



# 'Using Digital Technology and Interactivity Design to Drive Interactive Networks and the Co-Construction of Social Knowledge; the Nurse Navigator System'



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## Introduction

The integration of a navigator system as an adjunct to a social constructivist approach to the design of an undergraduate nursing degree posed challenges and opportunities in both design and implementation. The integration of Virtual Learning Environments with online E-Portfolio systems and the opportunity for online collaboration and 'live' engagement with processes of reflective practice was an integral part of the University of Sunderland's Nurse Navigator System (NNS). The aim of this study was to explore nursing students' experiences of using the Nurse Navigator System during their initial year of study at The University of Sunderland.

## Underpinning Educational Philosophy

Vygotskian philosophy and metaphorical 'scaffolding' of learning from this permitted a control in the deliverable phasing of developmental progression through the programme in which the opportunity to develop and shape culture was also an acknowledged reality (Vygotsky, 1978). Cultural dependence also had to be shaped between clinical and academic practice, yet situate the student and person centred experience within it.

At this stage it was acknowledged that a social constructivist curriculum:

- Contextualises and frames individual beliefs and values in the context of social situations.
- Focuses on the situated context of knowledge construction. The relative authenticity of the learning context impacts on students' capacity to engage and transfer acquired knowledge to new settings.
- Ensures focused activities that provide an opportunity for individuals to construct their understanding of reality and roots this in the social process of education.
- Integrates and triangulates authentic assessment processes in relation to the relative progression of cognitive, psychomotor and affective development.
- Is characterised by critical reflective practice and ongoing processes of reflexivity.
- Is dependent on the effective facilitation of academic and clinical teaching staff and in this respect it acknowledges the pedagogic expertise of the facilitator in relation to the content specific expertise necessary to support students' capacity to learn. The provision of available resources linked to prior knowledge is pivotal to academic development.
- Necessitates access to an IT and traditionally equipped learning environment with access to information retrieval resources and where appropriate situated or experiential learning that can support active learning.
- Necessitates the inclusive, co-construction and collaborative construction of knowledge which can be internalised at an individual level. It embeds an ethos of value and respect, which is embodied in activity, characterised by co-operation and demands a proactive approach and an ongoing commitment to deep learning.
- Permits the representation of knowledge from an unlimited range of resources and in which the cultural situation or context of that knowledge is significant to the articulation of it.

## Inquiry Based Learning Approaches in Practice



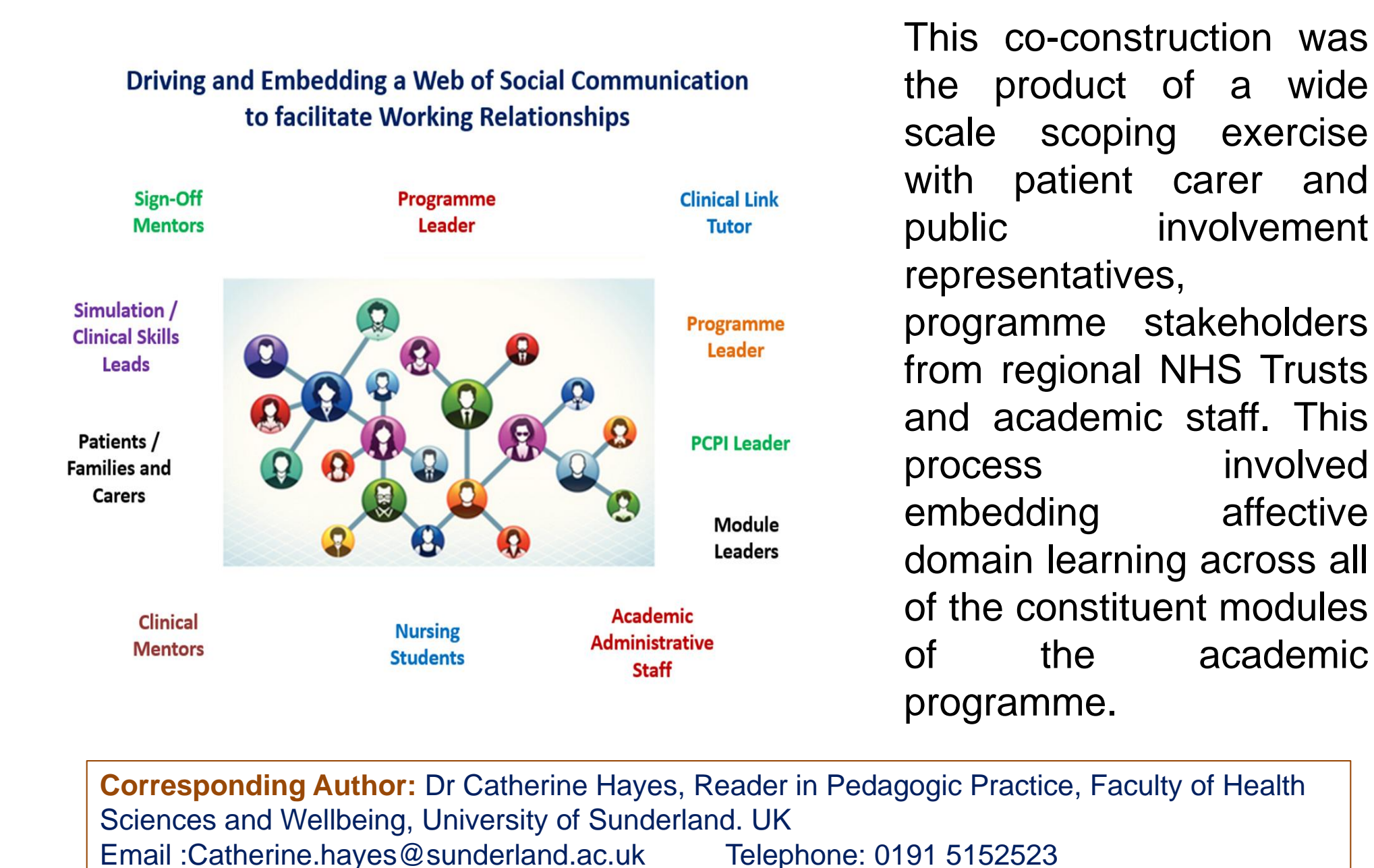
## Pragmatics of Design

The construction and labelling of a relatively disparate set of university IT systems as the 'Nurse Navigator System' was routed in the principles of broader design research where methodologies of teaching, learning and assessment were used to drive educational innovation within and between clinical and academic teaching. In terms of pragmatic design and appearance this was straightforward. However the theoretical basis of the design was more complex and rooted in core pedagogic design principles. The key focus following implementation was to design a system characterised by its capacity to aid students in realising learning gain as predicted by pedagogic theory and research. Responding to the outcome of evaluation is therefore critical in the iterative development of the design of the Nurse Navigator System. A key acknowledgement of the initial pilot study with the first cohort provided the opportunity for the collation of data which could tangibly and qualitatively examine whether expectations of such a conglomerate set of IT criteria could live up to expectation. It was fully anticipated that this period of adjustment would allow for configuring and fine tuning, in keeping with the need to co-construct the learning and resource needs of students in practice. Evaluating the effectiveness of the preliminary pedagogic design of the Nurse Navigator System necessitated reliable indicators of engagement and learning. Since assessment mechanisms are triangulated across the programme in terms of its construct alignment, including standardised testing in OSCEs, clinical practice and in theoretical modules, then this was a relatively straightforward process.



## Curriculum Design Principles

In keeping with the social constructivist philosophy of an integrated curriculum, the BSc (Hons) Adult Nursing Practice programme engenders processes of enculturation into a very specific community of practice i.e.) nursing. The ethos of this approach stemmed from the co-construction of a curriculum that necessitated it to be content specific in relation to professional regulation by the Nursing and Midwifery Council (NMC) yet is driven by learning objectives rooted in end what ought to characterise professional practice. This stemmed from its central vision of **'Education Transforming Care'**.



## Methodology

The focus of the overarching methodology was to shape the pedagogic research in this evaluation to provide actionable outputs. A common approach would have been action research but since design research differed significantly in its capacity to provide forward looking solutions rather than a retrospective means of highlighting IT problems, it was selected as a means of increasing curriculum development approaches to solution finding and progressive development (Tranfield and Starkey, 1998). Curriculum design of the BSc (Hons) Adult Nursing Practice programme was complex and multifaceted. It involved the construction of domain specific and domain collective teaching and learning activities. This system of delivery was ensured to be driven by an assessment process which was in turn triangulated by a Practice Assessment Document across all programme domains of learning across psychomotor, cognitive and affective domains. This design involved changeable variables such as people (patient carer public involvement representatives, NHS Stakeholders and academic staff), infrastructures, processes, policies, professional regulation and environmental constraints. In adopting Design Research as an overarching methodological approach for this study, there was an increased likelihood of being able to apply the phenomena of complex curriculum justification, design and development to an observable context. In its rawest form this was a pragmatic and relatively atheoretical approach, nevertheless underpinned by robust mixed methods framework. The project was acknowledged and developed as a very small scale study of the initial BSc (Hons) cohort. As such, no claim of generalisability is made from the study to a wider context. The methodological approach adopted was selected for two main reasons:

The approach offered the highest degrees of procedural trustworthiness and authenticity in relation to the data collected in both phases of the research. In comparison to observational and longitudinal studies, it offered a very practical and straightforward means of data collection and analysis in the context of an initial pilot study.



## Methods; Phase 1

Following formal institutional ethical approval for both phases of the research study, students of the BSc (Hons) Adult Nursing Practice programme in the Faculty of Health Sciences and Wellbeing were recruited purposively to the investigation. This sampling technique was adopted on the basis that students undertaking this specific programme were experienced to answer questions about the initial piloting of the Nurse Navigator System. The process of participation was entirely voluntary and students were invited to participate via invitation. The sample was made up of 21 students entering Semester Two of their studies in the academic year 2016-2017. The study was cross sectional and descriptive in design, with data collected via a specifically adapted version of the Clinical Learning Environment Inventory (CLEI), which was adapted to capture student perceptions of the usefulness of the Nurse navigator System to their potential employability in the context of nursing practice. The adaptations captured student perceptions about the extent to which the Nurse Navigator System prepared students in terms of graduate employability. The questionnaire consisted of 29 questions which asked students to respond with an opinion as to whether they agreed with the level to which they agreed or disagreed with core statements of their use of the system.

These values were correlated with the dimensions seminally outlined by Moos (1979) and mapped against core skills in relation to:

- Individualisation – the degree of autonomous practice that the Nurse Navigator affords students in their everyday student experience.
- Innovation – the degree to which new approaches to learning technologies can be implemented.
- Involvement – how much students actually use the Nurse Navigator to contribute to their studies across the BSc (Hons) Adult Nursing Practice programme.
- Personalisation – how much of an opportunity each student is afforded in individualising their Nurse Navigator experience.
- Task Orientation – how clear and well organised learning and teaching resources are across the Nurse Navigator System.
- Satisfaction – the degree to which personal and professional development has taken place as a result of using the Nurse Navigator System.

## Methods; Phase 2



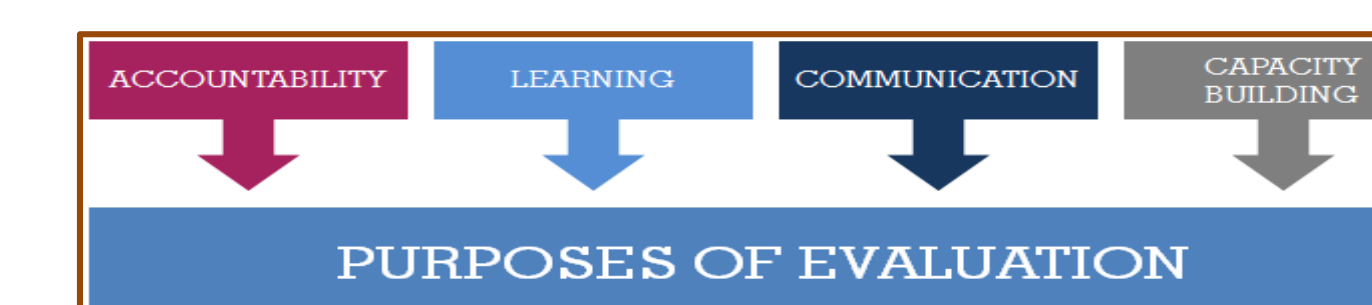
Anecdote circles were chosen as a deliberate and strategic alternative to focus groups (Ali, 2014; Lugmayr et al, 2016). Whereas a focus group has very specific criteria for the exploration of given themes (in this reflection and reflexivity and how well the Nurse Navigator System had facilitated the exploration of each, an anecdote circle does not.

The capturing of the group dynamic or 'spark' between group members is actually much less important than establishing lived experiences and the stories and narrative accounts that can be used to articulate them. It can be argued that in this sense it advocates a greater sense of authenticity in response, in comparison to a focus group since stories are elicited in the context of creating an environment for the session that makes participants feel less formal and able to give a response in the form of a personal story rather than an interactive dialogue. Since anecdotal response lies at the heart of good storytelling, the creation of sound questions that encourage personalised stories is pivotal.

## Findings and Discussion

The six most salient outcomes of the evaluation to be embedded back into the iterative development of the NNS revealed:

- That students perceived there was an impact of the NNS on the progressive development of their psychomotor competence and functional skills since it facilitated the development of their underpinning cognitive knowledge.
- The students perceived that the impact of the NNS on their collaborative social learning was significant in terms of it being readily comparable to existing social networking sites.
- The value of immediacy in facilitating critical reflective practice that the NNS provided was a positive experience that facilitated the notion of thinking and reflecting 'in action and 'on action' (Schön, 1995).
- Embedded virtual learning environments and their contribution to learning gain depend on how the system is used to harness human interaction rather than bureaucratic processes of programme administration.
- Lack of regular accessibility to the system on clinical placements is a huge barrier to use.
- Regular use of the NNS was associated with a greater degree of student engagement with the programme and interactivity within the cohort.



## Conclusion

The NNS has been piloted for a full academic year and initial evaluation reveals its potential for development and potential transferability to other similar educational contexts is high. Students most appreciate the opportunity that the platform provides to integrate processes of reflection into 'thinking on their feet' in everyday clinical practice placements. Potential barriers to regular use included intermittent institutional firewall issues, the potential for the system to be used purely as a social infrastructure rather than as a resource for proactive learning and the availability and currency of information technology equipment.

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