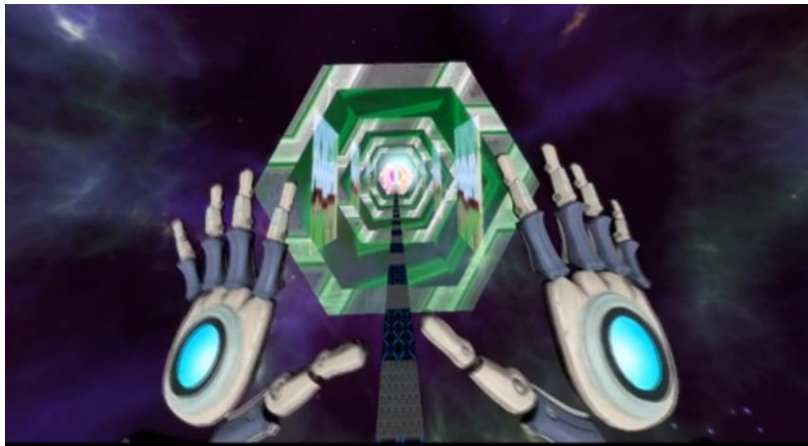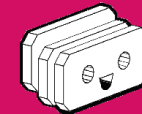# Who am I?

Technical artist and serious games designer interested in HCI Research.

- My work revolves around people experiencing interactive media, especially iVR and those using motion tracking.

The Bittersweet (Author, 2016)

www.jeduardoruss.com

Exploring Virtual Worlds with Disabled Communities

An explorative study on immersive media benefits within a disabled community in Paisley.

This project counted with the involvement of the following institutions...

SCOTTISH GRADUATE SCHOOL FOR ARTS & HUMANITIES

UNIVERSITY OF THE WEST of SCOTLAND
UWS

THE UNIVERSITY OF EDINBURGH

Disability Resource Centre
Love St. Paisley

(1)

Introduction

- "Exploring Virtual Worlds with Disabled Communities" aims to explore the health & wellbeing benefits derived by the implementation of immersive experiences (iVR) at an adult disabled community, and explore the possibilities to employ them as part of a care regime.

  This research project is exploratory, using mainly an ethnographic approach. Within a Creative and Practice based framework.

Research Aims

The aims of the project could be resumed in the following manner…

- Expand understanding of the agency experienced by a person with a disability in the real world, and the same agency in the Virtual World, afforded by VR technologies.

- To further the objective comprehension of working with immersive media and interactive immersive technologies.

- To advancement of co-creation and co-development with a disabled community.

- To create and co-develop custom-made VR experiences, aiming to move service users from test subject to participants on the creation of experiences adjusted to their needs and wishes.

Man using VR at the DRC Paisley (Author ,2018)

About the DRC

- The Disability Resource Centre in Paisley is a daytime service provider for the physically disabled and sensory impaired adults in the Renfrewshire area; it promotes independent living through social, educational and employment activities or services.

DRC Paisley, (Renfrewshire Council, 2016) used with permission.

What is VR?

VR as we know it in mainstream culture, is a simulated experienced recreated using computational technology, mediated through a head mounted display. However the idea to place the viewer at the centre of a stimulating scene is not new (Grau, 2007).

Roman fresco Villa dei Misteri Pompeii, by Pandolfi Vittorio, 2015 (CC BY-NC-SA 2.0)

What is VR?

While we think about VR as one entity, it is an umbrella term for an array computer generated media that can be visualised
and interacted with in real time, to differentiate the term XR is now used. This umbrella features subdomains such as..

- CAVE System
- AR / MR
- Screens (Videogames and other CGI)
- Immersive VR, 3D audio

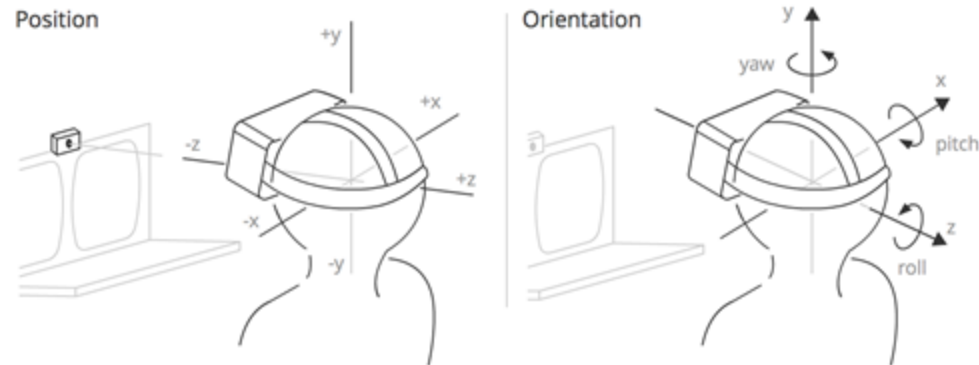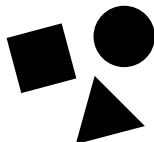Dave Pape, 2001 (CC BY-NC-SA 2.0)

(2)

XR Domain

iVR Fundamentals

Presence is the subjective sensation of illusory transformation of location, it requires of three illusions.

1) Place Illusion (PI) "I am Here"

2) Plausibility illusion (PsI) – "This is happening"

3) Body ownership illusion (BOI) "This is a representation of my body and will" (First person POV)

Avatar created by author using ReadyPlayer.me, 2009)

(Slater, 2009)

iVR Fundamentals

Presence in turn give you a conscious experience known as qualia, in other words an experience unique to you. For this reason, Immersive VR is the only type of media capable of bridging the gap between knowledge and experience.

"what it is like to look at this particular sunset in landscape — this specific sunset landscape now…" You had to be there..

Knowledge - - - - - **GAP** - - - - - **Experience**

Why is VR relevant for researchers?...

VR can reconstruct the same scenarios and situations everytime

VR has shown potential to benefit humanity in various fields
(Slater et all, 2016)

Bridges the gap between "Knowledge" and "Experience"

Can elicit real emotional reactions
(Marín-Morales J. Et all 2019)

Many different types of data can be gathered

With little effort i.e., POV of the user,

motion & eye tracking, among others..

VR for wellness…

VR has a long history of therapeutic use…

- PTSD
- Anxiety
- Pain Management
- Post Stroke Rehabilitation

VR has also been used in other fields

Such as education and training…

Dr. Albert Skip Rizzo treating a veteran with Post-Traumatic Stress using his Bravemind virtual reality software (CC BY-NC-SA 4.0)

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VR ethics of awareness

According to technology thinkers such as Marshall McLuhan, and Gordon Moore technology has social and ethical impacts.

- While Virtual embodiment has been used to create empathy toward those who are othered in society, it can also be used to create a harmful image of these individuals (i.e., movies creating racial stereotypes).

- The acquisition of personal data and likeness of an individual could then be stolen and sold to other parties.

- VR content could create loopholes where those engaging acts that are illegal in real life could engage in detrimental activities for them or others involved.

- Interaction with avatars representing dead people(i.e., Relatives, Famous people) could have negative grieving effects.

Image created with AI, https://generated.photos (2022)

Activity...

1) Go to https://generated.photos and generate an AI photo.

2) Using that photo or another one create an avatar on ReadyPlayer.me

3)Share your VR avatar in the chat and let us know if this is your first one.

Serendipity

Creative Process

Knowledge

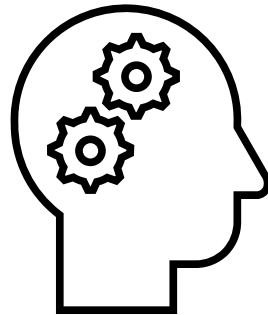## Experience

Skills

I.e., What I knew about
the literature..

I.e., My experiences at

The DRC..
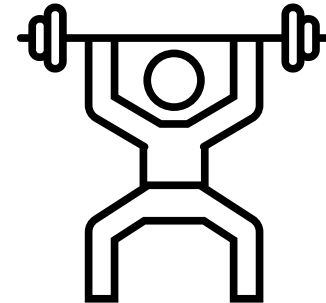
I.e., My Skills as a
technical artist..

(Makri & Blandford 2009)

My Journey

This project is divided in 3 main phases..

Within the first phase I completed the following…

I.   **GDPR**

II. **Ethics approval**, research informed consent form

III. **DBS** (Disclosure to work with vulnerable people).

IV. Visited the DRC twice a week to take part in their sessions, writing ethnographies, with the aim to understand their lives, and generate ideas.

Author working in a DRC session (Author, 2021)

Monday 10⁰⁰ - 12⁰⁰	Tuesday	Wednesday	Thursday	Friday
CURRENT AFFAIRS COMPUTING (College) COOKING CRAFT SWIM AT LINWOOD PHOTOGRAPHY LUNCH 12 - 13°°	GYM AT LAGOON PERSONAL PRESENTATION INTRODUCTION TO NEW I.T SOFTWARE. AUDIBLE BOOKS HISTORY OF MUSIC	PHOTOGRAPHY WOODWORK DEBATING COOKING. ART	GYM AT LAGOON MOVIE MAKERS GARDENING SINGING SELF RUNNING CRAFT GAELIC AT BEECHWOOD	CREATIVE WRITING ALTERNATIVE HEALTH MAGAZINE GROUP GYM AT LAGOON UPCYCLING PROJECT
3⁰⁰ - 15⁰⁰ TAI CHI MEMORY SKILLS COMPUTING PHOTOGRAPHY	EXERCISE I PADS AND TABLETS MUSIC AND MOVEMENT COOKING	PHOTOGRAPHY WOODWORK YOGA Book Group DANCE AT KIBBLE ART	GARDENING TAI CHI WEB SITE DESIGN SELF RUNNING CRAFT MY LIFE IN SONG	CREATIVE WRITING QUIZ RELAXATION

The DRC is a living community with a physical space, rules and schedules, I started noticing there was a pattern among the activities…

Service Users	Staff Members	The Centre
Many service users present mobility issues & shallow breathing.	Staff Members need to prepare for their activities; therefore, simplicity is needed.	Public wi-fi restrictions
They are interested outdoor surroundings, especially those in nature and in relaxation.	Technical proficiency differs from staff members.	The group schedule present alternative wellbeing sessions.
Some Service Users might suffer from generalised anxiety disorders and pain.	Some are not keen in new technology.	Activities need to be scheduled within sessions.
Because of their limitations, generally, they are in the lookout for stimulus.	Session facilitators are in the lookout for new ideas for their activities.	The DRC present various spaces, each of these has a purpose.
Prefer group activities, where there is opportunity for socialization.	Take pride on their work.	

Pilot study

4 workshops, 12 participants

- 3 different type of experiences…

  VR tours of outdoors (Cities, Nature)

  VR Documentaries

  Serious Games

- Aiming to understand what kind of experiences should be implemented.

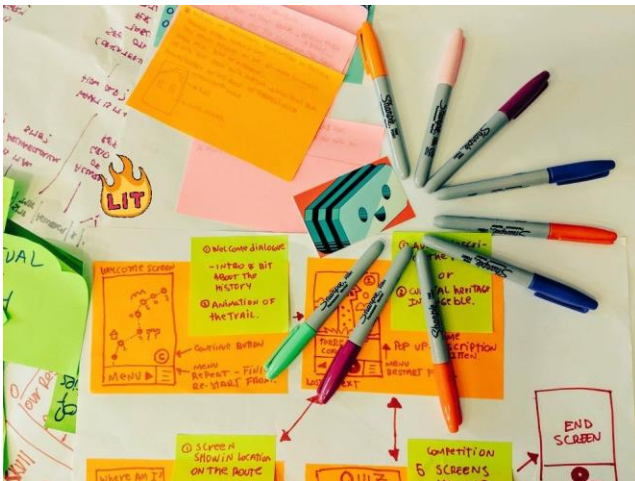- Exploratory – Before and After VR (Semi structured interview)

Focus groups

Simulation as a research technique

- Is to use some media technology to reproduce actual events and processes under test conditions, some examples...

- Paper prototype of a webpage or App

- Architectural model

- 3D model or animation CGI

Paper prototyping (Author, 2009)

Workshop implementation...

Staff memebers would be briefed on regards of the

focus group, and would help as cultural ambassadors.

- Participants would be recluted with the help of staff members

- Participant briefing (onboarding)

- Semi structured interview administration

- Experience (VR simulation) / Participant observation

- Debriefing (Offboarding)

Results

- There is a sense of fuller immersion,
- different to other types of media.

- Users wish to interact with the
- Virtual world on their own terms
- Using accessible technologies.

- Users wish to use this technologies
- To create wellbeing for themselves

- There is a preference to visit outdoor spaces.

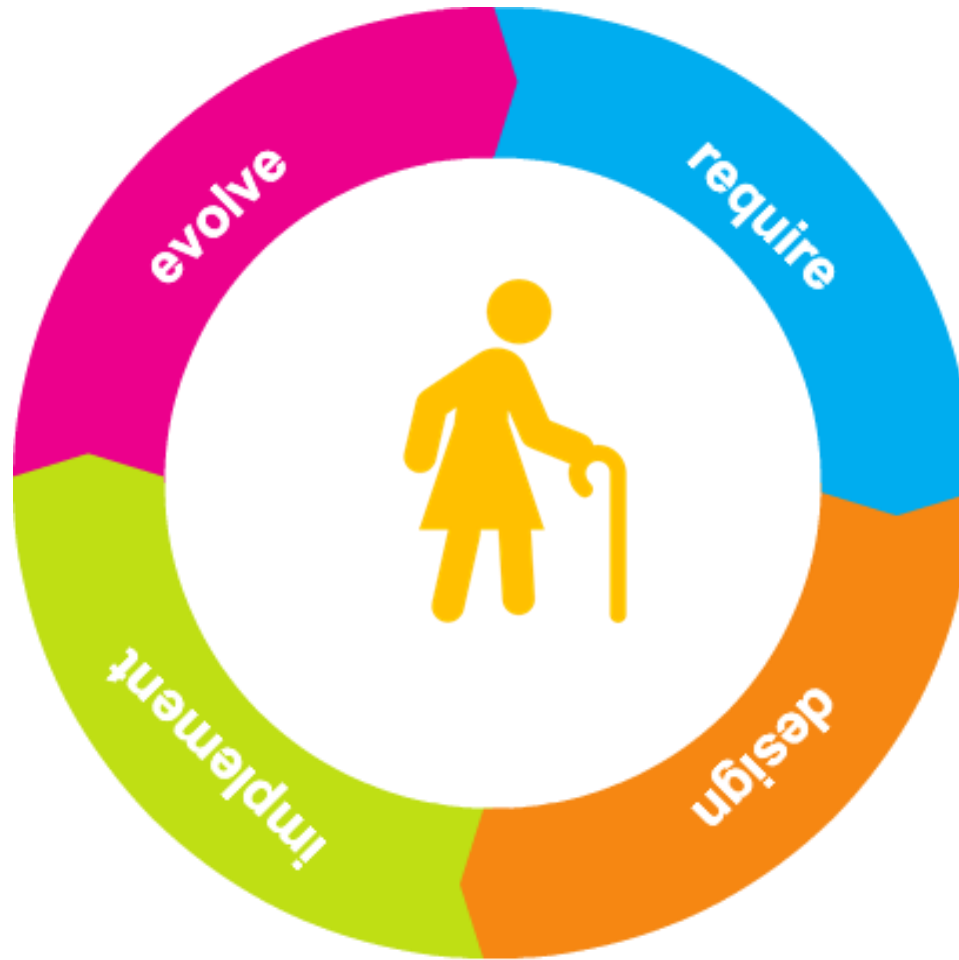Man watching a VR movie (Author, 2018)

Participatory Action Research

Engaged in the cyclical exploratory process of PAR (Author, 2020)

Testing Troubleshooting Redefinition of conditions.

Unity –merge Programming Tuning assets Filming Stages creation

Feasibility Preconditions Assets & Hardware needed

User journey Personas User experience Scripts (Vo)

evolve

require

implement

design

Software development cycle (Author, 2018)

Personas

Are user's archetypes used to acquire a deeper analysis of who are we developing for..

Camilla suffered a mild stroke 6 years ago, she used to manage a store in a local mall, the stroke left her strugling with fine motor movement, and a weakness on the left side of her body. She also had to relearn how to speak and walk, she can now walk and speak preoperly however the weaknes in one side of her body persists.

At the moment she has a part time job in a bookstore in paisley, and also assist to the DRC in quality of volunteer, for 2-3 days a week, she helps in the centre with paperwork and organising events, she says this has helped her to recover confidence in the work place. She also involves herself in crowdfunding activities at the centre for example organising raffless to pay for daytrips for the users and facilitates sessions when the regular staff members are not in.
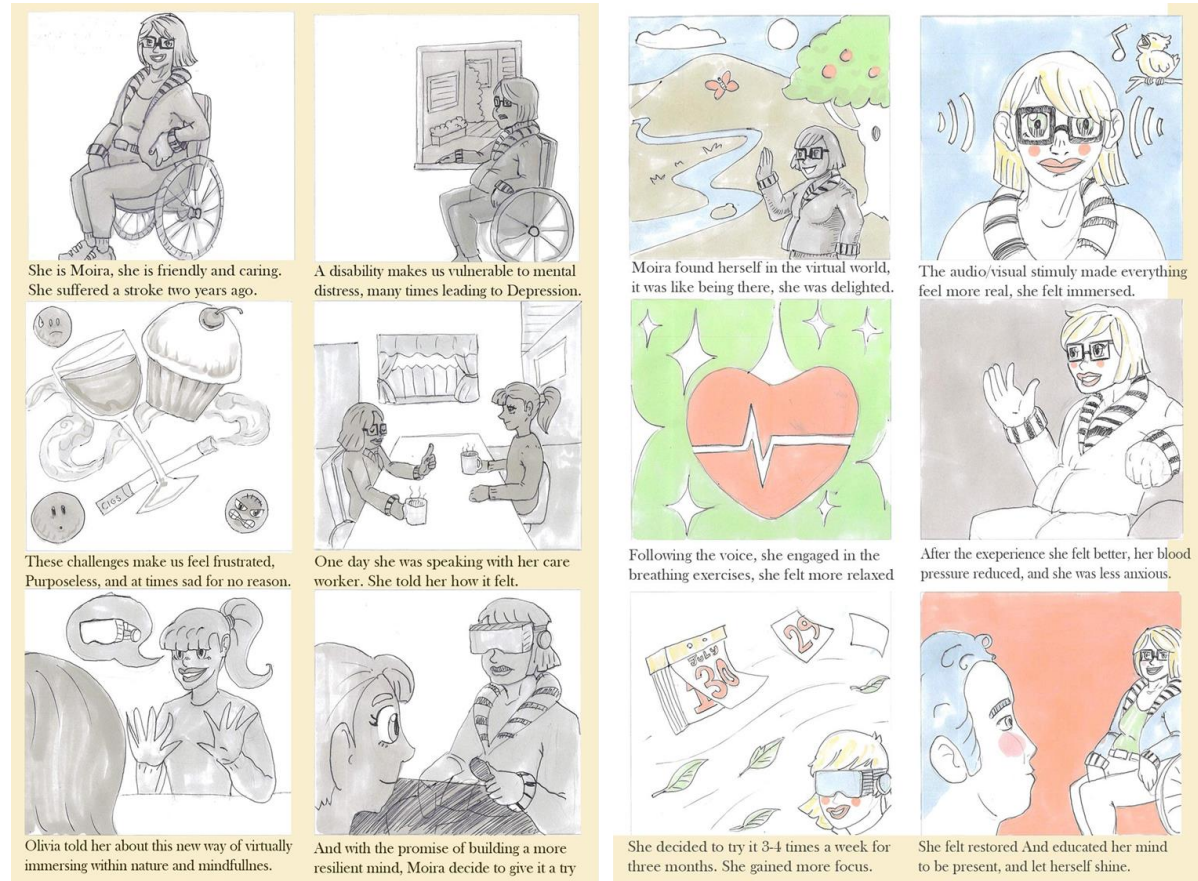
She lives with her younger sister and her twenty years old niece, Camilla cannot drive due to her motor abilities but she and her sister enjoy visiting family members and local trips on their free time, she really enjoys boat trips on the lake.

She comes accross as a friendly person but also she can be very reserved. Sometimes she can feel a bit sad and depressed. her mobility issues and freedom limitations can surely make her feel unconfortable with herself.

She wishes to travel and visit places she has never been in.

Name: Camilla Pearce

Age: 49

Occupation: Volunteer

Area : Renfrewshire

Reserved.

Persona archetype (Author, 2018)

Storyboard

Are used to communicate and stablish user journeys.

Storyboard (Author, 2018)

New focus groups

**Workshop implementation...**

Staff memebers would be briefed on regards of the

focus group, and would help as cultural ambassadors.

- Participants would be recluted with the help of staff members
- Participant briefing (onboarding)
- Semi structured interview administration
- Experience (VR simulation) / Participant observation
- Debriefing (Offboarding)

Self perceived mood and comfort

Emoji Pain/comfort scale, (Mixing sources interpreted by Author, 2019)
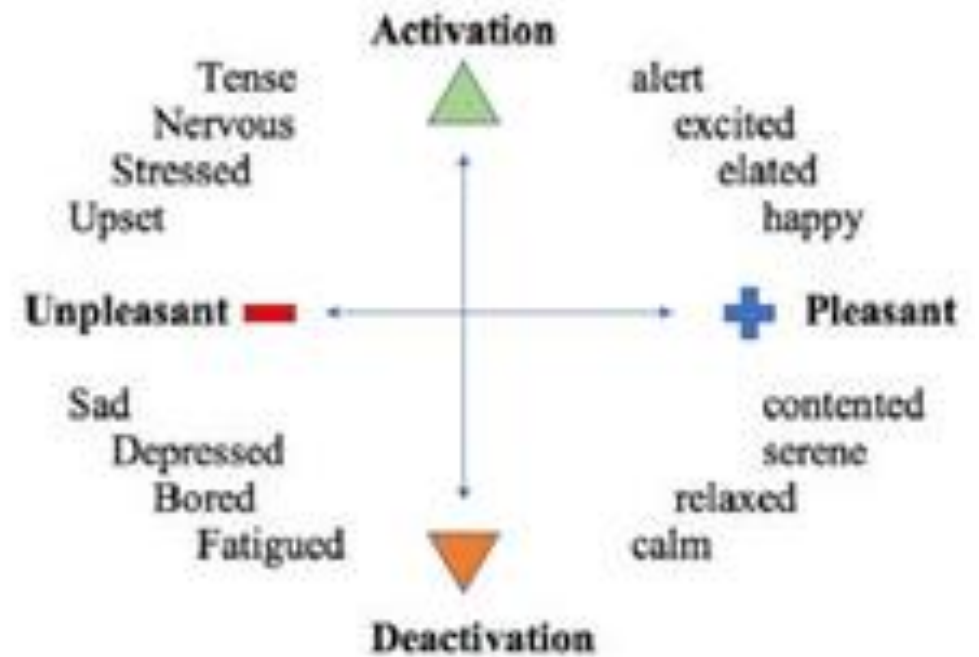
Valence & Arousal chart (Russell, 1980) interpreted by (Author, 2019)
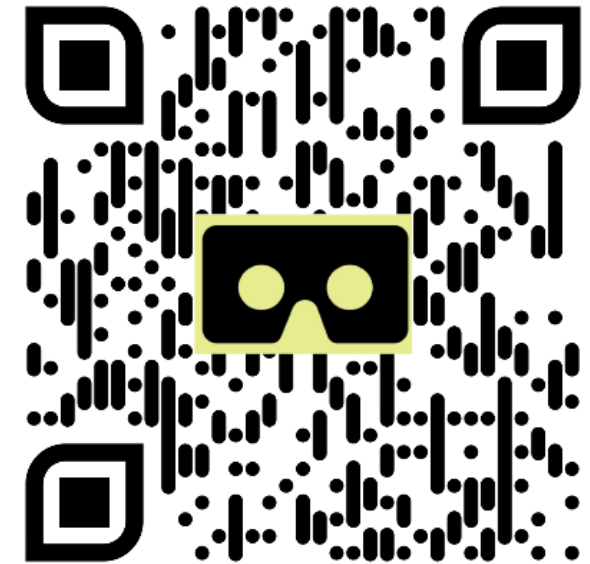
Experiences

Produce
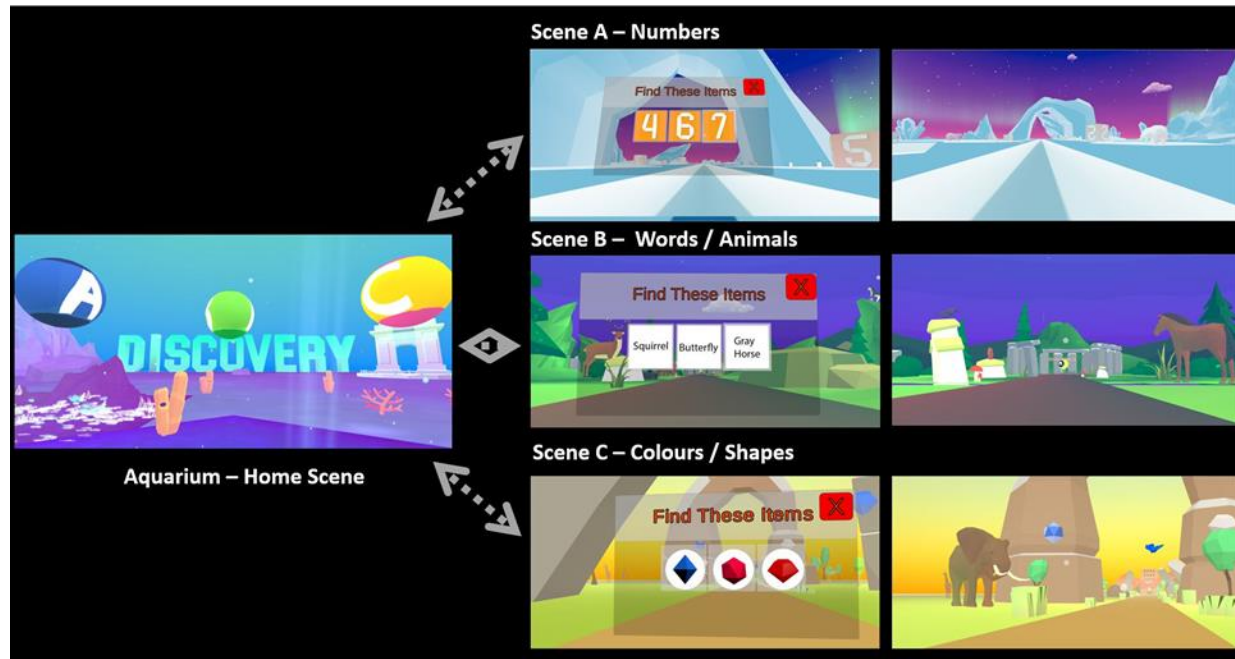

Woman tests the experience (Author, 2018)

Attention Restoration & Relaxation induced by soft fascination.
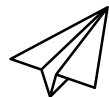
Experiences

Discovery

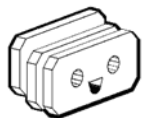Concentration Game (Author, 2020)

THANK YOU!

✈ Jesus.russian@uws.ac.uk

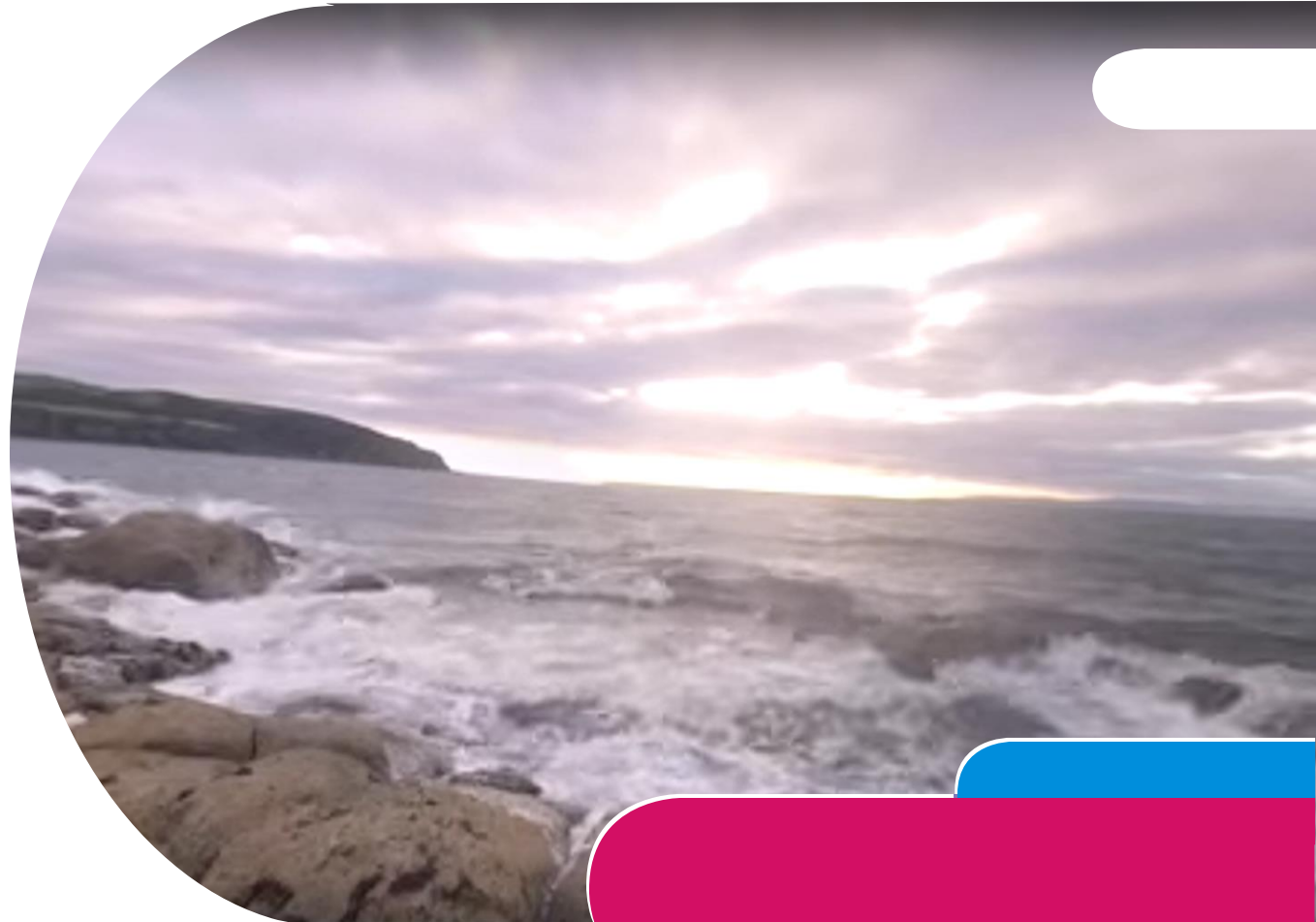🌐 www.jeduardoruss.com

🐦 jedirussian001

Any questions?

Does the virtual world needs to look real to feel real?

Why did you not use any other sensors like for example heartbeat sensor?

What is the metaverse?

Why didn't you create an experience to explore the illusion of embodiment?

Why do I feel sick when I use VR?

References

Slater M. Place illusion and plausibility can lead to realistic behaviour in immersive virtual environments. Philos Trans R Soc Lond B Biol Sci. 2009;364(1535):3549-3557. doi:10.1098/rstb.2009.0138

Marín-Morales J, Higuera-Trujillo JL, Greco A, Guixeres J, Llinares C, Gentili C, et al. (2019) Real vs. immersive-virtual emotional experience: Analysis of psycho-physiological patterns in a free exploration of an art museum. PLoS ONE 14(10): e0223881. https://doi.org/10.1371/journal.pone.022388

Makri, S. & Blandford, A., 2012. Coming across information serendipitously – Part 2 - A process model. *Journal of Documentation,* 68(5), pp. 706-724.

Grau, O., 2007. *Virtual Art: From Illusion to Immersion.* Cambridge, MA: MIT Press.