Evaluation of multi-sensory activities and virtual reality in teaching and learning
UWS Project Team

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Aim
The aim of the project is to facilitate our student nurse workforce to develop a greater awareness of sensory processing differences and the potential impact such differences can have on health, health literacy and the patient/service user experience.
Every nurse is an enurse

Digital Health and Social Care Strategy
• “Digital will be central in addressing the challenges and realising the opportunities we face in health and social care, and in improving health and wellbeing, achieving tailored, person-centred care and improving outcomes.” (Scottish Government, 2018)

Nursing 2030 vision
• “…be prepared for increasingly technological environments, with nurses equipped with the technical and communication skills they need to support patients and enable their self-management potential.” (Scottish Government, 2017)
• Kolb’s Experiential Learning
• Blooms taxonomy
Sensory Processing

- Sensory perception is the process of collecting, recognising and interpreting sensory stimuli (Gibson, 1966).
  - Visual
  - Auditory
  - Tactile
  - Vestibular
  - Proprioception
  - Olfactory
  - Gustatory
  - Interception
Examples of conditions which can mean sensory processing differences

- Stroke
- Dementia
- Autism
- Auditory Processing Disorder
- Attention Deficit Hyperactivity Disorder (ADHD)
- Multiple Sclerosis
- Anxiety
- Dyslexia
- Dyspraxia
- Dyscalculia
Background and Preparation

- Collaboration between UWS and NHS Ayrshire and Arran
- Exploratory visit to Strathclyde University Advance Forming research Centre
- Funding
- Preparing materials 2017 pilot
- Equipment selection
- Evaluation
Advanced Forming Research Centre
University of Strathclyde
Prepping the Team
Implementation

• Blended learning
• Measurement of learning
• Tactile activity
• Scenarios
• Virtual reality
Say what you see..
Tactile Activity
Virtual Reality
Say what you see now...
Rationale

• Exciting teaching and learning space
• Bridging the gap between theory and simulated practice
• Challenging perceptions and self awareness
• Empathy
• Advancing nursing simulation
Methodology

• Cohort was Adult and Mental Health Student Nurses at Paisley Campus
• Questionnaire pre and post session
• Qualitative and quantitative data
Results and Analysis

- N=181 responses
- 60% had limited to no knowledge of Sensory processing at the start of the session
- 65% had no VR experience
- From those that completed the pre work they found all elements useful to their learning
- All students found all elements of the workshop useful to extremely useful in developing their knowledge
How would you rate your current knowledge of sensory processing differences?

- 1 - No knowledge
- 2 - Some knowledge
- 3 - Moderate knowledge
- 4 - Good knowledge
- 5 - Excellent knowledge

Pre-Survey vs. Post-Survey
How would you rate your ability to perceive a situation from the perspective of an individual who has sensory processing difficulties?

Q8 Pre-Survey  Q5 Post-Survey
How useful do you think virtual reality might be as a means of helping an individual to gain first hand experience of sensory processing differences?
Do you have previous experience of sensory processing differences?

- a) First Hand
- b) As a carer
- c) As a friend or relative
- d) Prefer not to say
- e) No Experience
- f) Other

Pre-Survey vs Post-Survey
Qualitative Data

*In your own words describe what Sensory Processing differences means to you as a student nurse*

<table>
<thead>
<tr>
<th>Pre Questionnaire</th>
<th>Post Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Processing information</td>
<td>• Perception – the nurse’s perspective and the perception of the patient</td>
</tr>
<tr>
<td>• Individual Senses</td>
<td>• Person centred care – empathy, compassion, comfort and communication</td>
</tr>
<tr>
<td>• Impact of senses on body</td>
<td>• Development of Practice – Environment, communication, adaptation and change</td>
</tr>
<tr>
<td>• Medical conditions</td>
<td>• Senses – smaller proportion of students</td>
</tr>
<tr>
<td>• Perception of environments, situations</td>
<td></td>
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<tr>
<td>• Empathy</td>
<td></td>
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<tr>
<td>• Awareness of differences of care needs</td>
<td></td>
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<tr>
<td>• Little understanding</td>
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</tbody>
</table>
“Overarching Theme: Post

“Everyone perceives situations in different ways from different senses and each individual should be considered in order to have person centred care individual to their needs according to how they perceive senses and situations”. 

“Sensory processing differences affect everyone daily and it is the role of the nurse to understand and adapt to ensure comfort for their patient. By being aware of these differences a nurse can change how they interact to ensure patient comfort”.

“Makes you realise how individuals with sensory processing see the world and how the smallest thing to you may be a huge thing to someone with sensory processing differences”.

“Cognitive exploration: From concepts to connections

“I will be able to step back and not judge anybody why they behave the way they do. I have knowledge now and I can take this knowledge into practice and make a difference to each individual. I understand now how the person might feel”. 

“Sensory processing will help me as a student to think about the holistic view of an environment as a person centred approach”.

“Everyone perceives situations in different ways from different senses and each individual should be considered in order to have person centred care individual to their needs according to how they perceive senses and situations”.”
Kolb’s Experiential Learning

Results demonstrated:

- Students experienced the sensory activity and the VR activity
- Students reflected on their experiences in practice
- Change in practice based on their new knowledge
- Implementation of the practice
Results demonstrated:

- At Level 7 students were able to identify and discuss sensory processing differences
- Recognise how they can apply this new knowledge in practice
- Reflect/analyse on current practice with a view to changing practice
- Recognise the value of these changes and the positive effects on patient care
Reflections

• Student experience
• Potential patient impact
• Fun!
• Resources
  ➢ Money
  ➢ Time
  ➢ Staff availability
  ➢ Equipment – quality/accessibility
• Staff training
• Health and Safety
  ➢ Infection control
  ➢ Room safety
Further Opportunities

• Developing further VR
• Evaluation of prototype
• Dissemination to other 3 campuses
• Impact in clinical practice
• Digital spiral within new BSc Nursing undergraduate programme

• https://youtu.be/RKyP3qWlROY
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