Feature

USING A SIMULATED LEARNING ENVIRONMENT

Mike Walsh explains how students can prepare themselves for disturbing presentations in emergency departments by using Stilwell, a simulated learning environment

Summary
Stilwell is a simulation environment designed for postgraduate emergency care staff. It encourages participants to make less obvious diagnoses of patients who have presented to emergency departments, and to consider a wide range of factors when making treatment and management decisions.

Keywords
Simulation, safe settings, active learning, real-world practice

EMERGENCY CARE is an unpredictable and fast changing environment in which staff have to make critical decisions often with incomplete knowledge of patients or their situations. There is much concern, therefore, for the safety of patients in these environments.

Such concerns are highlighted in the Institute of Medicine’s report To Err is Human (Kohn et al 2000), which draws attention to the need for safe decision making in stressful clinical environments.

Consequently, there has been much interest in the use of virtual simulation to improve staff performance and patient safety in emergency care.

Simulation in emergency care environments is often thought to refer to the use of manikins in clinical skills laboratories. Jeffries, for example, describes simulation as ‘activities that mimic reality and variously involve role-playing, interactive videos, or manikins that help students learn and allow them to demonstrate decision making, critical thinking, and other skills’ (2007).

Advances in technology, however, have led to the advent of virtual simulation, which can go beyond the limitations of manikins and role play in a way that is considered ‘reliable, reproducible and interactive’ (Seropian 2003).

Simulation in health care was pioneered in the United States by Giddens (2007), who created a multimedia simulation community called the Neighborhood to challenge students to work with realistic patient and family problems, including emergency situations.

Giddens’s work is based on learning through the analysis of narrative to engage with the complexities of front line health care, and can lead to a willingness among students to challenge their preconceptions and develop more patient-centred, safety-oriented approaches to care (Irons 2006, Chan 2008, McCallister 2009).

Computer-based simulation is ideal in emergency care because it can:

■ Enable students to practise skills in safe settings where they can make and learn from mistakes.

■ Enable students to critically analyse and reflect on their performance and that of others (Rauen 2001, Jeffries et al 2005).

■ Enable students to repeat activities until they are confident in undertaking them.

■ Promote active learning so that what has been learnt can be retained longer (Johnson et al 1999).

■ Support access to situations that are rarely encountered in real-world practice.

■ Expose students to the same simulations to ensure that their experiences are standardised. This increases students’ self-confidence and decreases their anxiety, and obviates the problem of variability experienced by many students in clinical placements (Jamieson et al 2006).
Computer-based simulation is ideal in emergency care because it can enable students to practise skills in safe settings.
One example of a simulated learning multimedia computer program is ‘Stilwell’, which is used by paramedics and nurses undertaking a postgraduate emergency care course at the University of Cumbria.

The Stilwell site is on Blackboard, which is an internet-based learning environment that allows students to access course material, and communicate with fellow students and tutors who are online, from anywhere in the world.

Students using Stilwell can learn to cope with the demands of real-world emergency care. It offers students opportunities to:

- Encounter traumatic situations in a safe environment before they meet them in the real world so that they are better equipped to deal with the realities of emergency care.
- Learn from, and solve problems in, realistic, complex situations.
- Take part in multiprofessional learning alongside community and emergency nurses, and paramedics.
- Encounter the same experiences that other students encounter, which standardises the learning experience.
- Practise history-taking skills in difficult situations.
- Reassess narratives until they are sure they have learned their objectives fully.
- Assess healthcare professionals’ performance.
- Discuss the ethical and professional dilemmas raised in the narratives.
- Pursue areas of interest that are signposted in the narratives.

The program involves characters, played by actors, who appear to live in the real world rather than in a computer gaming scenario. They live in Stilwell, an area of the town of Brigstow, both of which are based on real places.

To help students get to know Stilwell, the site includes: an introduction to, and map of, the neighbourhood; a video tour and photo gallery of Stilwell, from its terraced low-income housing to its large Edwardian town houses; and a copy of the local weekly newspaper, which portrays real local and national events.

Stilwell has a socially and ethnically diverse population of 60 characters. Many of these characters have electronic patient records or have compiled logs, and all of them appear in video clips and podcasts (Table 1).

A wide range of social and health-related problems are simulated in the program, and the characters are seen to interact with health and social care agencies, particularly the emergency services.

Students can learn about the characters’ health and social problems, therefore, by referring to these resources and following their narratives.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Devices to develop narrative</th>
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<tr>
<td>Device</td>
<td>Description</td>
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<tr>
<td>Electronic patient records</td>
<td>Each character in Stilwell has a detailed electronic record linked to the site’s video tour and photo gallery.</td>
</tr>
<tr>
<td>Critical incident videos</td>
<td>These professionally made, often disturbing, videos show important events in the characters’ lives.</td>
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<tr>
<td>Podcasts</td>
<td>Characters tell their stories in podcasts either in the form of audio diaries, aural accounts of their symptoms, or aural justifications of their actions.</td>
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<tr>
<td>Blogs</td>
<td>Blogs, apparently written by characters in Stilwell, present health care from different viewpoints and contain links to relevant websites.</td>
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Table 2 Three simulation scenarios

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Initial assumption</th>
<th>Situations revealed by Stilwell</th>
<th>Diagnosis</th>
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<tbody>
<tr>
<td>A toddler with serious injuries.</td>
<td>The patient’s mother says her daughter was injured after falling downstairs.</td>
<td>The toddler’s single mother is seen being harassed on the phone by a loan shark. She is then seen taking out her frustrations on her daughter, whom she blames for her predicament, by assaulting her. She is then seen calling 999 and claiming that her daughter has fallen down the stairs.</td>
<td>The patient is a victim of assault by her mother, who has serious problems with alcohol use and lack of money</td>
</tr>
<tr>
<td>A younger woman who is drunk and has self-harmed.</td>
<td>The patient has mental health problems.</td>
<td>The patient is seen reading a story in the local newspaper about the conviction of a paedophile, and this prompts her to remember long-forgotten events. Video flashback sequences to her childhood reveal that she is a survivor of prolonged childhood sexual abuse by her father and his paedophile associates. Her subsequent self-harm episode is seen on video and described by her in a podcast.</td>
<td>The patient’s self-harming and drinking is due to her history of sexual abuse.</td>
</tr>
<tr>
<td>An older woman with chest pain.</td>
<td>The patient missed her footing while climbing some stairs and collapsed.</td>
<td>The patient’s electronic patient record shows that her stumble has resulted in a compression fracture of a thoracic vertebra, which manifests as pain radiating to her chest.</td>
<td>The patient has osteoporosis.</td>
</tr>
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</table>

These narratives may concern how the health service operates in Stilwell, for example, or may refer to public health concerns in Brigstow, such as alcohol abuse in the town centre at night.

Real national events, such as extremes of weather or swine flu, may also feature in the narratives, which thereby relate the characters to the UK as a whole.

Students can apply theoretical knowledge to what they have learned from Stilwell so that they can learn how to deliver appropriate care.

To illustrate the usefulness of simulation programs such as Stilwell to emergency care staff, Table 2 describes three scenarios.

Initial assumptions made about these scenarios can lead to misdiagnoses, so emergency care staff must learn to look beyond what initially appears obvious to understand what has really happened. Learning through simulation can help them do so.

Assessment
Stilwell can be used equally well by distance learners or classroom-based students, which increases its accessibility and flexibility. It supports multiprofessional learning and it incorporates users’ and carers’ voices in a learning environment.

Stilwell also offers a large stock of re-usable learning material, which reduces the preparation time needed by teaching staff.

Focus group evaluations of Stilwell have been carried out by an external researcher and the results have supported the development of the Stilwell site.

Students say that they appreciate the site’s realism and how it enables them to see scenarios from different perspectives, which is particularly useful in multiprofessional learning programmes.

Students also said that they found the program a thought-provoking and challenging learning experience that makes them learn in a new way.

The challenges to be overcome in using Stilwell concern the sensitive nature of the material covered in the characters’ narratives, difficulties experienced in using its software and in its funding.

Sensitive material Some of the material in Stilwell is disturbing, which means that support for students who access it is essential. If characters’ narratives relate to sensitive topics, such as sexual abuse, students are warned in advance and can take part in debriefing sessions after watching and hearing them.

Students who think that, for personal reasons, they may be particularly affected by these narratives are offered confidential tutorials. Students who access Stilwell at home are advised not to do so when children are present.

Although some students have been shocked by the explicit nature of some of the narratives, particularly those involving violence and abuse, others have said that they prefer to be exposed to them in a safe and controlled environment before encountering them in the real world, where they may be unprepared and uncertain of how to react.
Using software Students with limited information technology (IT) skills can find simulated environments such as Stilwell difficult to navigate, so they are provided with training to ensure that they can gain the maximum benefit from the program. As a result, many have reported that their IT skills have improved.

Funding The development and use of simulated environments such as Stilwell often require more funds than local healthcare providers can provide. However, staff at the University of Cumbria are bidding for external funding to allow Stilwell to be developed as a national resource.

In Canada, meanwhile, a marketing and recruitment agency called HealthForceOntario has provided $425,000, or slightly more than £275,000, to create a national version of Stilwell to improve multiprofessional team working in emergency care through education.

The willingness of HealthForceOntario to invest in innovative educational strategies is testimony to the power of virtual simulation. In comparison, a UK emergency services review published by the Office of the Strategic Health Authorities (Sturgess 2009), while directing readers to many valuable resources, has little to say about the use of simulation to educate front line staff.

Conclusion Informal evaluation among teaching staff has revealed some resistance to using Stilwell as an educational tool due to its innovative and challenging nature. This was expected, however, and many of those who were resistant have come to understand the important concepts involved in Stilwell and have become keen users.

Implications for practice Practitioners with little immediate information can make diagnostic and treatment errors unknowingly based on assumptions or stereotypes. However, simulated learning environments such as Stilwell can challenge practitioners to think deeply about the implications of patients’ illnesses or injuries, and to be more aware of the contexts of patients’ narratives.

References