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Embracing a sustainable future: the development of a HYFLEX simulation faculty development module

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Introduction

In 2019, we launched a healthcare simulation module as part of an established distance learning post-graduate programme for healthcare professionals. The module aim was to promote an understanding and application of simulation theory to practice in diverse healthcare contexts. Although a distance learning programme, we felt it fundamental to include in-person teaching to further the opportunities for simulation faculty development. Therefore, our module student cohorts who are UK and internationally based came together over five days to co-design, deliver and critically analyse a variety of simulation-based learning events. However, the pandemic forced us to change to an online version of our in-person activities, whereby students interacted and undertook simulations remotely. We continued to support students' learning needs, but aspired to return to in-person delivery, as our student evaluations testified that this added richness to our simulation communities of practice [1]. The co-construction, performance and critique of a simulation by our diverse interprofessional groups brought mutual benefits which we observed as the tipping point [2] of their simulation faculty development. As the pandemic restrictions changed at different rates across the world, and additional pressures on international travel began to influence people's environmental and financial choices, we respected that alternative and flexible approaches to our module were necessary and feasible [3]. We wanted to account for a new and changing landscape, yet still realise the benefits of our in-person simulation faculty development experiences, and this report describes our response to this challenge.

Innovation

We developed a HYFLEX [4] simulation module, which included one intensive week (mid-module) of in-person and online synchronous simulation events, recorded, and shared for students to participate with asynchronously. Faculty and students communicate via Moodle, our virtual learning environment discussion forum, and work towards a week in which we facilitate synchronous activities in-person in a simulation centre and via virtual classrooms using Blackboard Collaborate. Students are allocated to small groups, invited to creatively name their *SIM* group, construct intended learning outcomes for and design a simulation

learning event. Online breakout rooms enable synchronous student conversations and contributions are welcomed asynchronously to the proposed simulations and the critical analysis of in-person recorded events. The aim of this HYFLEX approach is to continue to provide opportunities for our international cohorts of simulation educators to learn together, while providing flexibility in their modes and times of engagement. The culmination of planning results in small groups running a simulation for observing groups. The simulation activity is typically undertaken by those physically present, whilst the pre-brief and debrief might be facilitated by the online members of the group. After each simulation, all faculty and students engage in (and record) a critical analysis of each other's simulations (Figure 1). Facilitating the in-person and online engagement in simulations and debriefings required the faculty to pay particular attention to nurturing psychological safety and encouraging active participation, adopting the principles of simulation pre-briefing [5].

Evaluation

To circumvent the clinical, financial and ecological pressures educators face, we incorporated learning from our educational experiences during the pandemic whilst retaining the advantages of our in-person experiences. Our HYFLEX module shows signs of successfully achieving these aims and retaining the international diversity of our student cohort. We gathered early student feedback to determine their reactions, and to capture ideas for improvement and share a sample of the synchronous in-person and online evaluations respectively (Figure 2).

As a faculty, we reflected on the necessity of fulsome information sharing and reassurance prior to and during the intensive week and the need for expert co-facilitation, having several ears, eyes and points of view in this educational environment. As a small team, we realised the need for sharing key roles; facilitating the in-person conversation; advocating for synchronous online student contributions and linking the conversations with academic publications and evidence for students preparing to write module assignments.

Outcomes

The HYFLEX approach to our simulation faculty development module has been successfully implemented on a single occasion. At this early stage, it would appear to have achieved a balance between successfully bringing a diverse group of healthcare educators together to learn from and with each other, whilst providing flexibility for students in their context, independent of geographic, financial or professional workplace restrictions.

What's next?

The HYFLEX approach could be an innovation to augment and present solutions relevant to others engaged in simulation faculty development, be it synchronous, asynchronous or both and whether students undertake the courses online or in-person. As a simulation community, we have a growing responsibility to be financially and ecologically resourceful, to provide flexible learning which is sensitive to clinical service pressures, whilst maintaining quality education and promoting inclusion and cultural diversity [6]. In our recent experience, a HYFLEX approach

Figure 1: Sample Programme (morning, afternoon and student-led activities can vary according to choices, logistics, time zones and availability)

Intensive Week:		**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Morning	Session	Faculty-led simulation exemplar: a demonstration of pre-briefing, simulation activity & debriefing, followed by a post-event critical analysis involving all faculty & students	Drop-in classroom for Q&A regarding student-led simulations and module assignments	**Procedural Skills student-led simulation** By '*Sim It to Win It*'	**Communication Skills student-led simulation** By '*Sultans of Sim*'	**Acute Care student-led simulation** By '*SIMply the Best*'
				Venepuncture using part task trainer	Breaking bad news scenario with a simulated patient (SP)	ABCDE assessment of SP using iSimulate©
	Mode	In-person & online via Blackboard Collaborate classrooms				
Afternoon	Session	Preparation time for student-led simulations and private study		**Asynchronous activities** (a selection of pre-recorded tutorials)		
				Mastery Learning	*In-Situ Simulation*	*Lessons from Tolkien: Realism in Simulation*

Figure 2: Student testimonials

*"The opportunity to **attend in-person teaching** was invaluable and allowed me to gain much more from the module than otherwise I would have via distance learning. This was particularly down to the module tutors, who were very insightful and gave very thought-provoking feedback. Attending in-person, I found it much easier to do small-group work, as I feel that distance learning is always a bit of a barrier to this. I also feel that it is easier to get & give feedback as you get to know the group better and so feel like you can be more honest & critical which leads to the most intriguing discussions."*

"*I **attended the synchronous teaching as an online learner** but felt very much included in this experience. I was able to benefit from peer learning and have critical feedback on my work. It was useful to see the different approaches that people took in designing, delivering and debriefing their simulations and to discuss and be signposted to relevant literature when exploring different approaches and styles. I was very grateful to have joined in the social learning experience which occurred during the intensive week as an online distance learning student. The group dynamic itself was also very social and encouraging and I felt included despite not being an in-person learner.*"

to simulation faculty development creates sustainable opportunities and joins the conversation about modes of distance simulation [3]. We now suggest a programme of evaluation research is needed to determine what works, and why, with respect to HYFLEX simulation-based faculty development.

Declarations

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Authors' contributions

SS and NH created this innovation and now deliver this with SL. We conceived of and contributed equally to writing this manuscript. NC was a module participant and critical reader of the final manuscript.

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Competing interests

None declared.

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