# Progressing the use of Simulation in Physiotherapy and Learning Disability Student Nurse Training

## The Northumbria University Experience

### In support of a continuum of skills: developments in the use of simulation in physiotherapy training

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*The Northumbria University Physiotherapy programme(s) define physiotherapy as:*

*…a science-based healthcare profession. Chartered Physiotherapists identify and maximise individual functional potential through treatment, rehabilitation and health promotion. The distinctive skills used by the physiotherapist include massage and mobilisations, respiratory techniques, exercise and therapeutic movement and the application of electrotherapeutic modalities. Physiotherapy practice is characterised by reflective behaviour and clinical reasoning, underpinning a problem-solving approach to patient-centred care.*

(NU, 2007 adapted from CSP, 2002)

Within Programme Area 1, School of Health, Community and Education Studies, are two full-time pre-registration courses BSc(Hons) Physiotherapy run over three years and a two year accelerated MSc programme. Both programmes aim to develop and integrate students' skills through a continuum of learning opportunities that seek to exploit and explore theory-practice links, and that places a high priority on clinical practice. Historically, physiotherapy education is grounded in simulation for the practise of the characteristic psychomotor and reasoning skills through demonstration and replication of therapeutic skills, role play, use of case scenarios and other problem-based approaches (Jones and Sheppard, 2008).

In recent years, the physiotherapy team at Northumbria University, often in collaboration with colleagues from other professions, has sought to explore areas of simulation that have included the use of actors (Stephens et al, 2005), service user involvement in developing clinical reasoning skills (Jones et al 2009, Stephens and Jones, 2007), the development of an e-skills portfolio (Parr and Stephens, 2008), Heath Education resources (Innes, 2009) and the continuing development of the Objective Structured Practical Self Evaluation (Gilthorpe and Stephens, 2010) within the University setting as well as initiatives within clinical practice (Stephens, Abbot-Brailey, and Pearson 2007, Stephens and Abbot-Brailey 2007).

There has been a growing call for the development of high fidelity simulation within physiotherapy education, particularly the use of human patient simulators within cardiorespiratory physiotherapy education (Jones and Sheppard 2008, Blackstock and Jull 2007, Jones and Sheppard 2007, da Silva Bezerra Fitipaldi and Azeredo 2005). Over the past two years developments within the area of cardiorespiratory physiotherapy education in the use of human patient simulators have been undertaken at Northumbria within a framework that reflects the development of pre-registration clinical reasoning skills (Stephens, Dawson and Johnson, 2003).

Within this framework 3 progressive levels are recognised; Year 1/Level 4 Engaging Reasoning, Year 2/Level 5 Participatory Reasoning, and Year 3/Level 6 Integrated Reasoning.

At Level 4 the use of simulators is based around individual components of clinical assessment of the spontaneously breathing patient such as auscultation, and vital observations and the use of simple case scenarios to facilitate students' engagement in making links between applied anatomy and physiology, pathophysiology, clinical features, and the process of clinical assessment. Students work in small groups to enable peer support and coaching with, initially at least, no 'pressure' in terms of time and performance. This is in recognition of the theoretically driven learning processes at early stages of education due to the limited meaningful reflection on and

application of professional craft knowledge (Higgs et al, 2008) due to the lack of any great experience within clinical practice.

Progression across levels draws on the continuing development of students meaning from experience with a focus at Level 5 on the development of the distinctive intervention skills of the profession and the reasoning process that supports their selection and evaluation. Further integration of knowledge and practical skills is developed at Level 6 with a greater focus on changing contexts of care largely through the use of case scenarios focussing on for example, intensive care and the deteriorating patient, allowing the students to become more comfortable with the uncertainty of clinical practice through increasing insight of reasoning error. 'Real-time' address of changing human simulator presentation seeks to facilitate the analysis and articulation of clear relationships between clinical practice, the evidence base for physiotherapy and context of practice.

A similar approach is also being developed across the two year period of the MSc programme although in a slightly modified manner due to the more enquiry-based learning approach that is characteristic of this programme. Within both programmes the development of theory-practice links is also supported by the involvement of clinical colleagues in contributing to more formal teaching within the academic setting along with the facilitation of clinically based workshops for groups of students, for example linked to the use of Non-Invasive Ventilation.

A model based on the exploration of two interprofessional student groups first experience of working on an intensive care unit (Stephens and Abbott-Brailey, 2007) is in the process being developed to inform and guide the use of high fidelity simulation (see Figure 1, below for work in progress). The key driver for the process is in the provision of appropriate space for student reflection prior to, during, and after engaging with tasks. A major contribution to the content of this 'space' is meaningful dialogue – between students, students and simulator, and students and staff in engaging with the tasks/case scenario.

**Figure 1.** Work in progress: processes in simulation tasks

Furthermore, dialogue content is based around three broad themes:

1. 'Seeing, Thinking and Doing'; the continual gathering and evaluation of cues from engagement with the scenario/tasks to make rational, reasoned decisions
2. 'Fitting in'; orientation to the scenario/tasks through the development of personal and professional relationships with others (other students, staff, simulator)
3. 'Outcome'; the likelihood of making a difference in working towards a positive or desirable impact on the given case scenario/tasks and potential transference to actual practice.

Informal evaluation of the use of high fidelity simulation within the programme has revealed a valuable and enjoyable student learning experience particularly in perceived competence and confidence levels. More formal evaluation is ongoing with planned developments for greater use of 'real-time' clinical situations using simulation both uni- and inter-professionally.

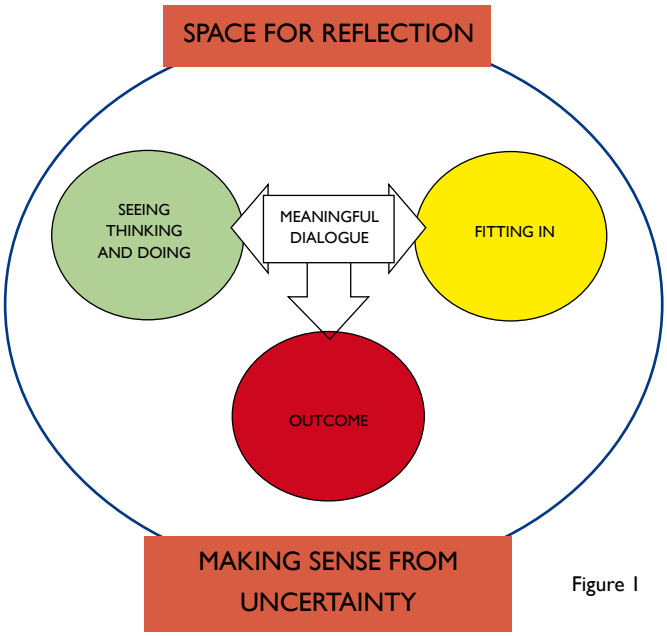


Figure 1

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# Simulation within Learning Disability Student Nurse Training

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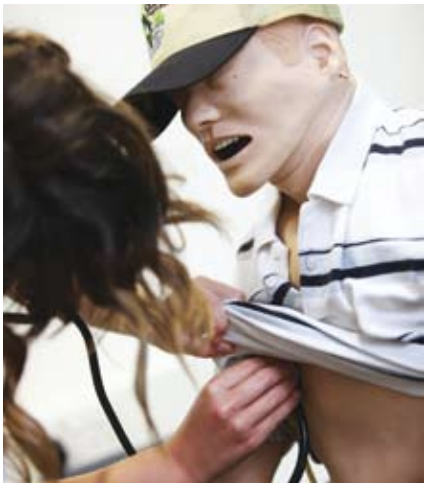
*The multiple complex health needs of people with learning disability are well documented within current policy and literature, (DOH, 2008, 2009, 2010) Mencap (2007) Gates and Barr (2009). Diagnostic overshadowing, communication issues and professionals' lack of knowledge and skills regarding how to assess complex health needs within the learning disabled population are just some of the difficulties the literature discusses.*

With this in mind, it is imperative that student nurses undertaking the learning disability branch must have a well grounded foundational knowledge of collaborative working and clinical skills. This will enable the students to not only identify physical health problems and communicate these to clients and carers, but importantly it will prepare students for their role in educating and communicating with other professionals regarding the assessment of our clients' physical and mental health needs. Barrett et al (2005) concur with this and discuss the importance of understanding all professional roles in order that clinical information gathered during the assessment process can be communicated to the appropriate professional in order to get the best possible care for the patient/client.



Patient care simulations have long been used in the learning disability nurse training curriculum in the form of role play to enhance clinical understanding, develop clinical judgement, improve teamwork and gain confidence in caring for patients/clients experiencing crisis or trauma, without risk to real patients/clients. Hands on clinical skills are also practiced, for example, measuring blood pressures, temperatures, injection technique, hand washing and aseptic technique in order to enable students to learn new care procedures and practices and again, increase confidence in their own competence.

By year two of training, students are ready for new challenges and patient simulators would appear to be the way forward. According to Comer (2005) and Gaberson and Oermann (2006), clinical simulations, relating directly to classroom material, allow students to apply theoretical knowledge whilst developing clinical assessment skills and promote active learning environments. In the airline industry pilots have documented the value of flight simulation in developing theory and practice and Poster et al, (2010) discuss this further in their Smart Hospital paper which encourages interactive learning through placing students in a virtual hospital.

Learning Disability can be a very challenging area of practice to simulate and therefore organisation and reality are crucial to the success of any simulation based education.

At Northumbria, the Learning Disability tutors have developed two case scenarios, one for year two and one for year three. Both scenarios adopt a two stage approach in order to challenge the students and develop clinical skills as well as critical thinking.

Stage one takes the students to a natural break in the assessment process and stage two takes them to the evaluation of their interventions. Students are presented with the first stage