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Title: What are the patterns of personal learning environments (PLE) for undergraduate students undertaking degrees in nursing.

Conference Theme: Learning and Teaching Strategies

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Key words: personal learning, nursing, student-centred

Background:
Undergraduate students engage with learning and teaching resources provided by the university to greater or lesser degrees. In doing so, they develop their own personal learning environments (PLE) which may be in addition to, or instead of, that of the university. Personal learning environments (PLE) have been explained as "*fundamentally a learner-driven model of education, where the traditional provider-centric role of institutions is challenged*" (Johnson & Liber 2008 p3). The limited number of studies examining PLEs to date has focused on the use of Web 2.0 tools and how they are integrated into the student formal and informal learning (Marín Juarros et al 2014). However, there is little information about the PLEs of students undertaking degrees in nursing. The nature of nursing, with the practical and academic elements, may mean that their personal learning environments are quite different to other subject areas.

The notion of what constitutes PLE is unclear and definitions vary. In some contexts a PLE is a digital environment where individual operators choose the inclusion and use of certain digital applications to assist their learning (Marín Juarros et al 2014). Others, such as Henri, Charlier and Limpens (2008) and Modritscher (2010), define PLEs more broadly as the services, artefacts and other learning resources, gathered from various contexts, used by learners.

Within healthcare the digital medium is expanding rapidly and being used more widely in clinical practice (Fahlman 2013; Tahamtan & Sedghi, 2014). Similarly, an increased use of digital resources is occurring in nursing education (Johnston et al. 2013). Traditionally nursing has be taught in a classroom setting with a didactic approach although teaching methods have been developing to include a variety of strategies, such as problem based learning, simulation and blended approaches (Barrett & Moore 2010; McAllister et al 2013). Nursing students' engagement with different mediums are changing; in part to reflect the technological age (Johnston et al. 2013). The increasing use of technologies is also affecting the way knowledge and practice is learnt (Churchill et al, 2014). Developing a clearer understanding of how, why and with what resources individual undergraduate students develop their PLEs will enhance the integration of different learning sets (such as traditional and online aspects) for the student.

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There is limited data about the nature of undergraduate PLEs. This study seeks to explore and map the PLEs of undergraduate nursing students in Australia, Canada, England, Hong Kong and Scotland. This will also enable some comparison to be made between the different PLEs of nursing students in different contextual settings. The findings from this study will inform the development of a survey tool for future use to assess personal learning environments of larger cohorts.

Aim: To explore and map sources of personal learning with undergraduate students of nursing.

Methodology and methods:
Technologies provide opportunities for creating meaningful learning environments. The use of technology enables student to participate in the co-construction of their learning environment and learning outcomes. How students learn in an increasingly technologically enabled society is as important as knowing what they learn. Students can create new and different understanding of curricula content, using a wide variety of media, artefacts and new ways of engaging with learning content. This constructivist approach (Lee 2012) to learning and teaching underpins our study as it is framed through a critical social lens.

A qualitative methodology was utilised to explore students' personal learning environments. Focus groups of nursing students, using a semi-structured questionnaire, were undertaken (Krueger & Casey 2009). Students were assured that there was no 'correct' answer and that the researcher was interested in their experiences. Students were asked to explain their understanding of personal learning environments and giving examples of aspects that helped or hindered their personal learning. These interactions were recorded and transcribed verbatim removing any identifying information (such as names).

Students were also asked to list all the areas of personal learning that they knew of and these were themed by the participants themselves, with the researcher facilitating this activity. Finally, each student was asked to illustrate their personal learning environment either by drawing or bringing a visual piece to the focus group. The themes and PLEs representations were digitally photographed ensuring that any identifying data were removed.

These methods were aimed to explore the complexity and links between different approaches used by students and the technologies involved.

Ethical Approval
Ethical approval was initially granted through the University of Wollongong in Australia. Ethical processes and compliance was then agreed with the other universities through local procedures. An advertisement for participants was placed on e-learning sites at each university and via email. Students were given participant information sheets, an opportunity to ask questions of the research team and signed a consent form with the right to withdraw at any time in the research process.

Recorded and photographic material was stored on password protected computers and originals stored in locked cabinets. At the time of writing this paper only three sites have received formal ethical approval and commenced data collection; University of Wollongong (UOW) Australia, Canterbury Christ Church University (CCCU) England and Hong Kong Polytechnic University (HKPU). Dalhousie University (DH) in Canada and Robert Gordon University (RGU) Scotland are awaiting approval.

Participants:

Students undertaking undergraduate degrees in nursing attending one of five universities; CCCU (England), UOW (Australia), RGU (Scotland), Dalhousie (Canada) or HKPU (Hong Kong) were recruited to gain an understanding of commonalities and differences across geographical regions.

Analysis:
Qualitative content analysis, using a thematic framework will be undertaken of the focus group transcripts and the visual representation, at each university. The data from all five centres will then be collated and analysed as a whole.

Findings:
This paper presents emerging findings from the continuing study. At the time of publication, six focus groups have been conducted: two at UOW, one at HKPU and three at CCCU.

Recruitment was a challenge at UOW and CCCU as students had a large assignment load during the recruitment phase. Thus, at this stage, the study has individual and focus group interviews. At the time of writing this paper eleven students had participated in focus groups with further focus groups planned.

The context of the five universities was different for several reasons. The timing of programmes, the number of intakes for nursing students, the size of student population and the requirements for nursing courses varied across the different countries. For example, England has a 3 year undergraduate programme which required specialisation in adult, mental health or child nursing whereas Canada has a 4 year programme which is generic. This could be seen as a strength of the research to discover commonalities across a range of contexts so that the findings are transferable and credible. Initial review of the data highlighted some interesting areas:

- Students from the English University often defined their personal learning environment as including all aspects of learning from individual to groups. However, when they drew their PLE they seemed to focus on the academic personal learning setting often within their home environment and how they set up their work stations. Productive studying was seen as, usually, a quiet environment with books/articles nearby so that they could produce a good standard of work. However, this contrasted with the group interviews which often included the importance of learning from peers, lecturers, mentors and the practice setting. Participants often gave examples of strategies that they had found useful as the practice area and seeing things visually; this suggested that some of the participants were quite visual and kinetic learners (Clark 2007). Thus, what they saw as 'learning' seemed to be separated into academic and practical rather than merged into a whole learning environment. Surprisingly few students mentioned many Web 2.0 sources of learning and some felt these were unreliable sources of information and would prefer journals or books. Whether students felt this is what they 'should' say because the group was facilitated by a lecturer could be debated. However, some students did talk about using information from web sources and using Google as a search engine to get a general idea around the topic area.

- Participants in the Australian University highlighted the importance of incorporating strategies into their PLE to facilitate a mental state conducive to study and learning. This included creating physical environment conducive to study but, also, included creating a mindset for study. One example of this was using the digital application 'Spotify$^{©}$' to use music to create a mental state that he required for learning. Participants here also

highlighted the importance of Facebook[©] for networked learning opportunities. The PLE, for some students, was seen as comprising separate areas of activity: for example, Google and the University library were used for information seeking; Facebook[©] and Messenger[©] for networking and conversation; YouTube and Ted Talks for learning to understand.

- The Hong Kong University students initially concentrated on their physical study spaces but expanded to a wider view of PLEs, including information technology and Web 2.0 tools, as the focus group progressed. This discussion included thoughts around their learning styles, preferences and experiences related to personal learning strategies. In essence, students in this focus group emphasized significantly their PLE in terms of technology as the frequent use of Google and YouTube as their instant point of access to facilitate their own learning. With different learning styles and skills in using the technology, they recognized that interactive and receptive online media or learning platforms based on the Internet are the fundamental context of their PLE.

The idea of a theory–practice gap is not new in nursing programmes (Freeling & Parker 2015) and this study may demonstrate that students and nursing curricula need to consider how the students' PLE can be utilised to best effect.

These initial findings indicate that this is diversity and complexity in personal learning environment and may highlight that student nurses are not consciously aware of the full range of activities they undertake when learning. Their perceptions of learning seem to be shaped by their *habitus* (Bourdieu 1984). In other words, shaped by values, beliefs, past experience, expectations of the course, personal learning styles and preferences which might give more credence to certain types of learning activities, whether consciously or unconsciously. Thus, there may be a hidden aspect of personal learning that students do not link to their development. The Johari Window (Businessball.com 2015) may explain this well that there are aspects that students are aware they use to learn and others are aware of, some that they are aware they use but is hidden to others, but some aspects they may be unaware of. This might have important implications for developing self-awareness in students about the different learning approaches that are most useful to them.

However, it must be recognised that, until all of the data are formally analysed, this paper presents an early interpretation and enables discussion only. A more robust analysis is in progress so that a survey tool can be developed.

Limitations
At the time of writing this paper the participant numbers were lower than anticipated and strategies to increase awareness of the project and request participants are in progress. As such, at this initial stage, it will be difficult to identify the patterns until further data is produced.
Also, the contextual differences between the different sites, such as whether the nursing students had a generic or more focused training may complicate understanding of the results.
The students may have felt inhibited to be open and honest about using strategies that might be viewed as 'non-academic' with a lecturer acting as facilitator for the groups.

Implications:
The findings will inform the development of a survey tool to explore in wider context students' personal learning environments.
If students are unaware of the full range of personal learning strategies they employ then examining ways to enlighten students may be useful so that they draw on resources that are most effective. If there is a disconnection between practice and university learning then universities may wish to consider how to reduce this gap so that students value all aspects of their learning environment.

Developing an understanding of student nurses' personal learning environment will help to identify the tools, technologies and processes that students use to develop their learning. This may give important insights to aid curriculum development and design so that students are fully engaged with the learning opportunities available to them.

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Biographies
Ann M. Price is a Senior Lecturer at Canterbury Christ Church University in England. She has a background in critical care nursing and has published a book and several articles in this area. She has over 10 years Senior Lecturer experience and is keen to enhance students learning on pre and post registration programmes. She is currently Professional Lead for Adult Nursing and undertaking a Doctorate in Education.

Dr Moira Stephens is a Senior Lecturer at the University of Wollongong, Australia where she teaches in in undergraduate and post graduate nursing programmes. Passionate about enabling students to become discerning and critical users of information and empathetic, skilled deliverers of health care, Moira is a passionate advocate of practice development and creative ways of working.

Christopher Patterson is a Lecturer in Nursing at the University of Wollongong, Australia. He is Registered Nurse, working predominantly in Mental Health. Christopher is currently completing his Doctorate of Philosophy at the University of South Australia, focussing on the practice of mental health nurses.

Dr Vico Chiang, is an Assistant Professor in the School of Nursing at The Hong Kong Polytechnic University. He is a registered nurse in Hong Kong and Australia. Vico has a research focus on family care in different contexts and including the aspects in family processes, needs and interventions. He also has research interest and work in nurse education.

Dr. Snelgrove-Clarke is an Assistant Professor at the Dalhousie University, Canada. Her program of research focuses on the identification of successful strategies for using evidence in maternal newborn practice. She is exploring the transfer of knowledge through mixed methodology, concentrating on the relationships of health care professionals, organizations, and decision-makers. Areas of interest include women's pain, obesity and pregnancy, fetal health surveillance, and practice development.

Dr Fiona Work is a Senior Lecturer in eLearning and Innovation at the Robert Gordon University and Course Leader for Postgraduate Certificate Learning, Teaching and Assessment (Nursing and Midwifery) where her role includes developing, implementing and reviewing innovative learning and teaching across the undergraduate and postgraduate school portfolio. Having led the development of the School's practice education web pages, Fiona has more recently creatively utilised an interactive virtual learning environment as a pedagogical innovative method of supporting mentors and practice teachers in remote locations. Working closely with practice, she has developed an innovative community pathways placements model which had an action research focus to involve

the participation of mentors and practice teachers to maintain a quality learning environment in light of organisational change.