Hybrid learning environments: It's all about ecology

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Abstract

Technology-enhanced learning has been part of higher education health contexts for nearly three decades, but since the recent Covid-19 pandemic specific challenges emerged, requiring learning design reconfigurations to facilitate continuity of student learning. The pandemic calls for a deeper understanding of how technology can promote connections, active participation and knowledge building in higher education health contexts. Identifying what is currently occurring and considering potential innovations requires a move towards a nuanced understanding of the ecology of complex elements contributing to productive networked learning in these contexts. This multiple-case study doctoral research project includes four undergraduate health courses at a New Zealand university, in the disciplines of nursing, social work, and bioscience. Drawing on the Activity Centred Analysis and Design (ACAD) framework, the research explores the influence of course design elements, such as social arrangements, learning space formats, learning tasks, on learning activity, taking a systematic approach to the analysis. In this paper, we report on initial observations and interviews with students involved in diverse hybrid learning environments, in order to identify how innovative learning designs are supporting students' agency and active engagement.

Keywords

Multiple case study research, Higher education, Hybrid learning, Health education

Introduction

The use of technologies for teaching and learning in higher education, undergraduate health courses have existed for nearly three decades, with varying views on effectiveness. Much research highlights positive elements such as, social interactivity (Hayes and Graham, 2019), augmentation of course resources (Henderson et al., 2017), increases in learner engagement, critical and creative thinking (Santos, et al, 2019), and flexibility that considers student learning preferences (Taçgın 2020). However, other studies take a cautionary stance in relation to educator expertise (Delgaty et al., 2017), access to technology resources (Dubovi, 2018), varying learner technical and navigational skills, and issues with connectivity (Romli et al., 2020).

In health education, technology use may include presentation tools or videos, collaboration tools, the support of Learning Management Systems, but also VR/AR, hi-fidelity simulations, and many other software applications to allow students to safely practice specific healthcare procedures and processes. As such, many health courses could be described as involving hybrid learning environments, which include a network of inter-connected elements (Gil et al., 2021). Despite the consistent presence of technologies for teaching and learning in undergraduate health courses, a more nuanced understanding of how technologies might extend students' experiences across and beyond physical classrooms (Bayne, 2015; Fawns, 2019) is still needed – one that focuses on connections, active participation and knowledge building through networked learning practices (Goodyear et al, 2004; NLEC, 2020, 2021). To appreciate nuances within a networked learning environment, it is important to gain an understanding on the purposes of the learning activity, the tools that are used and the strategies that support learning.

We conducted a multiple-case study of four undergraduate health courses in a higher education institution, which includes courses in the disciplinary areas of nursing, social work, and biosciences. Course cohort sizes ranged from 8 to 175 students and incorporated a variety of social and spatial arrangements. Focusing on connections between practice-theory (Goodyear, 2020), this research examines structural aspects and student agency within emergent learning situations. This project is currently in the data collection and analysis phases of research. This paper reports on the initial findings of learning observations and interviews with students involved in these undergraduate, health courses' hybrid learning environments in order to identify key elements that contribute to innovative learning design, to support agency and active engagement.

Aims and Objectives

The aim of this doctoral research is to explore productive hybrid, undergraduate, learning environments within the health division of a higher education institution. The focus is on how innovative learning designs influences learning activities, encourages active participation, and supports learner and teacher agency. The research question and related sub-questions are:

What characterizes productive hybrid learning environments in healthcare higher education?
- How do learners and educators characterize productive learning activity within technology-mediated learning environments?
- How do learning design elements, in technology-mediated learning environments, support learners' experiences?
- What do learners identify as contributors to productive learning environments?
- What do educators and allied professional colleagues identify as contributors to productive learning environments?

This presentation reports on the third sub question, focusing on characteristics that learners identify within productive learning environments.

Design

Grounded in both networked learning (Goodyear et al, 2004; NLEC, 2020) and in practice theory (Goodyear, 2020), the project explores active engagement and agency of learners and teachers, and examines both structural aspects and student agency within learning situations. We hope this research may contribute to inform the development of innovative teaching and learning practices, learning spaces, educational policy and educational design strategies.

Analysis of the learning environments takes a systematic approach using Goodyear and Carvalho's (2014) Activity Centred Analysis and Design (ACAD) framework which brings an ecological view of learning. ACAD calls for careful attention to relations between designable elements and learning activity. There are three distinct dimensions of design (i) the set design – which is about the material and digital elements, including their spatial and temporal distribution, (ii) the social design – which is about considering the nature of social arrangements such as group formations, the assignment of roles, and the division of labour and (iii) the epistemic design – which is about considering valuable things for learners to do, ways of structuring information. The fourth dimension in the framework is not designable, it refers to co-creation and co-configuration activity, acknowledging learning as an emergent phenomenon, and the agency of learners to re-configure what has been initially proposed/designed by a teacher.

Methods

In alignment with Stake (2006), this research begins with a quintain (pronounced kwin'ton) which identifies the object, phenomenon, or condition to be studied – a target, but not a "bull's eye" (p. 6). The quintain contains sufficient breadth to maintain the focus on the key target, and yet it enables consideration of the influences around the edge, and how the periphery might contribute to the phenomenon, or the object being studied. The quintain developed for this research is shown Figure 1.

This short paper focuses specifically on the learner population context section of the quintain, examining the assemblage of set, social, epistemic design elements and the co-created activity that emerges at learn time. The goal is to identify key design elements that seem to contribute to productive learning, through the analyses of

teaching session observations, and student interviews, examining their views of learning situations and exploring how design co-evolved as they engaged in course activities.

Figure 1

Research Quintain

Adapted from: Stake (2006)
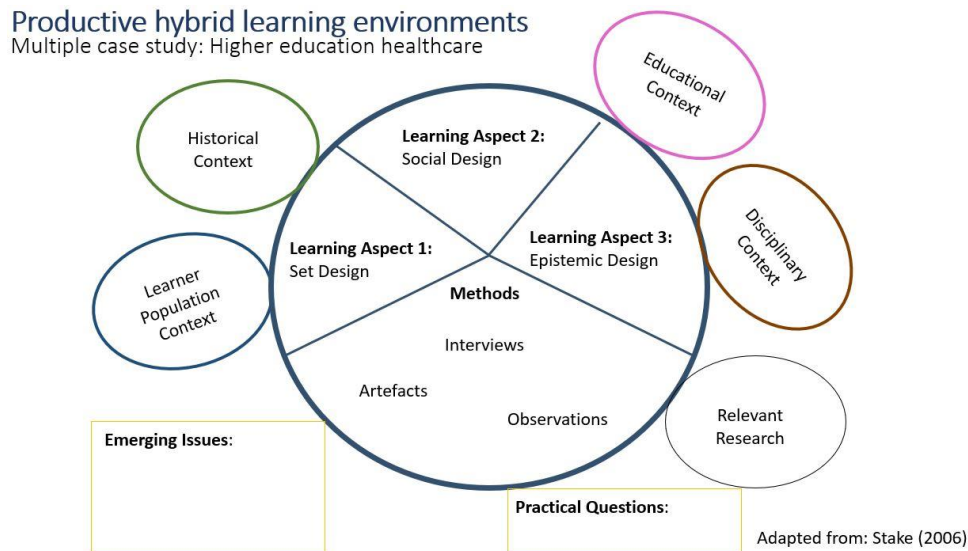
Data collection and analysis

Individual and focus group interviews are being conducted with students in each of the four courses. Descriptive primary codes and second-level analytical codes support interpretation of the data (Tracy, 2020), in order to identify themes and correspondence within and between the cases (Stake, 2006).

Preliminary findings

Findings from the first phase of this research focused on interviews with the teacher designers in these courses and observations of course activity (Green, 2022; Green et al, forthcoming). Green (2022) discusses teachers' views on the importance of the agency of learners, creating safe learning environments, and of having an appreciation for the use of technologies for teaching and learning. Drawing on a heutagogical approach to support the development of knowledge and skills when teaching in hybrid learning environments, enables learners to select topics appropriate to their context and learning needs, complete them in a self-selected order, thereby emphasizing learners' autonomy, agency and development of capability. Green et al. (forthcoming) reveals core elements in three learning designs, which were specially crafted to honour indigenous ways of knowing and being. It discusses particular design elements and pedagogical strategies that support students to develop a deeper understanding of the influence of their wider context on learning, emphasizing decolonisation in a safe and supported learning environment. Altogether these findings support the notion of an ecology of digital and material elements, social configurations and epistemic design constantly in play within hybrid learning environments. Given the current pandemic constraints, demands for enhancing flexible delivery is constantly creating new challenges for learners, combined with the need for physical distancing to minimise virus transmission. In addition, the findings in the first phase of this research have highlighted that translation of theory into practice is predicated on creating authentic indicators of learning with relevance to students' future professional practice. This was seen in the depth of student knowledge and application of models used in practice.

In the current phase of this research, attention moves to gaining a deeper understanding of the views and experiences of learners within the hybrid learning environments that are part of this study. Preliminary findings suggest that the organisation of learning materials and resources into discrete topic modules, that can be

completed at a time and order decided by the student, supports heutagogical principles of learning (Blaschke, 2012). The influence of lecturers creating a convivial atmosphere (Green et al., 2020), and including interactive activities within live, online teaching spaces, are seen as highly conducive to moderating the restrictions imposed by Covid-19 lockdown on opportunities for co-presence interactions. The students highlighted the benefit of courses incorporating authentic, practice-based, tools, such as a web-based pharmacology resource NZ Formulary, that would later be used in placements. Pandemic-related, disruptions to learning are evident in a reduction of places to complete coursework, limitations with internet access, decreased opportunity to engage with peers increased feelings of isolation. Each of these aspects challenged student motivation for learning.

Recommendations and future research

Interviews with student participants have highlighted an ecology of aspects influencing hybrid learning environments. Of note is the importance of creating an enjoyable learning environment, such that conviviality can be experienced when both staff and students cocreate hybrid learning environments. The students raised a variety of challenges and indicate opportunities for improving learning design. Future research will investigate the perspectives and experiences of learning support staff in hybrid learning environments.

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