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Currell, Karen and Taylor, Ruth

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HUDDLE STREET – A VIRTUAL LEARNING ENVIRONMENT FOR INTEGRATED INTERPROFESSIONAL WORKING WITHIN A HEALTHCARE SETTING

Karen Currell[1], Ruth Taylor[2]

[1]Department of Health Sciences, University of Huddersfield (UNITED KINGDOM)
[2]Department of Informatics, University of Huddersfield (UNITED KINGDOM)
k.currell@hud.ac.uk, r.e.taylor@hud.ac.uk

Abstract

Huddle Street is a 2D virtual street that will act as the interface for new and existing e-learning materials, digital resources, case studies etc. for health care students from different professions. The Street will support the diversity of the forthcoming new curriculum for nurse education at a university in the north of England and its integration with other professions by providing students and all professions with access to the virtual environment and its occupants. The environment, lives, social and healthcare needs of the street's occupants will provide a context and shared focus for different professions. Academics will be able to add materials and expand the system over time and evolve the individual profiles and stories of the street's occupants and the system should recognise and reward students who engage with the virtual inhabitants appropriately. Although this is essentially a simple concept it offers the potential to create a very rich and engaging teaching space. The development of Huddle Street as a completed product is taking a staged approach. Initially we propose to demonstrate proof of concept and provide a detailed design scheme for the street. The authors would like to present at this conference the motivation and context of the development of Huddle Street and would like to present initial development findings and products of this VLE. The authors also report on the research findings from a collaborative focus group held to gain insight and knowledge from all professions, user carers and practitioners who could envisage using such a VLE.

Keywords: VLE, Collaborative Working, Healthcare.

1 INTRODUCTION

In the United Kingdom healthcare is provided by the National Health Service (NHS). Founded in 1948 the NHS provides comprehensive healthcare for all and is free at the point of delivery. The funding for the NHS is provided via taxation with an annual budget of over £100 billion (1) Also unique to the United Kingdom is the ability to study for a specialism within nursing at University. Courses within adult; child; mental health and learning disability nursing. Conversely in most other countries a generic training is provided initially and specialism's come post qualification (2)

The quality of nursing care in the United Kingdom is a constant issue of great public interest and importance. Nurses work in a range of settings where healthcare is delivered both in an acute and community setting. In the UK over 500,000 nurses work within the National Health Service making them the largest professional group and as a consequence what they do and how they do it has enormous influence on patients and healthcare in general. Major advances in medicine over the last 10 to 20 years have meant that healthcare is provided differently and in different settings. There is an increasing need to integrate health and social care to enable patients to live independent and valuable lives. These changes mean that nurse education must change in order to deliver a workforce who is fit for purpose and future proof (2, 3, 4). In 2010, the Nursing and Midwifery Council (NMC) responded to these pressures and introduced new standards for pre-registration nursing education. In turn this University has undertaken to write a new and innovative pre registration nursing curriculum which meets these standards and the needs of the National Health Service going forward. Central to this new curriculum is a desire and need to take an interprofessional approach (5) and indeed the curriculums of other health professionals such as physiotherapy, occupational therapy, podiatry and operating department assistants and midwifery have been integrated into this new nursing curriculum.

The integration of differing curriculums from diverse professions does present challenges (6, 7) quite understandably each profession is extremely focused on their particular discipline. The challenge for this new curriculum is to allow individual professions to maintain clear professional identities but to

encourage integration and co-operation over commonalities and shared values and encourage effective interprofessional working (6). (8) Identifies six key components for interprofessional practice summarised in the table below:

Table 1: Adapted from (Miller et al 2001 (8))

Interprofessional learning is ongoing throughout the educational experience
Interprofessional delivery supports the development of team-working skills
Interprofessional curricula are patient/client centred
Interprofessional curricula are interactive
Interprofessional learning should be case/scenario based
Interprofessional learning is built on a model of student development.

In response to the need for a vehicle to integrate the curricula across the University of Huddersfield's School of Human and Health Sciences an interdisciplinary project was proposed to design a Virtual Learning Environment (VLE) where all professions could converse and learn together. A novel approach to the VLE was proposed that would include features and interaction styles more commonly associated with computer simulations or games. It is widely recognised that the type of interaction and feedback found in computer games encourages engagement can support the development of generic skills like strategic thinking, planning, communication, negotiating skills, group decision making etc. (9)and this approach was seen as adding qualities that would be well aligned with the requirements of interprofessional working. Additionally the new generation of students are digital natives (10) who are computer literate and have high expectations of digital tools. Although older health care workers and professionals (the digital migrants) who have not grown up with technology at the same level, may find new approaches to teaching and learning requiring the use of digital tools challenging, there is no doubt that future developments in education will see their increasing use and sophistication.

The new VLE needed to have impact since it was important in bringing professions together and the use of strong visual imagery in the idea of a street and virtual community was proposed. By creating a visually rich environment learning could be supported as visual representation supports perceptual inferences that people find easy to understand (11). Organising and grouping information and content spatially by using the image of a street would also help reduce the complexity of the interface and reduce the need for labelling. Students should be able to locate information based on the visual logic of the virtual environment. Effective interactive visualisation systems should allow exploration and amplify cognition (12) so students should be encouraged to explore and interact in a more playful way rather than the use of the VLE being purely task driven.

Huddle Street was conceived from this premise and concept designs developed as part of discussions between the health professions designing the new nursing curriculum.

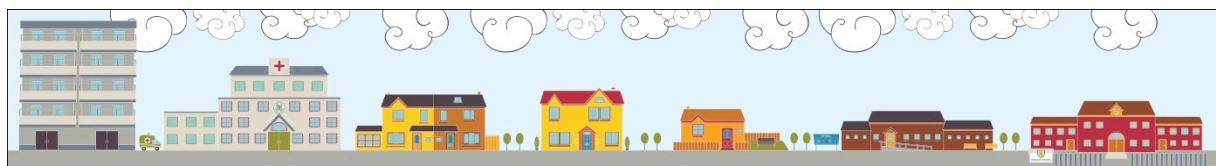## 2   HUDDLE STREET, WHAT IS IT?

Fig 1. Image shows original concept design for Huddle Street.

Huddle Street www.huddlestreet.co.uk (nb. Website and system is under development) is a 2D virtual street and community providing a hybrid Virtual Learning Environment that combines features and interaction styles more commonly associated with computer simulations or games and social networking. Huddle Street is populated by diverse families and individuals living in a wide range of housing. There is also a hospital, GP surgery, school and other community amenities and more. Academics, user carers and practitioners have been consulted via focus groups and information from these groups has been utilised to develop content for Huddle Street. The environment, lives, social

and healthcare needs of the streets occupants will provide a context and shared focus for a wide range of health professionals. Academics will be able to add material and expand the content going forward which ensures the VLE remains contemporary and mirrors reality. After consultation with student groups the system will be designed so that students are rewarded with points and positive feedback from the people they visit and provide health and social care for and interact with when they log into the street. Similarly collaboration and contributions from user carers and practitioners has yielded rich stories and experiences and valuable resource which will also be available through Huddle Street. A student will be able to log in using a unique password and "virtually walk" along Huddle Street to access the houses; hospital, school etc. converse with the occupants and access appropriate digital stories, cases studies, videos related to that person or family. For example, a nursing student may log on and visit Bernard at number 4 and learn that he is isolated and trapped in home due to a long term respiratory problem. Using the resources and characters on Huddle Street the student can explore the resources and professionals that can be utilised to address this health and social need and will for example be able to look at home start and day care facilities; look at for example the role of the social worker in helping Bernard regain independence. In doing so the student learns to work in a multidisciplinary environment. The interactive nature of the system will enable the student to gain feedback by seeing the effects of their interventions on the virtual patients. Other Universities have successfully utilised technology to encourage interprofessional learning (13). What sets Huddle Street apart from other is its use of games style interaction and feedback to help the student engage.

3   METHODOLOGY

Central to effective development of Huddle street is to ensure that the views, experience, and opinions of all those involved are considered and valued. The authors have taken an epistemological perspective born from a desire to discover: *'What it means to know' (14).* Therefore an interpretative hermeneutical phenomenological qualitative paradigm has been utilised in order to allow the researchers to be part of the research and to construct and interpret the meaning of data collected (14,15) Action research was undertaken in the early development of Huddle Street and has involved focus groups comprising all healthcare professions including nurses from all fields of nursing, podiatrists, physiotherapists, operating department practitioners, as well as service users, carers, academics and practitioners (16) .The information from these focus groups has been analysed using a sensemaking approach (17,18,19) and the resultant data used to specify an effective VLE which will be fit for purpose and serves its intended users well.

4   INFORMATION FROM FOCUS GROUPS

Participants of the focus group were provided with a set of concept graphics showing a mock up of the street, character designs as well as sample case studies and notes based on each character. The session leaders introduced the concept for the VLE and invited discussion from the group leading to the identification of key themes for further exploration. At latter stages of the session smaller break out groups discussed these themes identifying key points and suggestions as well as possible weaknesses or risks.

The focus group provided some detailed proposals and requirements to inform the design with general enthusiasm for a VLE which would allow more sophisticated and engaging interaction than traditional systems. The group identified the importance of providing students with feedback and "rewards" to encourage participation and the system should provide opportunities for student and staff to regularly update and develop content so that it can evolve and is always current. The divide between digital natives and digital migrants was identified as a potential barrier and provision would need to be made for staff or other users who might need support or training in computer skills to enable them to use the tools effectively.

Table 2: Key points arising from the focus groups

HUDDLE STREET	

"Themes"	Key Points
The curriculum and teaching issues	• **Modules** • **Learning Outcomes** • **CPD** • **Blended learning, providing support for part time students** • **The street environment should provide a context in which different disciplines can work alongside or collaboratively with one another.** • **The system should offer opportunities for assessment and feedback** • **The system should link to other resources and information around teaching and healthcare professions and other University resources.**
Usability	• **Navigation and interface needs to be simple and intuitive** • **Staff will need support in learning to use it (e.g. computer "Driving test")** • **Digital Natives versus Digital Migrants**
Content	• **Repository of case studies** • **Module content** • **Content from all disciplines linked to each character** • **Permissions issues need to be considered, who will be able to edit character profiles? Etc.** • **Case studies etc MUST be up to date** • **Students should be able to contribute to content creation**
Interaction	• **Game mechanics** • **Students could enter the world through a virtual representation of the university and then visit characters homes etc. The street should include locations like a school, clinic, hospital etc, for interagency working their might also be things like a police station, fire station, ambulance service etc.** • **A virtual coffee shop on the street could be used as a place for students to meet online and chat.** • **The system could contain an avatar creation tool so that students (and tutors) could have their own character within the community.** • **"Rewards" The system should include some types of acknowledgement or reward for successfully interacting with the characters/environment such as virtual certificates, badges etc, this should be stored on the student profile.** • **Scoring, the system should record and score a student's interaction and approach to problems/characters.**

	• The system could include a prompt or help feature which would be triggered if the student has missed something important or has made an incorrect action. • Students could be "on call" and receive email alerts/text messages from characters on the street needing help. • Students could earn points towards creating new characters or items for the world. • "Unlockables" items or characters that a student can access once they have reached a particular level of attainment. • Being able to "zoom" in and out both in terms of the "street" environment and also Mac like interaction which allows you to minimise and view all open utilities • Audio could be used to enhance certain scenarios or to provide cues for students on a characters condition etc.
Concept	• Like Google maps and street view to show a district rather than just a street, this has advantages over the street since it is a better representation of the real world and could enable more complex geographic based scenarios to be set. The idea of a larger top down map would make it easier to expand the system if needed. • Hybrid between VLE and simulation/game • occupants of the street (community) are characters with their own back story which comes complete with case notes, health information etc. these can be adapted and updated by tutors or via a repository of case studies • The street could be presented like a TV soap opera with episodic content focusing on different individuals, families, situations or events over time. • Situations or events "episodes or chapters" on the street should be set by tutors and could be used to provide scenarios for problem solving by students or to discuss certain topics. • Scenarios could be topical in relation to seasonal, regional or global events e.g. cold weather icy conditions risks to the elderly from slipping or lack of heating, seasonal flu, epidemic, pandemic etc. • The idea of "layers" was suggested this would allow students to explore situations based on their skill/stage of study etc. students would uncover more information deeper into the "layers" which in turn would demand a more sophisticated or detailed response. • Activity on the street could continue after a student has logged off so that when they return they will be able to see the effects of previous actions e.g. how a character has responded to treatment, if they have stuck to a diet/exercise plan etc.
Professionalism	• Five pillars of professional practice (Clinical practice, Administration, Research, Education, Policy), these could have some visual/literal presence on the street e.g. court house/library etc • The system should support students understanding of interagency working • The system should help students understand the need for professional standards in practice with scenarios

	that illustrate and test these. • Student "case loads" should be appropriate to their level of study. • The system should help students gain an understanding of a multi professional point of view and the nature of inter-professional working.
Development issues	• Buy in and involvement from all stakeholders is necessary to ensure the system is designed appropriately and staff are willing to use it • Usability, the system needs to be simple to use and intuitive if it is too complex or it takes too long to learn their will be barriers to uptake • Timescales and deliverables and responsibilities/accountability need to be defined if content is to be provided by multiple individuals and course teams • Project management would need to be capable of handling information and requirements from multiple stakeholders • It would make sense to develop a small scale version of the proposed product and test it to identify problems and risks. An existing project module was suggested as a possible vehicle for this. • Any ethical considerations would need to be discussed and approved by the University • The system should be independent of the Universities existing VLE as navigation and use of this is often complicated. • The system should have help functions for example a glossary of professional definitions.

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