Definition of terms

XR= extended reality

This is the collective term for VR, AR and MR.

VR= virtual reality

Being immersed in an all-encompassing environment, a change of place or even time.

AR= augmented reality

This type of experience augments or shifts the current reality. It often takes the form of an overlay in the space the person exist in.

MR = Mixed Reality
A hybrid between augmented and virtual reality. Switches between filters, environments, and the real world

What is Immersive Media ?

Looking back at history, humans have always had the noble aspiration to create and share fantasy environments, characters, and objects. It is to create and augment realities

Forms of play

- **Pretending** - Kids use various types of games to simulate a scenario rather than representing it through symbols or words

Earliest form of immersive endeavour - The Great Hall of Bulls, painted by a Paleothic tribe in southern France

Frescoes - Popular during the medieval period, full size room murals showing immersive scenes of spiritual realms

Striving for immersion has been pursued throughout history ranging from music to books

With modern tech, a real chance of cementing immersive experiences as an art form is possible

Origins of immersive technologies

Today's AR or VR devices can be traced back to the Victorian age
The Victorians applied serious innovation to capture and share realities

In the **1830s** - Victorian age
1st device that looks like the modern VR headset was called the stereoscope.
It used a slightly different image for each eye to create a 3D effect

In the **1860s** - Thomas Edison
The kinetoscope had a lot in common with the modern VR.
It was not commercially viable

In the **1960s** - The early days of computing.
The Sword of Damocles invented by MIT scientist Ivan Sutherland
1st head-mounted AR machine
Allowed users to step into the data, a concept now known as **spatial computing**
Ivan Sutherland was known as the "father of computer graphics" by the video game industry

In the **1980s** - Tech culture
In Silicon Valley, the 1st wave of VR/AR headsets began
One of the most influential companies was VPL Research
1st VR movie, Angels, premiered in 1989, by Nicole Stenger
Latency was an issue with the headsets which cause "cybersickness" resulting in low adoption

In the **2000s** - Modernisation
Increase in processor and internet speeds, led to boost in AR/VR
VR simulation was used by Second Life
AR was given a boost by smartphone usage. AR app platforms (Blippbar) used QR codes
In 2013, a VR headset called Oculus was launched by Palmer Lucky
In the same year, CastAR was launched by Jeri Ellsworth but later went into financial problems
In 2014, Oculus was sold to Facebook

Augmented Reality examples

- Snapchat lens filters
- Pokemon Go

The reality-virtuality continuum

What is mixed reality (MR) ?
It is AR and VR's lesser known cousin

In 1994, the concept was first defined by Paul Milgram at the University of Toronto.
Milgram described MR as visual technologies that involve merging the real and virtual world

Most VR headsets are capable of running mixed reality experiences

Mixed Realities Examples

- The Void - A Utah-based startup which creates location-based mixed realities experiences.
    - The experience allows guests to step into worlds ranging from Star Wars to Wreck it Ralph.
    - Combines haptic feedback, motion tracking, and VR headset technology

- Philips & Microsoft Hololens
    - Allows surgeons to use mixed reality glasses to view holograms of the organs they are working on

Immersive media : What can you do ?

Spatial Computing - Defined as the practice of using *physical actions* as inputs to receive outputs in a perceived 3D space

Categories:

- **3 degrees of freedom (3DoF)**
    - The user sees the user experience as a 'flat' sphere of media around them (360 video)

- **6 degrees of freedom (6DoF)**
    - The experience is mapped onto the physical space that user is in, allows them to move back/forth, up/down in the digital space

Uses of extended reality (VR, AR, and Mr)

- **Simulation**
    - Gives the illusion that the thing is actually happening

- **Physiological responses**
    - Simulate sweating, heart rate increase, calmness, etc
    - Therapists have used VR experiences as a form of exposure therapy to treat phobias and PTSD

Example: **Emteq**

Relationship building
Allows people to build bonds with virtual characters (real/unreal)
Examples: **Altspace**, **Alcove**, **iphone memojis**

Embodiment
Allows users to be in the “shoes of others”
Effect of this in immersive media can lead to empathy/shift in world views

Immersive Journalism
Example - Emblematic Group : Helps users feel like they are at the site of reporting
Platform to try VR:

- **REACH** - By Emblematic Group

When XR goes wrong

When the user puts on the headset, they will become vulnerable

How ?

- **Physically**
    - Users can lose their sense of the physical space they’re in
- **Virtually**
    - Users are in a virtual environment that can affect them psychologically and physiologically

In 2017, a man died after falling over in VR when his coffee glass table broke when he fell.
Pokemon Go have cause users to have twisted ankle, bruised shins, and other physical injuries by going outside to find Pokemon

Physical risks have to be considered by XR creators.

Factors:

- Headset hygiene
- Safety buddies
- Avoiding nausea
- Avoiding repetitive strain injuries
- Post-VR decompression

- Clear guidance on the user setup for surroundings

In XR design, it is important to
- Conduct thorough, well-researched risk assessments
- Engage in user-group consultations and testing

Encouraging safe virtual spaces

Key questions
- How else can we keep users safe when using this technology?
- Would you consider certain content/subject matter to be inappropriate for VR worlds?
- What should be the follow up if someone experiences violence, harassment or bullying within XR?
- Do you have thoughts about how XR should be regulated in this context?

Prospective jobs and skills for immersive experience

- Writer
- Programmer
- Designer (interaction, graphic, user experience)
- Project manager
- Technical artist (3D graphics)
- 360 Filmmaker
- Sound designer

Jobs adopted from: *Storyfutures 2019 Skills For Immersive Experience Creation report*

XR Representation in culture

Top Myths
Immersive media is a technology, not an art form -
XR utilises both technology and media

VR is something only gamers do
VR has been used in many industries including clubbing, healthcare, journalism, and etc

Immersive tech is always of the future, just like in the movies -
In using VR/AR, there will always be negative connotations and fears about the future

AR/VR is incredibly advanced in a way most people will never understand
AR is being used on a daily basis,i.e.

- Snapchat
- Instagram filters

References

FutureLearn. 2021. *Introduction to Virtual Reality - Online Course - FutureLearn*. [online] Available at: <https://www.futurelearn.com/courses/introduction-to-virtual-reality>