

Hello, it's Noelle™. I think I am in labour...

The case of creative learning

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Abstract

The use of simulators has become an expectation for the teaching of health students. The ideal is that the student will practice all skills on a simulator before venturing out to real people. Enter Noelle™ created in the image of a pregnant woman who gives birth, talks and can haemorrhage on demand. The teacher is the puppeteer who breaths life into this creation and the student must imagine that this is a real life situation. Obstetrical simulators are also known as phantoms. What is it like to learn from a phantom?

Keywords Midwifery, Simulation, Embodiment

Learning Midwifery from a Phantom

A number of factors, including an emphasis on risk management and a shortage of clinical learning placements, have stimulated a creative movement in healthcare education. Ideally, the student will practice and in some cases perfect skills on simulators before venturing out to real people. The development of high fidelity simulators has accelerated in the past decade with each version appearing to be more human-like in appearance and function. Teachers then

create scenarios in which students must immerse themselves to not only learn discrete skills but to do so in a created healthcare context. While scenarios are likely based on real life practice, they are usually sped up so that the student can work through situations such as a many hours long labour in 20 minutes or less.

Noelle™, a high fidelity mannequin was created in the image of a pregnant woman who gives birth via a spring load mechanism, who talks and can hemorrhage on demand (Gardner & Raemer, 2008). The teacher is the puppeteer who breathes life into this creation and the student must imagine that this is a clinical situation with a human patient. Historically, obstetrical simulation mannequins were called phantoms (Gardner and Raemer, 2008). A phantom is an illusion, something having the form but not the substance of a real thing. The word phantom arises from the Greek phantázein meaning “make visible” or to show. (Ayto, 2000 p. 391) The later Latin phantasma is associated with the notion of an apparition or spectre and has evolved to refer to a dream, illusion, fantasy, or ghost. The same Greek roots have led to other words including diaphanous, emphasis and indeed, phenomenon. No doubt that some of the rationale for using the word phantom was the desire to make visible aspects of pregnancy and the birth process that were invisible to the birth attendant, for example, how the baby turns as it is pushed through the woman’s pelvis. When we think of the glass phantoms or some of those in the Specola museum in Florence, transparency is the goal – bringing to view that which cannot be seen (Gardner and Raemer, 2008). Our question is what is it like to learn from a phantom?

History of the Phantom

The use of simulators to teach or train practitioners has been reported in all fields of medicine and health care. It is likely that obstetrical simulators were among the first to be used in a routine way. Reports of wax and wooden mannequins date to the 9th century. By 1600 phantoms were developed as a way to teach midwives about the management of obstetrical difficulties. In the 1700s father and son physicians Gregoire made a torso of wicker and placed a dead baby in the torso. Dr. Smellie improved on this model by using human bones and covering them in leather for the pelvic torso and made a baby from wood and rubber. Sir Manningham created a torso from

glass so that the manoeuvres of birth could be seen by the learners. One of the more famous phantoms was “La Machine” – an anatomically correct life size mannequin made by a midwife (Madame du Coudray) of the court of King Louis XV. She travelled throughout France teaching midwives using La Machine. In the 20th and now 21st century, the development of simulation models has focused on life-size and anatomical correctness with a wide range of skills that can be practiced and maintained (Gardner & Raemer, 2008).

Enter Noelle™

Noelle™ is a motorized mannequin that can push out a life-size baby. Noelle™ is computerized so that the learner can hear vital signs and Noelle™'s voice. The cost ranges from \$30,000 to \$60,000 and there is an ongoing need to update the computer components and replace certain parts such as the lacerated perineum for suturing. (Gardner & Raemer, 2008). Noelle™'s use is encouraged as a superior teaching approach even though studies comparing the performance of students and practitioners learning on Noelle™ to those learning with uncomplicated models found no difference in skills acquisition (e.g., Monod et al, 2014). Researchers tend to equate confidence or memorization of particular procedural algorithms with skills acquisition. Learning from simulators tends to be about learning how to provide the same care each time rather than regarding labor and birth as an individualized event in a woman's life (Nall, 2012). Perhaps simulation is best used for practices that require repetition and a logical step by step approach such as how to react to an emergency. It may be the practice of a routine as opposed to the sophistication of the simulator that improves confidence or recall of the steps of the routine. Some educators suggest that the least complicated practice models or simulators where students can repeat multiple times or even at home are most effective for teaching skills requiring specific order and manual dexterity (van Wagner & Chu, 2012).

What is it like to learn from a phantom?

Since the 1600s there has been much written about the use of phantoms for teaching and maintaining obstetrical skills. Skill levels improve and are retained – however, the before and after measurements continue to be done with the mannequin upon which the

skill was taught and the actual improvement of skills on live patients is seldom measured. Skill acquisition tends to be limited to a one at a time approach – with a particular skill or event being evaluated such as the manoeuvres for shoulder dystocia. Some researchers use participant self-report for the post-session outcome measures rather than re-measuring performance or evaluating “real life” performance such as changes in intervention rates or outcome measures over time post simulation training. And attempts to measure improvement in other caregiving competencies such as professional-client communication and interdisciplinary teamwork have been fraught with challenges. (Monod et al., 2014, Siassakos et al., 2011; Teteris et al., 2012) The objective of including measures of communication and teamwork is based in the reality that these are vital components to real-life situations. Again, it is not likely the simulator and its qualities would facilitate improvements in these competency areas. Rather the orchestration of a situation, the role play environment and strength of feedback may contribute more to meeting these learning objectives. Indeed, the high fidelity Noelle™ may be somewhat invisible as the student now concentrates on what another student is saying or doing.

Tina's Turn

Tina is a 3rd year midwifery student in a clinical skills lab. It is Tina's turn to practice the management of birth on Noelle™. She is in a room with Noelle™ who is lying on a bed wearing a hospital gown, along with three of her student peers who will play various roles as needed and help move Noelle™, as well as an instructor and a technician. The session starts. A voice comes from a speaker on the wall “Hello, this is Noelle™, I think I am in labor.” In real life, this would likely be a phone call to Tina with Noelle™ likely still at her home. Tina looks around the room for a phone. Her instructor prompts her “talk to Noelle™.” Tina has all sorts of questions in her mind – how did we all end up at the hospital? How did Noelle™ end up already in a hospital bed with a hospital gown on if she only thinks she is in labor? Tina is now trying to sort out the rules of this particular learning experience – the game of birth with Noelle™. Tina starts to ask Noelle™ the usual questions to determine whether Noelle™ is in labor, but Noelle™ does not answer the questions. Random phrases come from the speaker – as if Tina were meant to

ask specific questions in a specific order. Finally the instructor tells Tina that Noelle™ is now in the hospital in labor and she should assess her. She goes about taking Noelle™'s blood pressure and listens to the fetal heart rate; she palpates a contraction and waits for another to time them. All of these assessments are possible on Noelle™. Before the next contraction, Noelle™'s voice says "my back is killing me" – all the while Noelle™'s face is frozen in an insipid grin and she does not move in any way to reflect back pain. Tina asks if Noelle™ would like to have her back rubbed. Tina must get her three colleagues to help move Noelle™ onto her side – she weighs well over 50 kg and cannot move on her own. She has articulating joints and without some well-synchronized turning, she will sprawl with her arms and legs all over the bed.

Tina sets out to rub Noelle™'s back. Noelle™ is constructed of smooth plastic. On her first rub, Tina's hand flies up Noelle™'s back. She does not feel the resistance of flesh, the warmth of the blood circulating. She does not feel Noelle™ sink into the rubbing or flinch at a discomfort of receiving this particular touch. Tina wonders if she should keep rubbing and searches for signs from Noelle™. Next, Noelle™'s voice says "how long is this going to take?" Tina begins to giggle. She thinks – that is exactly what I would like to know – how long is this going to carry on? When will it be someone else's turn? She straightens and prepares an answer for Noelle™, wondering if this is a clue that she should be offering an internal exam or a supportive explanation or perhaps another change in position. She looks to the instructor who seems to roll her eyes and says, "Ok Tina, time to let someone else take over."

What has just happened? Surely Tina knows that Noelle™ is not the real thing. She knows that she is working with a mannequin and not a human. She knows that the overall purpose is for her to learn (or demonstrate) how to do particular skills. At the same time, the like-ness to a human – that specter without substance leaves Tina confused. She is aware of the call to respond – even though she knows in a way that the call comes from the instructor or the technician. Noelle™ has back pain. But Noelle™ does not have human substance. She does not show the presence of pain on her face. Her skin is not skin. She makes no response. Her plastic flesh is cold. If all we want Tina to learn is to rub when the woman says pain, we could see that Tina has done so. But, has Tina learned the nuances

of supportive care in labor? Has she learned that for some women, the need is for a light, fluttering motion – barely touching at all; for others, a put your whole body weight behind it pressing on a particular spot; and for others the sensation of a back rub is just too intense for her? Has Tina learned to have a good look at the woman's back while rubbing? Can she see where Noelle™ or her partner have been pressing already? Can she see the signs of a baby in a posterior position or of descent of the baby? These can be subtle signs difficult to see on human flesh – but impossible on the plastic back of a mannequin.

Can Tina have an embodied experience with Noelle™? Certainly Tina has hands with functioning nerves – she can feel Noelle™ when she touches her. But, she does not have the reciprocal experience of feeling another human. She may as well have been rubbing the bed or a book. What does she learn about herself through the body to body encounter when one of the bodies is not human (La-tour, 1987)? While the instructor and technician may enjoy their creative attempts at designing a situation for Tina to conquer, Tina is struggling to respond creatively.

How do we inspire a relational component to care when working with Noelle™ - a stranger to Tina with no capacity to create a midwifery relationship with her? While in her bigger job of pretending she is engaged in a real life situation that could include a real life woman who has been in her care for months, this could be more of a test of Tina as an actor than of Tina as a competent midwife. Tina has not had the opportunity to talk to Noelle™ at a series of prenatal visits or to see her home, her partner, perhaps her mother or best friend. She has not gained a sense of Noelle™'s goals, fears, dreams – does she want music or aromatherapy, does she want to have an epidural at a point in her labor, does she want her partner to cut the cord? Do Noelle™ and Tina have a comfortable, trusting relationship where they can tease and joke a bit? Or is Tina aware that Noelle™ is very aware of her young age and has not yet developed a trust in Tina that would allow her to be the most responsible care provider for Noelle™. Is Noelle™ more likely to be looking over Tina's shoulder for cues from the midwife that Tina is on track or not?

We interact with non-human objects in all of our day-to-day moments. We wear clothing, sit on chairs, and drive cars. We are rarely confused by these experiences. Or is it a little more complicated

than this? Leder (1990) suggests that we tend to lose our consciousness of our bodies when the actions we perform become “habitual action patterns” (p. 89). If Tina were an experienced midwife, she may perform some of her caregiving actions without a consciousness of her body movements; she may rub Noelle™’s back or hold her hand without a thought that this is a plastic model and not a human body. It is when there is an abrupt or unanticipated change that we become conscious of our bodies and functions. Perhaps Tina experienced an unanticipated change that called her attention to the plastic model. Or has a student experienced enough of the practice world to make her actions unconscious habits? Is there a risk that her unconscious habits will develop in relation to working with the inanimate simulators if role-play with simulators becomes the most common learning experience for healthcare students? Might it then be during human-to-human interactions where there becomes an abrupt consciousness? Some (e.g., Sobchack, 2010) suggest that this abrupt consciousness places the individual’s attention on self and not on self-and-others or in this case, the interactions between midwife and labouring woman. Therefore can the learning from a simulation experience be competently applied to a real-life clinical situation?

Perhaps Young’s (1984) discussion of the discontinuity of the pregnant woman’s embodied experiences helps us with understanding the experience of working with the phantom Noelle™. Discontinuity occurs when an individual has a particular understanding of her body and its relationship with the world. When components change abruptly, as opposed to gradually, actions can become challenging. The lack of feedback from the simulator changes the environment within which the student acts. Tina struggles to understand what is happening when she rubs Noelle™’s back. What might she be learning here?

What is central to these attempts to explain the phantom nature of this experience is the difficulty in capturing the entwined body relationship of caregiving moments. Body-to-body actions involve an engagement – an entwining where the sense of where one body ends and another begins is both obvious and uncertain. Naturally, the midwife knows that the hand she holds is not her own, but at the same time, contact with the physical flesh of an Other brings about sensations not only of that Other’s hand, but stimu-

lates sensations of one's own body (Merleau-Ponty, 1962). With each improvement to Noelle™, the classification as a high fidelity model pushes us to see her as a human. Fidelity – faith in the model's human nature brings us to expect that her human-ness will be reflected in how she acts, what she feels like, her responses, her morals and ethics. And yet, despite the creativity of her developers, giving her a speaking component, the ability to hemorrhage and recently the ability to birth on hands and knees, she is still a plastic doll. Even high fidelity leaves her facial features, limbs and genitalia lacking. Noelle™ is an object upon which to learn.

One can think of the simulation experience as a game, complete with its rules and limitations, Gadamer (1992) suggests that the game itself becomes the objective and not the interests of the individuals playing the game. The student is still expected to engage creatively in this game of learning but the technology of the simulator limits her ability to immerse herself in the wonder of birth. Indeed, Noelle™ replicates a technocratic pathological position on labor and birth with a passive woman who lies on her back and lets others speak for her (Nall, 2012).

Can the student develop compassion in the simulation situation? Tina giggled at a moment when Noelle™ was calling for compassion. Leder (1990) suggests that compassion requires that we "act as if we were one functioning body" (p. 163) in order to suffer together. The student in the simulation context can carry out all the required tasks but miss the point of connection as her concentration is on self. "It is this embracing of relation as much as the specific actions I perform, that brings about the relief of suffering." (Leder, 1990, p.163).

Learning clinical skills can often be facilitated by seeing with one's eyes the processes and body parts that are normally invisible. There are many helpful devices to assist students to learn to assess cervical dilation – an assessment in real life that is accomplished by palpation only. The student can "train" her fingers to locate the cervix and then measure the size and depth of the opening, training her spatial perception through repeated assessments. However, as good as the student becomes at doing this with visual aids, she will eventually have to gain the courage to insert her fingers into the woman's vagina and consider the discomfort experienced by the woman; she must find the cervix and determine its dilation. The training models, whether on a piece of board or a model like Noe-

lle™ do not have the human “feel” – the resistance of real flesh, the sense of invasion, the discomfort, shame, embarrassment. And the student does not experience the anxiety of performing an intimate and invasive assessment on an actual human.

Let's return to the reason why these models are developed. Risk managers have put much pressure on educators to have students master skills using simulators so that they do not need to practice on real people until they have the competence to not put the patient at risk. (Bradley & Postlethwaite, 2003; van Wagner & Chu, 2012). This sounds like an excellent plan. At one time there was a saying in the education of doctors: “see one, do one, teach one” as if one observation opportunity was enough to be ready to do the skill and doing it once was enough to teach it to another student (Rodrigues-Paz, et al., 2009). In medicine, the learning of more intimate procedures was done on cadavers or anesthetized patients. While no longer considered acceptable to have students perform pelvic examinations on every anesthetized female patient without consent, there is still a policy of the Society of Obstetricians and Gynecologists of Canada regarding appropriate conduct of pelvic exams on anesthetized women for the purpose of teaching. The wording of the policy still allows for some non-consent examinations (Chamberlain et al., 2010). Perhaps the use of simulation can make learning safer, more comfortable and acceptable to patients.

The fullness of practice – not just skills

As important as the mastery of particular skills or tasks might be, these are only a small part of care giving. Indeed, the WHO estimates that 80-95% of babies could be born with little or no intervention (Gibbons et al, 2010). But in teaching the skills of birth, we spend much time on where one ought to place one's hands. There are now a number of studies comparing hands on versus hands off care with little or no difference found for outcomes like condition of the baby, length of the delivery and condition of the woman's perineum (da Costa & Reisco, 2006; Nilsen & Reinar, 2012). At the same time, there are many intertwined observations and interventions that the midwife may perform during the birth that improve the overall experience for the woman. For example, there is evidence that the presence of a supportive person can improve all the same outcomes as were unchanged with hands on or hands off

care (Hodnett et al., 2012). These observations and interventions represent the fullness of practice, the attention to the individual, full-bodied human-to-human relational care.

Noelle™ and other forms of simulation mannequins may be a helpful starting point for students to learn clinical skills. Concerns about harming the person can deeply affect the student's actions. She may be able to perfect some of the fine motor skills on the simulation model that can feel extremely awkward in real life situations for example obtaining a sample for cervical cancer screening. But, there is still the significant emotional transition of going from interacting with an inanimate object to the complexities involved with interacting with a live human being. Is that transition eased through the use of a high-fidelity simulation model? It seems that despite the human like appearance, the student is constantly explicitly aware that the model is simply that – an inanimate model. There is a need to come to terms with actually invading the person's skin, muscles, blood vessels, and orifices. There is a need to learn the feel of human flesh – what should a breast, belly, vagina or cervix look like, feel like? Should it feel this warm or this smooth or this hard? Is this particular odour ok or a sign something is going terribly wrong? There is a need to attend to the reactions of the human who is the subject of this care – is this painful, comforting, too long, not enough? How might further phenomenological exploration help us to use the phantoms well and then to find ways to help students to transition to human care?

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