THE EXPERIENCING SENSORY OVERLOAD PROJECT (ESOP): DEVELOPING AN IMMERSIVE SIMULATION EXPERIENCE FOR HEALTHCARE PROFESSIONALS.

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10.54531/NYVJ3930

Background: Atypical sensory processing is described as a difficulty in regulating and managing sensory input in a meaningful, ordered way to make sense of the world and environment in which you find yourself. Sensory processing disorder (SPD) is common in individuals with autism, pervasive development disorders, and neurodivergent conditions [1,2,3]. The National Institute of Clinical Excellence (NICE) [2] suggest sensory processing disorders are often overlooked by education, social, and healthcare professionals, leading to health and social inequalities with individuals less able to access 'support and services that they need to live independently' [2 p5]. The Experiencing Sensory Overload Project (ESOP) aims to champion inclusive practice and reduce health inequalities by encouraging and enabling healthcare professionals to reconsider their approach, and their working environments to create sensorily safe spaces for individuals who may experience sensory overload.
Activity: The authors recognised there was insufficient education on SPD within the current nursing curriculum. To address this theory/practice gap, training was sought externally. This consisted of a short simulation-based activity with training delivered by carers who had experience of sensory overload. This was well evaluated by the student participants; however lecturing staff felt the training did not meet our university teaching and learning standards. The positive student feedback provided the impetus to forge links with digital arts colleagues to co-create a robust, pedagogically sound and immersive learning experience.
Findings: The collaborative journey of ESOP has been led and facilitated by academics from the School of Nursing and Midwifery and the School of Arts in a cross-school alliance (Figure 1). Nursing academics acted as 'clients' whilst the creative media team worked as 'creatives' developing a high-fidelity Virtual Reality (VR) experience that gives users an insight into sensory overload. Post-pandemic, this project has relaunched with the creation of a film of two young people with SPD, frankly, discussing their life opportunities and challenges. Further work continues on immersive learning experiences. These resources have been scaffolded to form a cohesive simulation programme that draws on sound pedagogical approaches and blended learning for healthcare professionals.
Conclusion: Immersive learning experiences that recognise and champion diversity must be integrated into the curricular of all healthcare professionals to promote the highest standards of patient care. Meeting this demand with innovative, immersive technology demands collaborative working. This cross-school alliance has produced a learning experience that can work towards reducing health inequalities, promoting independence, and championing inclusive practice.

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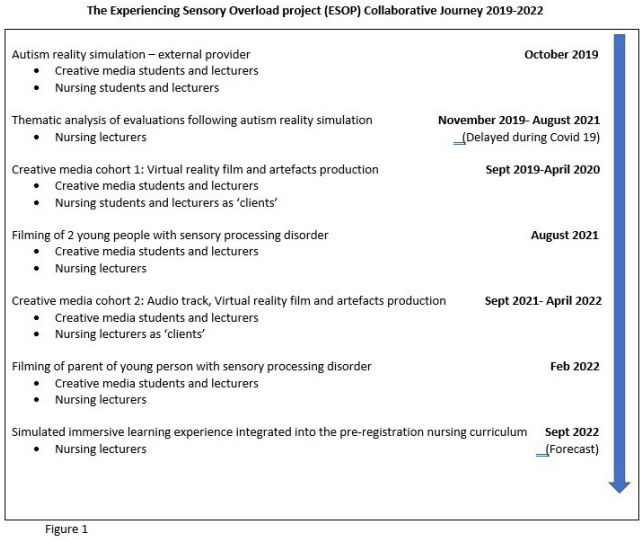

Figure 1: The experiencing sensory overload project (ESOP) collaborative journey 2019–2022

FROM VIRTUAL REALITY TO FIRST CATARACT SURGERY; TRAINEE PERSPECTIVE FROM A DEVELOPING COUNTRY

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10.54531/EMWL4836

Background: Cataract surgery is one of the most performed procedure worldwide with a fascinating evolution in the use of technology [1]. EyeSi is a high-fidelity, task-oriented, virtual reality, intraocular surgery simulator widely adopted by residency programs across the developed world for skill development in cataract surgery, with proven effectiveness and decrease in complication rates [2]. We aim to provide a trainee's reflective perspective on learning cataract surgery via virtual reality simulation and performing first real surgery from a low middle-income, developing country [3].
Methods: Simulation training as part of formal residency curriculum was documented, hence ethical approval was exempted. EyeSi course software (V3.0.6) was used for skill development as a self-learning tool, reinforced with real cataract surgery training, documented over a period of 8 months for a single participant. EyeSi provides a binocular microscopic viewing system, with hand-piece instruments and foot pedals of the same configuration as used in operating theatres. The software generates feedback reports for each task using microscopic calibrations inside the model eye.
Results: By the end of the 8-month period, simulation data showed a logged time of 45.7 hours, 74 intraocular lenses injected, 1,581 intraocular tasks completed and 772 capsulorhexis done with complications including 679mm2 of injured corneal area, 113 mm2 of injured lens area and 862 posterior capsule ruptures. In comparison, the real surgery logbook noted 30 intraocular lenses injected, 86 intraocular tasks and 31 capsulorhexis complete with a total of 1 complication and 1 complete cataract case

performed. Subjective comparison reported increased confidence, lower stress levels, good preparation of left-hand skills, and passive learning of surgical theory and technicalities (Table 1).

Table 1: Comparison of virtual reality and real surgery experience

Objective Comparison		
	Virtual reality simulation data	**Real surgery logbook**
Time duration	10 months	8 months
Logged time	45.7 hours	Limited (unable to measure)
Intraocular lens injected	74	30
Intraocular tasks	1581	86
Capsulorhexis	772	31
Injured corneal area	679 mm2	Unable to measure
Injured lens area	113 mm2	Unable to measure
Posterior capsule rupture	862	1
Subjective Comparison		
	Virtual reality simulation	**Real surgery**
Stress	Negligible	Significant
Margin of error	Unlimited	Zero
Environment	Safe learning	Real consequences
Time	Unlimited	Significantly constraint
Mentorship	Optional, limited	Direct supervision
Viewers	Optional, negligible	Supervisor, OR staff, students

Conclusion: Despite challenges of affordability and traditional surgical culture in a low middle-income country, simulation training provides safe learning alternatives to trainees which are effective and should be widely adopted. Although the learning curve is slightly longer, but skills acquired are replicable in operation theatre and significantly reduce the complication rate in the interest of patient safety.

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DEVELOPING A SIMULATED GENERAL PRACTICE ENVIRONMENT TO IMPROVE CLINICAL REASONING AND NON-TECHNICAL SKILLS IN JUNIOR MEDICAL STUDENTS

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10.54531/HZNF2491

Background: Simulation in medical education is often associated with acute specialities, however there is evidence in the literature to suggest exposing medical students to a simulated General Practice (GP) environment can be beneficial to their clinical reasoning and non-technical skills [1] and that this may even be superior to that gained from a GP practice placement [2].

Methods: 22 junior medical students participated in a simulated GP clinic where they reviewed 4 simulated patients. Patients were faculty members who also acted as assessors to ask 3 pre-defined questions and provide feedback after each station, rotating between candidates. The session was concluded with a presentation to clarify correct diagnoses and management for each case. Candidates completed a feedback form to evaluate the session.

Results: In terms of clinical reasoning, >85% of students reported the session greatly improved their history taking, recognition of red flags, and ability to formulate management plans in the community. For non-technical skills, >75% reported a great improvement in their professionalism, communication, and decision-making ability. However, 2 students (~10%) reported their professionalism had not been affected at all. Individual feedback after each station and the concluding presentation were reported as useful aspects of the session. 3 students (~14%) requested to include examination practice in future sessions.

Discussion: The majority of students felt that they benefited significantly from participating in the simulated GP clinic, both with respect to their clinical reasoning and non-technical skills. This may be due to the combined immersive nature of the simulation and the psychological safety provided by the absence of formal assessment [1]. The aspect which candidates felt least improved by the session was their professionalism, which may be in part due to an inability to suspend their disbelief. The benefit of adding clinical examination to this activity is not clear.

Conclusion: A simulated GP surgery environment can be used to improve history taking ability, recognition of red flags, and formulation of management plans in primary care, as well as non-technical skills in junior medical students. However, more research is required to establish whether this is transferable to clinical practice.

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CREATING A SUSTAINABLE WEEKLY INTERPROFESSIONAL SIMULATION FOR THE EMERGENCY DEPARTMENT (ED) CLINICIANS

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10.54531/SRPJ9548

Background: Simulation-based education has been shown to improve clinical practice [1]. It offers an environment whereby complex real world situations can safely be practised facilitating learning through immersion, reflection, and feedback [2].There has been an increasing awareness amongst the medical profession as to the importance of simulation, we therefore created a sustainable simulation programme for the multidisciplinary team (MDT) at the Horton General Hospital (HGH) Emergency Department (ED) – Oxford University Hospitals NHS Foundation Trust.

Methods: Several simulations were designed involving trauma, airway management, and acute adult and acute paediatric presentations. The focus of the simulations was based on identifying errors due to human factors. The simulations were designed utilising feedback forms as well as analysing