

COMMENTARY

Adapting to a new reality: COVID-19 coronavirus and online education in the health professions

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PUBLISHED

26 May 2020 Volume 20 Issue 2

HISTORY

RECEIVED: 3 April 2020

ACCEPTED: 19 May 2020

CITATION

Seymour-Walsh AE, Bell A, Weber A, Smith T. Adapting to a new reality: COVID-19 coronavirus and online education in the health professions. *Rural and Remote Health* 2020; 20: 6000. <https://doi.org/10.22605/RRH6000>

ETHICS APPROVAL

Ethics approval was not sought as the paper does not reflect original research.

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ABSTRACT:

The current novel coronavirus, COVID-19, has effected a significant change in the way industry-based and tertiary health professions education (HPE) can occur. Advice for strict, widespread social distancing has catalysed the transformation of course delivery into

fully online design across nations. This is problematic for HPE, which has traditionally relied on face-to-face learner interaction, in the form of skills laboratories, simulation training and industry-based clinical placements.

The transition to online-only course delivery has brought with it a need to address particular issues regarding the construction and delivery of quality curricula and education activities. It is in this context that regional, rural and remote health professionals and

Keywords:

cognitivism, constructivist learning theory, distance learning, health professions education, online pedagogy.

FULL ARTICLE:

Background

Few phenomena are truly global in their reach or impact. Economies wax and wane, and international leaders come and go, their policies affecting millions. However, few events have so thoroughly blanketed the world as has the current novel coronavirus, COVID-19. Videos from across the world have flooded social media with greater virality than COVID-19 itself, and captured varying levels of fear and uncertainty as we continue to observe this recent phenomenon unfold across the globe. The impact of COVID-19 is already extensive and devastating. Reports suggesting the potential for long incubation periods¹ and the role of asymptomatic carriers¹⁻³ have prompted dramatic government action worldwide: they have encouraged or forced many people to work from home, and altered the expression of their liberties to protect society from the spread⁴.

COVID-19 is novel in not only its genetic variance, but also the pressure it is exerting on health professions education (HPE). Education activities were initially excluded from some early limitations on social distancing⁵; however, many universities and training institutions did not wait for the mandatory requirement from authorities before moving their courses to full online delivery⁶. The implications that health professional educators and course designers must navigate are extensive, complex and still emerging.

Not all health professional educators have a formal education qualification^{7,8} and, as a result, the pedagogical approaches typically adopted by many educators align with how they themselves were taught⁹⁻¹¹. Online teaching methods are less familiar to the many who have been taught (and typically, therefore, teach) in person, face-to-face. Traditional models of HPE are heavily synchronous, face-to-face and employ apprenticeship models of education, with core features of placement attendance, participation in ward rounds and being a part of the clinical team. Furthermore, current approaches to teaching in the large- or small-group setting require additional consideration when applied online. Indeed, utterances amongst health professional educators echo 'we can't do that online', despite the imperative to do so.

The current issues facing HPE in both the tertiary and professional settings are familiar to regional, rural and remote health professionals as they are regularly distanced from face-to-face HPE

academics can provide invaluable insights into the use of technology to overcome the tyranny of distance, promote high-quality online HPE and enable the ongoing development of communities of practice.

This article is the first in a series addressing the risks and opportunities in the current transition to online HPE, providing practical solutions for educators who are now unable to embrace more traditional face-to-face HPE delivery methods and activities.

events. Just as many regional, rural and remote health services enable access to healthcare services through video-conferencing and telehealth¹², similar technologies allow HPE to overcome the significant time and cost demands in accessing face-to-face education and professional development opportunities^{13,14}. The lack of access to face-to-face education and physical training aides is now a reality for regional, rural, remote and urban health professionals and students alike, and this series intends to explore this opportunity.

Series overview

Now is the time to be maximally creative, to innovate and explore approaches to develop and deliver quality online education. Over the next few months, this series of commentaries will offer theoretically informed practical suggestions to assist health professional educators and course designers in responding to the COVID-19 crisis. The commentaries will address how traditional face-to-face approaches may be adapted to the online environment; they will explore the development of cognitive, behavioural and social knowledge with a focus on online lectures, small group learning, teaching practical skills and practice development. 'Face-to-face' is sometimes used to describe synchronous virtual interactions where the faces of both educator and student are visible. This series considers instances where the educator and student are not collocated in a learning space as online or distance learning. The content aligns to Miller's pyramid¹⁵, where a student progressively knows, knows how, shows how and then does. The aim is to ensure continuity of education during the COVID-19 crisis, as well as beyond. It is an opportunity to enhance the potential for residual long-term improvements for regional, rural and remote health professionals' access to quality online education and professional development, and prepare the future health workforce to access alternative means of continuing education.

Theoretical principles of online teaching and learning

Online tertiary and professional education is not new^{13,14}. For years, many students (particularly regional, rural and remote students) have streamed recordings of face-to-face lectures and accessed readings, course information and assessment submission portals online. Acclimatisation to online platforms has already occurred in HPE to varying degrees¹⁶⁻¹⁸, however, using an online

learning management system as an adjunct to face-to-face learning may have limited the perceived functionality of online pedagogy to its use as a tool for the mere dissemination of information. This approach is insufficient for the contemporary requirement that education must be delivered in a wholly online teaching and learning environment. The question of how technology can be used effectively in HPE should refer to evidence-based best practice for the construction and delivery of the courses. The answer begins with the nature of knowledge and the role of educator.

What is knowledge?

An educator's individual beliefs about the phenomenon of knowledge will inform how they teach, as well as how they leverage technological affordances to do so in the online environment. One conceptualisation of knowledge is that it is transmitted unidirectionally from expert to learner. The traditional lecture format reinforces this approach, as revealed by the unidirectional information flow from the teachers to the students. The lecture flow, argument and logic are prepared in advance, and questions posed by students are aimed at clarifying information delivered. In this approach, interaction is minimal. We see such approaches in online information delivery models such as YouTube and Ted Talks. These types of lecture can be scripted and are highly replicable, thereby saving time and reducing the complexity of recurrent delivery. The learner is assumed to be a passive recipient of knowledge, learning through hearing and seeing, although means to engage the learner through reflective or rhetorical questions may increase their investment and understanding. This conceptualisation of knowledge as being transmitted from expert to learner is also clear through traditional models of feedback, such as the 'proverbial sandwich' (transmission model approach), where the expert starts and finishes with what the learner does well, with mention of what they did poorly in the middle¹⁹.

It can be argued that knowledge is not transmitted from expert to learner, but rather built individually by a learner, either for themselves or within the context of their social identity. Cognitivism argues that learning occurs when new knowledge is processed internally, with limitations parallel to those of a computer's performance: bandwidth, processing speed, storage, organisation and memory²⁰. No longer is a learner an empty hard drive into which to pour information; rather, they develop personal understanding through active participation, organisation of schemata and reorganisation of existing mental models to accommodate new, challenging information. Such considerations can be readily incorporated, even into a didactic lecture teaching format²¹. Similarly, constructivist learning theory argues that knowledge and meaning are constructed by the individual, but with greater emphasis on reflection on individual experiences²².

Learning occurs when we take what is already known and then integrate, adapt and apply it with new information, new experiences and new challenges. In this way, learning is an active, reflective activity. Social constructionism expands this notion to apply to shared problem-solving and meaning-making according to culture, collective identity and a common truth or perspective

through social interaction^{23,24}. This is of particular relevance for HPE and will be imminently challenged by a sudden transition to online education, unless the applied pedagogy targets students' professional identity development. Indeed, online education can promote the development of communities of practice, marked by transition into new sociolinguistic and philosophical professional norms. Health professional students' belonging to a professional community and agency in their own learning should be clear foci for educators and course designers in online HPE^{25,26}. Educators and course designers integrate such theories in many ways, including through repetition, time to reflect on practice and retrieve knowledge through spaced practice, and by inviting learners to apply content to a contextual problem, all of which are well suited to online educational approaches (as this series will argue).

Role of educators

Health professional educators are well versed in the theoretical aspects of HPE. The role of the educator as curator in student-centred learning should be promoted to insure against teacher-centric approaches, which may be common when educators and learners are distracted by unfamiliar media or technologies. When an educator is the curator, they facilitate the development of learners' new and emerging identities as health professionals, which is particularly pertinent in the practice-based health professions²⁷. The expert curation of activities and a virtual learning space enable students to develop this sense of professional knowledge and community in connection with each other²⁸. Metaphorically, online education need not be the father who walks along the coastline, explaining the ecological system to his child, even if with great insight, enthusiasm and clarity. Rather, online education can be akin to the father who stoops down, cradles a shell gently in his hand, and engages with his children: 'Ooh, look at this one. What do you think might live in here?' Online teaching opens new opportunities for engaging students in their own learning.

Practical considerations to online learning

There are many practical considerations to fully online HPE: occupational health, safety and welfare; self-care and working in isolation; protecting 'off work' time and space; and the discipline to avoid distractions. As this series of commentary articles develops, it will focus on educational design and implementation strategies; however, the non-pedagogical practicalities already listed warrant some discussion here.

The occupational health, safety and welfare considerations of working from home should enable clarity of workplace injury management. This should not be a barrier to enacting social distancing and self-isolation as currently required, but needs to provide robust protection, liability assurance and accountability. However, institutional policies may not yet be in place to support the rapid shift to a new remote work environment. Educators and students balancing extended hours at a laptop while perched at the kitchen table are at risk of developing musculoskeletal problems²⁹. Extended display screens and a separate mouse or

keyboard should be used, noting likely supply shortages for these items. Time spent ensuring work desks are the appropriate height, and that chairs are properly positioned and adjustable, will undoubtedly save time, improve productivity and reduce injury in the long run. Daily 10-minute video-meetings at agreed times might be useful to connect a team, encourage conversation and ensure that everyone is accounted for and well. However, the purpose of such meetings should be professional connection and safety. Any suggestion of top-down performance monitoring during the current climate of unprecedented uncertainty and anxiety may be counter-productive³⁰.

Self-care needs are likely to emerge, along with reduced interpersonal connection with peers and disruption of work-home separation. This is true for both educators and students, as both navigate the new reality and loss of structure. Educators must lean toward peer networks and maintain collaborative practices from a distance. Many will have already experienced a surge in virtual connectedness over recent weeks, proving that the world is embracing the skills and technologies that regional, rural and remote educators already embrace, and this suggests that the new normal may sustain longer term access to previously centralised professional development. There is also a responsibility to extend pastoral care to students. Regular written communication, options for virtual drop-in sessions, and phone accessibility are essential to support students' emerging sense of professional identity through their online studies³¹.

A matter of mere weeks ago, staff and students would drive or use public transport to travel home from their office, training facilities or university. Doing so, they had time to process the shift in roles from educator or student and re-enter back into their personal life. Now, amidst working and learning from home during COVID-19, that transition time and the physical separation have been thwarted. Many people may now be seeing that, although working from home sounds attractive, it has potential to be personally invasive. Mimicking the office routine and containing the invasion of work into the home may be aided by maintenance of regular work hours, designation of a work space that is separate to the living space, and marking the end of the working day with a specific form of active leisure. Such strategies may delineate the work self from the personal self, and provide the structure and organisation that working from home requires. All signs indicate that we are in for a marathon, not a sprint³²; therefore, there is a need to ensure that practices are sustainable for both teachers and learners.

Limitations

There is an elephant in the room: the practical barriers to implementing rapid online delivery of HPE. These are plentiful and

include:

- the need for educators and students to rapidly upskill in technology (hardware and software) and its affordances
- access to sufficient hardware to enable effective online education, amidst a surge in global demand (eg laptops and headsets)
- institutional data security measures, including the use of virtual private networks, which may impact device performance and place pressure on information technology support teams
- platform stability of the learning management system and security of information shared over these systems for HPE students who may be required to reflect on case studies
- the cost of software licencing (to institutions), and hardware (for both institutions and learners)
- reliable and sufficient internet access for staff and students, with previous options of free or affordable Wi-Fi access, such as via public hotspots at cafes, libraries or university campuses, now limited, potentially imposing an economic class structure on educational access.

Conclusion

The COVID-19 threat is imminent, even if not yet fully realised. The choices we make today must align to reducing physical interaction in order to reduce the rate of spread and alleviate the resultant demands on our health systems. Online education is essential to achieving this aim and educators, course administrators and course designers all have a responsibility to deliver it effectively. Education that is currently delivered face-to-face should not be directly transferred to fully online. The role of face-to-face and online education may be comparable, but the means by which the outcomes are achieved for learners demand different expertise. Educators have a golden opportunity to embrace principles of learner engagement, synchronous delivery and adaptation, and opportunities for learners to develop individual and social meaning through educational material.

Health professionals in regional, rural and remote areas are resilient and flexible in leveraging novel ways to access distance education. Now is an appropriate time to share such skills and experience in the broader HPE context. The long-term advantage could see professional development and education for clinicians based in regional, rural and remote areas become more accessible and sustainable, and perhaps reduce unnecessary travel. The hope is that the forthcoming series of articles provides clarity, direction, confidence, and enables creativity as we all adapt to the evolving situation caused by COVID-19, and that it provides lasting benefits for regional, rural and remote health professionals.

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