introducing their platform and content to the participants on a big screen, for example The Awra Amba Experience and Dinnertime 360 environments. Students then had the opportunity to experience the VR learning environments made by Lyfta, some for the first time in their lives. In just one hour, 140 students had all experienced VR. After that, students went away and familiarised themselves with the UN SDGs, both in class and individually.

A few weeks later, the four-day intensive Hackathon began. On the first day, the students were introduced to the principles of storytelling, had a chance to learn about brainstorming and generating ideas, and then got to arrange themselves into teams based on their SDG of choice. At that point ideas started to be created and the students learned about how to pitch. They then went away to work on their pitches.

“This was a really fun event and I’m so glad that I had a chance to experience it!

This was a really nice experiment and it didn’t bother me at all that we had to speak and understand English because I really love English and I especially like to communicate with people who speak English!

It was nice to learn about other people’s situations and it made me appreciate what I have.
The pitches were presented the following day. Every group was given 3 minutes to pitch their idea and 2 minutes for questions from the audience. Many great ideas were presented and the best six were voted into actual production. From this point there were six teams of some 20 students where each individual could choose whether they wanted to work on the content or in technical production. They crafted stories about their chosen sustainable development goals and designed their own VR worlds around them. The third day was production day. Ideas were finalized, filmed and exported into a software where the 360° environments were to be created. On the fourth and final day the teams presented their VR productions to the whole group.

A few weeks later, the student productions were screened at KEPA’s global learning conference in Helsinki, where over 100 teachers and other education experts had the possibility to experience them.

The best part of the Hackathon week was that everyone contributed to the VR productions. The students were brave to put their ideas into practice. From the teachers’ perspective it was rewarding to see how the goals of different subjects were met.
The main purpose of the GLOVR project was to apply students’ interpretations of the UN SDGs to create impactful VR productions. The student production teams independently decided on the types of content and methods of storytelling they applied in their 360° VR environments.

The following list provides an overview of the different ways in which VR can be used in education, also summarising the different methods used in GLOVR productions:

- Virtual fields trips – from the depths of the ocean to the vastness of space
- Time travel to key events and places from the past
- Meeting people
- Develop empathy for others by stepping into their shoes
- Trainings and demos
- Experiencing different careers first-hand
- Discover how VR can be used in industries (e.g. medicine, engineering, entertainment)
- Information sharing
- For anatomy and dissection
- Exploring how VR can be integrated into every subject area and curriculum as well as approaching different phenomena in holistic and multidisciplinary ways
- Content creation – giving students chances to share their world view with others by creating their own VR content
- Engaging students
- Promoting curiosity and wonder
VR technologies are also showing promise as effective special education tools.

“We feel certain that [VR] technology has a distinct and unique part to play for learners of the future. Sometimes a little bit of awe and wonder is what we need to make lessons memorable.” Graeme Lawrie in The Telegraph

It is useful to be able to recognise different genres of VR. Not all VR content is suitable or intended for educational use, but even within educational VR there are different approaches, including for instance the following:

**ENTERTAINMENT**

**COMMUNICATION**

**CREATING IMPACT; CHANGE-MAKING**

**EXPERIMENTATION**

**EXPLORATION**

At GLOVR, we are excited to see what kind of VR productions are inspired by this guide and would love it if you did wish to share your work on our Facebook channels

https://www.facebook.com/glovrfi/?ref=br_rs

and https://www.facebook.com/lyftaed/

From our side, the work continues. The GLOVR-project is currently building a toolkit designed to introduce teachers to the world of VR and help them facilitate VR projects in their schools. The UN SDGs themes are hugely important for the young generations to grasp and take action on, in order for us to stand a chance to achieve them. The more sustainable development themes are integrated into classes, and the more tangible we make the goals, the more students and teachers over time will start to grasp their role in building a fairer, more sustainable world.
8 ANNEX

WORKSHOP EXERCISES AND LECTURES

- WARM UP EXERCISES
- PRODUCTION EXERCISES
- 360° / VR WORKFLOW

TEACHING MATERIALS

- UN SDG POSTER
- PRODUCTION PLAN
- SDG SIGN UP SHEETS (IN FINNISH)
- PRINTABLE SDG CARDS (IN FINNISH)

- STUDENT WORKS