Immersive Learning with Augmented, Virtual and Mixed Reality

Nadia Abdallah
Tiffany Grant-Simmons
Jeffrey Kontio
Melissa Welz

REVIEW

:

(1) Overview of the technology

(2) Applications

(3) Benefits and limitations

(4) Agenda for future research

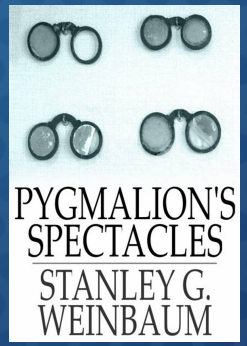
OVERVIEW OF TECHNOLOGY

Do you know when the first VR headset was created? Keep listening to find out!

Virtual Reality

1838

1935



1957

1981

1993

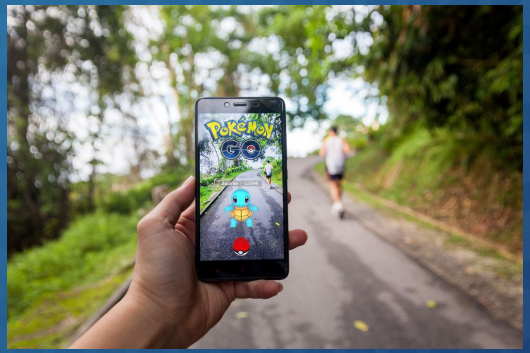
1995

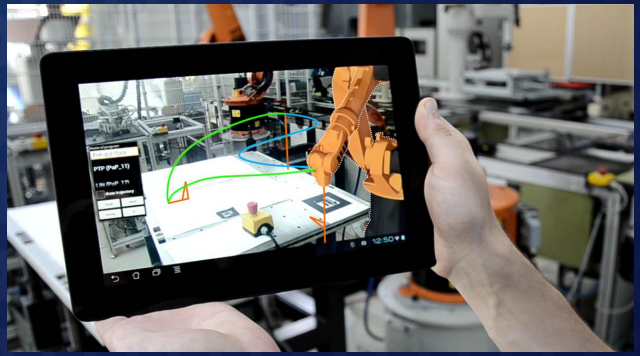
2010

20??

Fun fact - the View Master from the 1960s were modernized stereoscopes. They can still be purchased today for use

Augmented Reality





Fun Fact As of August 2022, Pokemon Go had over 78.2 million daily users, making it still a very popular mobile game

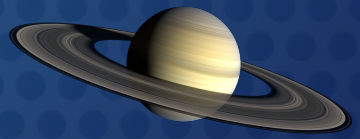
Mixed Reality

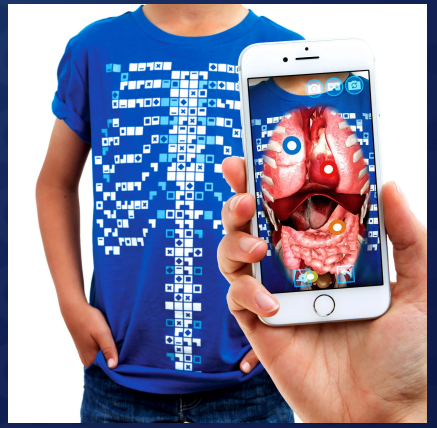
Fun fact MR is expected to be a $3.7
billion industry by the year 2025

Applications

Examples

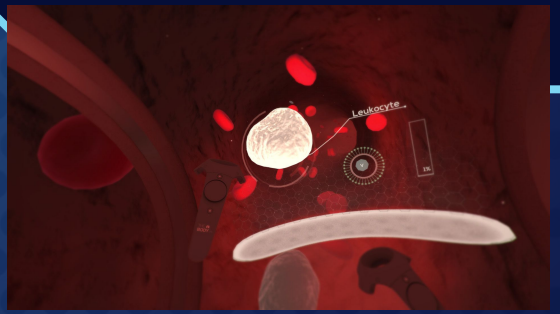
- Travel without leaving the classroom
  - Other countries
  - Museums
  - Zoos
- Explore places otherwise unreachable
  - Space
  - Deep in the ocean
  - Visit the past
- See beyond what is visible
  - Anatomy
  - Electro-magnetic fields
  - Infrared





More Examples

- Biology Labs
  - Animal dissection
  - Tree anatomy
  - Human anatomy
- Geometry
  - Fold and unfold 3D shapes
  - Change shape of 2D shapes
- Physics
  - Build a circuit in VR/AR
  - Play around with different gravity

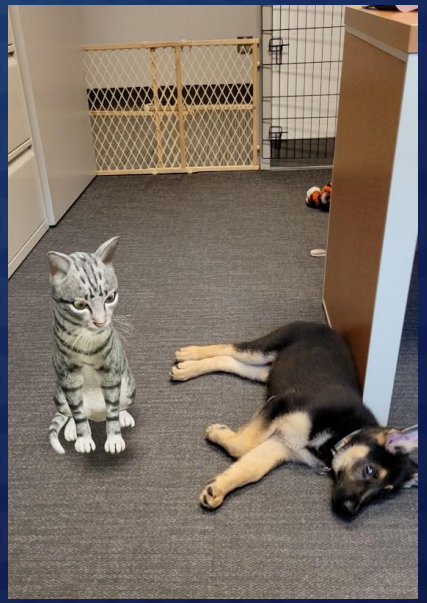


Platforms

- Lenovo VR Classroom
  - https://techtoday.lenovo.com/us/en/solutions/vr-classroom
- ClassVR
  - https://www.classvr.com
- Google Arts & Culture
  - https://artsandculture.google.com
- Steam w/Oculus or HTC Vive
  - https://www.oculus.com
  - https://www.vive.com
- Youtube
  - https://bit.ly/YouTubeVRChannel

Activity!

- Using the Google App (available for Android and iOS) try AR for yourself!
  - Take a picture or video and post it in the “AR Activity” thread
    - On your device open the Google App (can be downloaded from your app store.
    - Search for an animal, object, or place
    - Tap “View in 3D” (you may need to scroll down)
    - To interact with the 3D Result tap “View in your space”
    - Follow the on-screen instructions.



Full instructions, including a list of what you can search for, can be found at: https://bit.ly/2022EDTC805G3

Benefits and Limitations

BENEFITS

Real-life learning experience:

Through VR, learning feels close to real-life. You are no longer obligated to learn about museums by visiting.

Safe:

VR is a safe way of learning, while using technology.

BENEFITS

Precise:

Through VR, you experience minute details that seem as close to “real” as possible.

Learning in all places:

VR is now used in many different areas, not only schools. You are able to use VRs in businesses and touristic areas as well.

LIMITATIONS

Obsessive:

While VR has its advantages, it is also obsessive and easily addictive for all.

Expensive:

The cost of a VR is not always suitable to learners in certain part of the world, due to the cost.

LIMITATIONS

Isolation:

VR can create an addictive environment that leads to pure isolation for those who use it.

THE FUTURE
OF VIRTUAL
REALITY

THE FUTURE OF VIRTUAL REALITY

DINING

You will be able to travel virtually to different places and immerse yourself in certain environments while tasting the dishes from these locations.

EDUCATION

In classrooms, the use of VR allows students to better retain knowledge and helps students with learning difficulties.

MEDICINE

The Spanish National Research Council has succeeded in reducing the effects of Parkinson's in several patients by applying a treatment that uses Virtual Reality.

THE FUTURE OF VIRTUAL REALITY

ENTERTAINMENT

Users can enter a scene in a video game or practice extreme sports without moving from their couch.

ARCHITECTURE

Virtual Reality architects are going to better envisage a space and present the project to their clients.

MILITARY

The UK of Defence uses Virtual Reality for training in simulated environments.

THE FUTURE OF VIRTUAL REALITY

Industry

Digital Twins are exact digital copies of physical objects that factory workers can practice on and test in a virtual world.

Culture/Art

Some museums and galleries offer virtual visits or immersive experiences to help understand the history and culture associated with each work.

Media

Immersive journalism takes the user to the places where events have occurred with live streaming of 360 degree videos.

ENGAGE

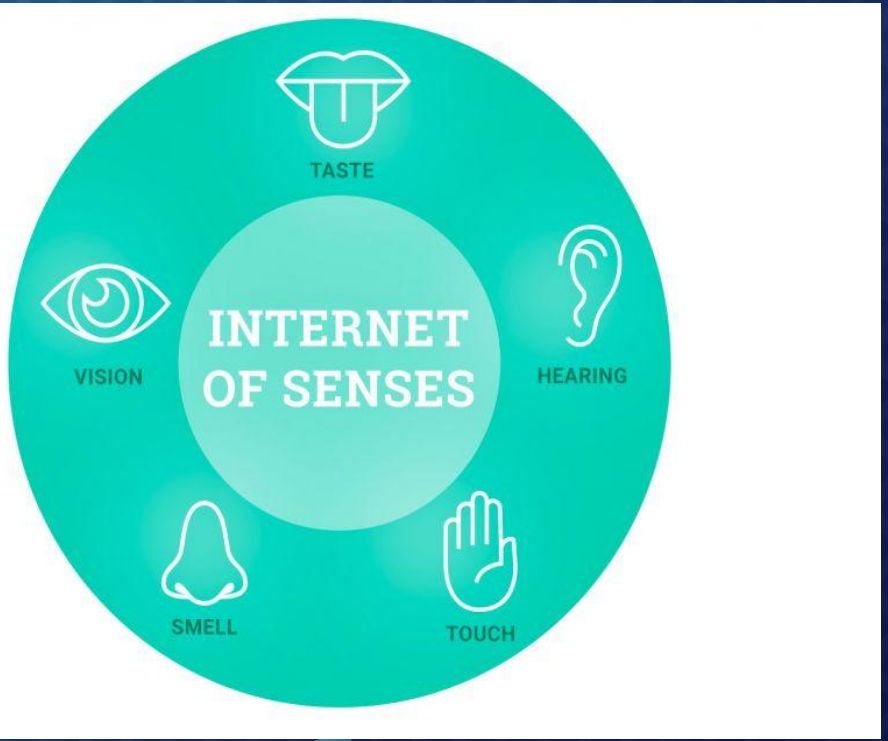
COMMUNICATE / TEACH / LEARN

ENGAGE
COMMUNICATE / TEACH / LEARN
ENGAGE
COMMUNICATE / TEACH / LEARN
Current Goal:
Deliver breaths to baby
Result:
Bad breaths: 41 Good Breaths: 7
Failed Goal. Trying Again
NEXT GOAL
Next Goal:
Assess the baby for signs
ENGAGE
COMMUNICATE / TEACH / LEARN
player
ENGAGE
COMMUNICATE / TEACH / LEARN
ENGAGE
COMMUNICATE / TEACH / LEARN

Teslasuit

virtual reality reinvented

The world's first full-body haptic feedback, motion capture, thermo controlled suit. Enjoy incredible real world sensations as never before.


TASTE
VISION
INTERNET
OF SENSES
HEARING
SMELL
TOUCH

DISCUSSIONS

1. Looking within your own curriculum, how would you embed VR into one of your lessons? Provide examples.
2. Do you feel that Augmented Reality, Virtual Reality, or Mixed Reality provide better learning opportunities? Which do you feel are more engaging?
3. Fun Activity! Get out your Cyclops VR Goggles that we received in the Summer Institute. I want you to put your goggles on and click on this VR 360 video. Since Halloween is coming up I would like you to venture into the, " The Stranger Things" world. Here is the link : https://www.youtube.com/watch?v=RX01XBsLFg4&list=LL&index=2&t=3s

   Are you brave enough to encounter Vecna? Let us know how you did! Did you escape? What did you like about this VR experience? Did it seem realistic to you? What might have you added to make this experience more realistic?

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THANKS!

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