ORIGINAL RESEARCH

Promoting empathy through immersive learning

Debbie Roberts *, Justine Mason, Emyr Williams, Nathan Roberts, Rhiannon Macpherson

Institute of Health Sciences, Glyndwr University, United Kingdom

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ABSTRACT

Objective: This paper reports on a mixed methods study to explore the use of immersive learning with a convenience sample of healthcare students (seven of Mental Health Nursing and twelve of Occupational therapy) in promoting empathy. Two immersive learning scenarios were created using real life stories of the symptoms experienced by people with psychosis and sufferers of Post Traumatic Stress Disorder (PTSD).
Methods: Data were collected using a mixed methods approach: quantatively, using a pre and post test measure using two previously validated tools together with qualitative reflections related to the immersive learning experience.
Results: The quantitative aspect of the study demonstrated that the immersive experience solidified the already positive attitude that the participants had towards mental health and to empathy. The qualitative findings demonstrate that immersive learning brought an awareness of being empathic to the fore.
Conclusions: The findings provide evidence regarding the impact of immersive learning as a pedagogical approach. The experience provided students with an opportunity to embody people with mental illness, and students were able to consider their own future practice in relation to people experiencing auditory and visual hallucinations and flashbacks associated with PTSD.

Key Words: Immersive learning, Empathy, Mixed methods study, Pedagogy

1. INTRODUCTION

There is little consensus within existing research regarding what empathy 'is' or how it looks,[1] for the purposes of this study, empathy is defined from a Rogerian perspective as the ability to "perceive the internal frame of reference of another with accuracy... as if one were the other person but without ever losing the 'as if' condition" (p. 210).[2]

Recently the caring aspects of healthcare are being closely scrutinised; Principle 2 of the 'Fundamentals of care document', relating to guiding principles for practice notes that "services should always be provided with respect and empathy..." (p. 17).[3] Each of the principles are aligned to both Occupational therapy and Nursing codes of conduct and to national occupational standards for care workers, but it cannot be assumed that healthcare practitioners will automatically acquire the skills associated with caring, compassion and empathy simply because they have undertaken a programme of education preparing them for their future role. Many prospective healthcare workers join the professions because they want to demonstrate compassion and feel the grief and pain of those who are cared for; and furthermore, Van der Cinger[4] argues that educators should be able to evoke the feelings of empathy in the classroom in order to help students to demonstrate caring behaviours.

Mental health services are increasingly developing a focus on the personal recovery of clients, instead of a clinical definition of the term. The recovery paradigm has been identified as reclamation by the client of their experience, with the pro-

*Correspondence: Debbie Roberts; Email: d.roberts@glyndwr.ac.uk; Address: Glyndwr University, Institute of Health Sciences, Mold Road Campus, WREXHAM, LL11 2AW, United Kingdom.

fessional as a partner/facilitator of the journey towards a life that is meaningful to the person, with or without the presence of clinical symptoms.[5,6] Central to this approach is the therapeutic alliance, characterised by a core of empathic understanding.[7] Previous studies suggest that mental health student nurses' perception of their role does not reflect the 'talking therapist' advocated by Peplau,[8] seeing this as the preserve of those in specialist roles, but rather as an administrator (of paperwork or medication) or an 'agent of physical interventions' (hands-on care, escort).[9] The building of a therapeutic relationship was not perceived as a priority (ibid), which may be seen as incompatible with a recovery-focused approach, having as it does the client perspective at the centre of any planned intervention.

Immersive learning enables students to learn in realistic approximations of the practice world, where practical learning is emphasised, which Schön[10] describes as a practicum. Within the practicum, disbelief is suspended as the learner views the scene as an audience member and becomes an actor as part of the scene. In terms of skill acquisition, simulation or immersive learning differs from traditional didactic methods as progression and development is supported.[11] Scenario based learning maximises situated learning theory whilst valuing contextual knowledge, which Errington[12] suggests is one stratagem for getting students, as would-be professionals, nearer to the realities of their chosen profession via the construction and deconstruction of scenarios. Paige and Daley[13] refer to experiential learning perspectives, and in particular situated cognition, as a pedagogical framework whereby learning takes place through a complex and interactive milieu of social activity (with others) incorporating mind, body, activity and tools. In other words, environmental cues such as sights, sounds and smells are all vital to learning. Paige and Daley[13] call for simulation which facilitates the students' embodiment of the nurse role. Traditionally, medicine has tended to objectify the body whilst largely ignoring the embodied experience of patients,[14] for example people become 'the hernia in bed three'. Immersive learning potentially enables learners to adopt and assign meaning to the roles of both professional and patient.[11]

1.1 Devising the scenarios for immersive learning

On leaving the Armed forces the day-to-day support for individuals from Ministry of Defence welfare and religious personnel is lost whilst the impact of operations can continue for decades but the longer-term consequences for families post service are rarely considered, documented or adequately understood.[15] According to Dekel and Monson[16] Post Traumatic Stress Disorder (PTSD) is characterised by three main symptoms: re-experience, avoidance and hyperarousal during which individuals may suffer intrusive memories, nightmares, flashbacks, psychological and physiological reactivity on encountering trauma cues in everyday life. Furthermore, when the individual experiences such symptoms; this inevitably impacts on spousal relationships and family dynamics.[17] Those closest to the individual are often the ones who try and support that individual but who may struggle to understand their feelings or experiences. In turn, occupational therapy and nursing students preparing to work with such families may also struggle to appreciate the nature of the symptoms experienced by the individual.[18] Previously auditory and visual hallucinations experienced by people with schizophrenia have been simulated in order to increase empathy and understanding about the condition, giving participants an insider's perspective, maximising empathy and respect.[19] Both families and health professionals alike may benefit from acquiring a better understanding and an ability to empathise with individuals who are experiencing such distress. Drawing these two distinct strands of literature together, the current study sets out, for the first time, to explore how immersive learning environments can promote empathy among nursing and occupational therapy students.

1.2 Aims

Specifically the research sought to answer the following questions:

(1) Is immersive learning effective in promoting empathy amongst occupational therapy and nursing students as measured by the Toronto Empathy Scale[20] and the Attitudes to Mental Illness score.[21]
(2) Explore the impact of immersive learning on perceptions of likely future practice of occupational therapy and nursing students.
(3) Explore the potential use of immersive learning as a pedagogical tool in educating future professionals.

To address the study aims and answer the research questions a mixed methods approach was used as suggested by Moule and Goodman.[22]

2. METHODS

2.1 Study design

Two scenarios were created using real life stories of the symptoms experienced by those with hallucinations or sufferers of PTSD. The individuals providing the stories were members of the University student population.

2.2 Study setting

The students were invited to attend the immersive learning scenarios during the University day, although not forming

part of the usual timetabled activity, the content of the scenarios was commensurate with the modules being studied at the time. The Dome is an enclosed 360 degree interactive environment designed to situate users within an immersive simulation and provides a fully configurable resource that promotes a bespoke sensory experience by using different types of media and hardware that accurately replicate real-life environments by applying visual, auditory and tactile mechanisms. Students entered the immersive learning environment to experience the two scenarios (in succession) in groups of four or five, with each scenario lasting for four minutes.

2.3 Sample

A convenience sample of twelve occupational therapy, and seven mental health student nurses agreed to participate in the study. The mental health nursing students were full time undergraduate students, some at the end of their final year and some at the end of their second year. All participating nursing students had previously undertaken clinical practice, in a range of settings. The occupational therapy students were all part time undergraduates, studying at level 5 of the programme and again had previous experience in the clinical setting.

2.4 Data collection

Data were collected in two ways, students were asked to respond to two computer administered questionnaires, and secondly, to provide short written responses to three specific questions about their experience.

2.5 Measurements

Two previously validated pre and post intervention questionnaires were used: Attitudes to mental illness[21] and Toronto Empathy Questionnaire[20] to answer the research questions. The use of two previously validated tools enhances the validity and reliability of the findings.[22]

Empathy was measured by The Toronto Empathy Questionnaire[20] a 16-item measure of empathy measured on a 5-point rating scale of 'Never' through to 'Rarely', 'Sometimes', 'Often' and 'Always'. Example items include 'When someone else gets excited, I tend to get excited too'. The original construction of this scale demonstrated the high levels of internal consistency reliability, however due to the small sample size employed in the current study, the scale achieved a Cronbach's alpha of .28.

Attitudes towards Mental Illness was measured by a newly developed scale by the Time to Change organisation; consisting of 65 items that test attitudes towards mental health (*e.g.* People with mental health don't deserve our sympathy). Responses to attitudinal measures are based on a five-point Likert-type scale from agree strongly to disagree strongly. Alongside this, respondents are asked to indicate if a presented list of illness related to mental illness. For ease of data analysis, these have not been included. The attitudinal measures achieved an alpha of .35.

Both of these scales achieved reliabilities that would be deemed acceptable. However, given the unique nature of this study, and the use of a mixed methods approach, data analysis proceeded with caution.

The immersive learning sessions followed the usual pattern employed during clinical simulation with students undertaking a de-briefing session immediately after experiencing the event. In order to collect qualitative data regarding the experience participants were asked to provide their thoughts as anonymous written comments on 'post-it' notes to three specific questions:

- Their thoughts and feelings related to mental illness having experienced the immersive scenarios
- Their impression of the likely impact of immersive learning on prospective clinical practice
- The usefulness of immersive learning as pedagogy

2.6 Ethical considerations

University Ethics committee approval was sought in 2014 for access to the student population. Students were recruited by way of an open verbal invitation to participate. Exclusion criteria included anyone with a prior history of depressive mental illness, known PTSD or prone to anxiety states. All participants were required to provide written consent. All nursing students had undergone occupational health screening prior to the commencement of their studies and all students complete an annual self declaration of good health. Students were notified of the exclusion criteria prior to giving consent to participate and advised that should they experience any untoward effects, they should leave the immersive learning scenario and discuss the effects with their GP and/or occupational health department. Students could withdraw from the study at any time without prejudice.

2.7 Analysis

Quantitative data from the two validated questionnaires were subject to analysis using frequency distributions, followed by a paired samples t-test. The qualitative thematic analysis was conducted both deductively, independently by two of the research team (JM and DR) in order to become immersed in the totality of the data; in this case a series of post-it notes. The responses were hand written and anonymous. From the handwriting alone, it was not possible to consistently identify

a series of responses with an individual respondent. The data were read and re-read, inductively by classifying responses which addressed further aspects of the experience within correlating themes. The researchers considered the responses relating directly to empathy; looking for relationships and patterns; common feelings, thoughts and experiences were evident amongst the data. Findings are reported under the three main themes of specific questions asked: thoughts and feelings relating to mental illness following the experience, the likely impact of immersive learning on prospective clinical practice and the usefulness of immersive learning as pedagogy. Reference is also made to the quantitative data from the two validated instruments in each section.

3. FINDINGS

Findings from the quantitative survey demonstrated that students who entered the immersive learning environment that thoughts and feelings regarding mental illness had become more positive. For example, paired samples t-tests demonstrated that mean levels of empathy had increased slightly after experiencing the immersive learning environment (Pre m = 34, SD = 3; post m = 35, SD = 3, t = -.34, NS, please see Table 1 below). Findings from the quantitative aspect of the study demonstrated that the immersive experience solidified the already positive attitude that the participants had towards mental health. For example, both prior to, and post the intervention all participants agreed strongly that mental illness could happen to anyone and that people with mental illness have for too long been the subject of ridicule. With regard to seeing people with mental health illness as a burden on society, the study demonstrated that nearly all participants (bar one) disagreed with that statement at both points of testing.

Table 1. Summary of findings with regard to Toronto Socores

	Mean (SD)	*t*	df	Significance Level
Mental Health Nurses				
Pre	34.26 (3.64)			
Post	34.71 (3.25)	-.34	6	.74
OT Students				
Pre	31.36 (3.44)			
Post	34.18 (7.92)	-1.34	10	.21

Initial analysis of the qualitative data demonstrated additional subthemes which were conceptualised as: 'affective aspects of mental illness', '[in]visibility', 'stigma', 'empathy', 'communication' and 'practical considerations'. The data sets are distinguished by different fonts, with occupational therapy student comments being presented in italics. Data are presented as the students own words.

Thoughts and feelings related to mental illness: The majority of participants experienced a range of feelings following the immersive learning experience in relation to mental illness. Only two students said that the experience did not evoke any feelings. Five mental health nursing students expressed different aspects of their reaction to the experience.

> One student commented that she "learned more about PTSD and how a flashback might feel", which was supported by another students who focused on the feelings evoked by the two scenarios: "Frightening, you feel very alone, never-ending – when will it end? Desperate. Hopeless." A third student commented on how the experience had enhanced her "Empathy for people who hear or see things… [it] must be traumatic".
>
> Two other mental health nursing students commented on the potential impact of mental illness on daily living; writing the following:
>
> "Mental illness can be completely debilitating and life altering, the second scenario clearly showed this." This was supported by another student:
>
> "Mental illness distracts and creates a barrier against being able to lead a normal, everyday life, disorientating, distracting, distressing".

The occupational therapy students offered a range different comments related to general feelings following being immersed in the learning environment. Generally, the students expressed how there appears to be a lack of understanding of mental illness, three students writing that:

> "Mental illness" and "PTSD in particular is extremely misunderstood" or "not understood by lack of insight in to how and what the illness is and how it can affect the individual in that it is not really understood what happens or what goes on". Two further students went on to write about the "Importance of realising how mental illness affects people in different ways, that symptoms are completely individual" and how "Anyone can have a mental illness it can be distressing for the person with a mental illness… There is a huge variety of severity and types of mental illnesses, every individual is different".
>
> This was supported by another student that wrote about how she empathised that "Very intrusive thoughts that must affect everyday life". Comments from two other students illustrate how they are considering the impact of symptoms for individuals on daily life: "How very frightening and overwhelming these interruptions must be", resulting in "isolation" and making it "very difficult to function on a day to day basis if suffering from a mental illness".
>
> Two further comments indicate that the students are beginning to consider the impact on their prac-

tice of undertaking occupational therapy with those experiencing symptoms; for example: "How distracting voices/hallucinations must be during assessment/intervention" and that "Sufferers may be very untrusting suspicious due to their condition".

The occupational therapy students also commented on three other aspects of mental illness; these being the invisibility of mental illness, the stigma that is sometimes associated with mental illness by society and the increasing prevalence of mental illness. In terms of invisibility, the findings infer that the occupational therapy students are making a distinction between physical illness and injury that is obvious and can be seen, and mental illness which could be hidden and invisible as a result.

[In]visibility: One student considered how mental illness was "Difficult to understand as there is nothing to see", with two other students agreeing that "You cannot tell who is experiencing mental illness"; "Often you cannot tell just from looking at someone" and another suggesting that "It's a fine line between being mentally ill and not".

Stigma: In terms of Stigma, the Occupational therapy students made some insightful observations relating to the perceptions of both physical and mental ill health, arguing that mental illness:

"Should be taken as seriously as physical health problems" and that "Mental illness is still widely misunderstood, with much stigma attached. There are not enough services and consideration given to patients and their families".

Three other students highlighted the perceived stigma associated with mental illness, suggesting that there is "Huge stigma surrounding mental illness" and "still too much stigma around mental health problems". One student wrote that "People are unnecessarily fearful of mental illness", and another added that mental illness could act as a "Trigger for physical problems". One student also commented on the stigma associated with therapy itself, writing: "group therapy still carries a stigma".

Finally there were three comments related to the increasing prevalence of mental illness with two students commenting that "It can happen to anyone!" and is "Becoming more prevalent" in society.

3.1 Impact on practice

Both occupational groups were able to align the immersive situation with their professional practice, relating the experience to their ability to empathise with individuals experiencing intrusive perceptions. There is a slightly different (although perhaps not surprising) emphasis evident within the results regarding empathy in that the mental health students appeared to focus on their ability to communicate more effectively with clients as a result of the immersive learning; whereas the occupational therapy students raised aspects associated with the therapeutic alliance and practical issues associated with their work. Tentatively both groups of students are already beginning to exhibit signs of occupational socialisation and are identifying with the core aspects of their role on qualification.

3.2 Empathy

Immersive learning as an approach has a positive impact on the participant's perception of their ability to empathise with others. Sixteen participants made a positive affirmation that they had learned to be more empathic. The immersive learning experience for the mental health student nurses

"Made you put yourself in their shoes, made you appreciate what the other person must feel. Made you realise how difficult it is to function when that is going on" and "increased understanding of how distracting visual/auditory hallucinations can be; therefore I will be able to empathise better than I could before. However, I don't think that such a scenario is replicable to the extent people actually experience such things". The experience was described by one individual as "Very dynamic and effective at explaining voices/hallucinations, helps empathy"; similarly another wrote that the experience had improved her "ability to empathise on how difficult it can be for individual suffering from voice hearing can be and how scary it must be to re-live a scenario" and another student had "learned valuable tools of empathy by experience". Two further data extracts related to the concept of practice with one student considering the presentation of individuals and another reaffirming the importance of empathy in healthcare:

"I have learned more about how a person hearing voices may present and will definitely take this back with me on placement" and "Empathy of mental health illness is needed in this line of work".

The occupational therapy students expressed similar thoughts about their ability to empathise as a result of the immersive learning, with nine comments relating to this theme. Generally understanding was increased as these two students illustrate: "This experience gave me an insight to how a person interacts with a mental health condition". [I] "Try to understand how frightening mental illness can be for people".

Again, with five statements associated with this theme, the occupational therapy students appeared to offer a greater number of comments related to their future role on qualify-

ing, for example by providing "Empathy and understanding how to adapt my practice to the individual", "Have more empathy" and "Consider how empathic I am despite high case load or workplace demands". Two students provided a positive action as a result of the experience, indicating a willingness to "Try to talk to them in an empathic and understanding way" and "Give a person more time and consider what they are going through". Another demonstrated further insight by the statement "Understand there may be more going on inside a person's head than they show on the outside".

3.3 Communication

Both student groups considered communications skills following the learning experience with comments from the participants being more closely aligned, reinforcing communication as a core generic skill required for healthcare practice. Whilst five comments from the mental health students focus on feelings associated with the self and the other, for example the students stated the need to "Remember how uneasy and frightened the patient may be", learning that "it is important to remind myself to consider the difficulties experienced as a result of hearing voices and visual hallucinations on communication". Three students identified the impact on practice in terms of time and space that should be afforded to communication, for example: "To be more aware of how the patient is feeling when being assessed. Take time to talk. Have more empathy. More understanding", that "Time and space [is] needed,... don't rush a patient to answer, try and understand their thought processes" and to "Be aware of the effect that visual/auditory hallucinations have upon the patient. To go at their pace and be mindful that they may be feeling distracted/disorientated and unable to concentrate to answer questions/respond".

The occupational therapy students tended to focus more heavily on the human 'being' and the therapeutic alliance, with the concept of time appearing only once within the data. The students indicated a commitment to "Develop good rapport" by "Be[ing] more therapeutic" and "Non-judgemental" by "Try[ing] to understand that some people may not be ready to talk about their illness yet and respect that". Three statements referred to therapeutic use of self or patient centered practice, indicating the importance of this to practice: "As an OT I would always aim to be client-centred and therefore sensitive to such interruption of mind" and "As an OT it is important to use good therapeutic use of self and build rapport. Be client centred. Good listening skills and empathy"; this is achieved by "Take[ing] time to build trust and therapeutic relationship".

3.4 Practical considerations and impact on practice

The data also demonstrates pragmatic solutions outlined by the occupational therapy students as indicate an intention to apply the learning from the immersive environment to the real world of clinical practice. The nine statements offered by the students are all written in intentional, positive language; indicating their commitment to working differently, beginning with the need to "Be prepared" and "Ensure a comfortable environment". Four students demonstrated how it is important to understand how mental illness impacts on each and every client; emphasising the need to "Ensure I am aware of individual condition (specific to them)"; to "Explore what they are experiencing" by "Ask[ing] questions about their hallucinations" and in particular, "If client obviously distracted, ask why?" Context was also considered by two occupational therapy students illustrated by the statements indicating the need to "Involve family members/people service user trusts to educate them about the condition" and where possible "Do a home visit instead of inviting in to a clinical environment". There is also a tentative suggestion that one student would "Always be confident in sharing experiences with other members of the Multi Disciplinary Team".

In terms of impact on practice, the quantitative findings demonstrate that the immersive learning environment had a positive impact upon the students with all participants agreeing prior to, and after, entering the immersive learning environment that they have a responsibility to provide the best possible care for people with mental illness, this was further supported by all participants also disagreeing strongly with the statement that people with mental illness do not deserve our sympathy. After experiencing the immersive learning environment more of the participants agreed strongly (8) that mental health services should be provided through community based facilities, compared to 6 who only agreed slightly prior to the experience, and 2 who disagreed with this statement.

3.5 Immersive learning as pedagogy

Both groups of students recognised the impact of immersive learning as a teaching and learning strategy with two themes emerging: immersion as pedagogy, and embodiment. There were no negative comments related to the experience. Whilst this demonstrates the acceptability of immersive learning as a pedagogy, it does not say anything to the effectiveness of the approach.

The data demonstrates the general feelings of the participants from both occupational groups with ten comments relating to the value of the experience; students used words and phrases such as "Brilliant way to learn", "Think it is a valuable, unique learning opportunity." And "Valuable on

top of studies and lectures" because immersive learning provided a "Powerful and intense environment". Two comments suggest that the approach is not a panacea for learning as "This method of teaching may increase students' ability to empathise. However, I don't think I can come away from this experience saying 'I know what it's like'" and a second student wrote that the approach is "Not for everyone: do we really know what it's like?".

Two students began to consider immersive learning in relation to their personal learning style, because this way of learning for one student had "a direct impact and appeals to kinaesthetic learners as well as theorists", because the approach was "Different and enjoyable, a more 'hands-on' approach"; whilst another student "Found the discussion after the simulation important to reflect upon experience".

Whilst another commented that "there should be much more visual learning". A further student felt that immersive learning was appropriate "for people studying either nursing, OT or social work *etc.*, it is essential to gain this type of experience."

Five statements indicated that the participants considered the approach to be of potential value to those with very little or no prior knowledge or experience specifically of caring for people with mental health issues. Typical statements being "Good for people that have never had any experience (of mental health) before"; and "perhaps more effective for people who know less about the subject/have a more emotional attachment".

Embodiment was evident in the data from six of the participants; demonstrating that through the immersive learning and being able to experience a Flash back based on a real story; enabled the development of a different perspective: "This is an excellent way of learning – visual learning works well for a lot of people, you can place yourself in the patients' situation to gain further understanding and the situation was 'Very visual, easy to imagine'".

Similarly, five other students supported this view, typically writing:

> "I do feel it is a good learning exercise and allows us to see things from a patient's point of view." With another adding it "Allows you to have an insight into a patient's condition". Thus facilitating "a better understanding of symptoms" and "Good insight into PTSD".

Three students thought that immersive learning could be used as an approach to help patients and family members: Immersive learning "Would be good for families to enhance their understanding of what their loved one is going through." Whilst another student identified potential for patients to manage flashbacks, or not have such intrusive thoughts, suggesting it "could be an excellent way of educating patients about how they may be feeling now and how it might be in the future with effective medication". Other disciplines may also benefit from this type of learning experience, as it "could be applied to many areas especially healthcare education. Putting a person 'in another's shoes' is a valuable empathetic learning tool".

4. DISCUSSION

The data were collected against specific questions and although the pre and post-test empathy scores and Attitudes to mental illness were largely unchanged; the qualitative data reveals that for these students the immersive learning experience did impact on their ability to empathise with individuals experiencing intrusive symptoms associated with PTSD. This finding may tentatively indicate that the process of immersive learning can accelerate empathy in ways which requires further investigation. Whilst the data are presented in specific occupational groups, in some cases subtle differences in the use of language is evident between the two student groups raising the question of whether empathy, as expressed in the professional arena, is framed differently by different professions. Although compassion and empathy are currently at the forefront of mental health care delivery agendas within the United Kingdom, there is little research which addresses how empathy and compassion are articulated by practitioners[23] indicating an area for future studies.

4.1 Impact on the individual

Andreasson and Skarsater[24] noted that whether service users perceptions of compulsory treatment were positive or negative, depended on the care that they felt they had received. Part of the perception of what constituted 'good' care was 'feeling acknowledged and valued as a human being' (p19), a component of an empathic approach. Data collected following the immersive experience are suggestive of the presence of this element of empathy in participants, with a consideration of the impact on the individual occurring in a large number of responses. The functional and emotional repercussions of psychosis were frequently identified, suggesting a high level of empathy for the lived experience. Responses associated with stigma and invisibility also illustrate empathy and consideration of the wider impact of serious mental illness on the individual. This may be particularly pertinent when the role of health professionals in the reduction of stigma towards people with a mental health condition is considered. Research has noted that an increase in societal empathy towards mental illness results in a reduction in both experienced and anticipated stigma for service users[25] but that there has been a decrease in positive/empathic attitudes

of the general public towards those experiencing serious mental illness.[26]

4.2 The therapeutic alliance

Empathy is key to the successful adoption of a recovery ethos in mental health services, and is dependent on effective therapeutic alliances between worker and client. The 'Ten Essential Shared Capabilities' framework underpins pre and post qualifying curricula for the mental health workforce and has therapeutic partnerships as an underpinning principle within a recovery focus,[27] the need for empathy within the therapeutic alliance was evident in collated responses from the 'impact on practice' data. A majority of responses concerned the benefit of increased awareness of the lived experience on the therapeutic alliance particularly from the occupational therapy students. Analysis of the register of the language used by participants from both occupational groups is strongly indicative of an impetus and commitment to practice differently in terms of their therapeutic alliance and empathy ('have more..', 'gain more…', 'be more…', 'try to…'). Participants also demonstrated an awareness of the need to make practical adjustments in healthcare settings to maximise the benefit of their input to the service user and thus minimise distress. Environmental changes and a need to make allowances in terms of time and approach were recurrent considerations, illustrating that the immersive experience promotes reflection as part of ongoing professional development for students.

4.3 Immersive learning as pedagogy

The findings begin to provide insight into the effectiveness of immersive learning. Two participants related the experience to specific learning styles, indicating a recognition of effective learning and ability to consider how immersive learning might support this. Five participants identified that immersive learning (as it was presented) would be particularly useful for beginning students or those who had minimal prior knowledge of the subject. Interestingly, despite the plethora of literature stressing the importance of de-briefing following simulation,[11,28–30] only one student commented on this aspect of the process.

Seven comments were positively related to embodiment with participants relating their experience (albeit a fleeting one) to what it might feel like to have such intrusive hallucinations or flashbacks. Only two participants questioned whether it is really possible to experience empathy.

Reiner[31] terms an embodied experience as one resulting in the learner developing more accurate mental models and representations that enhance learning. Halifax[32] suggests that embodiment is essential in order for nurses to be compassionate and purports two main valences:

"the affective feeling of caring for one who is suffering, and the motivation to relieve that suffering" (32: p. 122).

Halifax[32] presents a model to cultivate compassion in nurse patient interactions; a key element being what she terms attunement to self and then the patient. Similarly, Aranda and McGreevy,[33] in their study of overweight nurses' experiences of their interactions with overweight patients, demonstrate that personal experience is capable of producing embodied caring practices. The early findings presented here would seem to provide tentative support to the importance of providing students with opportunities to experience embodiment through mechanisms such as immersive learning.

5. Strengths and limitations

This study involved two small samples of students from two occupational groups and as such the results may not be universally transferrable to all students from these groups. That said however, the samples are typical and therefore there may be elements of these findings which tentatively could be generalizable. Despite these minor limitations, this study is the first of its kind to explore the use of immersive learning environments for the promotion of empathy among nursing and occupational therapy students.

6. Conclusions and implications for practice

The insight gained here should be pursued in future work to ascertain if students are able to transfer their learning to the reality of clinical practice when they encounter people with mental illness who are experiencing intrusive symptoms associated with PTSD. Future studies in this area may provide additional evidence regarding subtle differences between occupational groups concerning how empathy is manifest in practice.

The quantitative findings tentatively suggest that the immersive learning solidified what was already a positive attitude amongst the student population sampled. The qualitative findings suggest that immersive learning was effective in promoting empathy among these mental health and occupational therapy students and in particular promotes embodiment and reflection on professional practice. There may be implications for the way in which empathy is taught in programmes preparing students for their work as qualified nurses and occupational therapists. As empathy is increasingly required amongst healthcare professionals, educators need to explore a range of mechanisms to promote affective learning. Immersive learning that makes use of scenarios rooted in the real world of patients may be one such mechanism.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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