The support needs of health professional educators to teach clinical skills online: Experiences of COVID-19 lockdowns from three countries

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Abstract

Introduction: Supporting educators has been identified as vital for the efficacy and sustainability of online teaching. The teaching of clinical skills online presents additional challenges given the vast shift from traditional pedagogies. However, the support needs of health professional educators to teach clinical skills online are unknown. The aim of this study was to explore educator experiences of teaching clinical skills online and investigate their workplace support needs.

Methods: A qualitative approach using focus groups was used to investigate educator experiences at three universities in Australia, Chile and South Africa. Data were subject to thematic analysis, and a thematic network tool was used to triangulate international experiences.

Results: Seven focus groups were undertaken, with a total of 32 participants. Four global themes were identified following analysis: 1) the educator experience, 2) changes to pedagogy, 3) challenges to teaching online and 4) support for educators.

Conclusions: This study has highlighted the professional challenges that teaching clinical skills online creates for health professional educators and the uncertainty regarding expectations and outcomes. Enhancing university support for educators to prepare and provide clinical skills teaching online is suggested to mitigate these challenges. Recommendations are made for universities and educators to consider in the pursuit of effective and sustainable teaching of clinical skills online.

Keywords: clinical education; clinical skills; staff support; online learning; COVID-19

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Introduction

In response to the COVID-19 pandemic, universities around the world moved to online teaching and learning. This transition was rapid, with minimal or no staff preparation (Si et al., 2021), and is known to have caused significant challenges for educators who have typically delivered teaching within traditional face-to-face settings (Hofer et al., 2021; Forbes et al., 2021; Shih et al., 2020; Si et al., 2021; Smyth et al., 2012; von Keyserlingk, 2021). Whilst such COVID-safe measures were mandated relatively simultaneously around the globe, they have receded at differing rates internationally. It is considered important to collate and share experiences amongst the international community to both assist others at the current time and to preserve the lessons learned from the crisis (Hofer et al., 2021).

The experiences of university educators whilst teaching online have been explored (Si et al., 2021). Without prior exposure to an online setting, educators tend to transfer their traditional pedagogies to online classrooms (Si et al., 2021), which is reported to be suboptimal for student learning (Baran et al., 2011). However, organising and facilitating learning processes specifically for the online setting is known to be time consuming and especially challenging for novice online instructors (Kebritchi et al., 2017). During April 2020, educators who transitioned online reported substantial levels of stress related to their teaching and higher rates of negative coping techniques as their stress levels increased (MacIntyre et al., 2020). Unsurprisingly, educators with lower levels of university support tended to experience higher negative emotional responses during online teaching (Naylor & Nyanjom, 2020).

Support from universities to assist educators in providing online learning has been highlighted as vital for facilitating student learning outcomes (Iglesias-Pradas et al., 2021; Scherer et al., 2021; Si et al., 2021). Si et al. (2021) identified that within medical schools, faculty development programs were necessary to support educators new to online learning in the design of learning objectives and activities and in basic technological implementation in early course attempts. Conversely, when pedagogical support, leadership and a clear school/faculty vision is not available, in the context of rapid change—such as associated with COVID-19 (Bao, 2020)—this may negatively impact the perceived readiness of educators to undertake teaching online (Scherer et al., 2021).

Teaching clinical skills online can create further challenges for healthcare educators given the paradigm shift required from traditional pedagogies. Clinical skills have historically been taught through face-to-face approaches, such as practical classes, tutorials, role play and simulation, and due to COVID-19, teaching of these skills has been adapted by educators for the online setting (Chan et al., 2020; Co et al., 2021; Ekert et al., 2020; Maini et al., 2020). Clinical virtual simulation (Chan et al., 2020) and telehealth-based clinical skills teaching (Dawson et al., 2020) are reported to be effective for student learning of clinical skills, however they are reliant on significant upskilling and technological support for both educators and students (Maini et al., 2020). Additionally,

educators have been expected to creatively overcome the lack of equipment available for students (Wallace, 2020), create supplementary clinical skills videos (Khan, 2020) and invest significant resources in planning and creating methods to deliver these skills online, which further compounds stress (O'Doherty et al., 2018). Ultimately, supporting educators to teach clinical skills online is a priority, given the recognition that support is vital for successful implementation and the unwavering requirement for students to be clinically safe on entry into the workforce (Chan et al., 2020; Maini et al., 2020).

Despite the general support needs identified, the experiences of health professional educators globally to provide clinical skills training via online formats is largely unknown. These experiences and support needs are of significant interest given that faculty support has been identified as critical for the efficacy and sustainability of teaching online (Si et al., 2021). Many academic staff in universities report poor wellbeing, including high rates of stress and burnout (Kinman, 2014), and the collective COVID-19 experience has exacerbated these concerns. Considering this and mounting apprehensions regarding the clinical safety of the graduating "COVID cohorts" of healthcare professionals globally (Scott, 2020), the support needs of educators to provide effective clinical skills training online is of paramount importance. An understanding of the experience of teaching clinical skills online and the support needs of educators may improve the online teaching experience for students and educators alike.

Therefore, this study aimed to:

- explore educator experiences of preparing for and delivering clinical skills teaching online
- investigate the support needs of educators to teach clinical skills online.

Methods

This study utilised a qualitative approach to explore educators' experiences of preparing for and delivering clinical skills teaching online and their perceived support needs. Focus groups were chosen as the method of data collection to allow discussion between group members, as interaction among participants enhances data quality, can reveal new topics and provides balance to false or extreme views (Patton, 2002). International perspectives were sought in the acknowledgment of the universal experience of shifting teaching online in response to the COVID-19 pandemic. Whilst having comparable clinical teaching practices, the three countries involved in the study—Chile, Australia, and South Africa—feature individual international cultures and perspectives. Thematic analysis (Braun & Clarke, 2006) with the use of a thematic network tool (Attride-Stirling, 2001) were employed to triangulate these international perspectives and explore the experiences and perceived support needs. Ethical clearance for this study was obtained from the universities that participated, including The University of Queensland Ethics Committee (approval number #2020000951), the Pontificia Universidad Católica de Chile Ethics Committee (approval number #ID210329004) and the University of Johannesburg Ethics

Committee (approval number #REC-1033-2021). For consistency, this study considers online learning to be teaching and learning where (1) the learner is physically separated from the educator, (2) the learner accesses learning materials using technology and (3) the learner interacts with other learners and the educator using technology (Anderson, 2011). The research team additionally defined clinical skills teaching as activities intended to teach or practise skills necessary for client care. To maintain the scope of the current study, the researchers only explored the perspective of educators in moving clinical skills teaching online from traditional classroom settings. This study did not explore the perspective of educators relating to experiences including clinical immersions and clinical site visits.

Participants

Health professional educators were purposefully selected from higher education providers internationally to meet the aims of the study. Research colleagues at the Pontificia Universidad Católica de Chile and the University of Johannesburg were contacted by email seeking their interest in partaking in the research project. After commitment to the project was confirmed by a research officer at each respective site, educators were provided with additional information about the study, including support for ethical approval, a study protocol and a guide for data collection, with focus group frameworks. Each of the three data collection sites were responsible for their own ethical clearance, recruitment and data collection.

For educators to be included in the study, they were required to be teaching clinical skills to entry-level health professional students via online teaching methods. Educators were purposefully sampled across multiple disciplines and multiple roles to reflect the diversity of experiences. Potential participants at each university were contacted by their respective research officer with information about participation in the study. Once interest was established, a mutually convenient time for each focus group was arranged. Participants were assured that their responses would be deidentified and that their participation in the research would not affect their current or ongoing relationship with their respective university.

Procedure

The lead researcher (RF) acted as a liaison between the research officers at each site, providing instruction for recruitment and data collection. A semi-structured focus group framework (Figure 1) was developed by the research team following a review of the literature. The guide was reviewed by seven academics, teaching staff and researchers from The University of Queensland, the Pontificia Universidad Católica de Chile and the University of Johannesburg to ensure that it was grounded in practice and reflected the research aims whilst also being unbiased and transferable across health disciplines and technology platforms. The focus groups were conducted via videoconferencing platforms and audio recorded to allow for accurate transcription. Each site was responsible for the

transcription of their focus group discussion and removal of identifying information. The data from the Pontificia Universidad Católica de Chile was translated from Spanish to English by an external, verified contractor prior to being returned for data analysis.

Data analysis

Thematic analysis (Braun & Clarke, 2006) with the use of thematic networks was used to triangulate the international perspectives captured by the data (Attride-Stirling, 2001). The use of thematic networks allowed for multiple experiences to be mapped for convergence and divergence and provided a deeper understanding of the phenomena under investigation (Varpio et al., 2017). Transcripts from the focus groups were analysed concurrently with ongoing data collection. This was undertaken by one of the researchers (RM), with each step of analysis completed independently by another researcher (RF). Both researchers are experienced in qualitative research and undertook a process of epoché prior to immersing themselves in the data to ensure that their analyses were not influenced by their own perspectives (Englander, 2016). Both researchers have experience in teaching online, one as a co-ordinator and lead educator (RF) and the other as an educator of clinical skills (RM).

Both researchers independently immersed themselves in the transcripts via multiple read throughs to ensure that they were sensitised to the data (Patton, 2002). The researchers encoded passages in accordance with their interpretation of the implied meaning from the data. From this, the researchers began to organise ideas into subcategories and then into codes. Following their independent analysis, both lead researchers met to discuss the emerging codes and themes. These codes and themes were then organised into networks with the aim of "structuring and depicting" the qualitative data (Attride-Stirling, 2001, p. 387). This included grouping the themes into common and contrasting concepts provided by individuals or cohorts. Throughout data analysis, multiple actions were taken to ensure the reflexivity and rigour of the results, which is vital for qualitative research (Patton, 2002). Adherence to a semi-structured focus group guide, audio recording and accurate transcription of data aimed to ensure the validity of the data.

Figure 1

Example Focus Group Questions

What were your expectations of teaching online?
What was your experience of the sudden shift to teaching online?
What was your experience of teaching online?
What were the challenges of teaching online?
What were the benefits of teaching online?
What supports did you need to transition your teaching online?
Probing questions:
What do you think is the reason behind this?
Can you elaborate on that further?

Table 1

Demographic Details of Sample

Demographic	N (%)
Educators roles	
Course coordinator	16/32 (50%)
Other teaching staff	16/32 (50%)
Discipline	
Audiology	1/32 (3.1%)
Dentistry	1/32 (3.1%)
Health pathways	1/32 (3.1%)
Medicine	2/32 (6.3%)
Nursing	8/32 (25%)
Nutrition/dietetics	1/32 (3.1%)
Occupational therapy	3/32 (9.8%)
Physiotherapy	10/32 (21.3%)
Speech pathology	4/32 (12.5%)
Sports sciences	1/32 (3.1%)

Table 2

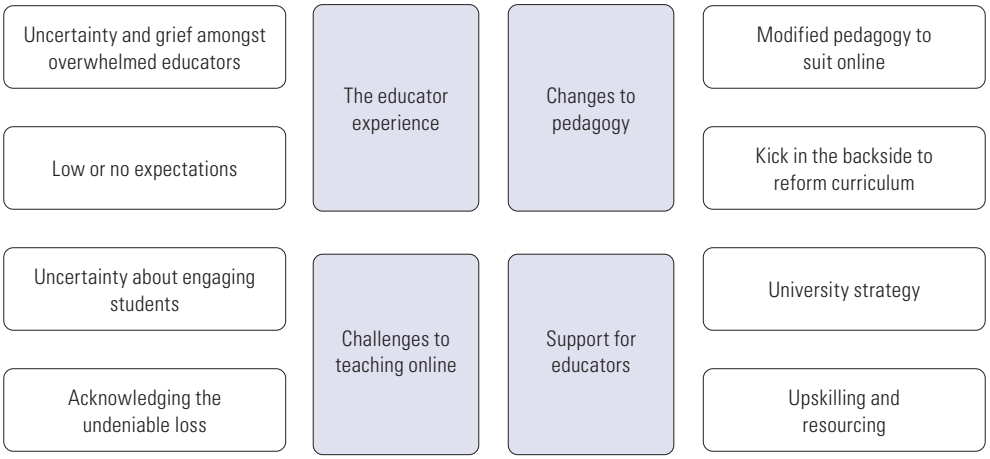
Demographic Details of Participants

Educator Participant	Discipline	Coordinator Role
Australia		
1	Speech pathology	No
2	Audiology	Yes
3	Speech pathology	Yes
4	Occupational therapy	No
5	Occupational therapy	No
6	Occupational therapy	Yes
7	Physiotherapy	No
8	Physiotherapy	No
9	Physiotherapy	Yes
10	Speech pathology	No
Chile		
1	Physiotherapy	Yes
2	Physiotherapy	Yes
3	Dentistry	Yes
4	Physiotherapy	Yes
5	Speech pathology	No
6	Physiotherapy	Yes

Educator Participant	Discipline	Coordinator Role
Chile *continued*		
7	Physiotherapy	Yes
8	Physiotherapy	Yes
9	Nutrition/dietetics	Yes
10	Physiotherapy	Yes
South Africa		
1	Medicine	Yes
2	Healthcare pathways	Yes
3	Nursing	No
4	Nursing	No
5	Nursing	No
6	Medicine	No
7	Nursing	No
8	Nursing	No
9	Nursing	No
10	Sport science	Yes
11	Nursing	No
12	Nursing	No

Figure 2

Thematic Networks of Global Themes



Results

Thirty-two health professional educators participated in the study. A total of seven focus groups were undertaken, with two completed at The University of Queensland (n = 10 participants), two completed at the Pontificia Universidad Católica de Chile (n = 10 participants) and three completed at University of Johannesburg (n = 12 participants). The focus groups ranged from 49 minutes to 64 minutes in length, with a mean length of 54 minutes. Of the participants, 50% (16/32) had responsibilities relating to course design and coordination and 50% (16/32) were educators who were not involved in course design or coordination (Table 1). Additional participant details are provided in Table 2. Four global themes each with two organising themes were constructed following data analysis (Figure 2).

Global theme: The educator experience

Organising theme: Uncertainty and grief amongst overwhelmed educators

Participants felt thrown into a position of uncertainty and "overwhelm" (P9, Australia) as they navigated the rapid transition to online teaching. Due to COVID-safe measures, participants were expected to move their course online instantaneously without any warning, clear direction from their university or training resources:

> *I remember very well that I felt empty. I didn't know what was going to happen. It was something that we didn't know at that time [or] how long it was going to last either.* (P2, Chile)

Participants experienced a "grief" process (P5, South Africa) in response to this change and had a sense of mourning for what was lost. This emotional loss of what participants

"hold dear' (P6, Australia) was felt as an additional load. There was a sense of grief for the students and the experiences that they would have of teaching given the challenges of adhering to COVID-safe measures:

> *That process of letting go of what you had … the emergency response and having to sort of settle for something that was going to work rather than something that you saw as being optimal.* (P8, Australia)

There was a sense from some participants of resentment towards their university that they were expected to deliver comparable teaching under the circumstances and, ultimately, "perform" (P7, South Africa). This is especially true with the significant time requirements of preparing for teaching online and the sense of anxiety that was associated with completing the work:

> *But I think where the university really did drop the ball was the support. … Helping people get it done, instead of just saying get it done.* (P1, South Africa)

> *At the beginning, expectations were low because, of course, there was nothing confirmed at all. It was a very complex situation. … Also on a personal level, we were all in a quite stressful situation.* (P1, Chile)

Organising theme: Low or no expectations

Some participants had no expectations regarding teaching clinical skills online given how uncertain and unknown the teaching conditions were going to be. Some participants did voice very low expectations of the teaching and learning that was to occur, viewing it as an "emergency response" (P1, Australia):

> *I didn't know, or I didn't have any expectations, when I started teaching online. I think we were naïve, and we thought that, okay, we're just converting everything to online. … I think we were really thrown into the deep end, and we were expected to swim.* (P6, South Africa)

Participants also acknowledged the personal and emotional impact that the transition would have on them and their colleagues and questioned the sustainability of such substantial efforts:

> *As part of that emergency response, prices are going to be paid. … We're going to have some very exhausted staff by the end of semester one, more exhausted than usual.* (P1, Australia)

Global theme: Changes to pedagogy

Organising theme: Modified pedagogy to suit online

Participants adapted usual pedagogies for teaching clinical skills to be suitable for the online platform, and this included the use of small online discussion rooms, encouraging physical practice on family members at home and the use of videos for clinical skills:

> *We had a lot of instructional audio-visual material, where the teachers explained certain practical techniques, and we used that material and platforms such as See One, Do One, [Teach One], where students uploaded videos week by week, which were reviewed by teachers, who gave multimodal feedback.* (P6, Chile)

Amongst the participants, both synchronous and asynchronous teaching were trialled with different approaches suiting the learning styles of different students:

> *One we converted to self-directed learning sort of modules, where they watched videos and an explanation of the task of what to do and then they did it in their own time. … Another one was a live tutorial [and] breakout rooms.* (P5, Australia)

Some participants reflected that the change in pedagogy had negatively impacted some clinical skills teaching but had potentially positively impacted others. Whilst manual clinical skills such as patient manual handling suffered because of the move online, other skills, such as clinical reasoning and communication, were seen to become "strengths" (P8, Chile) of the online format. This was attributed to additional practice time for these skills (in the absence of other skills) and additional opportunities for feedback via breakout rooms. Lastly, the efficacy of clinical videoconferencing relies on clear communication, and this further facilitated the students to improve in this area:

> *Their communication skills, for example, have been improved, sort of lightly because they've had to really rely on their communication skills. Some things have missed out, but other things have become better.* (P10, Australia)

Organising theme: Jump start to reform curriculum

Overwhelmingly, participants felt that they were forced to implement changes that they had been planning to implement for years. This included additional video resources for students, asynchronous course structures and online-based simulations:

> *I'm guilty of that as well, where I, … [get] to a new semester, and you're, "Oh, I didn't get time to do that". … This semester has really forced us into throwing everything out the window.* (P3, Australia)

> *I am upping my asynchronous resources in line with the benefits that I saw last year. Some of those, you know, I probably should have done years ago, but you just put it off and put it off. So it wasn't until … This is giving me the kind of … kicked up the bottom to actually … get that going.* (P7, Australia)

Participants felt that a lot of positive change had resulted from this forced progression and identified that these positive changes would last into the future. One of these positive changes was the additional resources now available for use with future cohorts. Additionally, participants identified that they had new skill sets for engaging students in the online context:

> *I saw it more as a great opportunity to implement those changes and to test … if they really were as transcendental as they were thought to be.* (P7, Chile)

> *It has allowed us to go out of our midst in terms of adopting or adapting to different ways of how to ensure optimal learning for students. … It's important that we adapt and we challenge ourselves.* (P10, South Africa)

Global theme: Challenges to teaching online

Organising theme: Uncertainty about engaging students

Participants found difficulty in transferring their teaching online given the uncertainty about what was going to be effective. Participants were uncertain about the efficacy of online teaching and learning, the students' preferences for approaches to teaching and whether they were able to make the clinical learning worthwhile. Furthermore, the lack of available student feedback about preferred learning methods online was viewed as a source of anxiety:

> *My expectation was that maybe all those things we do in the clinical context which are procedural activities may not be adequate to adapt them to an online format.* (P10, Chile)

> *To find that … perfect way of trying to engage the student in a way … that's fun, it's relevant so that they want to do their best while they learn.* (P1, South Africa)

Once teaching online began, participants had difficulty engaging students online, with one participant commenting that if students weren't comfortable demonstrating skills in the face-to-face classroom, then they "didn't feel comfortable during Zoom either" (P7, Australia).

Organising theme: Acknowledging the undeniable loss

Despite best efforts, participants acknowledged a potential loss of clinical skills learning amongst the students and voiced concerns about "disadvantage" in opportunities (P5, Chile) and potentially "substandard" outcomes (P9, Australia):

> *My worry is that we [are] going to produce professionals who are incomplete because there will always be an aspect that you can't teach in simulation.* (P7, South Africa)

This loss of clinical skills learning extended into concerns about safety for clinical placements and readiness for graduation:

> *I was kind of worrying about the repercussions further down the track … [for] students that had never done … hands on treatment.* (P4, Australia)

> *We also need to think in terms of graduate attributes. How are we able to fulfil graduate attributes [in an] online medium. … We are those gatekeepers, and if we mark them and if we give them the go ahead of a pass and the workplace gets them.* (P10, South Africa)

For participants in Chile and South Africa, this undeniable loss was also reflected in their acknowledgement that some students did not have access to resources such as computers and internet connection to engage effectively with the technology required for online learning or access to physical spaces that were conducive to learning:

> *The lockdown or even moving towards remote teaching and learning had certainly provided the pervasive reality of the inequalities and inequities that we've experienced within the South African landscape for higher education.* (P10, South Africa)

> *On the clinical clerkship exam … even while the student was taking the exam outside their house, you could hear acts of violence in the streets, so I think it's also very difficult for them to perform and study in those conditions*. (P1, Chile)

Global theme: Support for educators

Organising theme: University strategy

Overwhelmingly, participants felt that they required an aligned strategy from their university to facilitate the transition online that included protected time for preparation and teaching and resources for content development and communications. Ideal university strategy was viewed as providing a framework to work within, reassuring staff that they were working in the right direction and creating a sense of unity in an uncertain time. Without a coordinated framework or strategy, it was difficult for participants to envisage their course, plan effectively or implement online teaching and learning. One participant summarised their experience with the question "Is this an absolutely acceptable way to move forward?" (P7, Australia).

> *I think that there is a lot of institutional responsibility, more than just leaving everything to the teachers. We have already shown that we are motivated and dedicated, and the path is laid out for the institution to take the steps to be able to consolidate.* (P8, Chile)

Some participants felt that university strategy regarding expectations often was not realistic and that they were required to "maintain the status quo" despite the circumstances (P4, South Africa):

> *One of the things that I was disappointed by was the fact that the support … the expectations for going online was not always met with the support given.* (P2, South Africa)

> *We're going to need to get things up, whether we think they're good or not so good when you need to get them up quickly. And that as part of that emergency response, prices are going to be paid.* (P1, Australia)

Organising theme: Upskilling and resourcing

Participants expressed a need for support to upskill in online teaching and learning and the technical skills required. Most critically, participants required time to upskill, design,

create and implement online courses. This was voiced by all participants, who were surprised by the significant time required to undertake the transition to online teaching and learning, with one participant noting that their workload "tripled" (P2, South Africa):

> *When the University started offering some technical support to be able to do things, expectations to do a better job started rising. I think that was key because even if you feel you can do it, if the institution had not been providing support, we couldn't have achieved this.* (P8, Chile)

> *The one thing that was needed was time. So time, time to develop these resources such as, you know, filming interactions with patients, and extra techniques and things like that.* (P10, Australia)

Discussion

The aim of this study was to explore educator experiences of preparing for and delivering clinical skills teaching online and to explore the support needs of educators to teach clinical skills online. Overall, the results indicate that when required to rapidly adapt their teaching of clinical skills to the online setting, healthcare educators undergo a period of significant stress in response to the pedagogical changes required and the uncertainty surrounding expectations and outcomes. The results from three international universities suggest that ongoing access to resources, professional development and a unified university strategy can facilitate sustainable and effective teaching of clinical skills online. Recommendations have been made for both educators and universities to support effective and sustainable practices.

The results of this study reinforce the significant impact of the transition to online teaching for health professional educators, both professionally and personally. Educators experienced a sense of grief for the loss of usual teaching practices due to COVID-safe measures and expressed additional concerns regarding the challenges facing their students. They were required to adapt to these changes "overnight" with a significant increase in perceived workload and at a large emotional cost. Similarly, Downing and Dyment (2013) found university educators who were highly skilled and confident in face-to-face teaching felt abruptly deskilled when transitioning to online learning. They reported similar negative emotions in response to the transition online, including disempowerment, isolation, vulnerability, shame and frustration. Naylor and Nyanjom (2020) further explored this negative emotional response and identified a dynamic relationship between the amount of university support and the emotional response of the educator, a notion supported by the results of this study. This study acknowledges the negative impact of insufficient university support for educators who are teaching clinical skills online and highlights the importance of providing timely support that is tailored to the training and resource needs of each individual educator and their teaching responsibilities.

Educators in this study voiced a strong sense of concern regarding the impacts of learning clinical skills online on the academic outcomes and eventual clinical competence of their students. This theme emerged strongly amongst all three countries and largely revolved around the concept that students would have to catch up on missed clinical skills either prior to or on entry into the workforce. These perspectives have been voiced by medical educators, with concerns that the outcomes of clinical skills teaching via online settings will need subsequent evaluation (Rose, 2020). Further to concerns about affected clinical skills, educators from all three countries voiced concerns about student readiness for practice given their lack of exposure to actual clinical settings. Student immersion into authentic clinical settings, for example simulation-based teaching and clinical immersions, is known to contribute to readiness for practice (Ragsdale & Schuessler, 2021). Integrating clinical experiences into teaching is important for students to understand the context and application of their skills and can enhance preparedness for practice (Martin et al., 2021). Given the importance of understanding clinical context, educators are encouraged to consider creating opportunities for students to contextualise the clinical skills that they are learning online.

A major theme from the results of this study was the sudden upskilling required of educators to prepare for and deliver teaching of clinical skills online, which took significantly more time than anticipated. Educators elsewhere have reported that their organisation's underestimation of the time needed to prepare and implement online teaching and the workload calculations acted as an inhibitor of progress (Naylor & Nyanjom, 2020). Darling-Hammond and Hyler (2020) recommended approaches for educators to support students during teaching online and suggested that investing in high-quality educator preparation and transforming educator professional learning opportunities to match current needs were integral. The acknowledgment that both educators and their universities were underprepared for the transition online should encourage stakeholders in higher education to consider how we support change, given that the concept of facilitating teaching clinical skills online is not new (Gormley et al., 2009). Support systems for educators to teach clinical skills online have been identified and include establishing the specific training needs of educators and technical assistance for the initial iteration of online courses (Si et al., 2021). The results of this study support this and further add the importance of a clearly aligned university strategy to establish expectations, training in appropriate pedagogy for teaching clinical skills remotely and local technological support for the implementation of teaching.

Interestingly, the results of this study highlight some benefits of the rapid transition to teaching clinical skills online from the perspective of health professional educators. Educators had experienced the rapid transition to online teaching as a jumpstart to make innovative changes in their course delivery that some had been intending to implement for considerable time. Similar experiences are reported in nursing, with one study reporting that the COVID-19 pandemic acted as a wake-up call propelling universities and their educators into a new era of nursing pedagogy (Chan et al., 2020).

Earlier literature from 2009 similarly acknowledges benefits and acceptability of online learning for clinical skills and encourages the developers of clinical skills curricula to create environments that encourage the integration of online platforms for some aspects of clinical skills teaching (Gormley et al., 2009). As with all advances to the status quo, however, there is unlikely to be progress without external pressure or significant need (Edirippulige et al., 2018), and the results of this study indicate that the requirements of the pandemic have contributed to this progression. Educators in this study reflected that this progression had facilitated new confidence and understanding of their ability to teach clinical skills remotely. Further research is warranted to establish the efficacy and sustainability of these novel additions to the teaching of clinical skills.

Lastly, the findings of this current study reinforce the support needs of educators to provide sustainable and appropriately designed teaching of clinical skills online, including support from the wider university and local assistance for the preparation and delivery of content. Other research has also demonstrated that successful integration of online teaching is associated with technical and pedagogical support, strong leadership and a strong school vision regarding the use of online learning platforms (Bao, 2020). The findings of this study support these assertions and further suggest that clearly established expectations and ongoing communication within all levels of the university can contribute to managing potentially negative emotional experiences amongst educators. Although the educators in this study reflected on their support needs during a rapid transition, parallel support needs can be assumed of any educator who is transitioning teaching from in-person to the online setting.

Implications

The findings of this international study indicate that educators undergo a period of significant stress in response to shifting clinical skills teaching to the online setting, and this can be mediated with appropriate support. We provide several specific recommendations that may inform support systems for both universities and educators (Figure 3) and include concepts such as aligned university strategies and local support for educators to create systems for online teaching. Universities are encouraged to create systems for the communication of an aligned strategy to ensure sustainable educator expectations, to create protected time for educators to prepare for and deliver online teaching and to create support structures for educators to achieve these outcomes. Educators are encouraged to invest in upskilling for effective online pedagogy, to create opportunities for student engagement during online teaching and to acknowledge the significant time and resources required in the transition from face-to-face to online teaching. Jihyun et al. (2021) further recommend a four-tiered approach to support medical educators, including establishing readiness to teach online, establishing attitudes towards teaching online, the development of support programs to meet the training needs of educators and time to undertake this training (as cited in Si et al., 2021). The results of this study support this notion and elaborate on both the support needs and

training needs of educators. Support programs for educators are recommended to include acknowledgment of the shift between face-to-face and online teaching, encouraging educators to embrace the efficacy of online teaching for clinical skills and positioning the shift to online teaching as an opportunity for positive curriculum reform. Effective training for educators should feature instruction on methods to engage online learners, pedagogy for skill development online and the technology skills required to achieve this. Further research is indicated to explore the long-term impact of the transition to online learning on clinical skills of future clinicians, which was highlighted by the concerns of the participants in this study. Additionally, further research investigating the perspectives of institutional leaders regarding the support needs of educators has merit.

Figure 3

Recommendations for Support Mechanisms for Healthcare Educators When Designing and Delivering Clinical Skills Teaching Online

University Level
• Ensure that there is a unified and clearly communicated university strategy towards teaching and learning online, including protected preparation and teaching time and sufficient resources to achieve the design and implementation of an online curriculum. This is known to align educator expectations, decrease uncertainty and increase educator self-efficacy for teaching and learning clinical skills online.
• Establish the training needs of educators to provide clinical skills teaching and learning online so that their individual needs can be met and negative experiences of the transition can be minimised.
• Provide clear pathways for educators to assess support with pedagogical design and technological support during the preparation and delivery of curriculum.
• Acknowledge the significant time requirements of educators to prepare for teaching clinical skills online and allocate additional time resources where able.
Educator Level
• Invest in understanding the pedagogical adaptations required for efficacy when teaching clinical skills online. Adapting how the teaching is prepared and delivered to suit an online setting will also reduce the time required.
• Create opportunities for learner engagement in the online settings, both through interactive teaching pedagogies and avenues for student feedback regarding their preferences in online teaching. Facilitating interaction from learners may reduce the educator's experience of "one-way" teaching online.
• Advocate for and access support available through the university to reduce uncertainty around expectations and assist with inevitable problem solving.
• Allocate appropriate time for the upskilling and creation of clinical skills content specifically for the online setting to mediate negative experiences of the transition.

Limitations

This study was completed in three countries across three continents with data collected in two languages, and this may have influenced the interpretation of data and subsequent results. Cultural differences between the researchers may have impacted the intended meaning of the focus-group guide and focus-group data. Furthermore, intended meaning may have been affected during the translation of the Spanish data into English. Concepts

may be excluded that related specifically to educators who did not volunteer, for example, educators who have had a particularly negative or positive view of teaching clinical skills online. Finally, preparing for and undertaking assessment of clinical skills online and teaching and learning in clinical settings such as clinical immersions were not considered within this study.

Conclusion

This study is the first to explore health professional educator experiences of and support needs for teaching clinical skills online, and we have done this through an international lens. The findings of this study highlight the professional challenge that the shift online creates for educators and the uncertainty that it creates around expectations and outcomes. Recommendations are made for both universities and educators to consider in the pursuit of effective and sustainable teaching and learning of clinical skills online.

Conflicts of interest and funding

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