It’s a Brave New (Digital) World

Professor Paul Best (QUB)
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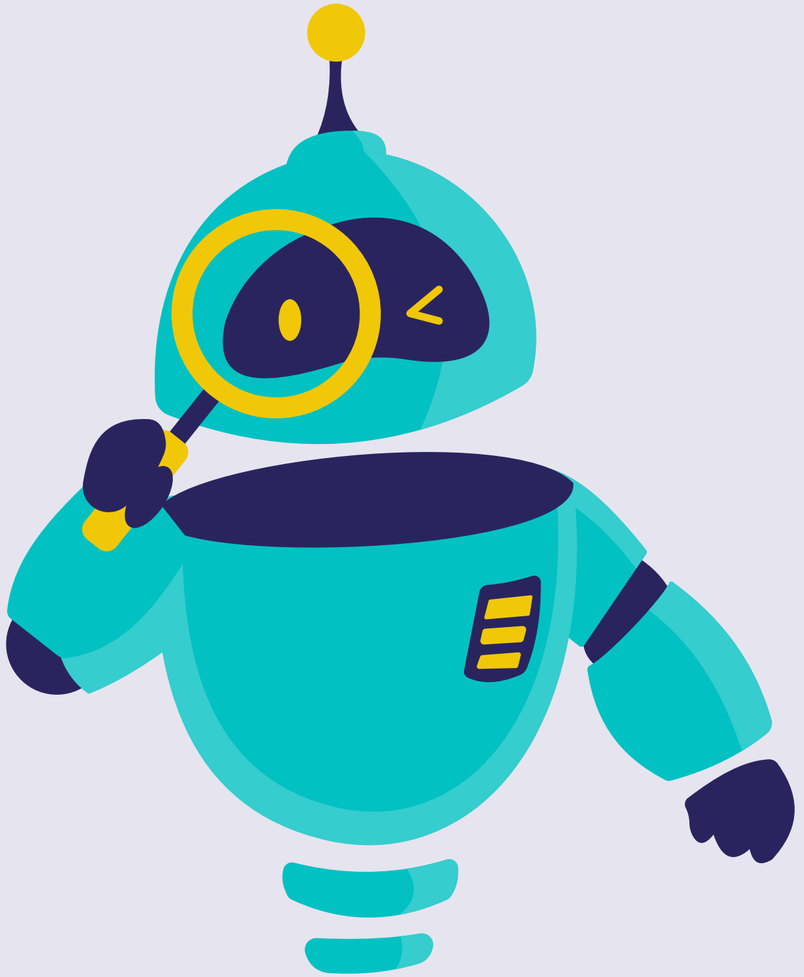

Can new digital technologies help us to better train our social work workforce?

EDUCATION AND TRAINING USING IMMERSIVE TECHNOLOGY

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WHAT DO WE MEAN BY IMMERSIVE TECHNOLOGY?

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DEFINITIONS

Virtual Reality (VR) – Creates a digital environment replacing the user's physical surroundings. Simply put by Pan and Hamilton (2018) as ‘a computer-generated world’

360 video - A video recording where every direction is recorded at the same time. Shot using an omnidirectional camera or a collection of cameras, 360 videos capture a spherical view of the surroundings.

Supporting technologies for these immersive experiences include AR, MR, and VR headsets, 3D displays and audio, gesture and spatial sensing, speech recognition, haptics, drones, and omnidirectional treadmills

Blair, C., Walsh, C., & Best, P. (2021). Immersive 360° videos in health and social care education: a scoping review. BMC Medical Education, 21, Article 590. https://doi.org/10.1186/s12909-021-03013-y

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HOW CAN IT HELP?

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3 REASONS

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REASON 1

IMPROVE STUDENT'S ATTENTION AND ENGAGEMENT

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REASON 2
ENHANCE ECOLOGICAL VALIDITY

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REASON 3

PROVIDE A SAFE PLACE TO EXPERIENCE FAILURE

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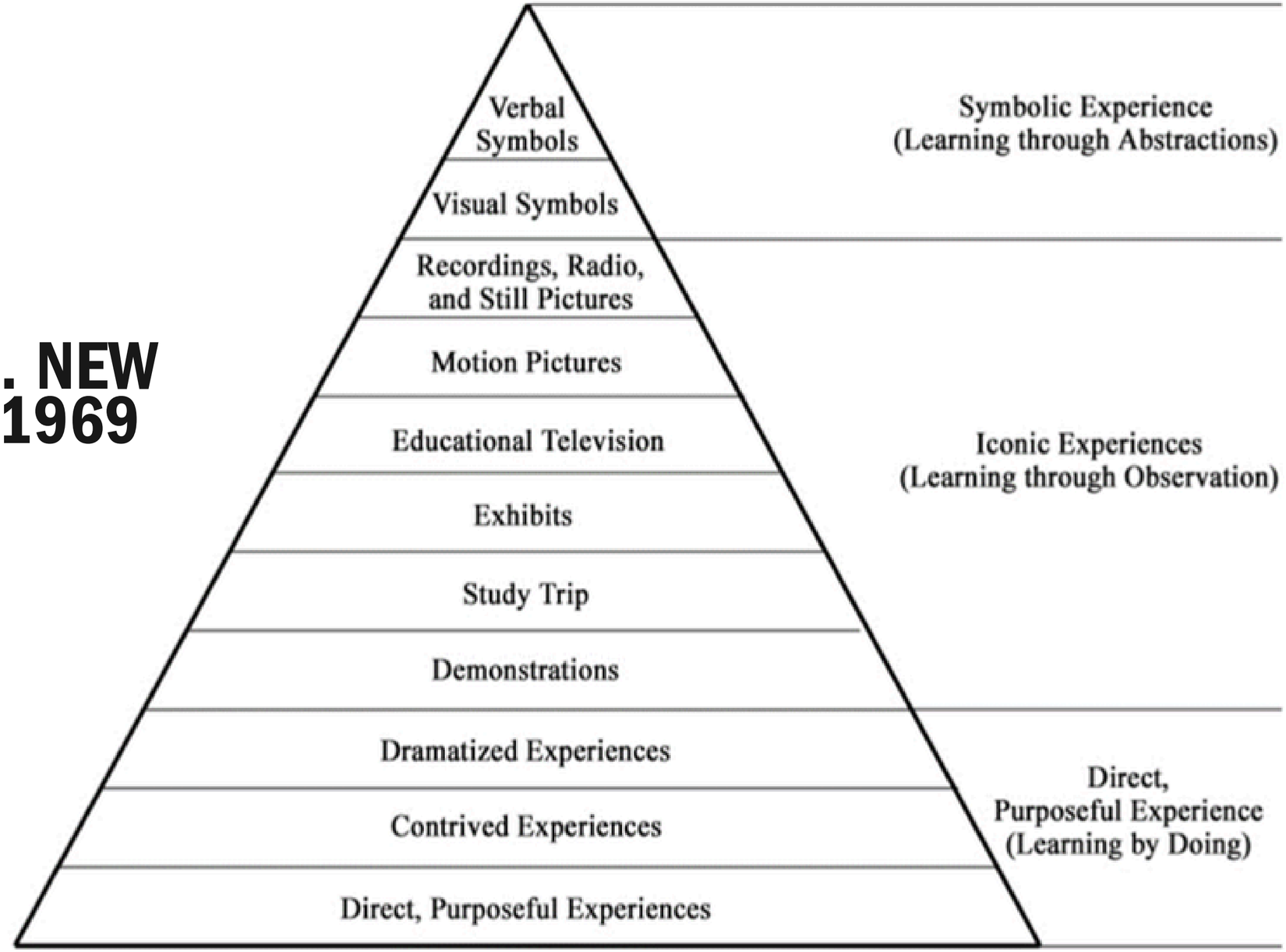
THEORETICALLY INFORMED

DALE E. AUDIOVISUAL METHODS IN TEACHING. NEW YORK: DRYDEN PRESS; 1969



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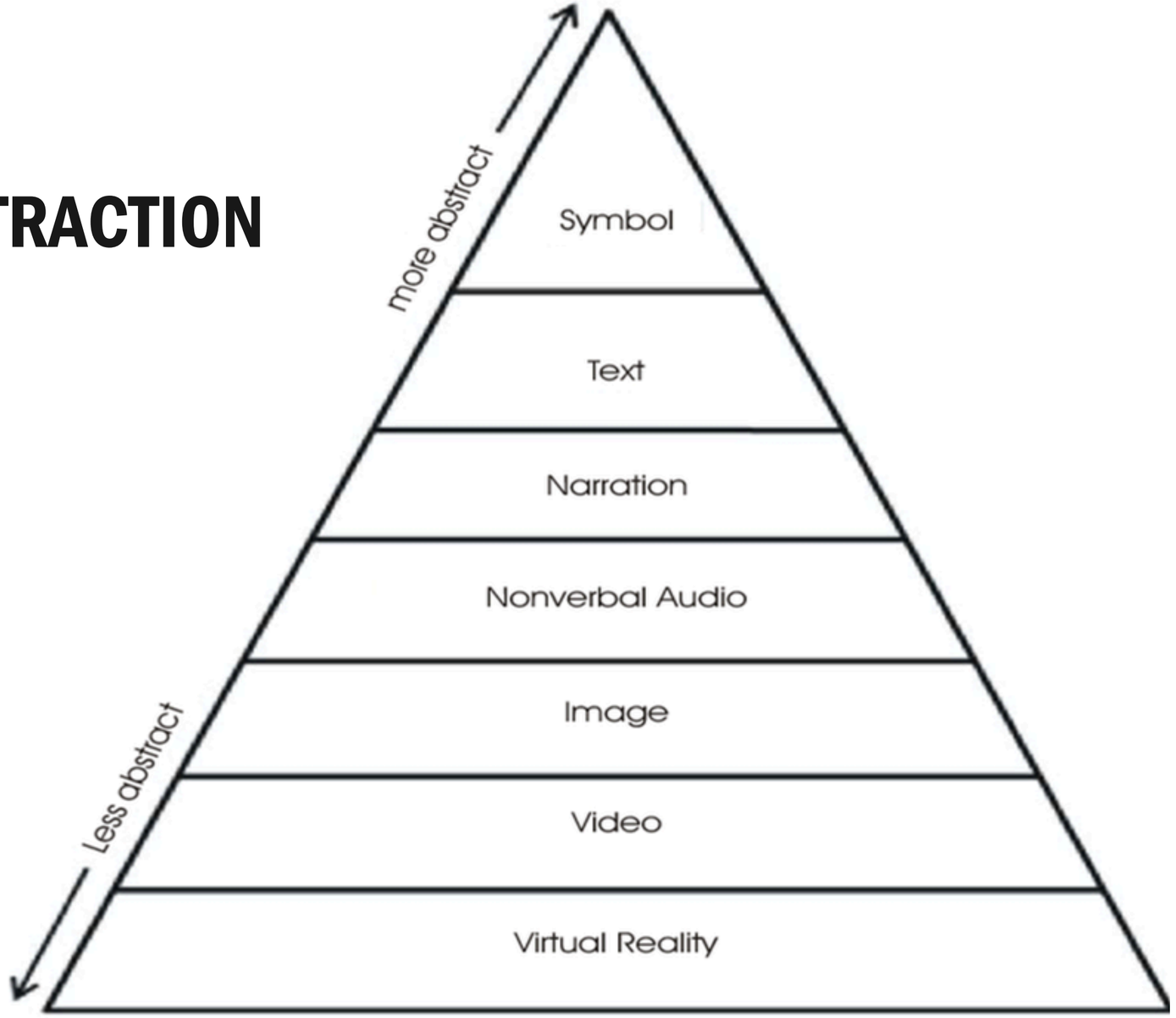
MULTIMEDIA CONE OF ABSTRACTION (BAUKAL ET AL. 2013)



BAUKAL CE, AUSBURN FB, AUSBURN LJ (2013). A PROPOSED MULTIMEDIA CONE OF ABSTRACTION: UPDATING A CLASSIC INSTRUCTIONAL DESIGN THEORY. JOURNAL EDUCATION TECHNOLOGY 9(4):15–24.

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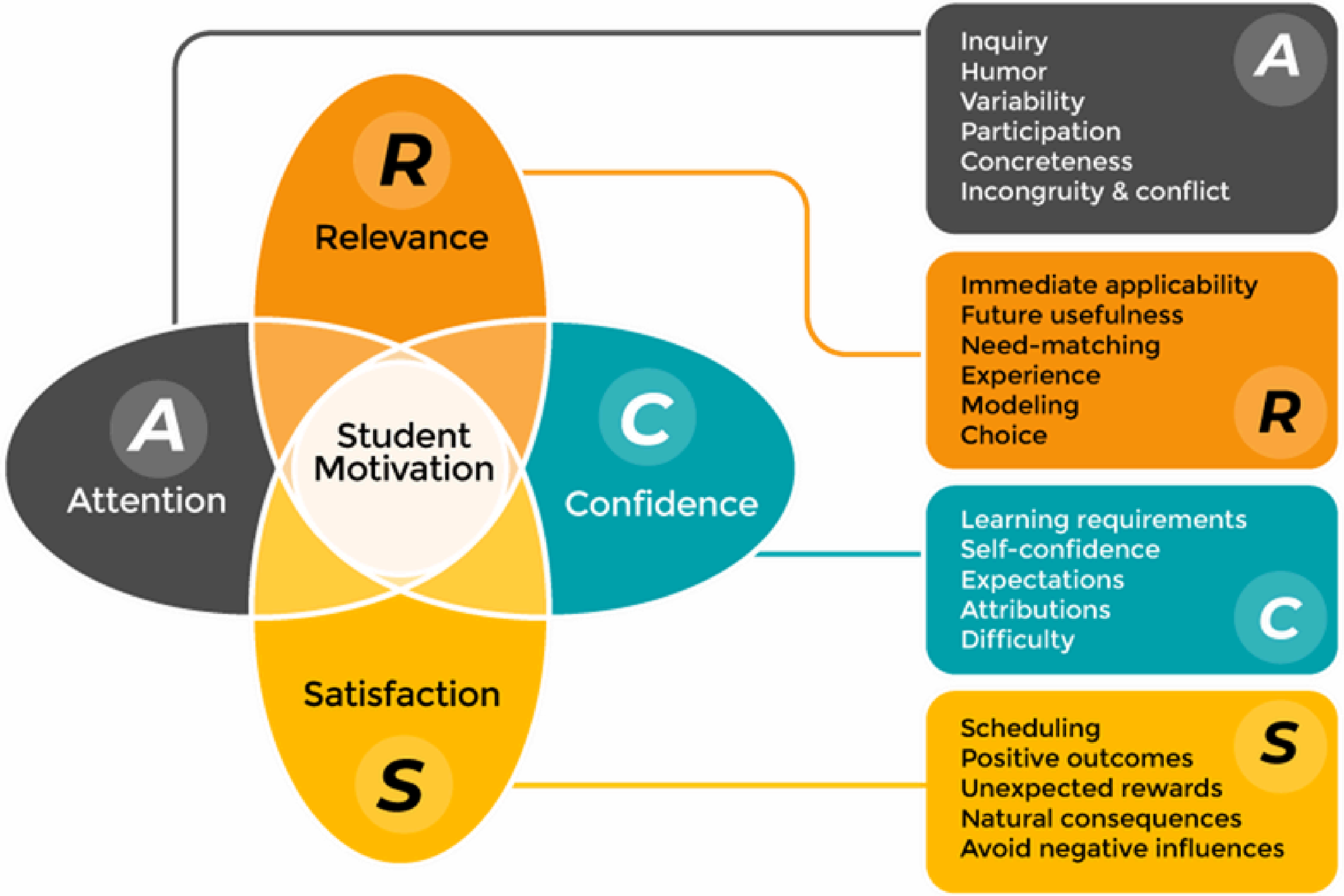
ARCS-V
(JOHN KELLER)

KELLER JM. MOTIVATION, LEARNING, AND TECHNOLOGY: APPLYING THE ARCS-V MOTIVATION MODEL. PARTICIPATORY EDUC RES. 2016;3(2):1–5.



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WAVE 1
GETTING STARTED
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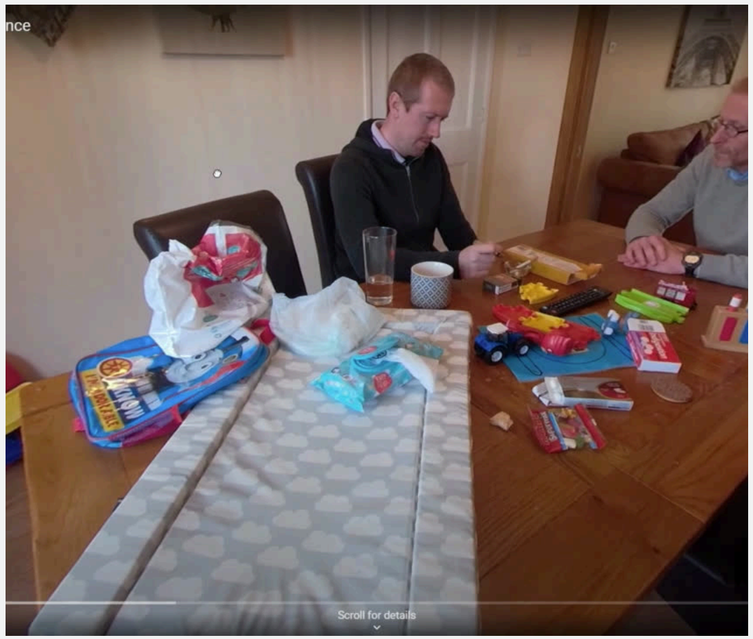
MODELLING KEY SKILLS AND ROLE EXPENTANCY

SETTING AGENDA



EFFECTIVE USE OF SILENCE

CLARIFYING QUESTIONS

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MODELLING KEY SKILLS

For level 3's we filmed an entire assessment start to finish with current senior social work practitioners and trained actors.

This enables us to explore skills that have more nuance and take time to develop.

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SAFETY PLANNING FOLLOWING DISCLOSURE

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WAVE 2
ADDING INTERACTION

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PAUSE AND PONDER (STOCKDALE ET AL. 2023)

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EXPLORING THE EDUCATIONAL VALUE OF AN IMMERSIVE VIRTUAL REALITY (KERR ET AL. 2023)

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BODYSWAPS

Over 100 staff and students from across the university took part in VR soft skills demonstration activities, and provided their critical thoughts and feelings about what they liked and disliked.

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ADDING INTERACTION AND COMPLEXITY

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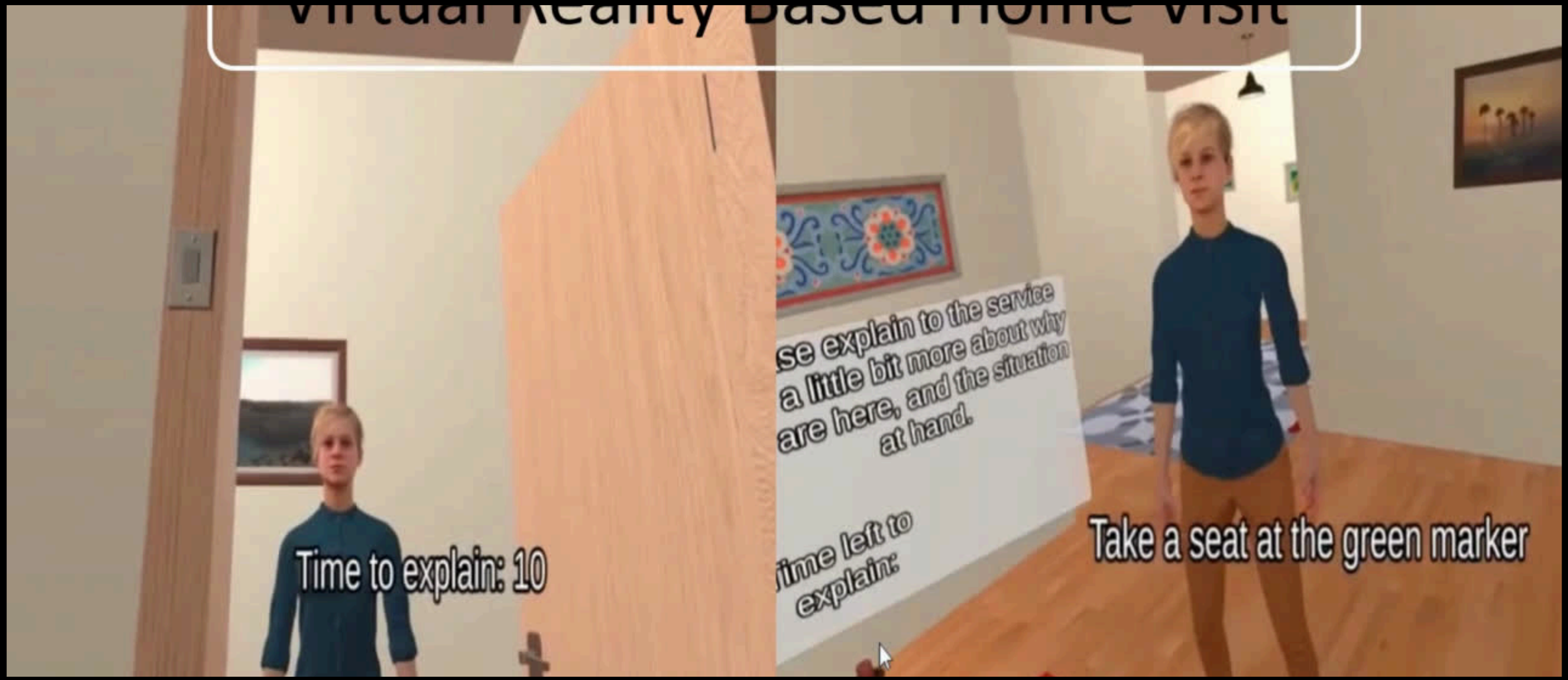
BRANCH-VR SIMULATION

Each playthrough had four potential outcomes

Outcomes were based on decisions users made

All decisions had to be spoken and were recorded for review after completion

Depending on decisions made, parents became more aggressive and confrontational



VIRTUAL REALITY BASED HOME VISIT

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FULL-VR EXPERIENCE

81 students have taken part so far

47 given written case study and 34 VR simulation

Role expectancy appears to have increased more in VR group*

Preparedness to conduct a home visit are higher in VR group*

FULL VR SIMULATED EXPERIENCE

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WAVE 3
ARTIFICIAL INTELLIGENCE

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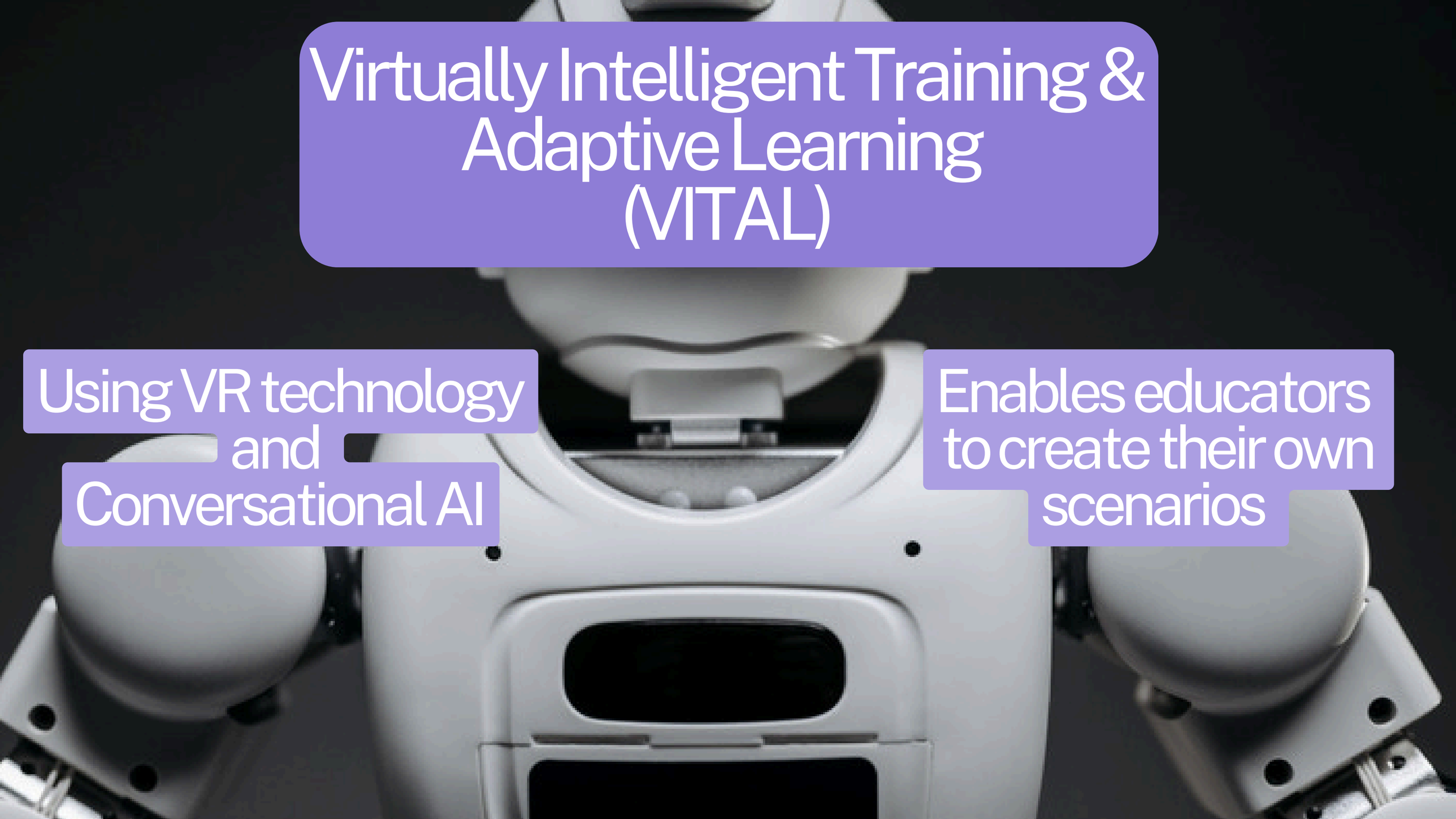
Virtually Intelligent Training & Adaptive Learning (VITAL)
Using VR technology and Conversational AI
Enables educators to create their own scenarios

VITAL PROJECT

VIRTUAL INTELLIGIENT TRAINING AND ADAPTIVE LERARNING

A four country study

1. **NORTHERN IRELAND**
   Schools based classroom assistant training
2. **NORTHERN IRELAND**
   Community based training for social workers
3. **CANADA**
   University based training for psychologists
4. **TAIWAN**
   University based training in medicine (Psychiatry)

1. Each study ran as a standalone project with nominated leads
2. Goal was minimum sample of 30 per test site
3. Shared learning and refinements across all sites

Joy Gupta
joygupta.3@gmail.com

Create New Scenario

The next step is to provide some more details for your Scenario.

Scenario Name

Edit

Scenario A - John - Applying to a Lay Magistrate for a Warrant under Article 129(1)

Additional Context

Please provide a brief summary of the scenario's context, which will be displayed to the user at the start of the scenario.

You are a Lay Magistrate currently at your own home when a professional (probably a police officer or Approved Social Worker) arrives at your front door unexpectedly. You do not yet know exactly who the person of concern is, nor any details of the case. You must assess whether the situation meets the legal threshold for issuing the warrant based solely on the professional's explanation and written Complaint.

Required

Next Step

Avatars

No items added.

Environment

No items added.

Objectives

Virtually Intelligent Training & Adaptive Learning (VITAL)

Visiting a lay magistrate to get permission to detain a service user under Mental Health (NI) Order 1986

Virtually Intelligent Training & Adaptive Learning (VITAL)

Practising CBT assessment skills on service with suspected social anxiety disorder

SITE 1
CANADA

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PILOT PROJECT

USE OF AI AND EXTENDED REALITY IN TRAINING AND SKILL ACQUISITION AMONG MENTAL HEALTH PROFESSIONALS

Scott T. Ronis, Hannah E. Hatchard, & Paul Best

UNB
EST. 1785
UNIVERSITY OF NEW BRUNSWICK

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PILOT PROJECT

- 2 x 10-minute semi-immersive scenarios, involving Unity game design platform and generative AI
  - 8-year-old girl with anxiety
  - 15-year-old boy with behaviour problems and his parents
- 5 Clinical Psychology PhD trainees in skills course (*Therapy Skills With Children and Adolescence*)
  - *M* = 24 years old (Range 24-25)
  - 4 women, 1 non-binary

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Virtually Intelligent Training & Adaptive Learning (VITAL)

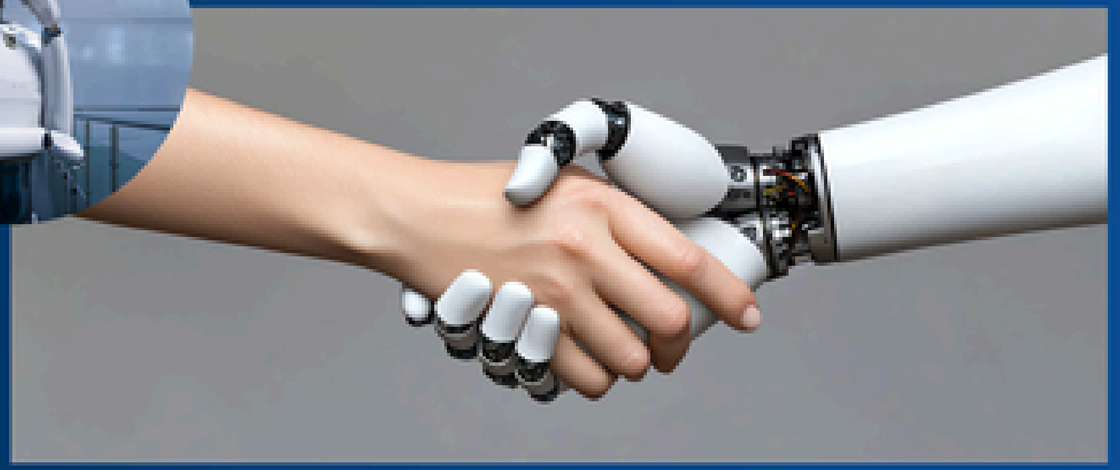
Interaction with a child

Virtually Intelligent Training & Adaptive Learning (VITAL)

Multiple Avatars used in same scene

RESULTS

Comfort/Knowledge	Empathy
Confidence	Motivation & Preparedness



Overall:

- How valuable (1-7): *M* = 6.75, *SD* = 0.43
- How easy to follow (1-7): *M* = 5.75, *SD* =0 .43

	Baseline *M* (*SD*)	Post *M* (*SD*)
Comfort/Knowledege (1-4)	2.85 (.28)	3.06 (.19)
Confidence (1-4)	3.3 (.17)	3.23 (.18)
Empathy (1-5)	3.47 (.22)	3.74 (.11)
Motivation & Preparedness (1-7)	5.7 (.22)	4.71 (.94)

SITE 2
NORTHERN IRELAND (SCHOOL BASED)

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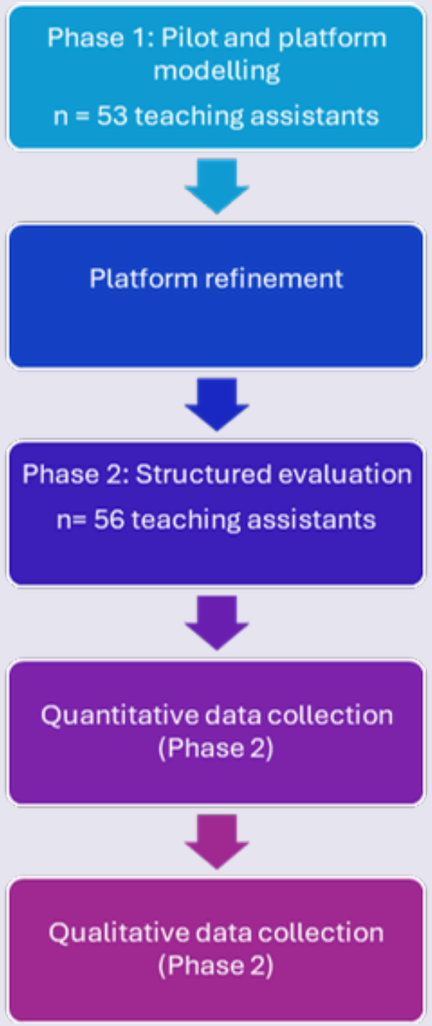
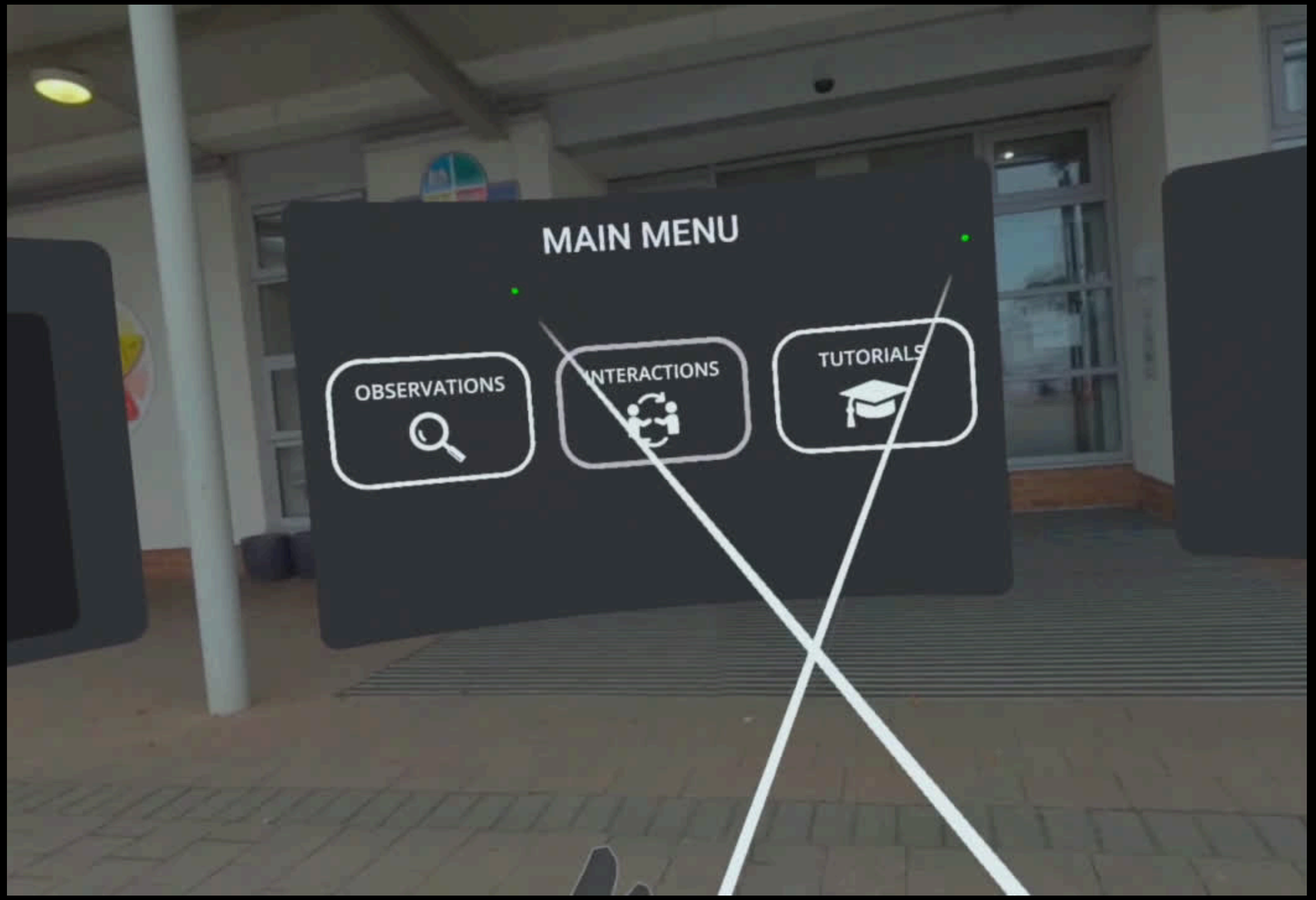
Virtually Intelligent Training & Adaptive Learning (VITAL)

Simulation was developed using VITAL around supporting pupils who were in emotional distress

We used a two-phased pre–post design with 109 classroom assistants across three schools in NI





Use AI for more realisation interactions...

- Simulation designed to train Classroom Assistants (Funded by VocTech)
- Simulation included both 360 video and virtual reality environments
- Gamification components included
- AI assisted virtual avatar

Feedback

“The immersive nature makes it an excellent teaching platform”

“It helped me see a SEN classroom as I haven’t yet experienced this”

SEN CLASSROOM ASSISTANTS PROJECT

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Site 2 Results

Self-Efficacy

- Pre: M = 31.94 (SD = 5.37), Median = 31.5, IQR = 8, Range = 12–40
- Post: M = 33.37 (SD = 4.30), Median = 33.0, IQR = 7, Range = 21–40

Result: Significant improvement following simulation

- Wilcoxon: Z = −2.01, p = .044, r = .27
- Small–moderate increase in confidence

Preparedness to Engage

- Pre: M = 20.54 (SD = 3.42), Median = 20, IQR = 5, Range = 13–28
- Post: Median = 24, IQR = 4, Range = 16–28

Result: Strong improvement following VITAL engagement

- Wilcoxon: Z = 5.04, p < .001, r = .67
- Large increase in perceived preparedness

Site 2 Findings

Participant reflections

- *“This would give them [new staff] an idea of what they are going into.” (P18)*
- *“Like doing a proper role play with a real person.” (P24)*
- *“A safe space to make mistakes.” (P21)*
- *“I was surprised at how much I liked it… I am a bit of a technophobe.” (P3)*

SITE 3
TAIWAN

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SITE 3: Taiwan (TMU)

30 students at Taipei Medical University (TMU) student experienced a hospital ward encounter with a 17-year-old oncology patient presenting with suicidal ideation.

Focus was risk assessment and therapeutic relationship development.

SITE 3: Taiwan (TMU)

Pre-simulation

- Self-efficacy scale (confidence in managing clinical challenges and uncertainty)
- Clinical preparation scale (perceived readiness for patient interaction)

Post-simulation

- Clinical preparation scale (repeat measure)
- VR experience questionnaire (perceived usefulness, usability, engagement)
- Presence questionnaire (sense of immersion and realism in the VR environment)
- Cognitive load scale (mental demand, clarity, task complexity)
- Resilience inventory (coping and stress management in clinical encounters)

Interview results: Student Voices

Qualitative Feedback — VR Ward Experience (N=30)

Key Themes

- Spatial presence exceeded expectations across disciplines
- Emotional authenticity of AI patient enabled genuine empathy
- Unexpected clinical stress → reflecting authentic learning engagement

Presence
Immersion
Empathy
Emotional Realism

"The realism of the VR ward and the authenticity of interacting with the character both exceeded my expectations. It felt so real — as if a real person was sitting right in front of me."

Presence

— 1st-year Dentistry

"I honestly didn't expect the VR ward to feel this real, or that the conversation with the patient would flow so naturally."

Presence

— 2nd-year Nursing

"I did feel a degree of empathy. His natural verbal expression, the silence and reluctance to respond — it genuinely conveyed depression, loss, and low mood."

Empathy

— 4th-year Nursing

"His body language and every emotion on his face were very consistent with what he was saying. The IV drip, the health posters, the curtain — it was just me and that 17-year-old boy, Ah-Xin. It gave me a real sense of presence."

Immersion

— 5th-year Medicine

"I never expected that the VR patient could actually make me feel his emotions."

Empathy

— 1st-year Post-Baccalaureate Nursing

"I didn't expect to actually feel like I was inside that environment. It was a remarkable experience."

Immersion

— 3rd-year Healthcare Management

"I had assumed I wouldn't feel much pressure talking to a virtual patient — but I felt quite stressed, afraid of saying something that might hurt his feelings."

Emotional Realism

— 2nd-year Pharmacy

SITE 4
NORTHERN IRELAND (NHSCT)

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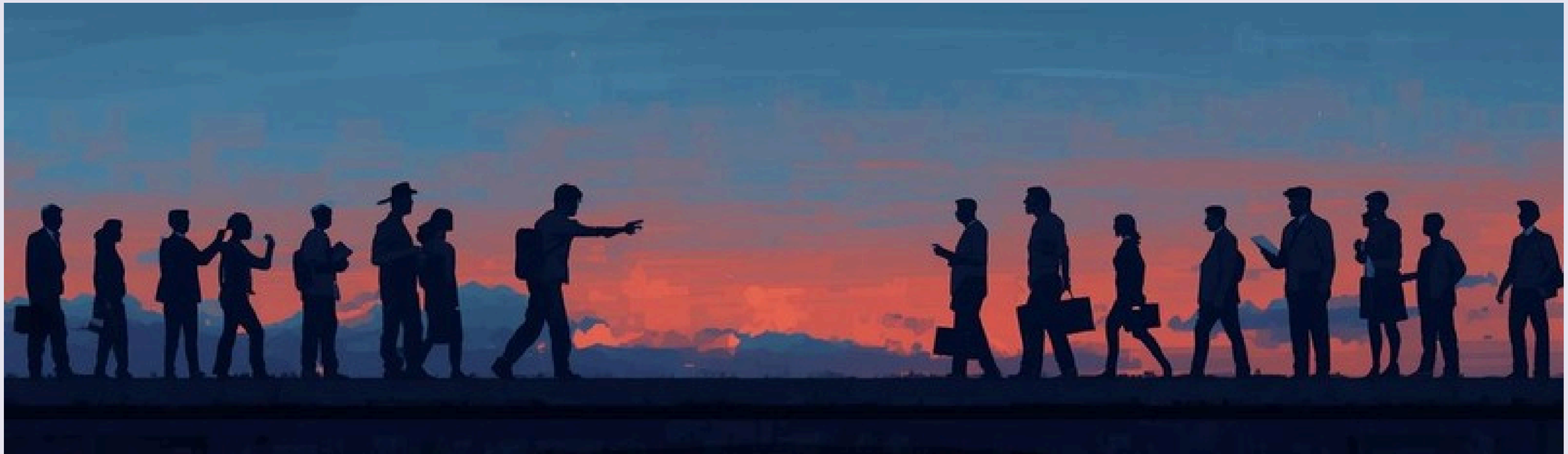
Virtually Intelligent Training & Adaptive Learning (VITAL)

Johnny Dillon

Head of Service 16+ Team

Northern Health and Social Care Trust



Virtually Intelligent Training & Adaptive Learning (VITAL)

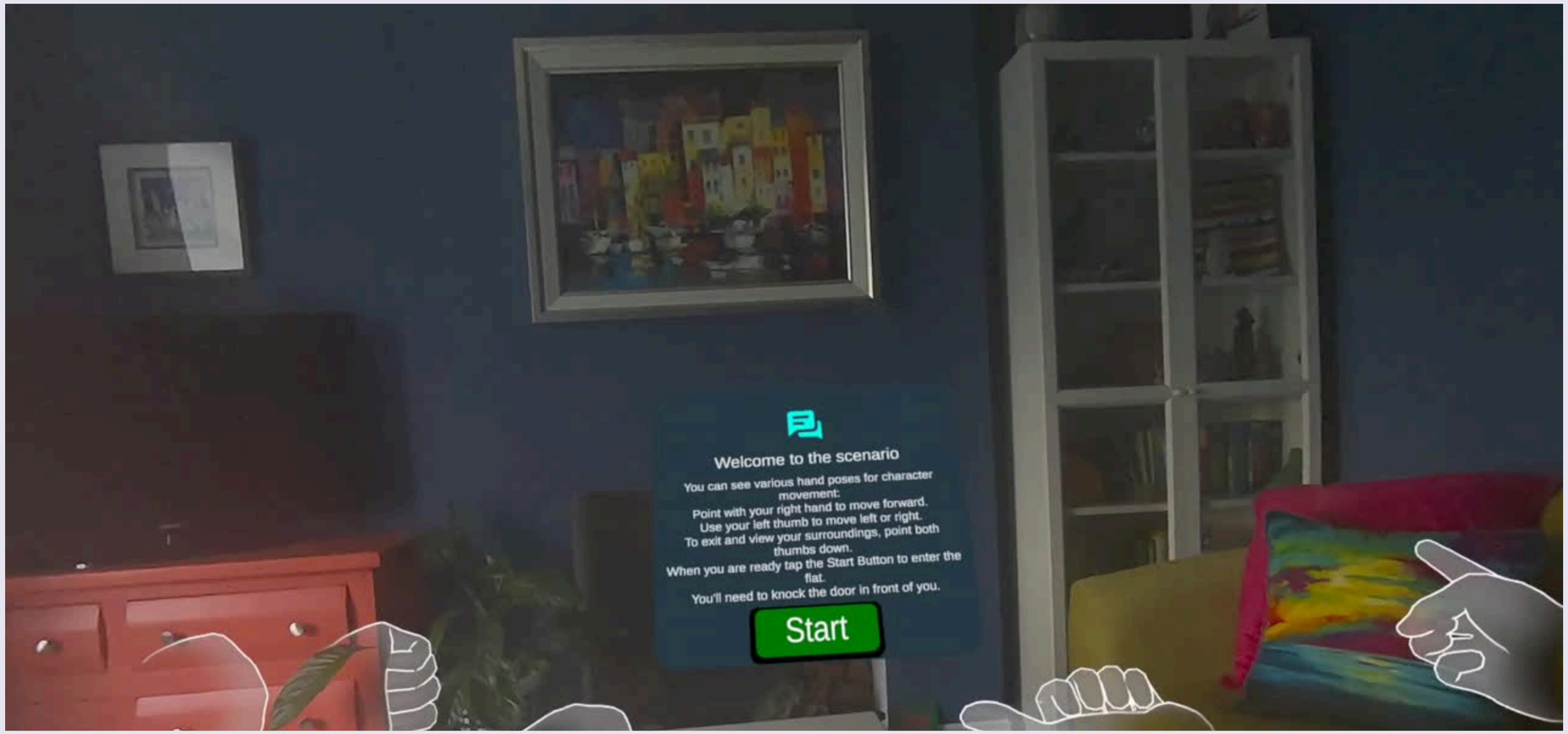
Carole Kirk

Head of Service, Social Work Governance, Workforce Development & Training

Nothern Health and Social Care Trust

Virtually Intelligent Training & Adaptive Learning (VITAL)

Virtual Reality experience using VITAL of Social Work visit



Qualitative Findings

Participant Prior Professional Experience

Private Space V Public Space- Where does the immersive experience occur?

Participant's prior experience in social work/care a factor- don't assume competency

Head

Effective learning tool

Skills development/practice- rehearse difficult/complex situations

Real time thinking & decision making

Professional Curiosity- from concept to reality

Stop/Think/Act- what should I be doing in this house?

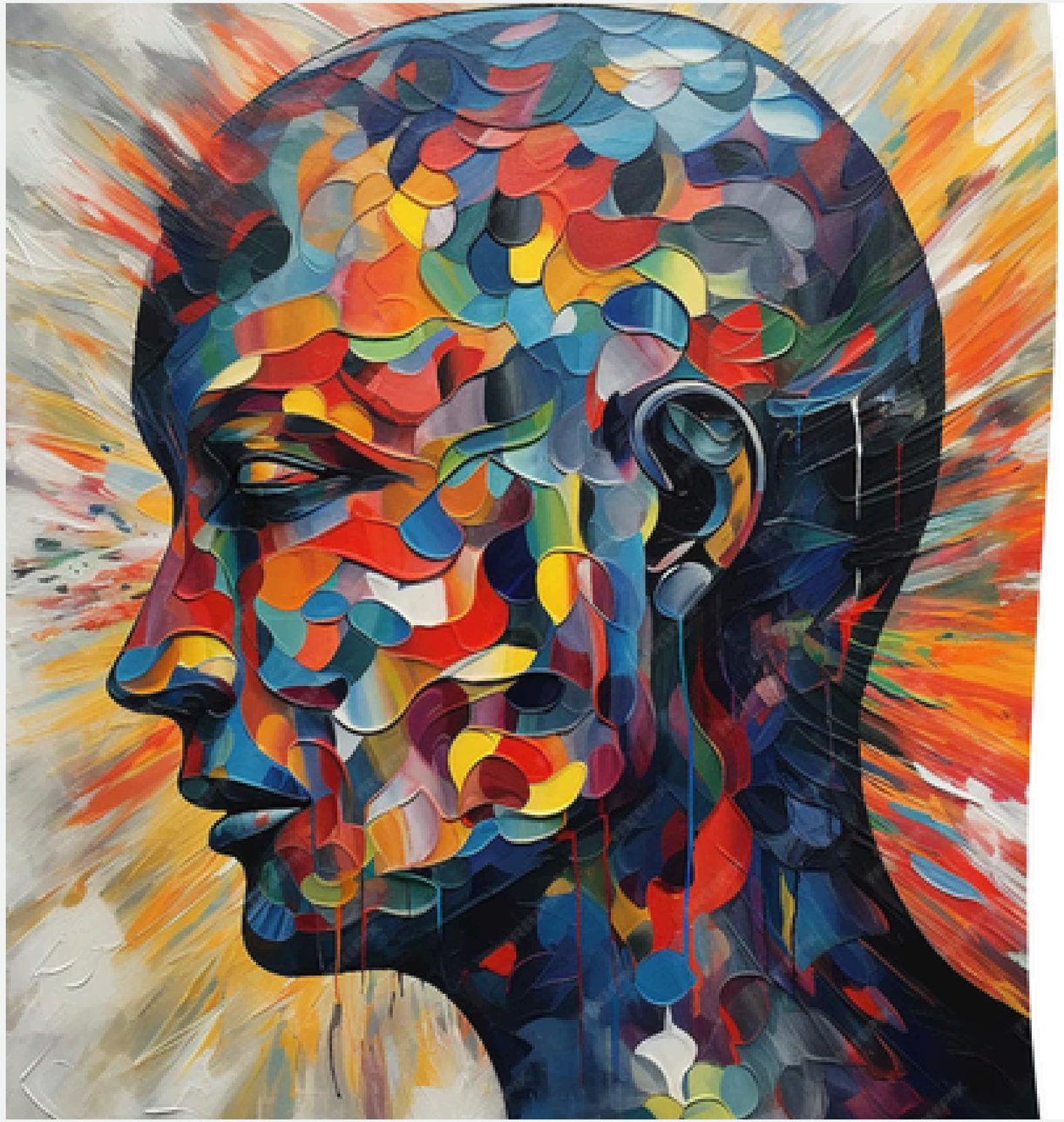
Head

Being present versus being focused:

“And like after some visits, you’re thinking like you’re maybe just going through the motions…and like afterwards thinking how do I make this visit meaningful?

Seeing but not observing:

“There were a couple of things there that other people said that I was like…I didn’t even notice that in the flat”



Heart

- Triggers real world feelings (anxiety/uncertainty)
- “The feelings are very real…like even though it was AI, you were nervous for it to open the door, its all very real and good practice”
- Disturbing the social politeness- ‘becoming comfortable with the uncomfortable’
- “I was a bit scared she [mum] was going to throw me out…and I was just like don’t blow it, don’t blow it…I kind of reeled myself back in a bit and took a different tack”

Heart

Range of emotional responses to mum

Development of trust & empathy (inclination to support)

Anger Avoidance (Don’t upset mum)

Concern for children

An ebb and flow of feelings throughout the visit

Need for reflection/debrief following visit

Some Initial Conclusions

- Participants reported increased understanding of role and opportunity to practice challenging scenarios
- Increase confidence re: skills of engagement
- Develops ability to experience heightened emotions but stay focused and complete the professional task
- Better grasp of professional curiosity as applied in practice
- Need to explore emotional exchange and decision making
- Need more hours of immersive experience (especially in Unversity and PLO)
- Develop additional scenarios (case conference/court/challenging behaviour/mental health)

Potential Next Steps

- Technical development in line with practice and educational requirements
- Large (r) scale study in NI & University settings
- Development of a range of immersive scenarios (cost implications)
- A library of immersive experiences made accessible for SW student & staff development
- User friendly tech (Laptop, personal mobile phone)

TECHNICAL ASPECTS OF VITAL

TECHNICAL WORKFLOW

1. REAL-TIME STREAM PROCESSING: WE USE VOICE ACTIVITY DETECTION (VAD) TO MONITOR INBOUND AUDIO STREAMS. THIS ALLOWS THE SYSTEM TO INTELLIGENTLY IDENTIFY THE END OF A USER'S UTTERANCE AND INITIATE THE PROCESSING SEQUENCE WITH MINIMAL LATENCY.
2. LLM: THE CORE LOGIC IS POWERED BY AZURE OPENAI. THIS SERVES AS THE COGNITIVE LAYER, GENERATING CONTEXTUALLY ACCURATE TEXT RESPONSES BASED ON THE USER'S INPUT.
3. DIALECT LOCALISATION: TO MOVE BEYOND GENERIC TEXT-TO-SPEECH, THE TEXT IS ROUTED TO A SPECIALISED THIRD-PARTY. THIS ENGINE APPLIES SPECIFIC PHONETIC MARKERS AND REGIONAL DIALECTS TO ENSURE THE VOCAL OUTPUT IS AUTHENTIC.
4. SYNCHRONISED VISUAL RENDERING: THE FINALISED AUDIO IS STREAMED USING VISEME-BASED LIP-SYNCING. THIS ENSURES THAT THE AVATAR'S MOUTH MOVEMENT IS SYNCHRONISED WITH THE LOCALISED AUDIO OUTPUT IN REAL-TIME.

SECURITY AND DATA INTEGRITY

1. DATA PRIVACY: WITHIN THE AZURE ENVIRONMENT, OUR DATA IS STRICTLY ISOLATED. DATA IS NEVER USED TO TRAIN OR IMPROVE THE GLOBAL OPENAI MODELS.
2. COMPLIANCE & DATA RESIDENCY: AZURE ALLOWS US TO MAINTAIN STRICT CONTROL OVER WHERE OUR DATA IS PROCESSED AND STORED.
3. NETWORK SECURITY: BY LEVERAGING AZURE'S VIRTUAL NETWORKING AND IDENTITY ACCESS MANAGEMENT (IAM), WE ENSURE THE AI PIPELINE EXISTS WITHIN A SECURE, ENCRYPTED PERIMETER, ACCESSIBLE ONLY BY AUTHORISED SERVICES AND PERSONNEL.

THANK YOU

ANY QUESTIONS?

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