

# Erasmus+ projects

XR4Ped & VAM\*Rs

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KU Leuven, Technology campus Ghent

04-05-2022

# Content

- AR/VR in education
- Erasmus+ XR4Ped project
- Erasmus+ VAM\*Rs project



AR/VR experience,  
video or assignment

# AR/VR in education

## Content:

- What is AR/VR?
- Characteristics of these technologies

# AR/VR in education

## What is AR?

### Augmented Reality

- Tablet, smartphone or AR glasses
- Real world view
- No interaction
- Superimposed info like text, 3D objects,...

AR Glasses for Navigation



Source: <https://www.queppelin.com/ar-glasses-for-navigation/>



Source: <https://dealna.com/Article/Post/417/How-Augmented-Reality-Is-Taking-Over-Our-Lives>

# AR/VR in education

- Take your smartphone
- Open Google Play store
- Install the app 'PlaceFurniture' or the app 'Ikea Place'
- View a piece of new furniture **in your room**



Source: <https://thespaces.com/ikea-place-app/>



# AR/VR in education

## What is VR?

- **Virtual Reality:**
  - simulated reality
  - immersive environments
  - Interactive
  - 3 kinds:
    - 360° photo
    - 360° video
    - Computer generated



Source: <https://virtualspeech.com/>

# AR/VR in education

VR 360° photo:

Garmin VERB 360

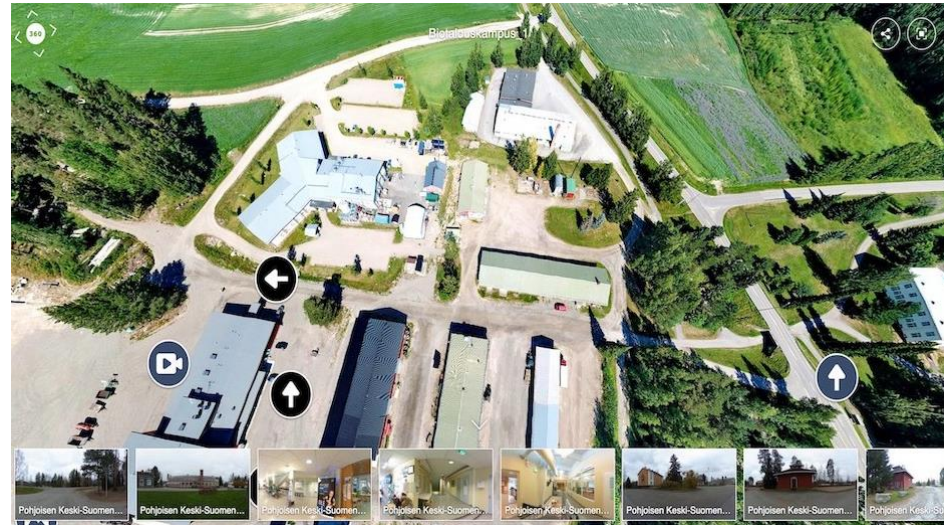


Source: <https://www.gettyimages.be/360>



# AR/VR in education

VR 360° photo:



Discover 360° photos on the internet (for free): some examples:  
<http://360gigapixels.com/nyc-skyline-photo-panorama/>  
<https://www.poppr.be/nl/technologie/360-foto-nl/>



Create 360° photo VR using following free apps:

- VR Expeditions 2.0: <https://www.robotlab.com/blog/google-expeditions-is-gone-now-what>
- Thinglink: <https://www.thinglink.com/app/>



# AR/VR in education

360° video:

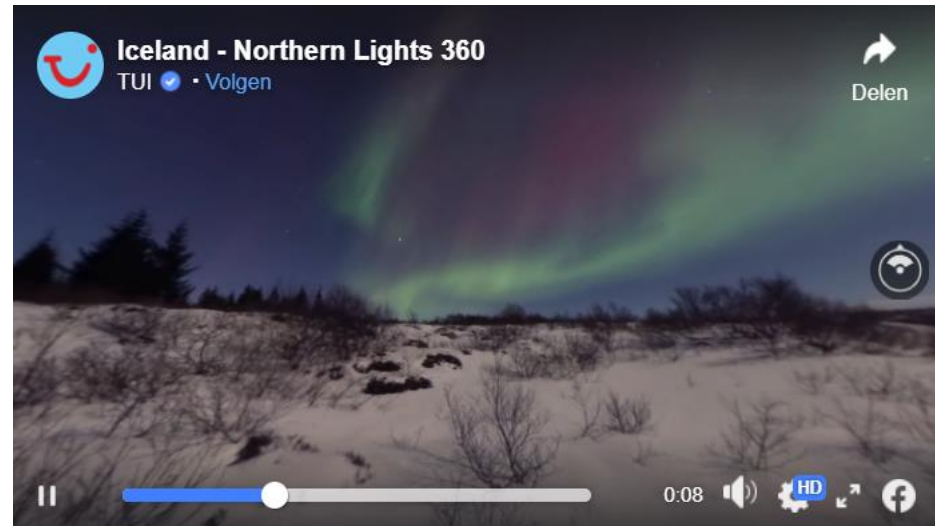
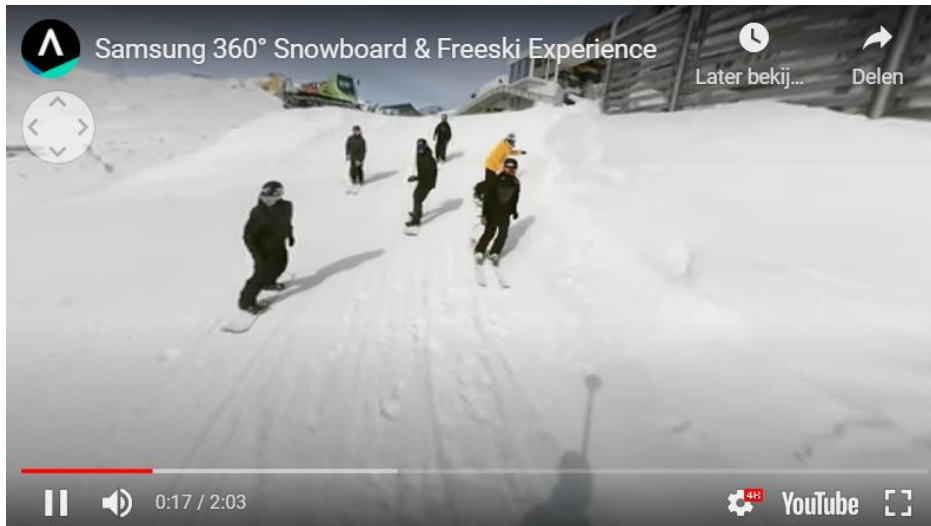
Source: <https://www.insta360.com/product/insta360-pro>



Source: [https://www.youtube.com/watch?v=8lsB-P8nGSM&list=PL8Tk7Zc\\_IzHOZWL0j1LznlzPU8K0Uqim-&index=12](https://www.youtube.com/watch?v=8lsB-P8nGSM&list=PL8Tk7Zc_IzHOZWL0j1LznlzPU8K0Uqim-&index=12)

# AR/VR in education

360° video:



Discover 360° videos on the internet (for free); some examples:

<https://www.revfine.com/360-video/>

<https://blog.hootsuite.com/creative-uses-of-360-video-by-brands/>

<https://www.youtube.com/channel/UCzuqhhs6NWbgTzMuM09WKDQ>

<https://www.mettle.com/360vr-master-series-free-360-downloads-page/>



# AR/VR in education

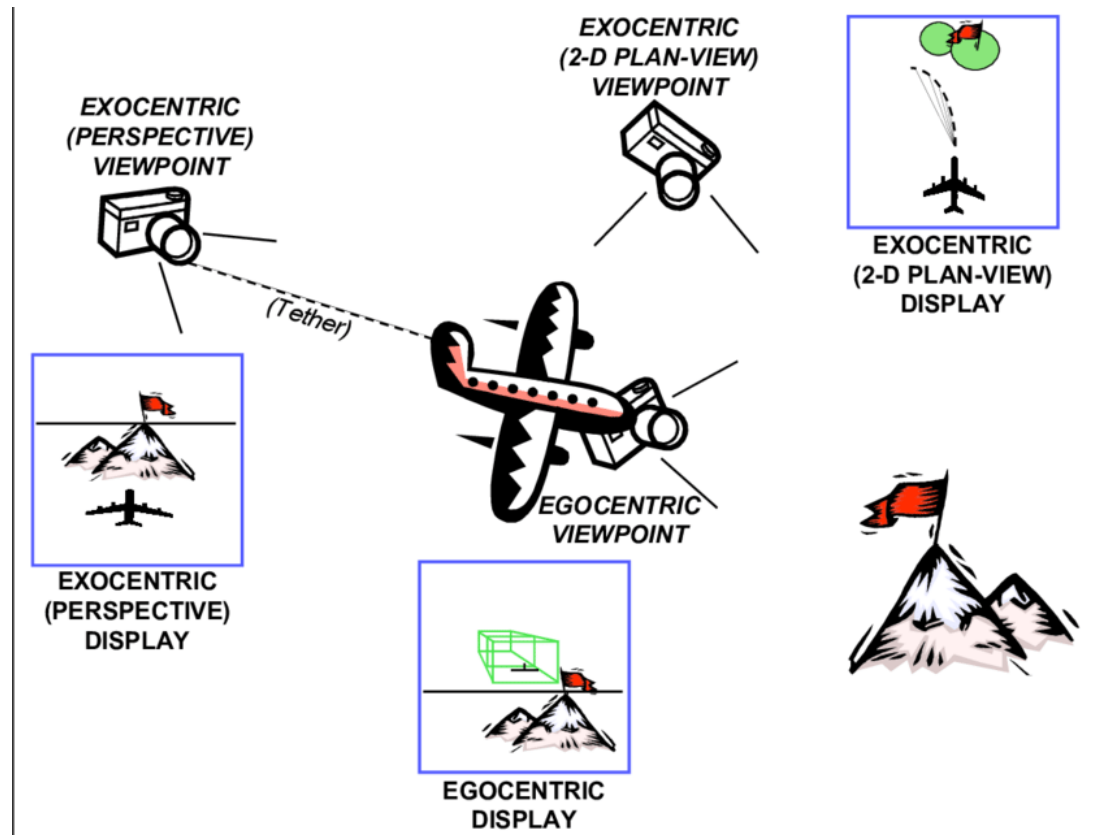
Computer generated:



Source: <https://www.virtualgamelab.com/research.html>

# AR/VR in education

**Multiple perspectives:** switching between exocentric and egocentric view



Source: [https://www.researchgate.net/figure/Schematic-representation-of-an-airplane-flying-toward-two-mountains-The-three-cameras\\_fig4\\_228367987](https://www.researchgate.net/figure/Schematic-representation-of-an-airplane-flying-toward-two-mountains-The-three-cameras_fig4_228367987)

# AR/VR in education

**Global Teleportation:** you can virtually visit places that are beyond your means in the real world



Google Earth VR

Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**The Time Machine Effect:** you can travel in time and experience the past first hand

Watch these videos: (for TimeRide München, TimeRide Dresden and others, go to YouTube)  
<https://www.youtube.com/watch?v=XjswgkRavb4> (TimeRide Köln)  
<https://www.youtube.com/watch?v=N7CtR9NhFnQ> (TimeRide Berlin)



# AR/VR in education

**Contextualised Learning:** VR can also show the context of the learning topic (compared to AR)



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**Multi-Sensory Experiences:** you are able to move within a virtual space and engage with elements like never before



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**Extraordinary Abilities:** VR allows us to break the laws of physics: e.g. lift a car, paint with fire,...



PaintBrush

Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**Active Autonomy:** you can choose where to look and to explore the virtual environment freely



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**Empathy Agent:** VR can be used to foster empathy



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>



# AR/VR in education

**Virtual Rehearsal:** Using VR to practice and hone skills without fear of failure is incredibly powerful



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

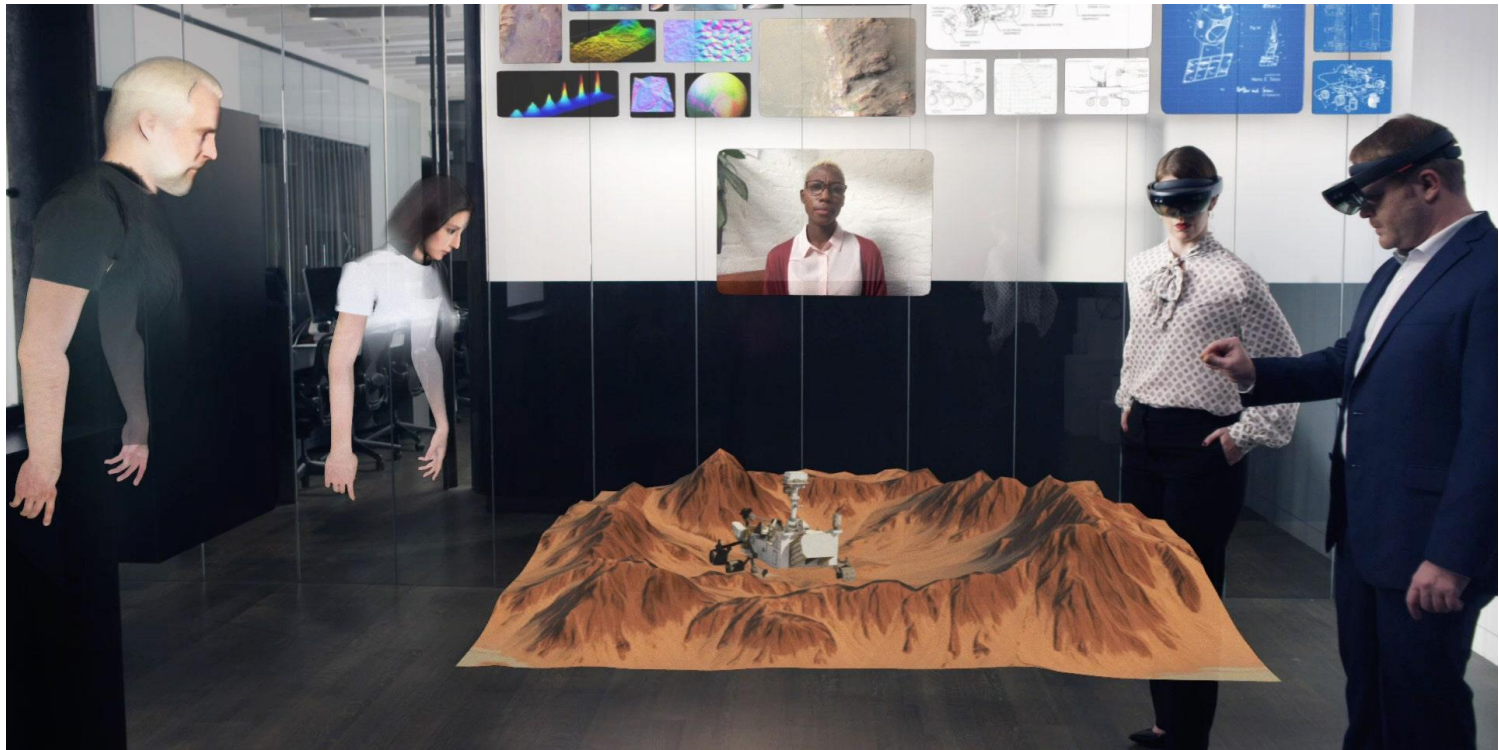
**Focused Immersion:** the student is less prone to distractions in his physical surroundings



Source: <https://www.vrfocus.com/2019/03/10-key-benefits-of-vr-in-education/>

# AR/VR in education

**Remote Presence:** People using VR can connect with each other as well as attend meetings across the globe using social VR platforms

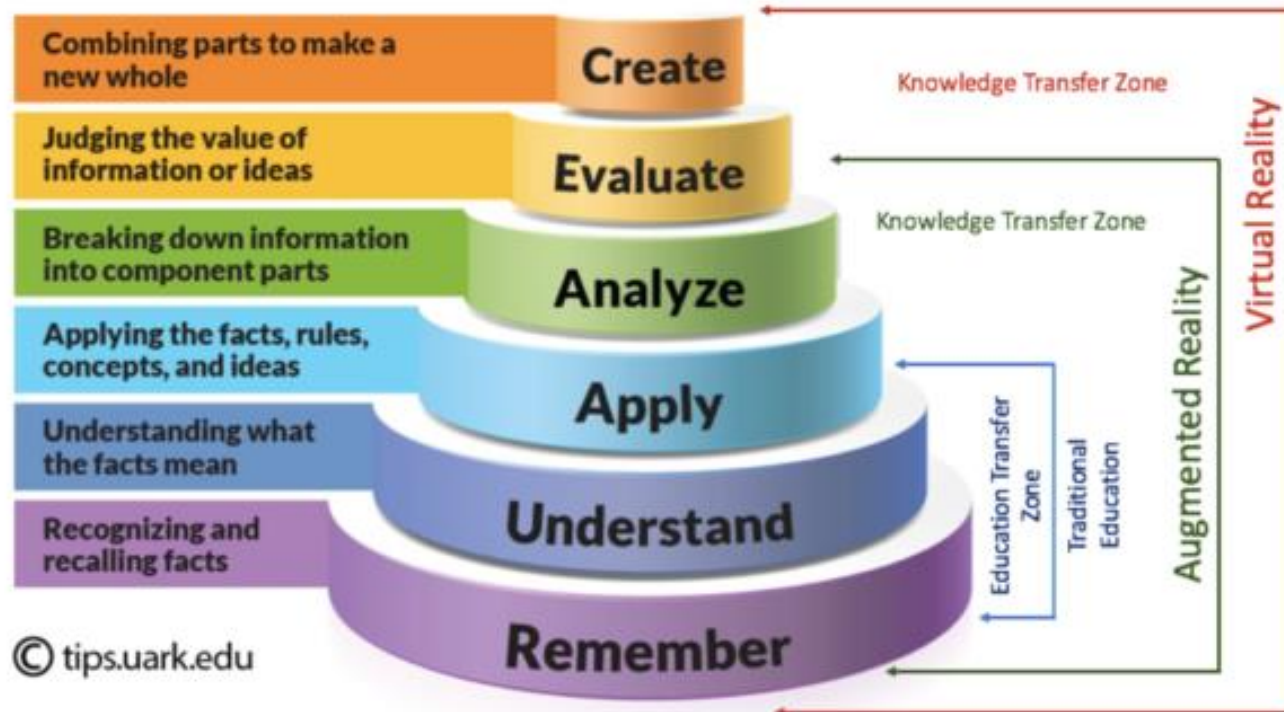


Source: <https://www.wired.com/story/spatial-vr-ar-collaborative-spaces/>

# AR/VR in education

**Transfer:** knowledge acquired via “learning by doing” is more easily transferred to another situation

## Bloom’s taxonomy of educational objectives

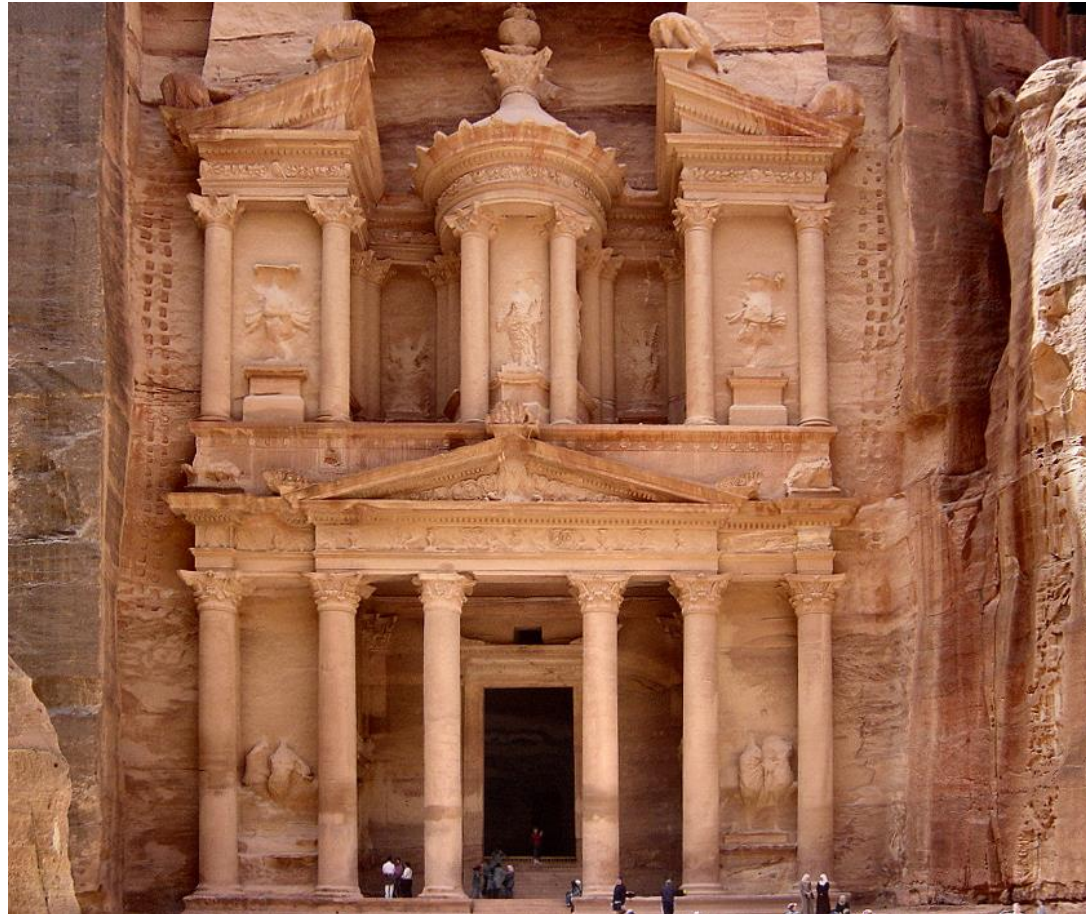


Source: <https://www.talentquest.com/full-bloom-with-mixed-reality/>

# AR/VR in education

Demo: city of Petra in Jordania

Photo



[https://nl.wikipedia.org/wiki/Petra\\_\(historische\\_stad\)#/media/Bestand:Treasury\\_Petra.jpg](https://nl.wikipedia.org/wiki/Petra_(historische_stad)#/media/Bestand:Treasury_Petra.jpg)

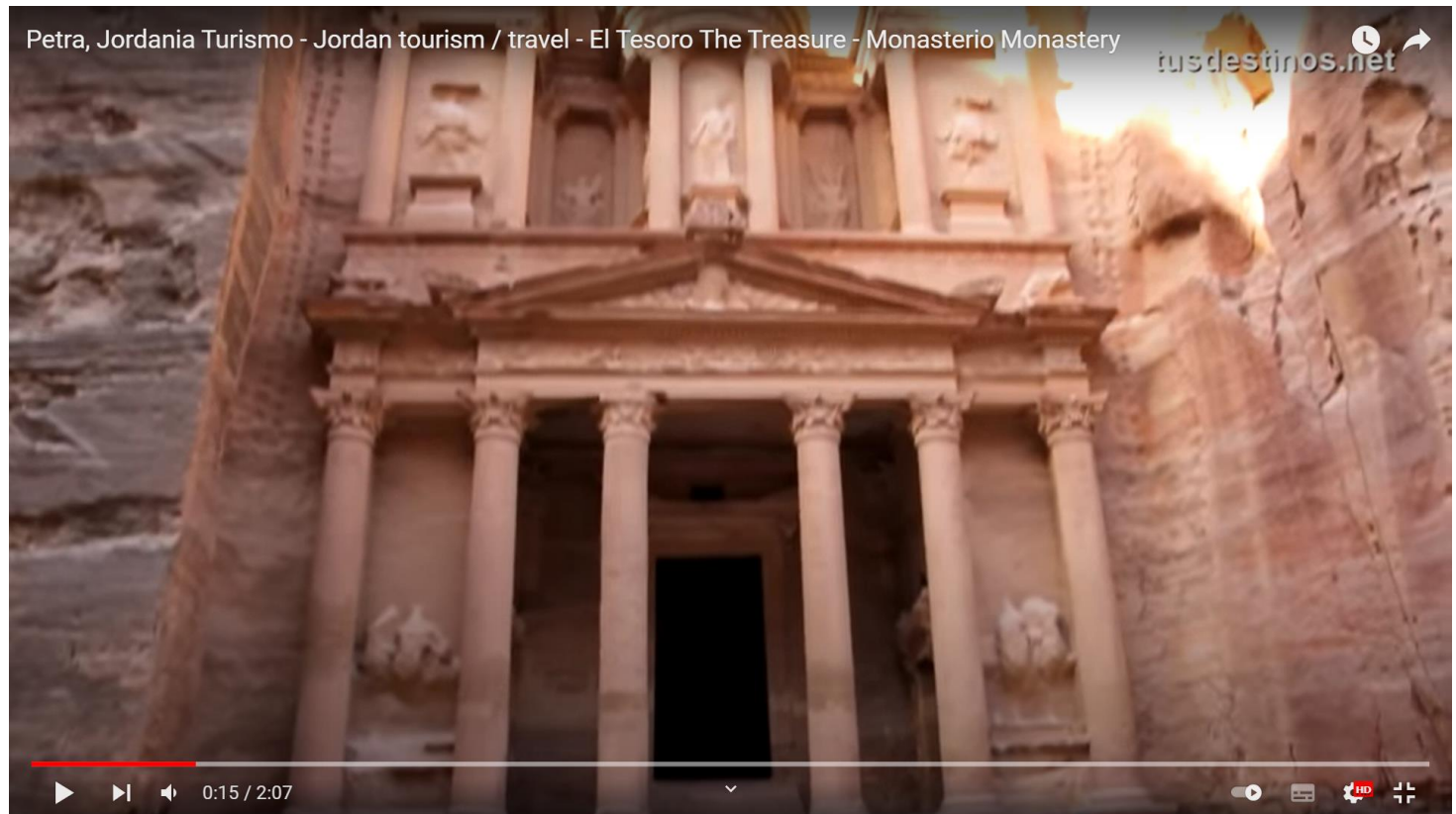


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# AR/VR in education

## Demo: city of Petra in Jordania

Video



<https://www.youtube.com/watch?v=tSELhH8LODc>

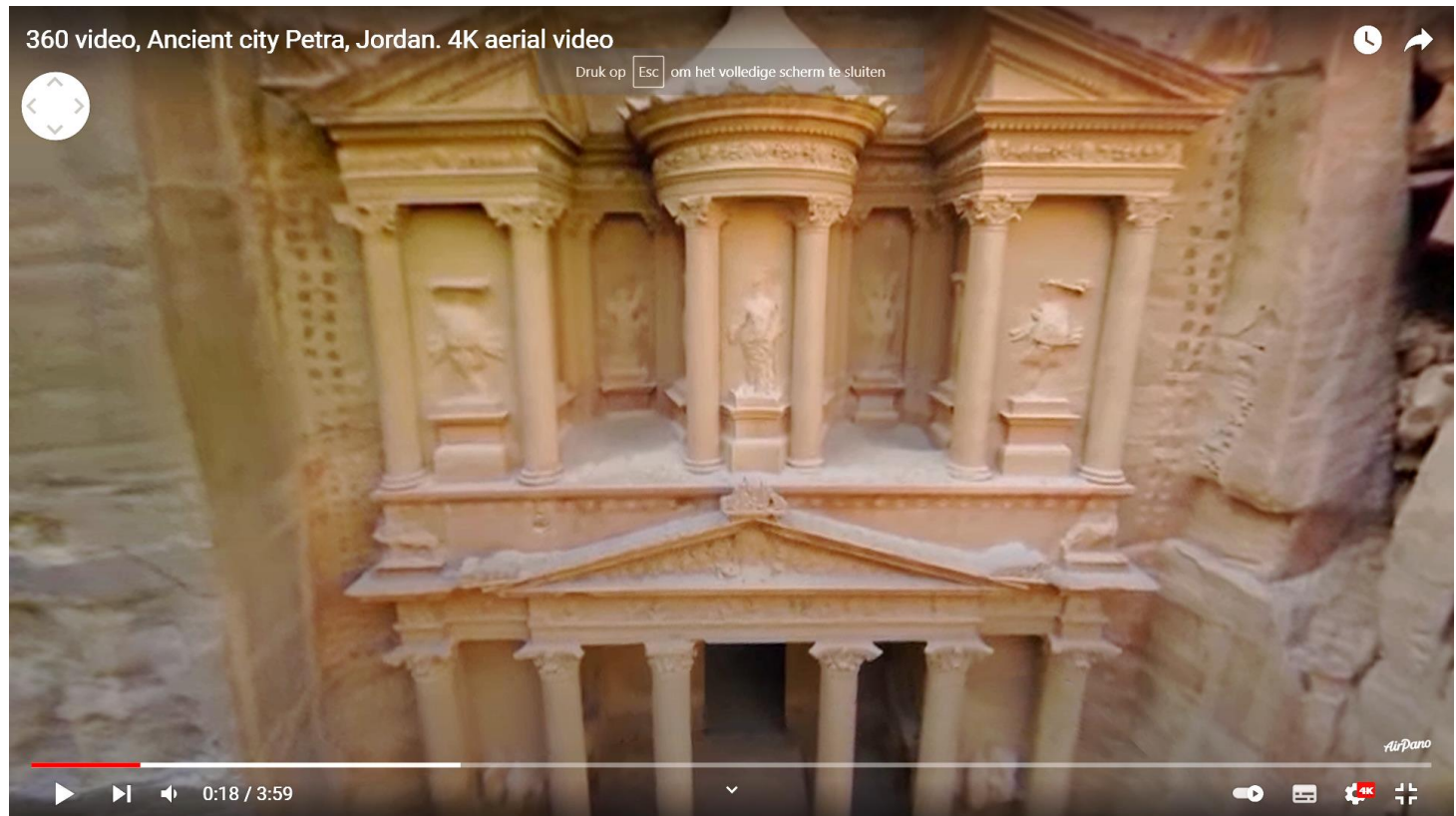


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# AR/VR in education

## Demo: city of Petra in Jordania

360° video



<https://www.youtube.com/watch?v=z3zoJNF0Epl>



**KU LEUVEN**

## Project ID:

- KA226-D3B62DB2

## Titel:

- “Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies”

## Coordinator:

- University of Primorska, faculty of education in Koper, Slovenia

## Timing:

- Start: 01/06/2021
- End: 31/12/2022
- Duration: 19 months
- **Extension will be requested until 30/06/2023**

UNIVERSITY OF PRIMORSKA  
UNIVERZA NA PRIMORSKEM  
UNIVERSITÀ DEL LITORALE



## The XR4Ped project:

### Starting point:

Teachers know too little or nothing about useful digital learning opportunities because they never heard about them during their pedagogical studies.

### Project Approach:

- Mapping needs regarding digital tools via a survey
- Learning about best practices through interviews
- Developing teaching materials related to AR/VR/XR
- Practicing teaching materials (train the trainer)
- Testing teaching materials with >20 own students
- Disseminate results and include in existing curricula

## Partners:

- P1: FHM (Fachhochschule des Mittelstandes), Germany



Staatlich anerkannte, private  
**Fachhochschule des  
Mittelstandes (FHM)**

- P2: E.N.T.E.R., Austria



- P3: UCD (University College Dublin), Ireland



University College Dublin  
Ireland's Global University

- P4: KUL (Katholieke Universiteit Leuven), Belgium

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- P5: Wakeone Oy, Finland (left the partnership and will be replaced)



**WAKEONE**

**KU LEUVEN**

## Project deliverables:

- Needs analysis: **ready**
  - Online European survey via <https://www.xr4ped.eu/>
  - 3 interviews/partner with coordinators of recent European projects on the use of AR/VR in education
    - interview with Ana Pereira of the VRSCiT project:  
<https://vrscit.pixel-online.org>
    - interview with Olga Ovtsarenko of the VirSTEM  
<https://sites.google.com/tktk.ee/virtec/virtec>
    - interview with Betül Gülçen of the AbleWithTechTools project:  
<https://autismtechttools.com/>

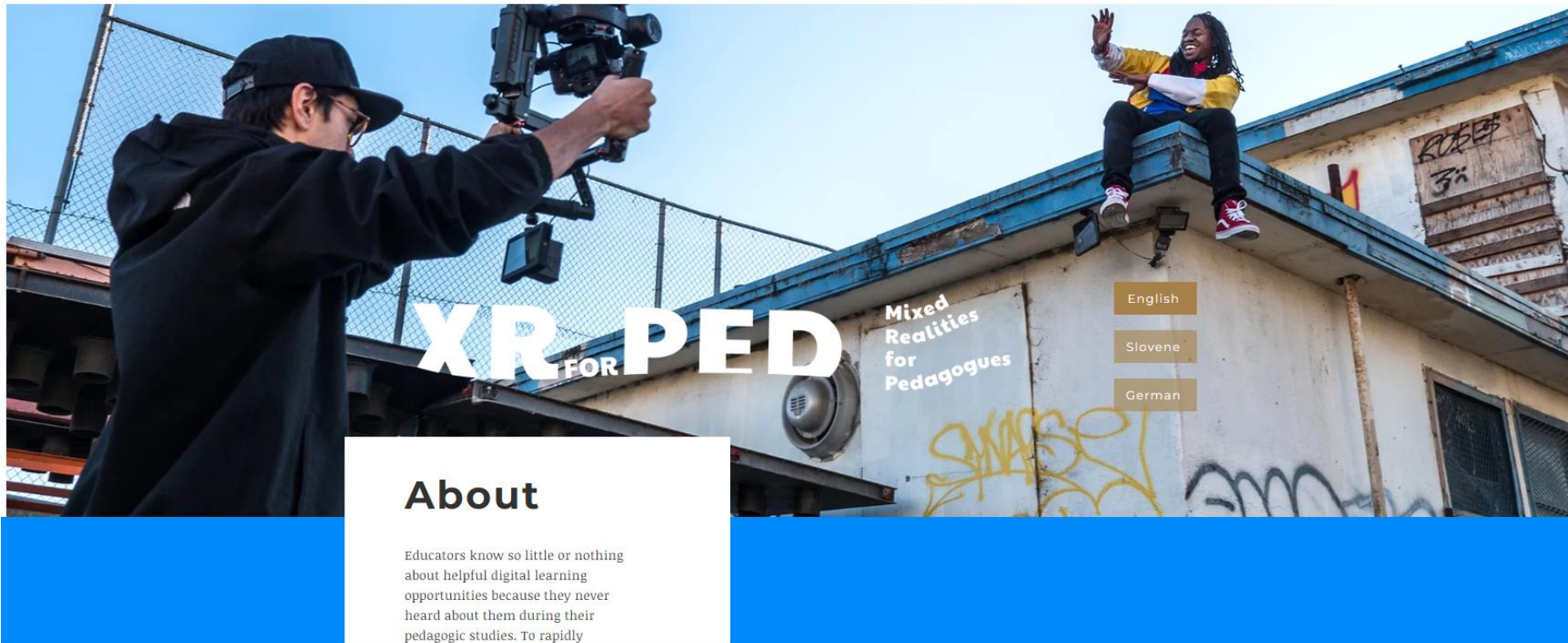
## Project deliverables:

- XR4Ped syllabus and study course: **under development**
  - KUL (P4) contributes to the development of
    - Module 1: Immersive learning in general: P0 + P3 + P4
    - Module 3: How to develop 3D content authoring toolkits: P3 + P4
    - Module 5: XR in VET: P1 + P4
    - Module 6: XR in adult education: P0 + P4
- Green paper: **to do**
- Multiplier event: **to do**

## Project meetings:

- 17&18/06/2021: 1<sup>st</sup> transnational project meeting in Tallinn, Estonia
- 14/09/2021: online project meeting
- 11/01/2022: 2<sup>nd</sup> transnational project meeting online
- 11/02/2022: online project meeting
- 10&11/03/2022: 3<sup>rd</sup> transnational project meeting in Dublin, Ireland
- ...
- 7-8-9-10/11/2022: Train the trainer workshops in Ghent, Belgium
- ...

Project website: <https://www.xr4ped.eu/>



## About

Educators know so little or nothing about helpful digital learning opportunities because they never heard about them during their pedagogic studies. To rapidly

# Erasmus+ VAM\*Rs

Project website: <https://vam-realities.eu/>

VIRTUAL, AUGMENTED, MIXED REALITIES



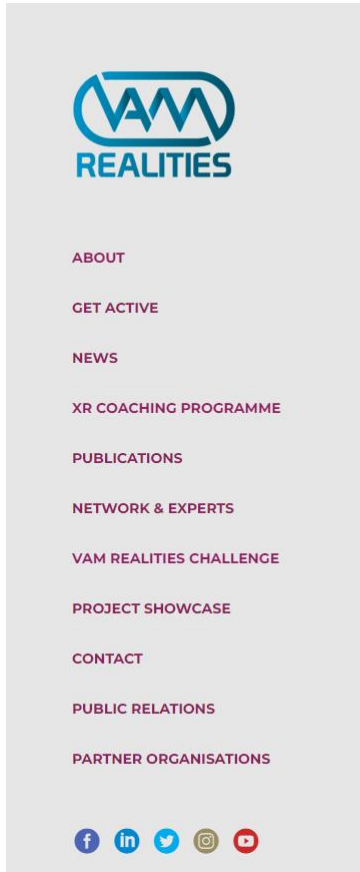
Confused by VR/AR/MR and no idea how these technologies make sense in business life and education?

**DON'T PANIC!**  
They are just the beginning of your future opportunities...



# Erasmus+ VAM\*Rs

Project website: <https://vam-realities.eu/>



# Erasmus+ VAM\*Rs

- CNH
- Scania
- Altachem
- De Trog
- Volvo Trucks

## Use cases:

- AR order picking
- AR remote assistance
- VR training



European Survey  
with SMEs

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# Erasmus+ VAM\*Rs

234 pages!

- Hardware
- Software
- Use cases



# Erasmus+ VAM\*Rs

## AR/VR in SME's

XRskill.eu

Home

Advisor ▾

About

SME Skills Gap  
Detector

# Skills Advisor for Virtual Reality

Designed to automatically provide useful and timely advice for Small and Medium Enterprises and Higher Education Institutions who wish to adopt Augmented Reality (AR) and Virtual Reality (VR) technologies (collectively known as Extended Reality technologies) in their businesses or operational processes.

Get Advice for SME

Get Advice for HEI

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# Erasmus+ VAM\*Rs

## AR/VR in HEI's

XRskill.eu

Home

Advisor ▾

About



# Skills Advisor for Virtual Reality

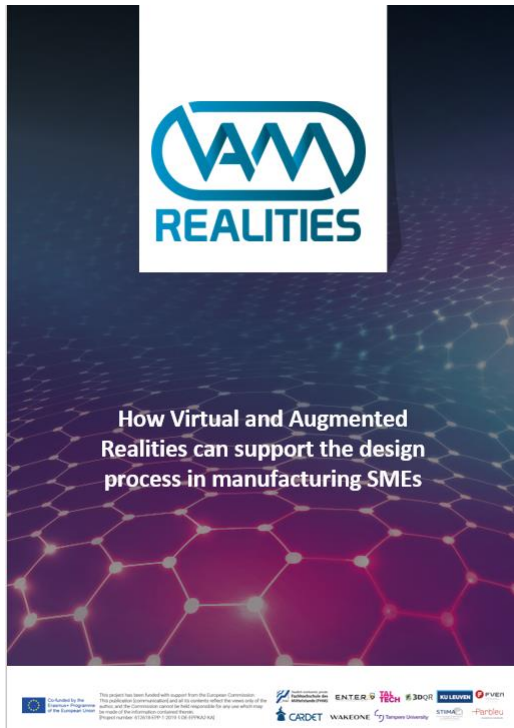
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Get Advice for SME

Get Advice for HEI

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# Erasmus+ VAM\*Rs



University business cooperation and coaching model providing hands-on support and in-depth assistance to companies/SMEs introducing and integrating VR/AR/MR technology into their business operations.

# Erasmus+ VAM\*Rs



October 2020 –May 2021, WINNERS

Student category: Saleh Alsaleh (Estonia) with his Data Driven

XR-Replay System for data visualization: <https://www.youtube.com/watch?v=Fk8h4XHzaug&t=1s>



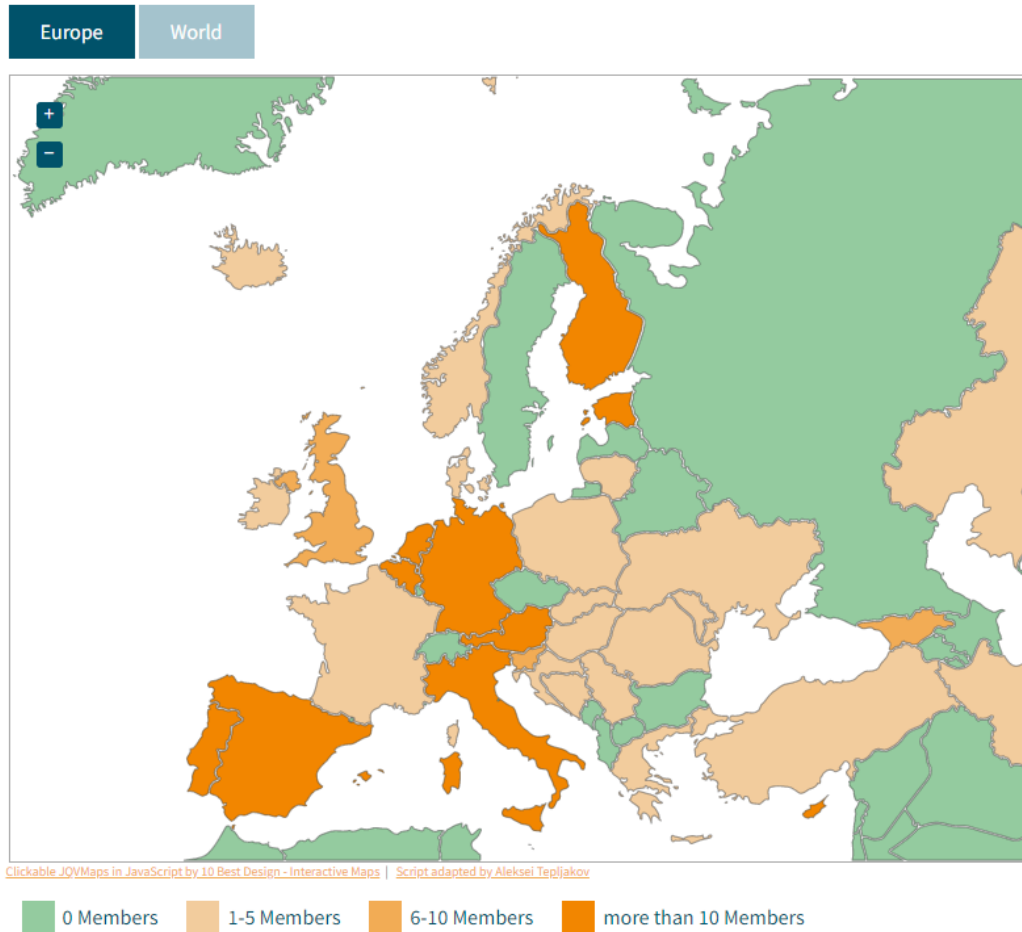
Company category: Delta Cygni Labs (Finland) and their Pointr application

for remote assistance: <https://www.youtube.com/watch?v=T5nuE0FTbLA&t=7s>



# Erasmus+ VAM\*Rs

VAM Realities Network – all members



**In the network: 327 members from 37 countries, including 143 experts**



# Erasmus+ VAM\*Rs

Community of EU projects



ABOUT

GET ACTIVE

NEWS

XR COACHING PROGRAMME

PUBLICATIONS

NETWORK & EXPERTS

VAM REALITIES CHALLENGE

PROJECT SHOWCASE

CONTACT

PUBLIC RELATIONS

PARTNER ORGANISATIONS



## EU project showcase



### See what else is happening in Europe

The VAM Realities **EU project showcase** will be Europe's most comprehensive collection of transnational cooperations from the virtual, augmented, and mixed reality fields. This collection is a coalition of innovative projects from all EU funding programmes, offering dissemination and networking opportunities as well as best practice examples.

Become part of the community and register your VR/AR/MR project!

Search projects in the community...



VRScIT



PlayOn!



VirSTEM



XR4Ped



GoGreen



ACT-NOW



MuseumAR



AR4EFL



SONICOM



AR4CUP



Fixar



VETREALITY



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