**Abstract**:

The reproduction of the human form has been a universal practice amongst human ecologies for millennia. Over the past 200 years, popular culture has considered the imaginary consequences of the danger to humanity and human-ness of replicating the autonomous human form too faithfully. Today, the seductive allure of technologically advanced simulated human bodies and advances in robotics and artificial intelligence has brought us closer to facing this possibility. Alongside the simultaneous aversion and fascination of the possibility that autonomous simulated human forms may become indistinguishable from human beings is the deep-rooted uncanniness of the automaton in its strange familiarity – not only to ourselves, but to our pleasant childhood imaginings of playing with dolls. As such, simulated human bodies are often enrolled in medical and nursing education models with the assumption that making the simulation teaching spaces seem as close to clinical spaces as possible will allow students to practise potentially harmful clinical skills without causing any harm to human patients. However similar the simulated human bodies may appear to a living, breathing human, a tension between the embodiment of particularly human attributes and their replication persists. How can computerized simulated human patients be enrolled to teach people to develop the necessary attributes of compassion and empathy when caring for human beings? This paper explores the uncanny ecologies of simulated human patients in nursing education by presenting a posthuman analysis of the practices of nurse educators as they enrol these digital objects in their teaching. Guided by a selection of heuristics offered as a mode of interviewing digital objects, the analysis enrolled *gathering anecdotes* and *unravelling translations* to attune to the ways in which these uncanny posthuman assemblages become powerful modes of knowing to mobilize learning about human attributes within uncanny posthuman ecologies.

**Keywords**:

# Introduction

You enter a room in a hospital ward. It is equipped with all of the objects familiar to a hospital room – a bed, some equipment trolleys on castor wheels, a bedside table, a blue vinyl arm chair, an IV stand, an angle-poise lamp mounted above the bed, and a variety of hoses, tubes, wires, and other instruments attached to a panel on the wall at the head of the bed. You approach the bed. A body lies on its back in the bed, partly covered with a sheet and a lightweight blue cotton blanket pulled up to the chin. The body's bare feet are sticking out of the bottom of the blanket. On the sole of the left foot, you can see the words 'HOSPITAL PROPERTY' written in black ball-point pen letters. A monitor, mounted on a shelf beside the bed, displays multiple patterns, flashing green, yellow, red, and blue. The hospital bed is inclined slightly, so that the body's head tilts upwards, facing towards the ceiling. The eyes and mouth are open, and a row of white teeth is visible through thin, colourless lips. The body is still – too still, it seems – but you can hear it breathing. You notice then that the chest is rising and falling gently with the breaths. The eyes blink, making a soft clicking sound. It sounds very similar to the sound made by a doll your sister had when you were young – when it was placed on its back, the doll closed its eyes. You remember the hard plastic of its eyelashes and how they felt when you pushed them with your finger. There is something disturbing about this body; something strange, yet something familiar.

In the 'future-noir' film, *Blade Runner* (Scott 1982), set in future Los Angeles in 2019, the technology for the simulation of human beings is so sophisticated that it is nearly impossible to distinguish them from real humans. The only human attribute lacking in these simulated humans, or replicants, as they are called, is the capacity for empathy. Designed purely to serve humans, the replicants are exiled to work on other, distant, worlds, and are forbidden access to Earth. If they do escape from these 'off-worlds' and arrive on Earth, the only way they can be distinguished from humans is by giving them an empathy test to determine whether they are *devoid of compassion*; a psychometric questionnaire/video camera hybrid machine, with the examiner, or Blade Runner, narrating a selection of anecdotes to test the emotional response of the subject: the 'capillary dilation of the so-called blush response. Fluctuation of the pupil. Involuntary dilation of the iris', or 'Voight-Kampff for short' (which sounds uncannily like 'void-comp' on the soundtrack) (Scott 1982). In the film, Rick

Deckard is the Blade Runner whose job it is to perform these tests, and to hunt down and 'retire' the replicants who are living illegally on Earth. As an exemplar of the complex matrix of human compulsion and aversion to engineering digital duplicates of ourselves, the film opens up possibilities for exploring our own humanity by (re)presenting the entanglement of human and nonhuman in considering what it means to be human, and what it might mean for simulated humans to appear to be *more human than human* – the motto of the company that manufactures the replicants. This paper offers a posthuman inquiry of a similar object by presenting the analysis of an interview with a high-fidelity computerized simulated human patient.

Inspired by Adams and Thompson's (2016) writings on posthuman inquiry, this paper draws on their guidance for interviewing digital objects to explore the tension that dwells within the uncanny mediations that are enacted in the human/simulated human hybrid world of computerized simulated human patients in nursing education. Specifically, I enrol the heuristic of *gathering anecdotes* to '[d]escribe how the object or thing appeared, showed up, or was given in professional practice' (Adams and Thompson 2016: 24). In addition, I enrol the heuristic of *unravelling translations* to explore the *multiple assemblages* – or realities – of these simulation pedagogies by becoming attuned to 'the tensions in coexisting networks' (Adams and Thompson 2016: 80) to reveal how partially connected worlds assemble to disrupt practices and enact multiple realities.

Focusing on the development of the skill, or attribute, of empathy, and following these heuristics (Adams and Thompson 2016), the posthuman anecdotes presented here were gathered while undertaking a praxiographic (Mol 2002) research project, informed by actor-network theory, as part of my doctoral studies (Ireland, 2019). A praxiography (Mol 2002) enrols the techniques of ethnographic observations to explore the practicalities of the way reality is enacted by persistently attending to the relevance of the materialities and 'always including them in stories about physicalities' (Mol 2002: 31). My research explored the ways in which nurse educators enrolled digital objects, in particular, high-fidelity simulated human patients, to teach immediate life support skills to undergraduate nursing students. Praxiographic (Mol 2002) observations were made at two nursing schools, based in the UK, over one semester in each, with a cohort of third-year nursing students who were nearing the end of their degree programme. The observations focused on the teaching practices of two nurse educators who routinely used digital objects such as computerized simulated humans in

their teaching practices; one educator in each school. Here I will focus on the simulated human patient as the digital object, choosing a selection of anecdotes drawn from these observations and analysed by considering the interview questions supporting Adams and Thompson's 'Heuristic 7: Unravelling Translations' (Adams and Thompson 2016: 74). In particular, the questions relating to Mol's (2002) notion of multiple realities will be considered:

> How do different sociomaterial worlds come to be? What objects and/or practices work to connect or distance these different worlds? How do these acts serve to join up or disrupt practices? (Adams and Thompson 2016: 75)

So, what are these digital objects that connect or distance different worlds? Computerized simulated human patients are life-size mannequins capable of simulating such human physiological characteristics such as pulse, breathing, and blinking. Some are designed to train obstetricians and midwives and can simulate childbirth. Others are mechanically animated to mimic facial expressions in paediatric patients to indicate pain, fear, anxiety, and distress. However, most of these mannequins are used in medical and nursing simulation education and serve to enact the role of the patient in any given learning scenario. Because their purpose is mostly to teach about the skills necessary to support human life, they are equipped with functions that imitate the basic human signs of life: the chest rises and falls, and air is drawn in and out of the nose and mouth by means of a compressor; they simulate pulse at multiple sites around the body by means of a mechanical movement underneath their latex skin; their eyes blink and their pupils react to light, and some can be programmed for the eyes to follow a visual stimulus in the form of a digital automatic object tracking that interacts with the mannequin's irises. They are connected wirelessly to software algorithms, pre-programmed to generate numbers and graphs to specify the relevant vital signs, such as heart rate, blood pressure, and the levels of oxygen saturation in the blood, appropriate to any given condition within the simulation scenario. They are also equipped with speakers to simulate the patient's voice, which can either be pre-recorded or enacted by an educator, and there are now multiple additional adaptations that can be made to suit many different learning scenarios, such as heart attack and stroke, acute trauma, and anaesthesia (Figure 1).

Figure 1: The high-fidelity simulated human patient – SimMan<sup>TM</sup>

The main purpose of employing these digital technologies as a pedagogical tool is the underlying assumption that learning life-saving skills is best practised in a simulation environment – where scenarios can be rehearsed repeatedly until these skills are learned, without harming human beings (Berragan 2011). While the mannequins resemble the human form, they might also embody an idealized double of a human patient: they can take on the role of any patient in any situation, yet, at the same time, they do so in an uncanny way, (re)presenting an unsubstantial embodiment, a ghostly or spectral form. As such, we might consider them eidolons (OED 2019). These eidolons, similar to the replicants of *Blade Runner*, are also incapable of simulating the human attribute of empathy – they are devoid of compassion. If they are seemingly incapable of embodying empathy, how do these digital

objects participate in the mobilization of knowledge to teach nursing students how to enrol empathy and compassion in their practices?

## Empathy for eidolons – an elusive skill that cannot be taught?

Compassion can be defined as 'sympathetic pity and concern for the suffering and misfortune of others', while empathy is 'the ability to understand and share the feelings of another' (OED 2019). Understood in this way, a composite of these attributes might be highly desirable in nursing practice, but empathy and compassion are often conflated in nursing discourses. A recent systematic review of the literature concluded that empathy is considered to be a *moral attribute* of compassionate care in nursing, along with wisdom, humanity and love (Blomberg et al. 2016). Furthermore, the authors suggest that compassionate practice is mobilized through a composite of practices, expressed through a sort of '*situational awareness*' of the nurses' perceptions of the suffering of others:

> Setting up compassion in this manner firmly links it to participation of the nurse in *responsive action* that is aimed at relieving suffering and ensuring dignity, and which involves the nurse in some sort of *participatory relationship* in which the nurse exercises *relational capacity* through which empathy is experienced and a caring pastoral relationship is constructed. (Blomberg et al. 2016: 138, original emphasis)

Despite seeming to be encompassed within these moral attributes that are central to nursing practice, in the standards set by the professional regulatory body for nurses and midwives in the UK, empathy is conspicuous by its absence. Instead, empathy is hidden in the definition of 'professionalism' as a component of 'person-centred practice', brought about by practising autonomous 'evidence-based nursing that respects and maintains dignity and human rights' (Nursing and Midwifery Council 2014: 6). Person-centred care marks a shift away from a hegemonic dichotomy between the physician and the object of their interventions – the patient – to an approach that places the person at the centre of the care that they receive from healthcare services (Bleakley 2014). The approach is generally accepted as a way in which to take into account the individual's perceptions, experiences, and desires in the design and process of their care and treatment plan (Nursing and Midwifery Council 2018). In addition, it suggests a challenge of the dominant models of heroic individualism and professional

essentialism of medical practice to adopt a more collaborative model based on genuine acknowledgement and respect of difference (Bleakley 2014). Person-centred care is often portrayed as an act of resistance to the binary dualisms that have pervaded medicine in particular, and scientific ideologies in general, for centuries. As suggested by Ekman et al.:

> Person-centered care (PCC) is the antithesis of reductionism. It asserts that patients are persons and should not be reduced to their disease alone, but rather that their subjectivity and integration within a given environment, their strengths, their future plans and their rights should also be taken into account. (Ekman et al. 2011: 249)

Empathy, however, is ambiguously entangled with all of these elements. While empathy is considered to be a fundamental trait of nursing professionalism, at the same time, nurses must remember to be 'impartial', and keep these emotions at a distance. This places the competent nurse in the difficult position of having to both maintain this distance while remembering to follow the tenets of patient-centred care, an ethos that insists on an anthropocentric model of care. As such, this paradoxical positioning of empathy in the ecology of nursing practice is even more prominent in the simulation ecologies of nursing education. How do nurse educators prepare nursing students to practise in a world where there is an expectation to provide person-centred care, positioning the human in the centre, in healthcare ecologies where the pedagogies are more-than-human hybrid simulations of human patients? Moreover, how can nurse educators enrol non-human objects, eidolons devoid of compassion, to teach nursing students how to express empathy for real human patients in practices that must keep person-centred care as their foundation?

## Performing the world of nursing practice into being

As part of my doctoral research, the *gathering of posthuman anecdotes* (Adams and Thompson 2016) allowed me to tell the stories enacted in the complex, contentious and uncanny spaces of simulation education. Enacting these 'discursive creations' allowed me to become attuned to the 'lived affects and inescapable intensities' of simulated human patient pedagogies: to 'reassemble a resembling fiction' (Adams and Thompson 2016: 33) of the multiple assemblages (Mol 2002) performed in this ecology. This storytelling went further, however, as the posthuman interview questions in Heuristic 7 (Adams and Thompson 2016, 74–75) guided me to reveal how the multiple sociomaterial assemblages of the simulated

human eidolon are '*materially enacted*' (Mol 2002: 143, original emphasis) to allow the multiple worlds of nursing practice and education to hang together. In addition, while these posthuman objects are partially connected between these multiple worlds, they were inevitably ordered and re-ordered by the interferences (Mol 2002) of other sociomaterial assemblages to be translated into other – different, yet connected – parallel worlds. As such, these interview questions helped me to make visible how these posthuman objects become 'things manipulated in practices' (Mol 2002: 4) to become multiple sociomaterial worlds (Adams and Thompson 2016). The following anecdote is presented as an exemplar of how the heuristics were enacted in practice.

*Studying the practices enacted in the simulation lab*

A group of third-year nursing students are taking part in a full day of training in immediate life support skills. They are approaching the end of their final year of the degree programme and will shortly be leaving to participate in their final practice placement before being signed off as fully qualified and registered nurses. The training day comprises four intensive scenario-based simulation sessions combined with several shorter classroom sessions to instruct the students on the standard Immediate Life Support qualifications, designed and regulated by Resuscitation Council UK (2016), and which includes patient assessment, cardiopulmonary resuscitation, and defibrillation techniques. The students are continuously assessed on each outcome by multiple instructors and travel around four different stations throughout the day to ensure that they are assessed by four different instructors. The instructors are all full-time members of the nursing lecturing staff at the two universities where the research took place, but the material presented here focuses on one in particular; Paul. In the first session, the students are demonstrating their knowledge of the causes and prevention of cardiopulmonary arrest, including the standardized ABCDE (airway, breathing, circulation, disability, exposure) procedure, also known as an 'algorithm' (Resuscitation Council UK 2016). Each of the scenarios enrols the SimMan™ mannequin, a computerized simulated human patient (Figure 1).

*Becoming familiar with the uncanny mannequin/patient eidolon*

Six nursing students arrive in the simulated ward. The mannequin is lying in a hospital bed, situated centrally in the room. Paul welcomes them and explains what is expected of them; how they are going to practise what they have been learning in the previous classroom

lecture. He splits them into two groups of three. He introduces them to the patient, 'Chris'. He describes why Chris has been admitted to the acute admissions ward, explaining the circumstances.

> Paul:       This is Chris, he's been taken in to the acute admissions ward this morning, there was a lot of snow overnight – did you not notice it, on your way in?

>       [Laughter]

Even before the students encounter the mannequin/patient, the educator puts them at ease by facetiously relating the scenario to the weather. It is mid-March in the UK, spring is imminent, and the weather has been unusually mild, so there is no snow at all, and the prospect of snowfall seems very unlikely.

> Paul:       And, he's been digging his car out of his drive and developed central chest pain. Will you have a look at him for me?

The three students approach the mannequin to begin the assessment, and one introduces herself to the patient/mannequin. Here, Paul begins to enact the voice of the mannequin/patient by modifying his voice and speaking in a strong regional accent:

> Donna:     Right, Chris, how are you feeling?

> Paul/Chris: 'Terrible! I've a pain in my chest.'

The students discuss amongst themselves:

> Gemma:     Right, so he's talking.

> Donna:     He's talked.

> Gemma:     This is a bit awkward.

> Paul:       It is a bit awkward! It is. It'll get easier, I promise! Okay, so what does that tell you about Chris' airway?

The students seem to understand immediately that the voice of the patient is emanating from Paul; that it is not the simulated human patient that is speaking, but that Paul is performing the voice of 'Chris', the patient, and they play along with this imaginary practice. However,

after 'Chris' responds, the students seem to be aware that it is acceptable practice, in this space, to immediately ignore what the patient has said, and instead, to talk amongst themselves about the patient, as though he were absent, although they do this quietly, hesitantly.  The students know that if the patient is talking, that it is unlikely that there is any obstruction of the airway.  In adhering to person-centred practice, they would not ignore the patient and voice this sort of opinion while the patient was conscious and speaking to them, but in this space, they turn their faces away from the patient/mannequin and consult amongst themselves in an enactment that is not normally permitted in practice.  This type of performance is acceptable here, however, because Paul has set the stage to give them permission to 'act' out of character, and to cross the acceptable bounds of nursing practice enactments.  The students express their discomfort with this trespass – 'This is a bit awkward' – and Paul uses repetition to reassure them that yes, this crossing of practice boundaries is, indeed, awkward, but that 'it'll get easier'.  The awkwardness, however, is ambiguous and multiple; the student may be referring to the discomfort of having to breach the limits of acceptable professional practice, or the awkwardness may also include the disquieting experience of having to encounter a simulated human patient – the uncanny double of a human patient.  Lemermeyer (this edition) also considers this strange relation between the students and the mannequin embodied in the tension of having to enrol the practices of a non-human object while at the same time demonstrating that they are capable of placing the human patient at the centre of their care practices.

After providing reassurance, the educator quickly shifts focus: 'Okay, so what does that tell you about Chris' airway?'; pulling the attention sharply back from the enactment of acknowledging that this is a story, and placing the emphasis instead on the point of the lesson, while at the same time, modifying his voice back to his 'teacher voice' instead of that of 'Chris'.  This oscillation between enactments can be considered multiple modes of mobilizing knowledge: Paul is simultaneously instructing the students about the types of enactments that are permissible in this space, while at the same time encouraging them to think about which cues the patient is giving them to provide an appropriate assessment of the patient.  These enactments, mediated by those of the mannequin, become a powerful mode of knowing, but also a double one: the students are learning how to assess the patient's airway, while also learning how to *perform* the simulation of assessing the mannequin/patient's airway.  At the same time, paradoxically, the tenets of person-centred care are pushed to the periphery in the human actors' relations with the mannequin/patient. The students

temporarily abandon the ideals of person-centred care, understanding instinctively when it is acceptable to de-centre the patient and ignore them (and their desires) completely during the simulation learning encounter.

*Betraying the blood pressure readings*

The students move on to the 'B' (breathing) assessment, and then the 'C' (circulation) assessment. As two students attempt to find Chris' pulse, Paul is showing Mary how to find the blood pressure reading on the touch-screen monitor. Mary asks Paul whether she should use the stethoscope to read the blood pressure manually, but Paul tells her, 'You don't need to.' Paul shows her what to press on the monitor to allow the blood pressure values to be displayed. There is an interesting absence here. Mary has attached the blood pressure cuff to the mannequin's arm, and she then retrieves the stethoscope so that she can take the blood pressure reading by listening for the pulse, but she knows that the sphygmomanometer is in no way connected to the monitor. However, the blood pressure values have already been pre-determined by some absent (other) actor in the assemblage, rendering her manual blood-pressure reading skills redundant. These values, pre-determined by the software program and the specific set of symptoms chosen for this scenario, remain hidden until Paul navigates to them, making them visible on the touch-screen monitor. Here the practice that encompasses the skills of the student to check the blood pressure occupies a strange position. It is an integral component in the practices of nursing students when this scenario might happen in actual practice. At the same time, it is also missing and hidden from the practices that are being simulated in this assemblage. Mary should already know how to manually check a patient's blood pressure using a sphygmomanometer and stethoscope, but, for today's simulation scenario, the mannequin/software assemblage enacts this practice, absolving her of this duty.

This anecdote clearly illustrates how the *unravelling translations* heuristic (Adams and Thompson 2016: 76) is useful in revealing 'the mechanism by which some entities come to control others' – to manipulate practices and allow realities to multiply (Mol 2002). Here, the practices of the mannequin/software assemblage have acted as an interference – or have translated – the enactment of reading the patient's blood pressure values. By assuming the role of blood pressure reader, the mannequin/software assemblage interferes with the student nurse's repertoire of practices, mediating them, however slightly, so that they shift and 'vary from one site to another' (Mol 2002: 143). As Callon and Law (1982) suggest, there is also

some element of loss, or *traheson* – betrayal – here. While Mary must eventually learn how to correctly assess the patient's blood pressure, the simulation education assemblage is disrupting this practice. The pre-programmed blood pressure reading on the monitor is mediating the enactments of nursing practice – while Mary is learning how the mannequin/software displays the blood pressure reading, it may be at the cost of learning how to accurately perform a manual reading of a patient's blood pressure in her future nursing practice.

The mannequin/software assemblage becomes here what Latour calls a 'mediator' (Latour 2005: 39). In rendering redundant the practice of performing a reading of the blood pressure, this enactment *becomes something else* – not two different practices, or one practice divided into two, but multiple enactments that are 'partially connected, more than one , and less than many' (Mol 2002: 82). The practice of taking a blood pressure reading in the parallel world of nursing practice is replicated in the simulation scenario to be as authentic as possible. The two practices exist side by side, but, depending on where they are enacted and by which sociomaterial actors, they are transformed into another reality of that practice. They are partially connected – they carry the same meaning – but it is the subtle differences in the ways in which the same practices are enacted by the new set of sociomaterial actors that introduces this new practice into the assemblage. By absorbing the practice of reading the blood pressure values, the mannequin/software assemblage performs this new reality into being. The student learns that, for the purposes of simulation learning at least, it is not important to check the authenticity of the blood pressure reading – the mannequin/software assemblage is enacting that practice. In simulation education, then, the mannequin/software mediates the student nurse's practice, bringing a new mode of knowing into being (Law 2016) to allow the parallel worlds of nursing education and practice to hang together. The *unravelling translations* heuristic (Adams and Thompson 2016) allows the researcher to become attuned to how the translation of these worlds can be considered enactments of multiple practices.

*Grieving for the undead eidolon*

Towards the end of the day, the students appear to be more confident in their immediate life skills practices and respond to the educator's questions more competently. Their CPR compressions become more efficient, as measured by the mannequin's internal sensors, and they are working effectively in teams, mediated by the automated external defibrillator

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(AED) machine, which keeps time, notifying them when the heart rate should be monitored in two-minute intervals.  For each scenario, the students manage to successfully resuscitate the mannequin/patient.

However, at some point during the final session, the educator always prepares a scenario where the students will encounter an older patient who they will not be able to resuscitate. Paul sets the mannequin's controls so that there is no pulse or breathing at all.  He asks two students to come forward and sets the scene:

> Paul:     So, half-past four in the morning, night shift, and you need to check on Mr. Thomas here.  Mr. Thomas is a 79-year-old man, he's been an in-patient for assessment for a couple of weeks now.  He's been having problems with increasing confusion at home, and wandering.  So, usually, by this time of night, he's been up for a wander to the toilet, and you've usually got to help him back to bed.  But he's just not been up this night.  So, you go through to have a wee look.

The two students approach the patient/mannequin.  Unable to rouse Mr. Thomas, they quickly follow the prescribed mnemonic algorithm, checking airway, breathing and circulation.  After determining that the patient/mannequin is unresponsive, they call for help and begin CPR.  As the scenario progresses, up to six students are participating in the resuscitation attempt, using the AED machine to assess the patient's suitability for shock. After each two-minute circuit, no shock is advised, indicating that the heart is not beating. They continue CPR and the AED continues its intermittent analyses.  As they work, the educator quizzes the students on the factors that they should be considering; the reversible causes, the interventions they should be performing and the techniques they are using.  As the team begins to work well, alternating roles and responding appropriately to Paul's questions, the educator provides some more background to the patient's history, building up more of an understanding of the patient's condition:

> Paul:     So, he's on regular paracetamol, and breakthrough pain is managed with dihydrocodeine for his arthritis.  A betablocker and an ACE inhibitor for a bit of heart failure, and he's on a statin at night, and he's on a bit of quetiapine because,

particularly at night time, he gets a bit confused, agitated and wanders, and, for breakthrough, he has had the occasional haloperidol, and he's also on Aricept, for dementia.

He's been in for a fortnight, the family have been increasingly concerned. He was living alone after the death of his wife, and often found outside wandering in the street. There's increasing concern that he's not going to be fit to go home and be safe at home, so they've been looking for more long-term care for him. The family live about a hundred miles away, so are not in a position to take him in. So, we've now been going for … let's say, 20 minutes.

While continuing to care for their patient/mannequin, making chest compressions and administering medication, the students debate whether they should continue with CPR. In every group, they first discuss whether they are allowed to make such a decision, and the educator tells them that they are the team responsible for the patient, that they know the patient best, and, in the absence of any medical staff, they might have to make such a decision in their own future practices. The students discuss the patient/mannequin's quality of life, the damage they may have caused to his body, and the implications of his brain having been starved of oxygen for an undetermined period before they found him. It takes several circuits of CPR/AED before they eventually stop.

> Paul: So, it *is* hard to stop. And you do feel deflated by it, but what positives can you take from it?

> Student: You're giving him the man his dignity. You're not causing any further trauma to him.

In all of the sessions I observed, without exception, the students continue to care for the 'dead' mannequin/patient as though it were a real person. They move the mannequin's arms and legs into a resting position, stroke its hands, remove the AED contacts and other equipment, and cover the patient/mannequin gently with a sheet, continuing to provide compassionate care, despite the scenario having finished and despite the patient/mannequin having died. Attending to the patient after death is an example of a taken-for-granted practice that all nurses must learn, as Lemermeyer (this issue) also observes in her paper. On

several occasions, the students are moved to tears, flooded with the grief of losing someone in their care, regardless of the brevity of their relationship. In the interview with the educator, I asked him how the mannequin was implicated in teaching the students about these *moral attributes* in these scenarios:

> These guys are going out into practice, so they need to know the reality …
> and it's a chance to reinforce that resuscitation is highly likely to be
> unsuccessful because you're having to re-start them rather than stabilize
> someone, and there's a high likelihood of non-success, there's a chance to
> reinforce that it's not like you see on telly, on some of these medical soaps
> where almost every resuscitation is successful, but plus tap into the
> compassion, the empathy, the moral/ethical dilemmas that resuscitation
> throws up, because the DNA/CPR framework, that's all pertinent.

Here, the educator indicates the importance of the mannequin/patient in embodying the 'reality' of resuscitation practices, the moral and ethical dilemmas they raise and the practices that nurses must enrol to tackle them: empathy and compassion.

## Mannequins, fidelity and simulacra

In medical education, the ideals and values that medical students bring with them when they begin their programme gradually deplete in a process of disillusionment and cynicism as 'the realities of doctoring kick in' in a phenomenon described as 'empathy decline' (Bleakley 2014: 5). Some suggest that issues related to empathy decline are not being addressed by current training approaches that rely on simulation pedagogies, and that medical students may have 'both idealism and compassion 'trained out' of them by their medical education' (Bleakley 2014: 59–60, citing Kumagai 2008, 2009). This undesired consequence of medical education was first revealed in the 1960s, but more recent works suggest that these issues persist and that current communication skills training models that favour simulation pedagogies do not resolve them (Bleakley 2014). Bleakley (2014) also explores the widely-held belief in medical folklore that empathy is not a skill but a virtue, which prompted him to critically explore the concept of 'professionalism' in relation to patient-centred care; 'the set of dispositions and practices that make up the 'non-technical' face of medicine' (Bleakly 2014: 15). It is ironic, then, that the very technical practices of simulated human patient

education that are often enrolled to teach technical or procedural skills are also the very same practices that mobilize knowledge about these very 'non-technical' attributes.

While the 'realism' of the mannequins seems to be the aim for some, others argue that 'realism is only a means to achieve the goal of creating learning opportunities for participants' (Dieckmann and Krage 2013) and should not be a goal in and of itself. Critique of 'the fascination with seductive high-fidelity simulation realized through sophisticated technology' (Bligh and Bleakley 2006: 606) has challenged the assumption that employing technology to attempt to reproduce the human body and has questioned the wholesale adoption of simulation pedagogies without engaging in meaningful debate on the ontological and epistemological implications of this teaching and learning ecology. For example, Johnson (2008) argues that, in designing the human patient simulators to be as 'real' as possible, it is not actually the human body that is being simulated. Instead, she suggests, it is only the representation of the knowledge of the body learned in clinical practice: simulation is a representation of those practices, not a representation of the human body. This creates, in the practices of the mannequin, a hybrid of multifaceted clinical practice experience situated within a complex technological simulated human body, enacting the effect of producing a contradictory and uncanny space in which learning to care is mobilized. However, the dichotomy between the real and what is simulated may not be important in the nurse educator's practices here. Instead of mobilizing learning about 'false' embodiments of nursing practice, the educator is, by enrolling the interferences enacted by these material entanglements, enacting 'different *versions*' (Burbules 2004: 172, original emphasis) of these realities as fundamental modes of knowing for the students' future nursing practices.

## The elusive patient in the simulation of patient-centred care

The issues raised in this paper are directly related to those that claim to be central to clinical practice and education: that healthcare professionals should provide patient-centred care, as 'the NHS aspires to put patients at the heart of everything it does' (National Health Service 2015: n.pag.). In nursing education, a direct link has been made between the use of simulation in clinical practice education and patient safety, stating that it must be used as a method to 'test the skills required to sign off students safely' (Nursing and Midwifery Council 2010: 9). However, while the most recent standards state that 'effective simulation facilitates safety by enhancing knowledge, behaviours and skills' (Nursing and Midwifery Council 2019: 1), the prioritising of patient safety in simulation education somewhat

undermines the importance of using these same attributes for providing person-centred care. Johnson (2008) puts forth some very valid and appropriate challenges to the idea that the patient is situated at the centre of clinical education and questions the theoretical foundations of the role that simulation plays in conveying this knowledge. Crucially, and, perhaps most importantly, Johnson (2008) highlights the most hidden of actors within the clinical simulation domain in summarising her observations:

> Acknowledging the fundamental aspects of practice in simulator development creates the discursive space to ask whose practice is being simulated: Experts? Which experts? Which medical professionals are being made invisible? And what about patients? I ask this last question because, in the work constellations of developers, designers and medical experts who cooperate in the tasks of simulator design and testing, the patient's experience of a medical practice is not merely silenced or made invisible, it is never even considered. (Johnson 2008: 124)

Johnson's (2008) observation clearly illustrates how the mannequin, in mediation with those who design its working mechanisms and software applications, and with those who endeavour to teach, and to learn, by enacting the practices of simulation education, are forcing human patients into the periphery by excluding them in the design of human patient simulators. Even as the medical educators attempt to promote person-centred care by placing the patient/mannequin in the centre of their practices, they interfere with these practices by deflecting the enactment of the patient in this parallel world (Mol 2002) away from the teaching and learning assemblage. In their attempt at practising person-centred care, by barring the patient from engaging with the practices of the simulation assemblage, they are dissolving the very relations that they endeavour to make durable. In contrast, the nurse educators in my research, by enrolling the parallel realities of their past experiences of caring for patients in their material enactments with the mannequin/patient, perform another reality into being – one that allowed the educator to move knowledge from one reality (nursing practice) to another (simulation education) and to become something else. Something different but 'partially connected' (Mol 2002: 82) that allows these multiple worlds to hang together.

Hopwood draws on the concepts of hyperreality and simulacra (Baudrillard 1981, 1983) to challenge the assumption that the real danger in simulation education is that 'it is only ever

imagined versions of reality that provide the reference' (Hopwood 2017: 69). He argues that the aim of simulation settings and scenarios should not be to enact an exact replica of nursing practice: '[i]t is less about whether learners perform in pre-specified ways, and more about how they are changed through the experience, and how the experience changes what they do in future' (Hopwood 2017: 70). Here, Hopwood (2017) proposes the same solution that the participant in this praxiography did – that it is not about the fidelity of the simulations, 'it's about what you do with them' (Paul, Interview). It is about how the practices of the nurse educators, in their hybrid assemblages with the mannequin and the multiple parallel worlds of nursing practice, are enrolled in the mediation of these practices to perform the modes of knowing of nursing practice. The embodiment of nursing practice, in the enactments of the mannequin, are indeed simulacra. However, in enrolling the practices that themselves are implicit in enacting the simulacrum into being, the nurse educators capitalize on this uncanny othering of the real human body to instead perform a powerful mode of knowing that allows the nursing education assemblage to hang together. As Hopwood writes;

> By embracing the unreal, and fluid play between real and imaginary,
> simulacra can not only draw from worlds of clinical practice and pedagogy,
> but can infect them. A pedagogically rich moment can unfold and be
> exploited for all its unreal, fake, and fictional qualities (Hopwood 2017: 78)

Indeed, it is not the parallel world of real clinical practice that shapes the modes of knowing that are enacted in simulation education in these anecdotes; instead, it is the enactments of the educator/mannequin/patient that do. It is the assemblage of each of these enactments in practice, and their connections with the nursing practice world, regardless of how partial they may be, that allows the knowledge of real clinical practice to become mobilized. Rather than being hyperreal or simulacra, the multiple enactments of each of the actors in this assemblage, the social and the material, perform multiple enactments of clinical practice that allow these future realities to hang together. As such, these pedagogies have what Rosenberger describes as 'the potential for simulation to go beyond the real-world' (Rosenberger 2011: 220) to enact multiple realities by breaking down the false dichotomy between the 'real' and the 'simulated'.

Being guided by the interview questions posed in the 'unravelling translations' heuristic proposed by Adams and Thompson (2016: 74) allowed me to become attuned to the practices of nurse educators as they navigated these *infections* and *interferences* between practices in

simulation learning ecology to mobilize knowledge of nursing practice. In addition, by enacting a posthuman inquiry of the educators' enrolling of the simulated human patients, these heuristics allowed me to make visible how the enactments of this digital object mediated, and were mediated by, the educator's practices. In attempting to enact multiple realities in one space (the real, the pretend, the actual), they are, in a sense, embodying what these particular interview questions set out to do – to reveal how objects and practices assemble, through a form of mediation, to connect these multiple worlds and bring different, but partially connected sociomaterial realities into being. The mannequin, then, in its constellation of relations with the educator, the students, the patient stories, the educator's experiences, the students' experiences, and myriad hidden digital actants, mediates the enactments of nursing practice. These enactments are not imaginary, nor are they real; they are something else besides, something that is situated somewhere between reality and fiction (Law 2006). Law emphasizes that 'all representation also betrays its object' (Law 2006: 47). In the same way, placing all of the emphasis on the 'fidelity' of the human body in simulation education betrays and diminishes the importance of the imaginary in this complex assemblage. However, the nurse educators in this research resist the disruptive interference of betrayal by enrolling the mannequin/patient in these parallel worlds of fiction.

## Multiple posthuman assemblages

The posthuman anecdotes (Adams and Thompson 2016) presented here offer an example of how the enactments of digital objects might be made 'visible, audible, tangible, knowable' (Mol 2002: 33) by analysing them by following a series of heuristics. These include interview questions that help attune us to 'listening to things, observing them in action, discerning their co-constitutive influences' (Adams and Thompson 2016: 18) to reveal how the practices enacted here can 'evoke both past doings and future imaginings, translating what has come before and translating what might unfold next' (Adams and Thompson 2016: 75). Together, my engagement with these heuristics generated another, different, but connected, mode of knowing, in revealing how practice knowledge is mobilized in simulated human patient pedagogies. During the course of this praxiographic research, these enactments revealed that there is a paradoxical relationship between simulating human bodies and teaching people to care for human beings. Placing the importance of these very human 'moral attributes', such as compassion, empathy, wisdom, humanity and love, at the centre of caring for real human beings seems to stand in direct conflict with the enrolling of

computerized simulated human patients to teach these qualities. How, then, might a sensibility for patient-centred care be mobilized in spaces where the posthuman assemblages of human educator and non-human pedagogies are in constant flux?

Braidotti (2013: 190) writes how, in attempting to overcome humanism, 'to be posthuman does not mean to be indifferent to humans, or to be de-humanized. On the contrary, it rather implies a new way of combining ethical values with the well-being of an enlarged sense of community'. Rejecting universalism, she suggests, the human–technological interaction has shifted towards 'an egalitarian blurring of differences' (p. 109), bringing about a strong sense of inter-connection between self and others, including non-human others, and relationality that transcends negativity and creates conditions for mobilizing hidden possibilities for future 'sustainable becoming or qualitative transformations of the negativity or injustice of the present' (Braidotti 2013: 192). Ironically, then, in our human/non-human assemblages, in our becoming more-than-human, or posthuman, we become 'better', more human(e), humans. *More human than human*, perhaps.

The posthuman, post-anthropocentric practices, privileging neither the social nor the material, embody both the actual and virtual, and make indistinguishable the real from the imaginary, the outside indistinguishable from the inside, and the human indistinguishable from the non-human. Similarly, the posthuman analysis performed here, by enrolling the *gathering anecdotes* and *unravelling translations* heuristics to interview digital objects (Adams and Thompson 2016), shows how the educators themselves unravel and challenge the ubiquitous notion that the patient is, and should, always be in the centre. In this sense, it may also be possible to be critical of centring the human in educational research for whose topic of interest is the teaching of the very enactment of centring the human. Enrolling these heuristics revealed that it is the hybrid posthuman practices of the nurse educators that act as mediators to deflect the treacherous effects of the translation of the real human body into a simulated one. It is the nurse educators' enactments of the multiple realities of nursing practice, in an assemblage of these multiple realities and the imaginary tales of simulation education, that allow the nursing education assemblage to hang together. Thus, the knowledge of nursing practice is mobilized.

Throughout *Blade Runner* (Scott 1982), various ethical and moral questions are contemplated: what it is to be human and do simulated humans have the right to live; who has authority over their engineered memories, and is it possible for replicants to develop empathy

and compassion?  These questions are doubly pertinent for Deckard, as, in several scenes, the cinematography seems to suggest that he himself is a replicant, but one who possesses the capacity for compassion for others; an ambiguity that has troubled audiences since the film's original release and beyond.  At the film's climax, Deckard battles with Roy, one of the remaining replicants he must retire, on the rooftops of the tall buildings.  In a cliff-hanging scene, Deckard jumps between buildings and falls, clinging to the edge of the roof while Roy looms over him.  Just as Deckard loses his grip, in a final act of compassion, Roy catches Deckard's wrist and pulls him up to safety before meeting his pre-programmed 'failsafe' self-destruct 'termination' death, suggesting that the replicants may have developed a capacity for empathy.  In sparing Deckard's (maybe human) life, Roy (a nonhuman) can perhaps be seen to be *more human(e) than human*.

Just as the replicants in *Blade Runner* (Scott 1982) were able to develop the capacity for empathy in their hybrid assemblages with their bioengineered human-ness, it might be suggested that the nurse educators, in their posthuman relations with SimMan™, are able to mobilize knowledge about how to care for other human beings with compassion and empathy in more-than-human ways.

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