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Using educational design research to develop authentic learning for Graduate Entry Nursing students in New Zealand.

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Using educational design research

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Using educational design research to develop authentic learning for Graduate Entry Nursing students in New Zealand.

Abstract

This paper describes using an educational design-based methodology to evaluate authentic learning environments for Graduate Entry Nursing (GEN) students. While developing this new GEN program in New Zealand, two specific challenges arose: how to design and deliver a condensed and intensive program that met healthcare sector requirements, while ensuring the content met the needs of the typical GEN student. To meet these challenges the authors used educational design research (EDR) as a reflective and iterative approach to develop and adapt the teaching and learning strategies, content, and delivery. EDR involves four phases: exploration and analysis of the issues, design of a prototype intervention, reflection and evaluation, followed by iterative redesign and re-evaluation; this paper reports on Phase 1 and Phase 2. It is envisaged this paper will provide timely insights for those in the process of developing or refining graduate entry programs in Australasia.

Introduction

Graduate Entry Nursing programs attract diverse, motivated students often with successful careers that want a change of direction (Stacey, Pollock & Crawford, 2016; Pellico, Terrill, White & Rico, 2012). Such programs are well established internationally, and there is increasing interest in the development and availability of graduate nursing programs in New Zealand. The GEN program at Auckland University of Technology (AUT) is responding to this interest having been established in 2019; with the first student cohort now in their second year.

For people aspiring to enter the nursing profession that have a Bachelor's degree, GEN programs offer an opportunity for a career change by undertaking a condensed Masters level program to qualify as a Registered Nurse. However, the graduate level and condensed nature of the program presents pedagogical challenges; not least is the capacity to deliver a responsive, learner-centred and authentic experience; using teaching and learning pedagogies that promote active learning in a real-world context (Maddison, & Strang, 2018; Stacey et al., 2014; Shatto, Meyer, & Delicath, 2016).

For educators in graduate entry programs in New Zealand, there is a need for research that deepens the understanding of what authentic learning for GEN students looks like and the extent to which GEN programs deliver such learning. An integrative review suggested GEN students had contradictory views of teaching in that they wanted to be self-directed in their learning whilst simultaneously being 'spoon-fed' (Pellico et al., 2012,

p.33). Stacey et al. (2108) reported similar findings and suggested GEN students experienced evidence-based learning (EBL) fatigue, which in-turn restricted students' engagement in learning, and their ability to develop critical thinking and clinical judgement. The students could not see how EBL linked with practice. In a small study (n=11), Maddison and Strang (2018) evaluated the use of action learning sets as a method of learning predicated on Eraut's (2000) notion of deliberative practice. Action learning sets involved groups of students inclusive of a facilitator examining an issue brought by one member to the group. Findings indicated GEN students particularly enjoyed working collaboratively to reflect on case studies and practice issues but noted group learning tended to be teacher led in the first instance (Maddison & Strang, 2018).

Our approach

Our goal was to develop authentic learning experiences that recognised these students existing academic capability and prior career experience (McGarry et al., 2011) and promote pedagogies that enable active student-centred learning (Maddison & Strang, 2018). Rule (2006) identified four key components integral to authentic learning. These are the development of learning tasks and activities that closely mimic the discipline's reality, learning that stimulates 'open-ended inquiry' and 'thinking skills', students' engagement in 'discourse and social learning in a community of learners' and students being given the 'choice to direct their own learning' (Rule, 2006, p.2). A frequently used strategy to create opportunities for authentic learning is the use of problem-based learning (PBL) (Herrington, Reeves, & Oliver, 2009). Such learning enables students to be responsible 'for their own learning experience' and encourages them to draw on their previous experience, 'knowledge and skills' (McGarry et al., 2018, p. 343).

Our approach draws on PBL structures and was refined using the curriculum design principles of Meyers and Nulty (2009) who suggested learning strategies needed to be 'authentic, real-world, and relevant; constructive, sequential, and interlinked' (p. 567). The objective being to design learning that encourages and motivates students to progressively engage higher-order cognitive processes by providing challenging and interesting scenarios that are aligned with desired learning outcomes (Meyers & Nulty, 2009). Our use of PBL is predicated on the hypothesis that deep learning is related to the development of professional reasoning. Where deep learning emphasises a greater concern for understanding; resulting in a learning strategy that involves reading widely, research, making sense of and theorising (Biggs & Tang, 2007). Students are required to engage in critical thinking, where one thinks about one's thinking (Chen, Bjorkman, Zou, & Engstrom, 2019; Reale, Riche, Witt, Baker, & Peeters, 2018), and are supported to learn to judge the validity of their choices and actions and adapt accordingly. We argue that this approach is suited to the nursing

profession where graduates must be prepared for increasingly complex workplace environments, leadership positions in population health, and acutely aware of the social determinants of healthcare. In New Zealand, all of this must be informed by an understanding of the Treaty of Waitangi and how to work in partnership with Māori communities. For these reasons, we designed authentic cases that mirrored the socio-economic, cultural, disease and disability profiles of New Zealand society. The cases presented students with people experiencing the leading causes of chronic, health problems situated in real-world geographical locations, with varying access to health services and within a socio-economic context. In this way, we hoped to present more than one physiological, psychological, or social process to mimic what students might expect in practice and challenge students to problem solve and experience working with patients and their whānau experiencing multiple health challenges.

A design-based approach

The research aimed to identify and develop authentic learning environments and to evaluate the impact and effectiveness of these through feedback from students and the researcher’s reflections. For this reason, a design-based methodology was adopted. Educational design research (EDR) evolved from design-based research and seeks to develop usable knowledge constructed throughout the research (McKenney & Reeves, 2018). The benefit of using EDR as a research approach is that it is both pragmatic and supportive of small teaching and learning projects that can inform and make a difference to both students and staff, and subsequently qualitatively evaluates the change (Jetinikoff, 2015). EDR is characterised by four phases, with an iterative cycle of design and evaluation (Box. 1). Each of the four phases can be reported upon to inform transferability of the process to wider contexts. This article reports on Phase one and two of the project. Phase Three (student interviews) and phase four will be reported on in later articles. Ethical approval was obtained from Auckland University of Technology Ethics Committee AUTECH (19/232).

Insert Box 1.

Box 1. Phases of Design Based Educational Research		
1	Analysis and exploration - Identification of the problem and the critical issues surrounding the application and design of authentic learning environments for GEN students, and exploration of supporting literature to identify initial design principles to address these issues.	

2	Design and construction - Prototyping the design of an appropriate on-line and in-person learning environment, delivery of content and facilitation of learning experiences designed in phase one.	Iterative redesign and re-evaluation of the learning environment.
3	Reflection, adaptation, and evaluation - Evaluation of the prototype learning environment and healthcare practice design through user feedback (Lecturer reflections and student feedback), and refinement of the design principles.	
4	Theory building - development of transferable design principles and dissemination of findings.	

Phase One

Phase one involved the exploration and planning of the teaching and learning strategies and modes of delivery to meet the learning outcomes and requirements of the GEN student cohort. Weekly planning meetings took place before the students commencing the semester. In these meetings, the researchers identified the critical issues as needing to develop teaching and learning strategies that stimulated students to engage with content. We identified that in the previous semester the online prereading did not always engage students, resulting in students not being ready for discussion. The outcomes of phase one resulted in the decision to use a longitudinal case-based approach supported by podcasted content.

Phase two

In phase two, the authors^{1,2,3} the weekly reflective meetings continued, and focused on the delivery of the planned session and adapting each week's content based on the information generated during weekly reflective meetings. In a semi-structured format, the authors reflected on their practice, guided by the following questions/statements: what were the teaching objectives, the anticipated design of delivery, anticipated challenges, the challenges encountered, solutions tried and future solutions proposed. Each of these reflective meetings were transcribed verbatim. The reflective nature of the EDR approach enabled the researchers as teachers to reflect on their practice and generate 'usable knowledge' with the aim of influencing future teaching and delivery (McKenney & Reeves, 2018, p. 32). It is notable that reflection is a key concept in nursing that seeks to support practitioners to reflect on their practice. In this sense, EDR supported the reflective nature of nursing whilst being a pragmatic and innovative approach to developing pedagogy suited to GEN students.

Implementation

89 Students worked through cases in a sequential manner. In tutorials, the theoretical understandings of the relevant diagnoses were explored.
 90 Contemporary debates about the evidence for appropriate management of the case challenged students thinking, and students were asked to formulate
 91 clinical priorities. These same cases were then further explored in clinical simulations. Each case presented the students with uncertain patient
 92 trajectories, time pressure, and fragmented information. These representations were designed to be dynamic and adaptable with no set end-point. In
 93 keeping with Meyers and Nulty's (2009) key design principles, teaching was informed by a consensus that future clinicians must be competent to
 94 provide person-centred care. This may mean being comfortable to use clinical reasoning to adapt their responses to meet the persons needs and, as
 95 such, we have attempted to foster this through simulations and problem-based learning. For example, before tutorials and simulations students were
 96 asked to respond to several questions related to contemporary evidence. On the day of the simulation, the students were given a short time to form
 97 groups, develop and then apply their plan of care. Depending on their actions, the simulated mannikin responded accordingly. To further develop their
 98 problem solving and critical thinking skills, students were supported to reflect on what went well, what went wrong and to generate strategies for their
 99 future clinical practice development. We expect that the most authentic learning for the students will occur when their response to the clinical situation
 100 does not go as expected, challenging students to critically examine their responses and prior knowledge, mirroring the reality of clinical practice.
 101 Throughout the semester short formative assessments occurred weekly; in these assessments, students would post evidence informed reflections on
 102 how the course content could further inform the care of the patient under discussion.

103 The PBL approach was supplemented with a series of podcasts exploring contemporary and relevant concepts, including procedural sedation,
 104 ethics and consent, brain injury, end of life care, assisted dying, and abortion. While podcasts are suggested as a way of engaging students in content,
 105 when used in nursing education they often follow a didactic approach, that does little to engage students with the content (Hargett, 2018). Foster
 106 (2013) asserts podcasts enable the audience to feel connected with the author, 'and set the context for their research and innovation' (p.264).
 107 Moreover, listening to experts share their enthusiasm for their topic encourages listeners to share in their passion for the topic ultimately engaging
 108 listeners in the content (Foster, 2013). Rather than developing podcasts similar to lectures, the researchers developed podcasts (30-40 minutes) that
 109 captured a discussion with a content expert in which one of the research team would interview the expert to explore the topic and relevance of their
 110 research to the learning outcomes. The intent of the podcasts was to stimulate and challenge students to delve further and examine how their thinking
 111 might inform their future practice. Additionally, the accessibility of the podcasts potentially enabled students to engage with learning content while on
 112 the move, meaning learning was not fixed to a timetabled session on campus. It was hoped that the podcasted content would help to address the
 113 challenge of reduced contact hours and to explore peripheral but critical content. It was important that opportunities for intellectual exploration of
 114 these ideas were not constrained by the condensed delivery of the program. This is an 'ontological pedagogy' that focusses on the process of students
 115 becoming professionals, rather than the delivery of a set body of content knowledge (Barnett, 2012). By using these delivery methods, we transition

116 the program towards concepts of heutagogy (Hase & Kenyon, 2007), where the emphasis is placed on student self-determination within the learning
117 environment, and the fostering of capacity to navigate the unknown.

118 *Future plans*

119 The next phase will involve student interviews. The data sets, the student interviews and the authors' reflective meetings from phase three will then be
120 analysed to ascertain similarities or disparities of thought regarding the delivery of authentic, technology driven teaching and learning experiences
121 from both a teaching perspective and that of the students, informing subsequent redesign of the learning environment. Phase 4 will draw upon the
122 lessons learnt from the iterative design and evaluation of these new approaches to developing the GEN curriculum as an authentic learning
123 environment, and solidify a set of transferable design principles built upon the initially identified principles from the literature such as Meyers and
124 Nulty's (2009) key design principles, the concepts of ontological pedagogies (Barnett, 2012), and heutagogy or student-determined learning (Hase &
125 Kenyon, 2007). The next paper will report on the students' reflection on and evaluation of their authentic learning experiences.

126 **Conclusion**

127 In our experience, it is critical that a rigorous evidence-based approach is used in the design, delivery and adaptation of the learning experience for
128 GEN students. Educational design research offers a methodology that is an innovative, pragmatic and responsive approach, through which academics
129 can learn and refine pedagogical strategies. Key to this approach is adaptability and flexibility of teaching staff involved with developing content. We
130 hypothesize that using curriculum design principles to develop authentic content with adaptable delivery will motivate students to be actively involved
131 with learning. The findings of this work will provide timely, critical insights for those who want to develop and deliver GEN programmes in Australia.

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Highlights

Condensed graduate entry nursing (GEN) programs present pedagogical challenges.

Educational design research enables an innovative, pragmatic and responsive approach.

Authentic content and adaptable delivery motivate students to be active learners.

Findings of this work will provide timely insights for those who develop GEN programs.

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