

# Exploring Physiotherapy Students' Perceptions of a Virtual Orientation Programme for Preparing first year Students for Simulated Placements: An Explanatory Sequential Mixed-Methods Study

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## Research Article

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# Abstract

## Background

Simulation-based placements are increasingly embedded within physiotherapy education to enhance clinical readiness and address pressures on traditional practice-based learning opportunities. Effective preparation is critical to optimise student engagement within simulation; however, the contribution of virtual orientation to learner readiness remains underexplored within physiotherapy education.

## Aim

To explore First year (Level 4) physiotherapy students' perceptions of virtual orientation and examine its contribution to preparation for simulated placement activities.

## Methods

An explanatory sequential mixed-methods design was employed. Quantitative data were collected through an online questionnaire completed by Level 4 physiotherapy students following a two-week simulated placement programme at Sheffield Hallam University (n = 38). Descriptive statistics were used to identify patterns within the survey data. Qualitative data were subsequently collected through semi-structured interviews with six purposively selected students and analysed using reflexive thematic analysis. Integration occurred during interpretation through narrative weaving.

## Results

Virtual orientation was perceived as a valuable component of simulated placement preparation. Five interconnected themes were identified: (1) uncertainty and anticipatory readiness, (2) guided engagement and confidence building, (3) cognitive scaffolding and environmental familiarisation, (4) preparation for simulation participation, and (5) reflection and learning consolidation. Across these themes, students described improvements in confidence, environmental awareness, psychological safety, and preparedness for clinical reasoning and communication tasks. The findings suggest that virtual orientation supported readiness through interconnected cognitive, affective, and behavioural mechanisms.

## Conclusion

Virtual orientation enhanced students' preparation for simulated placement by reducing uncertainty, supporting cognitive organisation, and facilitating engagement with experiential learning. The findings suggest that virtual orientation functions most effectively as a pedagogical scaffold embedded within simulation design rather than as a stand-alone digital resource. A developmental pathway emerged across the findings in which students progressed from uncertainty to familiarisation, readiness, participation, and reflection.

# 1. Introduction

Simulation-based education has become an established component of physiotherapy curricula internationally, providing opportunities for students to develop clinical reasoning, communication, professional judgement and practical skills within authentic yet controlled learning environments.<sup>1</sup> The increasing demand for clinical placement capacity has further strengthened the role of simulation in supporting practice-based learning while maintaining educational quality and patient safety.<sup>1</sup>

Although simulation is recognised as an effective educational strategy, students frequently experience uncertainty when entering unfamiliar clinical environments. Navigating new settings, understanding patient information, interpreting professional expectations and applying theoretical knowledge simultaneously can create substantial cognitive and emotional demands. Contemporary simulation literature increasingly recognises that learner preparation before simulation is fundamental to maximising educational outcomes.<sup>2,3</sup>

Virtual orientation has emerged as a strategy to facilitate this preparation. Through interactive digital environments, students can explore clinical spaces, access patient documentation, review instructions and familiarise themselves with simulation scenarios before active participation. Such approaches have the potential to improve readiness by reducing uncertainty, promoting confidence and supporting the transition from theoretical to experiential learning.<sup>4</sup>

Existing evidence from medical and nursing education suggests that digital preparatory resources can reduce anxiety and enhance learner confidence.<sup>5,6</sup> However, relatively little research has explored these approaches within physiotherapy education. This represents an important gap because physiotherapy students are required to integrate communication, clinical reasoning, movement assessment, patient-centred care and professional decision-making within complex learning environments. Consequently, assumptions regarding the effectiveness of virtual orientation cannot simply be transferred from other healthcare disciplines.

Furthermore, previous research has largely focused on outcome measures such as confidence, satisfaction or performance scores, providing limited insight into how students experience virtual orientation and how it influences their engagement with simulated learning. Understanding these processes is particularly important because educational technologies are often evaluated primarily in terms of their technical capabilities rather than their pedagogical contribution.<sup>4</sup>

This study therefore aimed to explore Level 4 physiotherapy students' perceptions of virtual orientation and examine how it contributed to preparation for a simulated placement programme. By adopting a mixed-methods design, the study sought to generate a richer understanding of both perceived effectiveness and the processes through which virtual orientation influenced learning.<sup>7,8</sup>

## 2. Methods

## **2.1 Study Design**

An explanatory sequential mixed-methods design was adopted.<sup>7</sup> Quantitative data were collected and analysed initially to provide an overview of students' perceptions of virtual orientation. Qualitative interviews were subsequently undertaken to explain and deepen understanding of the quantitative findings. Combining quantitative and qualitative approaches facilitated a more comprehensive understanding of students' experiences than either method alone.<sup>8</sup>

## **2.2 Setting**

The study was conducted within a Level 4 BSc Physiotherapy programme at Sheffield Hallam University. Students participated in a two-week simulated placement designed around experiential learning principles.<sup>9</sup> The placement incorporated simulated patient encounters, group-based learning, facilitated discussion, digital technologies and structured reflection to replicate key aspects of contemporary physiotherapy practice.

Virtual orientation was embedded throughout the placement programme. Students completed a one-hour virtual orientation session before each of six simulated clinical scenarios. The orientation included 360-degree images of simulation environments, patient records, instructional resources, videos and task-related information intended to familiarise students with the context before participation.

## **2.3 Quantitative Phase**

### **Participants and Recruitment**

A census sampling approach was employed. All students completing the simulated placement programme (N = 162) were invited to participate. Recruitment information was disseminated via institutional email, Blackboard announcements, lectures, and seminars.

Thirty-eight students completed the questionnaire, representing a response rate of 23.5%.

### **Data Collection**

Data were collected using an online questionnaire developed by the research team and administered through Qualtrics. The questionnaire was specifically designed for this study and is provided as Supplementary File 1. Responses were recorded using five-point Likert scales ranging from strongly disagree (1) to strongly agree (5).

The questionnaire evaluated students' perceptions of virtual orientation across several domains:

- Environmental familiarisation
- Confidence
- Preparedness

- Anxiety reduction
- Clinical skills preparation
- Communication skills preparation
- Overall usefulness

The questionnaire was distributed following completion of the simulated placement programme and remained open for three weeks.

## **Data Analysis**

Data were exported to Microsoft Excel and screened prior to analysis. Responses were excluded where students had not provided consent, had not completed placement activities or submitted incomplete questionnaires.

Analysis included frequency distributions, percentages, median scores, interquartile ranges (IQRs), modes, means and standard deviations where appropriate. Descriptive statistics were used to identify patterns within student responses.<sup>10</sup>

## **2.4 Qualitative Phase**

### **Sampling and Recruitment**

Purposive sampling was used to recruit interview participants following questionnaire completion. Participants were selected to represent a range of experiences and questionnaire responses, including positive, neutral and less favourable perspectives.<sup>11</sup>

Six students participated in semi-structured interviews. Recruitment ceased when sufficient informational power and thematic richness had been achieved to address the research aims.<sup>12</sup>

### **Data Collection**

Semi-structured interviews were conducted online using an interview guide informed by questionnaire findings. The interview guide was developed specifically for this study by the research team and is provided as Supplementary File 2. Interviews lasted between 30 and 40 minutes, were audio-recorded, and transcribed verbatim.

Participants reviewed their transcripts to confirm accuracy and provide clarification where necessary, supporting trustworthiness and credibility.<sup>13</sup>

### **Data Analysis**

Interview data were analysed using Braun and Clarke's reflexive thematic analysis approach.<sup>12</sup> Analysis involved familiarisation, coding, theme development, theme review, theme refinement and construction of the final analytical narrative.

Both researchers independently reviewed transcripts and engaged in reflexive discussion throughout analysis to enhance rigour and analytical depth.

## **2.5 Integration**

Quantitative and qualitative findings were integrated during interpretation using a narrative weaving approach.<sup>14</sup> Themes identified within interview data were explored alongside relevant quantitative findings to generate a coherent understanding of students' experiences.

## **2.6 Ethical Considerations**

### **Human Ethics Approval**

Ethical approval for this study was granted by the Sheffield Hallam University Research Ethics Committee (Reference Number: ER84523085). The study was conducted in accordance with the ethical principles of the **Declaration of Helsinki** and Sheffield Hallam University's research governance requirements.

### **Consent to Participate**

All participants received a participant information sheet outlining the purpose and procedures of the study and provided informed consent prior to participation. Participation was voluntary, and participants were informed that participation or non-participation would have no impact on their academic progression, assessment outcomes, or relationship with the University.

## **3. Results**

The findings demonstrate that virtual orientation played an important role in preparing students for simulated placement activities. Although quantitative data indicated consistently positive perceptions of the orientation process, qualitative findings provided greater insight into how and why students perceived it to be beneficial.

Five interconnected themes were identified, which collectively demonstrate a progression from initial uncertainty towards confident participation and reflective learning.

### **3.1 Uncertainty and Anticipatory Readiness**

Students commonly described uncertainty before commencing simulation activities. This uncertainty was associated with unfamiliar environments, expectations, and concerns about performance.

The opportunity to explore the simulated environment beforehand enabled students to develop an initial understanding of what to expect. Rather than removing uncertainty entirely, virtual orientation appeared to make uncertainty more manageable by creating a clearer frame of reference before participation.

Students frequently reported entering simulation with greater confidence because they felt less overwhelmed by the unfamiliarity of the setting.

### **3.2 Guided Engagement and Confidence Building**

Students highlighted the importance of educator guidance during the orientation process. The educational value of virtual orientation appeared to depend not only on access to the resource itself but also on the way it was introduced and contextualised.

Clear explanations regarding the purpose of the orientation increased students' confidence in using the resource and helped them understand its relevance to subsequent simulation activities. This support was particularly valuable for students with limited prior experience of simulation-based learning.

The findings suggest that virtual orientation functioned most effectively when accompanied by explicit pedagogical guidance rather than independent exploration alone.

### **3.3 Cognitive Scaffolding and Environmental Familiarisation**

The strongest theme concerned the role of virtual orientation in supporting cognitive organisation. Students consistently described the orientation as helping them structure information, understand the environment, and prepare for clinical activities.

The ability to review environmental layouts, patient information, and learning resources before simulation allowed students to enter activities with a clearer understanding of the context. This familiarity reduced the need to process large volumes of novel information during the simulation itself.

Students frequently described virtual orientation as helping them "know what was coming" and "make sense of the environment," allowing greater attention to be directed towards clinical reasoning, communication, and patient management.

### **3.4 Preparation for Simulation Participation**

Students viewed virtual orientation as a bridge between academic learning and situated clinical practice. Rather than replacing experiential learning, the orientation prepared students to engage more effectively with simulation activities.

Participants described entering simulation with greater awareness of patient circumstances, environmental demands, and professional expectations. This enhanced readiness appeared to support active participation and engagement during clinical encounters.

Virtual orientation therefore functioned as a preparatory mechanism that enabled students to focus more fully on decision-making, communication, and professional reasoning during simulation.

### **3.5 Reflection and Learning Consolidation**

Students also described continuing to use orientation materials after simulation activities. Revisiting resources helped clarify understanding, reinforce learning, and support reflection on performance.

Peer discussion further enhanced this process by allowing students to compare perspectives and build shared understanding of clinical experiences.

The findings suggest that virtual orientation supported not only preparation before simulation but also learning consolidation after participation.

### **3.6 Cross-Cutting Effects**

Across all themes, three interconnected effects were evident.

First, virtual orientation generated cognitive benefits through improved understanding, environmental familiarity, and reduced cognitive burden.

Second, it generated affective benefits through increased confidence, reduced anxiety, and enhanced psychological safety.

Third, it generated behavioural benefits by promoting active engagement and preparedness for participation.

Together, these findings indicate that virtual orientation supported readiness through a combination of cognitive, emotional, and behavioural mechanisms.

## **4. Discussion**

This study explored how virtual orientation influenced physiotherapy students' preparation for simulated placement and identified a clear developmental process through which students progressed from uncertainty towards readiness for participation.

The findings demonstrate that virtual orientation enhanced preparation by supporting three interconnected dimensions of learning: cognitive organisation, emotional readiness, and behavioural engagement. While quantitative findings indicated broadly positive perceptions of the orientation process, qualitative findings provided important insight into the mechanisms underpinning these responses.

A central finding was that virtual orientation reduced uncertainty before simulation. Students described feeling better prepared because they had prior exposure to the environment, patient information and expected activities. This finding aligns with previous research demonstrating that effective orientation can reduce anxiety and increase confidence before simulation-based learning experiences.<sup>5,6</sup> Importantly, students did not perceive familiarity as diminishing the authenticity or challenge of simulation. Rather, it enabled them to engage with complexity more effectively once the learning activity began.

The findings also support the notion that virtual orientation functions as a cognitive scaffold. Students consistently reported that orientation materials helped organise information and reduce feelings of being overwhelmed. These findings are consistent with simulation pre-briefing literature, which suggests structured preparation enhances learner readiness and optimises cognitive resources during participation.<sup>2,15</sup> Within physiotherapy education, learners are often required to integrate multiple forms of knowledge simultaneously, including communication, assessment, clinical reasoning and professional judgement. The opportunity to become familiar with contextual information before participation appeared to reduce cognitive burden and facilitate more effective engagement with these learning demands.

Psychological readiness emerged as another important finding. Students associated virtual orientation with enhanced confidence, reduced anxiety and increased psychological safety. These findings support contemporary simulation standards, which emphasise learner readiness and psychological safety as fundamental components of simulation design.<sup>2,3</sup> The orientation process appeared to contribute to psychological safety by creating predictability and reducing the uncertainty associated with unfamiliar environments.

An important contribution of this study is its demonstration that virtual orientation supports the transition from theoretical learning to experiential practice. Students described entering simulation with clearer mental models of the environment and stronger understanding of situational expectations. Consequently, the orientation acted as a bridge connecting academic learning with authentic clinical application, consistent with experiential learning theory.<sup>9</sup>

The findings further challenge technology-centred interpretations of digital learning. Students rarely discussed the value of the digital platform itself. Instead, they focused on how virtual orientation supported understanding, preparation and engagement. This suggests that the educational effectiveness of virtual orientation derives primarily from its pedagogical function rather than its technological characteristics. Similar conclusions have been reported in evaluations of immersive digital learning resources such as ThingLink™, where perceived value was associated with learning support rather than technological novelty.<sup>4</sup>

A further contribution concerns reflective learning. Students frequently returned to orientation resources after participation to review information and contextualise their experiences. This suggests that virtual orientation may support learning beyond the pre-simulation phase and contribute to ongoing reflection and knowledge consolidation. Consequently, orientation should not be understood solely as preparation for simulation but as a resource capable of supporting multiple stages of learning.

Taken together, the findings reveal a coherent developmental pathway. Students moved from uncertainty towards familiarity, from familiarity towards confidence, and from confidence towards more effective participation and reflection. This progression provides a useful framework for understanding how virtual orientation supports readiness within simulation-based physiotherapy education.

## 5. Strengths and Limitations

This study contributes to a relatively underdeveloped area of physiotherapy education research by examining the educational role of virtual orientation within simulated placements. The explanatory sequential mixed-methods design enabled broad patterns identified through survey responses to be explored in greater depth through qualitative inquiry, providing a richer understanding of learner experiences.

Several limitations should be considered. The study was conducted within a single institution, which may limit wider transferability. The questionnaire response rate was modest, creating the potential for response bias. Furthermore, the study focused on students' perceptions of effectiveness rather than objective measures of simulation performance or subsequent placement outcomes.

Future research should investigate whether perceived improvements in readiness translate into measurable gains in clinical reasoning, simulation performance, placement success, and longer-term professional development.

## 6. Conclusion

This study demonstrates that virtual orientation is a valuable pedagogical strategy for preparing physiotherapy students for simulated placement experiences. Students perceived virtual orientation as enhancing readiness through reducing uncertainty, supporting cognitive organisation, fostering psychological safety, and facilitating engagement with experiential learning.

Importantly, the findings suggest that the educational value of virtual orientation extends considerably beyond environmental familiarisation. Virtual orientation functioned as a pedagogical scaffold that prepared students cognitively, emotionally, and behaviourally for participation in simulation-based learning.

The central contribution of this study is the identification of a developmental pathway through which virtual orientation supports learning. Students progressed from uncertainty, to familiarisation, to cognitive organisation, to confident participation, and finally to reflection and consolidation. This pathway represents the overarching explanatory framework emerging from the findings and provides an evidence-informed rationale for integrating virtual orientation within simulated placement design.

As simulation continues to expand across physiotherapy education, virtual orientation should be considered not simply as a digital resource, but as an educational intervention that enhances learner readiness and strengthens engagement with experiential learning.

## Declarations

### Funding Statement

The authors have not declared a specific grant for this research from any funding agency in the public, commercial, or not-for-profit sectors.

### **Consent for publication**

Not Applicable

### **Competing Interests**

The authors declare that they have no competing interests.

### **Contributorship Statement**

AB conceived the study, designed the research, collected and analysed data, interpreted findings, and drafted the manuscript.

HN contributed to study design, data analysis, interpretation of findings, and critical revision of the manuscript.

Both authors reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

### **Patient and Public Involvement Statement**

Patients and members of the public were not involved in the design, conduct, reporting, or dissemination plans of this research. Participants in this study were undergraduate physiotherapy students who contributed data through questionnaires and interviews but were not involved in the development of the research questions, study design, data analysis, or manuscript preparation.

### **Participant Consent Statement**

All participants received written information about the study and provided informed consent before participation. Participation was voluntary, and students were informed that non-participation would have no impact on their academic progression or assessment outcomes.

### **Ethical Approval**

Ethical approval was obtained from the Sheffield Hallam University Research Ethics Committee (UREC) prior to study commencement. All participants provided informed consent before participation.

**Reference number:** ER84523085

### **Data Availability Statement**

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request, subject to institutional ethical and data protection requirements.

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**Clinical trial number:** not applicable

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## Supplementary Files

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