

Immersive Technologies in Education

360° Video/Image Recording and Annotation



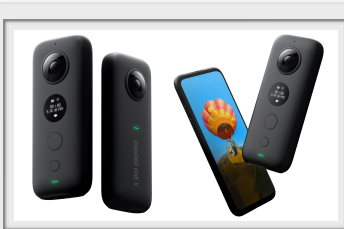
Room: 11-221 (Encore Lab)

by Paul C. Alexander, OISE, University of Toronto

TOOLS & SOFTWARE

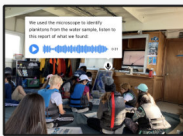
for

360 VIDEO/IMAGES



Insta360 One X - a great intro camera that records 360 video/images

Student-centered learning from planning to presentation



Thinglink - an affordable online platform; students can annotate media

Authoring options

The intuitive design allows you to easily create, edit, and format your content. This makes it appropriate for users of any skill level. Two levels of editing are available. At the story editing level, you can see your entire story in storyboard format and define global story settings. If you go a level deeper, you can edit individual scenes and add interactive elements to your 360° media.



- REMOVE ONE
- REMOVE WHOLE SLIDE
- VISUAL EDITOR
- HELP INTERACTION
- ADD CUSTOM HTML
- VISUAL PREVIEW MODE

viar360 - professional tools; leader in video/image annotation projects

PEDAGOGICAL VALUE

The use of 360° video/images is starting to occur in particular educational settings, such as documenting school events or trips. An interesting student use of 360° video/images could be to have them capture media of an event and then annotate the 360° video/images with labels, informational text, as well as embed 2D images/videos into their projects. Subsequent viewers could then explore/interact with the 360° video/image projects in a non-linear fashion where they choose how they wish to experience it.

EDUCATIONAL EXEMPLARS

During the workshop, you will be introduced to various 360° video/image projects that were recently created by OISE students. With time remaining in the workshop, you will also be given access to the Thinglink software to experiment with how to use it to annotate a simple 360° image.

CONSIDERATIONS

Accessibility/cost/scale are issues; consider using student groups for creating 360° video/image projects. Many project ideas are possible - tour of interesting/educational locations (ex. historical site, ecological reserve); social-justice vignettes; personal topics of interest, etc. Some teacher prep and training time needed for annotation software (ex. Thinglink). There are great curriculum connections to be made; teachers will need to find these and plan how to link project-work to content/curriculum accordingly.

Immersive Technologies in Education

Augmented Reality in Education

Learning Centre
02

Room: 11-244

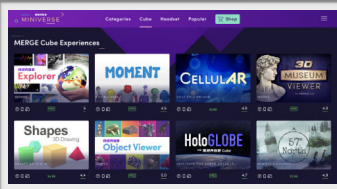
augmented reality

by Gaoxia Zhu, OISE, University of Toronto

TOOLS & SOFTWARE

for

augmented reality



Merge Miniverse - a useful marketplace/website to find both free and paid AR title experiences to use with the Merge Cube



Merge Cube - a simple cube with QR code-like sides that trigger visual and interactive games and learning experiences on smartphone

PEDAGOGICAL VALUE

Recall that augmented reality (AR) is like adding a digital filter to your immediate environment; or “bring anything to you” such as an elephant, the Eiffel Tower, or even the solar system as three dimensional (3D) objects. What kind of 3D content would you like students to experience in class? Another feature of some AR apps is the ability for students to interact with the 3D objects; what benefits does AR interactivity offer student learning?

EDUCATIONAL EXEMPLARS

There are many interesting/educational AR apps you can use on a smartphone:



Euclidean Skies



Wonderscope



57° North

You can also find many free apps for the Merge Cube on Miniverse. For example:



Things



Galactic Explorer



Mr. Body

CONSIDERATIONS

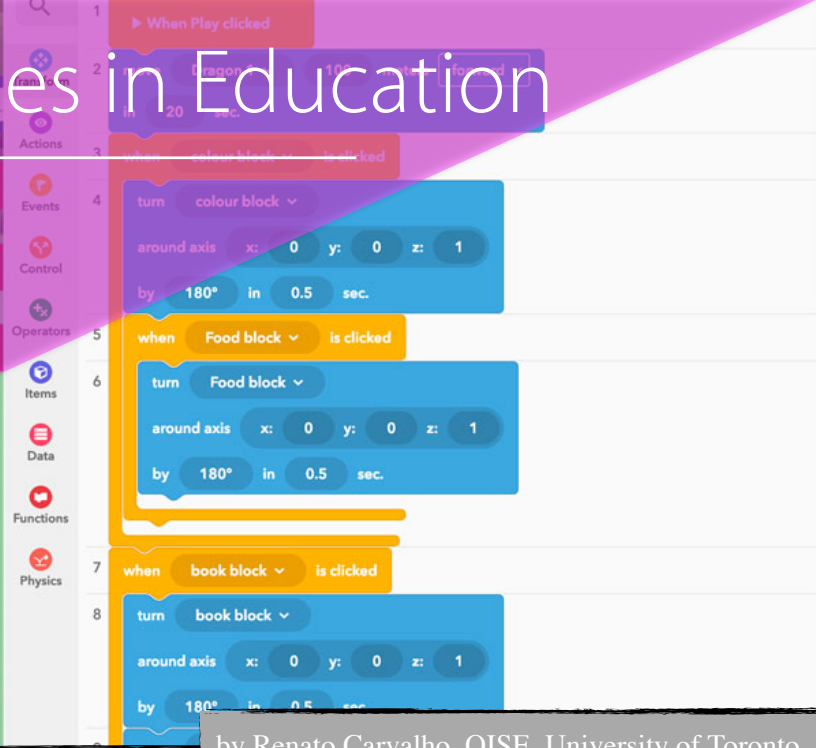
Accessibility/cost/scale are issues; consider using learning centres and groups. Many Cube apps are 3-5 minute educational experiences; plan accordingly. There are curriculum connections to be made; teachers will need to find these.

Immersive Technologies in Education

3D Learning Environments



Room: 11-283 (Pepper Lab)

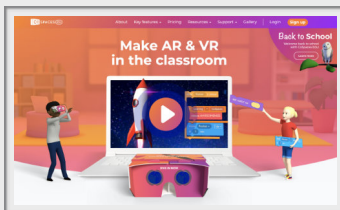


by Renato Carvalho, OISE, University of Toronto

Digital Platform

for

3D Projects



CoSpaces - a relatively new online 3D platform for teachers to use in their classrooms; great for teaching students how to learn to code using the visual programming language CoBlocks.

There is a free gallery that illustrates both educational exemplars that have been created by the CoSpaces development team, as well as by various teachers/students. Within the gallery, you will see four categories: (1) STEM and Coding, (2) Social Sciences, (3) Languages & Literature, and (4) Makerspaces and Art.

CoSpaces offers free accounts for teachers/students with limitations. The paid subscription Pro account offers many great features (ex. remix).

PEDAGOGICAL VALUE

A primary curricular focus in K-12 is on developing knowledge and skills in STEM (science, technology, engineering, mathematics). One practical approach in doing so is project-based learning. To this end, consider having students from grade 3 onwards work individually or in groups to demonstrate their understanding of content, spatial reasoning, language, art, math, and engineering through creation of 3D learning environments.

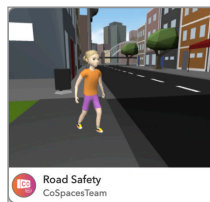
EDUCATIONAL EXEMPLARS

Go to cospaces.io, sign up or log in, and visit the *Gallery*. Explore the following four gallery categories and titles that were developed by the CoSpaces team:

STEM and Coding



Social Sciences



Languages & Lit



Makerspaces



CONSIDERATIONS

Accessibility/cost are issues; consider purchasing an annual teacher Pro license (35 student seats) and rotating students in/out of the seats each semester. Learning how to visually code in CoSpaces can be challenging; consider having more capable students mentor their peers on how to code.

Immersive Technologies in Education

Virtual Reality in Education



Room: 11-244



by Joel Wiebe, OISE, University of Toronto

DIFFERENT KINDS

OF

VR HEADSETS



Google Cardboard - a decent intro level headset for 360 experiences



Oculus Go - a mid-level 3 DoF VR headset; great for 360 experiences



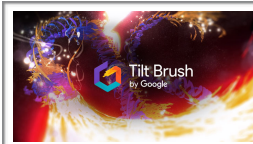
Oculus Quest - a 6 DoF VR headset that is great for interactions

PEDAGOGICAL VALUE

Virtual reality (VR) is like transporting oneself to another location or time; or “go anywhere you wish” such as on the top of Mount Everest, inside the Sistine Chapel, or even into outer space through the use of head mounted displays that completely block out your real environment. What kind of places would you like students to explore or travel to? Another feature of some VR systems is the ability for students to interact with their virtual environments; what benefits does VR interactivity offer student learning?

EDUCATIONAL EXEMPLARS

For our brief workshop, you’ll have the opportunity to experience 1-2 VR titles. Depending on which VR headset you use, various titles are available:



CONSIDERATIONS

Accessibility/cost/scale/age and time spent in VR are issues; consider using learning centres and student pairs. Many VR titles are games, although there are an increasing number of education titles becoming available; much teacher prep and training time may be needed. There are curriculum connections to be made; teachers will need to find these and plan accordingly.