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Lessons learned from navigating the COVID pandemic in a health sciences university: a disaster medicine perspective

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ABSTRACT

The COVID-19 pandemic brought about an unexpected transformation in teaching and learning across health professions education, necessitating an unprecedented operational shift. When exploring the factors at play in this shift, it is useful to analyse the pandemic response in terms of the field of disaster scholarship. This paper employs a qualitative case study methodology to review the application of a disaster framework to one health sciences university's response to the pandemic. It aims to identify the factors that facilitated the university's dramatic operational shift, with a particular focus on leadership and culture. The research questions were: (1) How does the application of a disaster framework enhance our understanding of a health sciences university's response to the COVID-19 pandemic? (2) What implications does a disaster preparedness focus have for leaders within health professions education? The data were collected using semi-structured interviews with 4 of the university's senior leaders and focus groups with 53 staff and 48 students across campuses in Ireland and Bahrain. Ciottoni's disaster cycle provided the conceptual lens, and framework analysis was used to guide the data interpretation process. The analysis found that IT infrastructure and digital education, an empowering and supportive organisational culture, and a facilitatory leadership style facilitated the disaster response. The disaster scenario created a window of opportunity for innovation, collaboration, and problem-solving, but posed challenges for maintaining the momentum of change and ensuring student wellbeing. In preparing for future disruptions, consideration should be given to fostering a sense of purpose for students to enhance wellbeing.

IMPACT STATEMENT

This paper provides a critical examination of the response of a health sciences university to the Covid-19 pandemic through the lens of disaster scholarship. Employing a qualitative case study methodology, it explores the factors that enabled the university to adapt and maintain operations, focusing on the roles of leadership, culture, and IT infrastructure. The study's findings, derived from interviews with senior leaders and focus groups with staff and students, reveal that an empowering culture and facilitatory leadership were instrumental in the university's effective response. The insights gained from this research offer valuable lessons on resilience and adaptability in higher education, emphasising the importance of preparedness and the potential of digital education to ensure continuity in the face of unforeseen challenges.

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Introduction

The COVID-19 pandemic, which emerged out of Wuhan China at the end of 2019 (Spiteri et al., 2020) had a profound impact on the world, triggering the largest global economic crisis in more than a

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century (Wade, 2023). It saw health services throughout the world being overwhelmed, resulting in an estimated 18 million deaths by the end of 2021 (OECD, 2023) and created the largest disruption of education systems in human history, affecting nearly 1.6 billion learners in more than 200 countries (Pokhrel & Chhetri, 2021). It brought about a swift and unexpected transformation in learning, teaching and assessment across health professions education (HPE) (Dzara et al., 2022; Gordon et al., 2020; Kalanlar, 2022; Kawaguchi-Suzuki et al., 2020; Stojan et al., 2022). This included the rapid development of COVID-focused curricula (Kochis & Goessling, 2021), widespread adoption of online and hybrid teaching modalities (Sahu & Dalçik, 2023), provision of virtual clerkships (Chandra et al., 2020) and other online experiential learning opportunities (Cassidy et al., 2022), in addition to changes to examinations (Papapanou et al., 2022). Such dramatic alterations required a mobilisation of faculty, students, and support staff that was quite unprecedented in its scale and speed.

Digital modalities proved themselves an invaluable vehicle for continuity of education over the pandemic and provided cause to reconsider some fiercely held beliefs regarding the optimum modalities for educating health professionals (Sklar, 2020). One of the challenges facing education institutions charged with harnessing digital platforms was the requirement for large-scale upskilling of vast numbers of individuals who had hitherto limited familiarity with such platforms (Trevisan et al., 2023). This required, not just technical upskilling but, supporting changes to pedagogical practices to ensure the most effective use of the platforms (Zuo & Miller Juvé, 2021). It has been widely recorded that the initial lockdowns led to an immediate shift to what has been termed 'emergency remote teaching' (Moore & Hodges, 2023). This typically involved faculty familiarising themselves with synchronous delivery platforms to an extent that allowed them to continue with didactic lecture style teaching, albeit via remote delivery. Such approaches typically did little to draw on the wealth of distance education pedagogic practice that had developed over the past decades (Bozkurt & Sharma, 2020; Moore & Hodges, 2023) and were generally not well suited to long-term online engagement, capable of supporting learner motivation and the development of higher-order thinking skills. As the prospect of an extended curtailment of campus and clinical site teaching and learning activity loomed, there was a need to devise a faculty development strategy that better equipped those with teaching responsibilities to reimagine their teaching practice to take account of the transformed learning and teaching environment.

It must be borne in mind that initiatives aimed at enhancing the digital pedagogical skills of faculty were themselves constrained by the physical distancing requirements necessitated by the pandemic. This contrasted with the more usual formats of faculty development, which typically involved face-to-face engagement (Salajegheh et al., 2022). Moreover, for many academics the move to online teaching was 'daunting, unusual and unsettling' (Romero-Hall & Jaramillo Cherez, 2023, p152). The rapid move to virtual environments had an impact that extended beyond the physical and logistical, affecting faculty emotions and motivation (Trevisan et al., 2023). In the context of HPE, these challenges were exacerbated by the increased clinical demands on some faculty, which meant they were less available for teaching and faculty development activities (Hilburg et al., 2020).

A key focus in much of the literature on the education experience during the COVID-19 pandemic was that of student engagement. Engagement has been identified as having behavioural, emotional, cognitive (Fredricks et al., 2004), social and collaborative aspects (Redmond et al., 2018). During the pandemic, technical challenges, limited interaction between students and faculty, lack of awareness of pedagogical strategies appropriate to online and distance education, the distractions associated with studying from home, and social isolation had a negative impact on engagement (Yang et al., 2023). Appropriate digital learning formats and teaching strategies, the provision of social support, including helping students structure their days, and the creation of opportunities to increase self-efficacy can support student engagement during crises such as the pandemic (Koob et al., 2021). Initiatives such as peer mentoring programmes can foster 'a sense of connection, support, and meaning' in such circumstances (Krause & Moore, 2022).

Problem statement and objective

In the face of the myriad of challenges outlined above, it is instructive to examine how the health sciences university that is the subject of this research navigated the transformation of its approaches to

learning, teaching and assessment; faculty development; and student engagement during the course of the COVID-19 pandemic. This research seeks to identify the mechanisms by which change was achieved and the roles played by various stakeholders. It is proposed that employing a disaster framework may ensure a systematic focus on those aspects of change and leadership that are unique in the context of a major crisis and may hold particular transformative potential.

The objective is to determine whether employing a disaster framework can provide new insights into the organisational and leadership factors that facilitated the operational changes needed to support the transition to online teaching, thereby enabling enhanced preparedness for future crises, such as pandemics, wars, and natural disasters.

To the best of the researchers' knowledge, the adoption of a disaster framework provides a novel analytic lens through which to view education institutions' responses to the pandemic and it is hoped that it will provide new insights into education resilience and responses to future disruptions.

Research questions

1. How does the application of a disaster framework enhance our understanding of a health sciences university's response to the COVID-19 pandemic?
2. What implications does a disaster preparedness focus have for leaders within health professions education?

Context

Based in Ireland, the university includes a large undergraduate medicine programme, as well as programmes in pharmacy, physiotherapy, and nursing. The university also delivers a parallel medicine programme in Bahrain. Prior to the pandemic, both campuses followed an in-person teaching and learning model. There had been limited adoption of blended learning in post-graduate programs, but a reluctance to develop fully online programmes, and a strong belief that undergraduate programmes should be delivered wholly in person.

Literature review

In seeking to make sense of the pandemic response in the education arena, various lenses have been employed, including change and crisis management (Karimian et al., 2022; Kotter, 1996; McKimm et al., 2023; Moon et al., 2024; Oleksiyenko et al., 2023), complex adaptive systems (Choflet et al., 2021; Rodríguez et al., 2023; Van Nuland et al., 2020) and leadership (Chisholm-Burns et al., 2021; Dumulescu & Muşiu, 2021; Hadley, 2023).

Change and crisis management

In health professions education, Kotter's (1996) framework for change management has been widely referenced in a broad range of pandemic-induced change accounts, including changes in instructional modality (Dzara et al., 2022), responses to disruption in medical education (Spond et al., 2022), and strategies to increase the wellbeing of trainee physicians (Weiss & Li, 2020). Models such as Kotter's have been found to be valuable for planning change as well as analysing instances where efforts to implement change are unsuccessful (McKimm et al., 2021). Jones et al. (2021) have suggested shortcomings in the use of change models to account for the pandemic and post-pandemic experience, however, arguing that such models tend to focus on intentional change that is followed by a process of restabilisation. Consequently, change models can underestimate the disruptive power of crises, the need to 'embrace the disequilibrium' for extended periods of time, and the requirement for 'cognitive reframing' in their aftermath (Jones et al., 2021, p. 170). The adaptation period after the pandemic can be viewed as an opportunity to explore, innovate, and apply new approaches (Gibbs, 2020).

Complex adaptive systems

Rodriguez et al. (2023) identify three criteria for crises, all of which apply to the COVID pandemic: a threat to core values, uncertainty, and urgency. They contend that the pandemic can be seen as ‘an adaptive challenge in which creative, strategic, whole of organization leadership’ was required (Rodriguez et al., 2023, p. 4). They point out that such conditions produce opportunities as well as threats. An adaptive framework is appropriate to a volatile, uncertain, complex, ambiguous world (Bennis & Nanus, 1985) and is considered more valuable than traditional models for exploring how the demands of the pandemic affected the practice of organisational change. Choflet et al. (2021) also propose the use of a complex adaptive systems lens in the context of healthcare more broadly. They argue that the crisis-prone nature of the healthcare landscape lends itself to the use of crisis management and complexity approaches.

Gilead and Dishon (2022), whilst also recognising education as a complex system, argue that adaptivity may not be the optimum response to a crisis such as the COVID pandemic because it impedes transformative change. They suggest that strategies that seek to adapt to a crisis, or prepare for crises by enhancing the institution’s adaptability, serve ultimately to retain the status quo, thus closing off potential new avenues that could be of greater benefit to the institution or society as a whole. They highlight the importance of values and vision, ‘a desirable future that people can imagine and relate to’ (Gilead & Dishon, 2022, p. 829). They argue that values can reduce uncertainty and ambiguity by limiting the possibilities for action, helping organisations navigate complex and changing situations.

Leadership

A review by Hadley (2023), which focuses on the complex decisions faced by educational leaders during the pandemic, aligns well with the complex adaptive systems perspective described above. The review emphasises the importance of leadership attributes such as open communication, compassion, and flexibility; traits usually associated with transformational and adaptive leadership styles (Hadley, 2023). Dumulescu and Muțiu (2021) identify the role played by leaders’ personal attributes, such as responsibility, experience, and adaptability, in navigating the crisis in their university. They found that a process of decentralisation, whereby academic faculties were afforded autonomy to choose their own course within guidelines set by university leaders empowered academic staff and supported a positive response to the challenges of the pandemic. They suggest that the crisis offered an opportunity for reinvention, encouraging the university to recalibrate and enhance its legacy with a focus on resilience and openness to change. Research by Chisholm-Burns et al. (2021) in the academic pharmacy domain, highlighted adaptability, effective communication, the importance of staying connected with colleagues and students, and the need to find ways to remain productive as key themes. In common with other studies, they also identified that the pandemic was associated with both opportunities and threats.

Complex situations, such as the pandemic, benefit from adaptive leadership approaches that seek to harness individuals throughout the organisation to address ‘wicked problems’ with no clear solutions that often necessitate new approaches to working (Ruben et al., 2022). A critical aspect is the ability to distinguish between what is ‘precious’, or critical to the organisation, and what is ‘expendable’ (Chisholm-Burns et al., 2021). In times of crisis, leadership needs to be enacted at the intrapersonal, interpersonal, system, and global eco-system levels (McKimm et al., 2021; McKimm et al., 2023). Lucey and Johnston identified ‘principled decision-making, change leadership, and crisis communication’ as key facilitators of the educational response to the pandemic (Lucey & Johnston, 2020, p1034). They note the importance of strategies such as acknowledging uncertainty, recognising the emotional stress of the situation, and providing reassurance in crisis situations.

Disaster scholarship

The pandemic was just one in a series of disruptions to health professions education (HPE) that have occurred in recent years, including the impacts of the SARs epidemic on HPE in Hong Kong and Canada, Hurricane Katrina in Louisiana, and internal conflict within a number of other countries (Govender & de

Villiers, 2021). Disaster scholarship has been identified as being of value in illuminating the impact of disasters on the training of health professionals and can contribute to the development of strategies to mitigate the associated challenges (Ellaway, 2021). It is closely aligned to disaster medicine, a relatively new medical specialty 'associated primarily with the disciplines of emergence medicine and public health' (Hogan & Burstein, 2007, p2) that is focused on the provision of care to patients who are injured or become ill as a result of a disaster' (Ciottone, 2024). There are important parallels between the requirements of disaster medicine and those that provide continuity in medical education. The capacity to operationalise effectively in a disaster scenario requires advance planning and understanding of the roles played by a myriad of parties in the disaster management situation. The complexity of disaster scenarios demands a knowledge base that encompasses aspects such as surveillance, planning, assessment, response, recovery, and mitigation (Hogan & Burstein, 2007; Sklar et al., 2007). These have been captured in a four-stage disaster cycle (Ciottone, 2024), illustrated in Figure 1, which focuses on preparedness, response, recovery, and mitigation/prevention.

Disaster scholarship can help health professions educators better understand the impact of natural events or pandemics on the training of healthcare practitioners and help prepare for future events (Ellaway, 2021). Haney and Lovekamp (Haney & Lovekamp, 2018) have highlighted the need to expand the literature on disaster education beyond medicine and nursing into social science and emergency management programs.

Materials and methods

A qualitative case study methodology was employed in which focus groups and semi-structured interviews were conducted to collect data for the research. Ciottone's disaster cycle (2024) provided the conceptual lens through which to examine the institutional response to the pandemic. Approval was secured from the university's research ethics committees to conduct online interviews with members of the senior management team (SMT) and some teaching staff, and focus groups with students, faculty, and teaching support staff on two campuses – Ireland and Bahrain (Table 1).

Participants were invited to participate in this research through email, provided with a participant information leaflet, and only recruited on provision of informed consent. An interview guide was developed (Appendix A), and interviews and focus groups were conducted with different stakeholder groups to triangulate, test, and enhance understanding. Focus groups were carefully selected so participants were free to provide their perspectives and to manage potential power dynamics, i.e. separate staff and student focus groups and individual interviews with SMT members. The interviews and focus group recordings were auto-transcribed, reviewed for accuracy, and pseudonymised by a member of the research team.

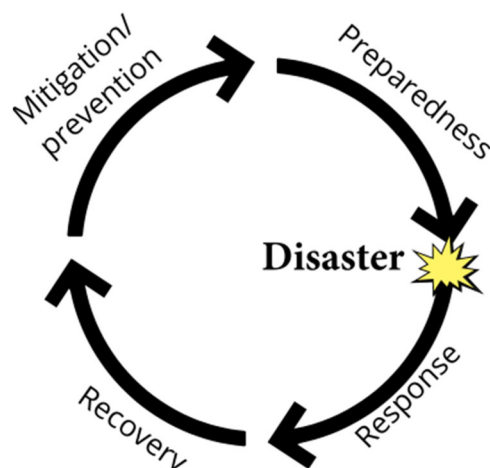


Figure 1. Disaster cycle.

Table 1. Participant descriptions.

Ireland	Bahrain
4 SMT interviews	7 focus groups comprising 23 staff (teaching and teaching support)
3 faculty or teaching support interviews	5 focus groups comprising 21 students
7 focus groups comprising 30 staff (teaching and teaching support)	
9 focus groups comprising 27 students	

Data analysis

The data was analysed by six members of the research teams in line with the process of framework analysis (Gale et al., 2013; Ritchie & Spencer, 2002). The steps were as follows:

1. Familiarisation
 - A sample of transcripts were divided across the members and each transcript was read by two researchers. The researchers also listened to the recordings, taking notes as they went and suggesting initial codes.
2. Identification of a thematic framework
 - All members met to share their initial codes and compare them with other members, identifying common concepts and agreeing final codes. Through further discussion of codes and concepts, codes that were conceptually linked were organised into discrete clusters to produce a working analytical framework for the rest of the analysis. During the process of clustering, the phases of the disaster cycle and themes from the literature review informed consideration of the relationships between codes.
3. Indexing
 - Team members worked individually to apply the analytical framework to the transcripts they had been allocated. Meeting were held every two weeks to highlight and discuss new themes and update the thematic framework, resulting in 58 codes, clustered into 13 thematic categories, colour coded as either SMT, Staff, or Student – or shared – SMT/Staff, SMT/Student, Staff/Student, or All Groups. (see Table 2 and Figure 2).
4. Charting
 - The codes were copied into an Excel sheet and grouped within their thematic categories. Each code was given its own column with the associated quotes added to each. On a separate Excel sheet, the thematic categories were organised in line with the phases of the disaster framework (see Table 3).
5. Mapping and interpretation
 - Research team members reviewed the Excel sheet and reflected on and discussed the relationship between the codes, the thematic categories to which they belonged and the phases of the disaster framework. This is discussed in detail in the Findings section below.

Findings

The thematic categories identified following analysis of the interview and focus groups data will now be discussed in relation to the four phases of the disaster cycle. The relevant quotes for each phase and their alignment with the relevant thematic categories are shown in Table 3.

Preparedness

Urgency as an enabler

The urgency of the pandemic situation enabled the SMT to move quickly, circumventing some of the usual bureaucratic processes associated with higher education structures. As noted by a faculty member *'we kind of jumped forward in technology at warp speed'*. [Faculty 14] The SMT established a number of cross functional working groups, encompassing staff with the relevant expertise at all levels of the university to coordinate planning for the key operational challenges, including facilitating home working, transitioning to digitally enabled teaching, and ensuring a safe working and learning environment for

Table 2. Thematic framework showing codes clustered into thematic categories coded by group matrix.

IT Infrastructure and Digital Education				Leadership			Organisational culture					
Digital infrastructure	Digitally enabled education	Superusers	Student engagement	Harnessing expertise	Balancing safety and education needs	Navigating the return to normal	Empowerment	Supportive environment	Purpose	Adaptability	Disaster as a vehicle for change	Urgency as an enabler
Enhanced digital capacity post COVID	Digital teaching practices	Preparing for online teaching	The student experience	Prior experience of online	Virtual experiential learning	Challenges for staff	Freedom from perfection	Colleagues as a source of support	Checking in with students	Learning curve moving online	Coping with the transition	Rapid response
Preparing for home working	Hybrid learning	Technical & pedagogical support	Class interaction	Working groups	Expanded campus	Balance of F2F vs online going forward	New responsibilities	Support from professional staff	Learner focus	Adapting	Pivot to online	Mobilisation
IT preparation	Recorded content	Digital learning training	Strategies to foster social interaction	Public health expertise		Workload		Support for adjunct faculty	Clinical exposure	Changing roles	The future	
Digital platforms	Online assessment		Camera use			Implications for THEP Financial impact		Support for students	Motivation	Autonomy	Working from home	
	Attitude to online		Social interaction			Impact on overseas students		Empathy for students				
	Online affordances		Engaging teaching approaches					Wellbeing				
	Online negatives							Anxiety Communication				
	Flexibility of online											
	Digital engagement tools											

Key

All

SMT

Students

Staff

SMT & students

SMT & staff

Staff & students

Key

All
SMT
Students
Staff
SMT & students
SMT & staff
Staff & students

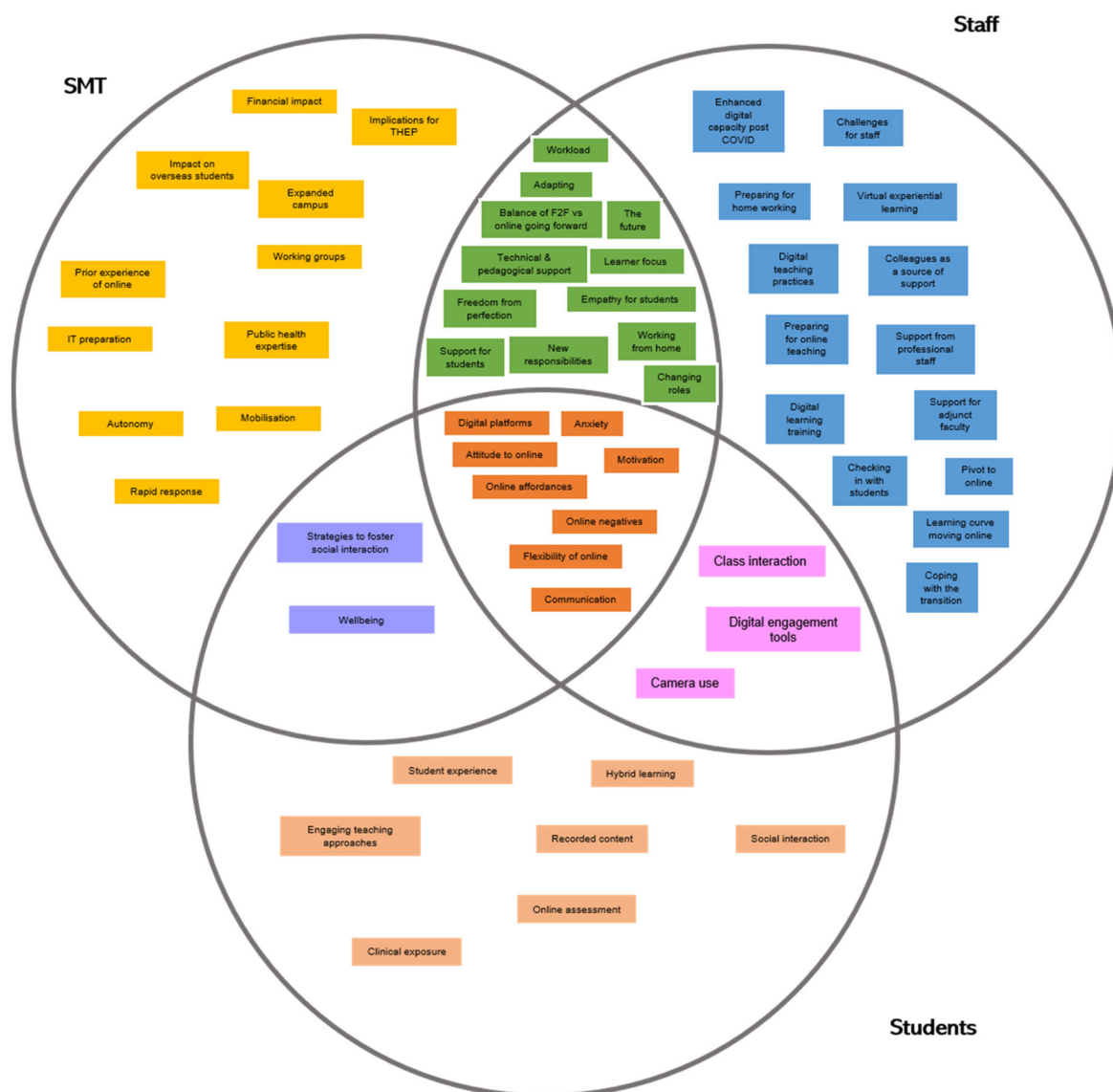


Figure 2. Relationship between codes and groups.

all. As one senior leader recalls ‘we were all stuck into it for a good six to eight weeks before that [move to remote working] just prepping everything and getting it ready to make sure we weren’t caught on the hop’. [SL3]

Harnessing expertise

There existed across sites and campuses staff with a wide range of expertise and experience that could be harnessed to position the university to deal with the campus closures and restrictions that were announced in March 2020. Clinicians and faculty with expertise in population health quickly alerted the organisation to the seriousness of the situation and forewarned of the need to plan ahead, facilitating swift collaborative action by the SMT. IT personnel, and learning technologists were able to draw on the experience of delivering small online programmes to plan for a rapid scale up of online delivery, while faculty with online teaching experience shared their knowledge with colleagues, as illustrated by this quote: ‘I know [name redacted] and [name redacted] developed a really good hyflex how to and circulated it. And I found I was going around holding it like it was the Bible.’ [Faculty16] Operating as we were across multiple sites – including our international campus in Bahrain – the immediate uptake in synchronous communications technologies facilitated a coordinated approach across the various sites. In addition, the

Table 3. Disaster cycle thematic categories and representative quotes.

	Quote
1. Preparedness	
Urgency as an enabler	<i>We kind of jumped forward in technology at warp speed. [Faculty14] While I know the town hall was happening with the staff as you remember we were all stuck into it for a good six to eight weeks before that just prepping everything and getting it ready to make sure we weren't caught on the hop. [SL3]</i>
Harnessing expertise	<i>I think there's a lot of expertise as well, you know, like people help each other, like I know [name redacted] and [name redacted] developed a really good hyflex how to and circulated it. And I found I was going around holding it like it was the Bible. [Faculty16]</i>
Digital infrastructure	<i>In the background we've been doing online discussion boards, online submission of assignments, feedback, have been done on line using Moodle and so on, so it's all down to understanding this idea of technology delivered learning, so I think we've been doing it for a while. [SL4]</i>
2. Response	
Balancing safety and education needs	<i>None of us knew how scary or how unsafe it was going to be and what it was going to be like to bring back a huge number of the students in the autumn. [SL1]</i>
Superusers	<i>We were able to support it by going to all the various different DEL [digitally engaged learning] sessions ... And I had a training day with all the team. So we went through basically every single session I attended. I give them the highlights. So there was a shortened, condensed version, then the big bits that went through like a step by step how you do things. [Faculty 2]</i>
Supportive environment	<i>I felt I was taken by the hand, and we were all in it together to get to learn this as quick as possible. [Faculty 4] There was a real centralisation of communication and coordination that I think helped everyone to realise we all need to do the same thing to deliver safely to students [SL1] There was a lot of work by the student unions and by clubs and societies to engage in whatever way they could. [SL1]</i>
3. Recovery	
Digitally enabled education	<i>Lecturers were quite quick to pick up on Blackboard Collaborate even like engaging us by using like the TurningPoint polls and the polls within Blackboard collaborate and as [name redacted] said the whiteboard as well. And getting us to watch like videos during the lecture to keep engagement up [Phy1].</i>
Digitally enabled education	<i>There were a few [online lectures] that that were kind of collaborative, and then there were also a few where everyone's like microphone would be muted and you could just only type in the chat box. [UGMED2]</i>
Student engagement	<i>When I went on campus, like, you know, we had to prepare to dress, get ready, go there. So it was just a different kind of mindset and it ... helped me to study, know when to study, when not to. And having to do it all in my room was challenging for some reason, sort of psychological thing. [MED1]</i>
Student engagement	<i>I think that the privilege of being able to go to lectures in person was extremely beneficial and like really aided my learning. [UGMED5]</i>
Student engagement	<i>The bad thing was I cannot experience campus life and my social life has been depleted. [UGMED2]</i>
Student engagement	<i>There's a whole, you know, what they call hidden curriculum, which is how you interact with the patient completely and familiar with the premises, with the hospital, the culture, and I think that's as important as those discrete clinical skills so I feel like that's mainly what I lost. [PGMed1]</i>
Purpose	<i>We are here for the student. We are here to make it a better experience and make them better doctors and better clinicians in the future. [SL3]</i>
Purpose	<i>Willingness of everybody to do whatever it took for continuity for students [SL1]</i>
Empowerment	<i>There was a lot of forgiveness available. [ProfStaff5]</i>
Empowerment	<i>Many of our staff have acted beyond the scope of their practice, acted up, been empowered [SL2].</i>
Navigating the return to normal	<i>I definitely appreciate the live teaching face to face teaching much more than I did in the past. [Faculty20]</i>
Navigating the return to normal	<i>We are going to be saying to people, ... just do what needs to be done, reduce meetings, reduce everything, give people a chance to recalibrate and re-energise and move on [SL2].</i>

(continued)

Table 3. Continued.

	Quote
4. <i>Mitigation/prevention</i>	
Disaster as a vehicle for change	<i>You have that burning need to do it, because otherwise everything stops, so there's nothing like a pandemic to make us do something and accept it as the way we should do something. [SL4]</i>
Disaster as a vehicle for change	<i>We have to find a way that we don't disillusion them by taking it all way. [SL2].</i>
Adaptability	<i>It demonstrated the epitome of what [name redacted] is which is there is a real can-do culture. [SL1]</i>
Adaptability	<i>We had to live in an era where good enough was good enough. [SL2]</i>

simplification of the administrative hierarchy via the working groups empowered those with the appropriate skills to apply them immediately to the problems that needed to be solved at a local level.

Digital infrastructure

Much of the technological foundation had been laid in the years preceding the pandemic. The underlying cloud-based architecture to support home working was in place though not widely used prior to the pandemic. Similarly, the technology infrastructure for online delivery that had been developed for niche postgraduate programs could be leveraged to support a wide-scale move to online teaching. Moreover, all programmes were already making extensive use of the university's virtual learning environment to support programme delivery. As noted by one senior leader, *'In the background we've been doing online discussion boards, submission of assignments, feedback ... for a while.'* [SL4].

Response

Balancing safety and education needs

Ensuring the safety of staff and students was the highest priority, necessitating a shift to remote working and some adoption of online learning. Only staff testing negative for COVID-19 and engaged in on-campus teaching were permitted to be on site. All others were required to work from home. This was a significant logistical challenge. The weeks leading up to campus closure were spent rapidly rolling out IT platforms and delivering mass training sessions. Despite the social distancing restrictions imposed on the university sector as a whole, there was a reluctance to move to a wholesale remote model for undergraduate programmes. This was mainly driven by two factors: 1) A desire to retain to the greatest extent possible in-person attendance for practical labs and classes. 2) A recognition of the important structuring and social role that in-person attendance plays for undergraduates. The tension between safety and capacity to optimise the learning environment is captured by the words of one of the senior leaders: *'None of us knew how scary or how unsafe it was going to be and what it was going to be like to bring back a huge number of the students in the autumn.'* [SL1]

The decision to retain on-campus teaching was facilitated by reconfiguring campus buildings in line with social distancing guidelines, leasing temporary premises to house a satellite campus, and, establishing test-and-trace, and subsequently vaccination, capability in the main Irish campus. A hybrid teaching model was adopted, which allowed undergraduate students to alternate between virtual and in-person attendance. Students were organised into groups, each of which spent one day a week on campus for labs and hybrid teaching. Post-graduate teaching moved completely online.

As the pandemic escalated, a range of alternative assessments were developed, ranging from weekly low-stakes MCQs to large-scale, proctored, online examinations. To mitigate the lack of clinical placements, a number of virtual and simulated alternatives were developed. Key to success was the 'willingness to change' identified by one senior leader that enabled many of the actions taken (Table 3).

Super users

The shift to remote working necessitated significant IT skills development for staff as a whole. Moreover, the transition to hybrid and online teaching represented a paradigm shift for most faculty, requiring the development of new pedagogical approaches. An implementation group, drawn from relevant functions

in Ireland and Bahrain, collaborated to develop a rapid upskilling program. A key objective was the creation of a supportive environment that allayed faculty anxiety and helped develop confidence in digital teaching approaches. To achieve this, additional staff were employed to provide IT support in Bahrain, while in Ireland a super-user model was deployed.

Super users were technically competent volunteers within each department who were charged with becoming the first line of support for their departmental colleagues. Super users engaged with all the training and essentially 'localised' it for their department, providing context-specific examples and guidance. As one super user explains, *'I had a training day with all the team. So, we went through basically every single session I attended. I give them the highlights. So, there was a shortened, condensed version, then the big bits that went through like a step by step how you do things'* [Faculty 2]. The super users formed an online community connected via an MS Teams channel. This proved a valuable way of connecting staff who were geographically dispersed and ensured the availability of real-time help when needed. As noted by one faculty member, *'I felt I was taken by the hand, and we were all in it together to get to learn this as quick as possible'*. [Faculty 4]

Recognising that students would need to be prepared for the transformed teaching and learning environment, a working group was formed to develop strategies to assist with their adaption to the technological, pedagogical, social, and administrative elements of university life under COVID restrictions.

Supportive environment

Throughout the pandemic, clear two-way communication between the leadership team and staff and students was a key contributor to cohesion and consensus building. The university's established student communication channels were augmented with regular email updates and live Q&A sessions. For staff, an internal social media style channel was used to share informal training information and social content, which helped maintain cohesion when staff were dispersed. This was supplemented by email updates and virtual town-hall meetings, which kept staff informed about the evolving situation. As noted by one senior leader, *'there was a real centralisation of communication and coordination that I think helped everyone to realise we all need to do the same thing to deliver safely to students'*. [SL1]

There was a recognition of the emotional distress the circumstances of the pandemic might cause students and staff and a concerted focus on allaying fears and supporting wellbeing to the greatest extent possible. The university conducted regular staff and student surveys to monitor welfare, and developed a series of campaigns focused on supporting mental wellbeing, which included regular email bulletins, webinars, posters, and other outreach activities. Students union and other student channels were heavily engaged in creating online and, when permissible, socially distanced in-person events to help mitigate the isolation brought about by the pandemic. As one leader observed, *'there was a lot of work by the student unions and by clubs and societies to engage in whatever way they could'*. [SL1] [See [Appendix B](#) for examples of wellbeing supports].

Recovery

Digitally enabled education

Focus group comments suggest that students were generally very positive about digital initiatives, such as live streaming, recorded lectures and the use of in-class engagement tools such as polls and quizzes. As noted by one undergraduate student, *'lecturers were quite quick to pick up on Blackboard Collaborate even like engaging us by using like the TurningPoint polls and the polls within Blackboard Collaborate and as [name redacted] said the whiteboard as well. And getting us to watch like videos during the lecture to keep engagement up'* [Phy1]. Their feelings about small group interaction online was more mixed, with some having very positive experiences, and some complaining about a lack of engagement from their peers and the inadequate digital skills of some faculty. *'There were a few [online lectures] that that were kind of collaborative, and then there were also a few where everyone's like microphone would be muted and you could just only type in the chat box'* [MED2].

Student engagement

Undergraduate students generally felt that the decision to retain an element of in-person teaching helped them maintain a structure to their day and enhanced their motivation. While some enjoyed the convenience of studying online, many spoke of the difficulty of spending long days in the virtual environment, without the familiar cues that mark the transition from one part of the day to the next. As one student recalls *'when I went on campus, like, you know, we had to prepare to dress, get ready, go there. So, it was just a different kind of mindset and it ... helped me to study, know when to study, when not to. And having to do it all in my room was challenging for some reason, sort of psychological thing'* [MED1]. Some expressed gratitude for the efforts the university had made to maximise opportunities for in-person engagement: *'I think that the privilege of being able to go to lectures in person was extremely beneficial and like really aided my learning.'* [UGMED5]

Despite the efforts of the university to maintain a level of on-campus engagement and promote student social integration, a sense of isolation was described within the student focus groups. Participants referenced the requirements of social distancing and the general dislocating experience of being in the midst of a pandemic. Some felt they were missing out on an authentic university experience: *'The bad thing was I cannot experience campus life and my social life has been depleted'* [UGMED2]. Others were concerned about the curtailment of clinical placements and the resulting loss of exposure to the clinical environment. This is captured in the words of one med student: *'There's a whole, you know, what they call hidden curriculum, which is how you interact with the patient completely and familiar with the premises, with the hospital, the culture, and I think that's as important as those discrete clinical skills so I feel like that's mainly what I lost'* [PGMed1].

Purpose

Staff expressed pride in overcoming the challenges of remote teaching, citing many examples of going over and above the requirements of their role in their desire to mitigate the negative experience of the pandemic for students. This desire gave them a strong sense of purpose. As senior leader noted: *'We are here for the student. We are here to make it a better experience and make them better doctors and better clinicians in the future'* [SL3]. The clinicians who worked round the clock to set up the university's testing, tracing, and vaccination service and the super users who supported their colleagues were other examples of the *'willingness of everybody to do whatever it took for continuity for students'* [SL1].

Empowerment

The pandemic provided many opportunities for staff to learn new skills, take on new roles, and work with colleagues with whom they might previously have been unfamiliar. As noted by one senior leader, *'many of our staff have acted beyond the scope of their practice, acted up, been empowered'* [SL2]. Some staff reported experiencing a sense of liberation from the pursuit of perfection that allowed them to innovate and assume responsibilities they would not have considered previously. Anxieties around hybrid teaching were partly assuaged by a recognition that the pursuit of perfection was untenable and *'there was a lot of forgiveness available'*. [ProfStaff5]

Navigating the return to normal

Although there was a lot of positivity in relation to the potential of digital platforms to enhance engagement, there was a strong desire to return to fully in-person teaching and get back on a more normal footing. Some felt particularly negative about the experience of synchronous online teaching, in particular with regard to students' reluctance to use their cameras. They greatly missed the non-verbal cues that support their ability to 'read the room' in a typical classroom. As one lecturer noted, *'I definitely appreciate the live teaching face to face teaching much more than I did in the past.'* [Faculty20]

There was a recognition among senior leaders that an element of fatigue had set in and it was important now to achieve a balance between building on positive changes and allowing things to settle and staff to rejuvenate. As noted by one senior leader, *'we are going to be saying to people, ... just do what needs to be done, reduce meetings, reduce everything, give people a chance to recalibrate and re-energise and move on'* [SL2].

Mitigation/prevention

Disaster as a vehicle for change

It was clear from the data that the conditions created by the pandemic were a spur for rapid, dramatic change that would have been very difficult to achieve under normal circumstances. As one senior leader noted, *'you have that burning need to do it, because otherwise everything stops, so there's nothing like a pandemic to make us do something ...'* [SL4]. The creation of a satellite campus, rapid upskilling of faculty digital skills, and development of new assessment modalities were greatly expedited by the disaster scenario. There was an enhanced appreciation of the impact technology will continue to have on education and the need to develop the skills to support this. Moreover, the creation of connections between previously siloed staff in the working groups created awareness of the work done across different departments and opened new opportunities for collaboration.

There is a recognition that the great strides made during the pandemic should not be undermined in its aftermath. This is most visible in enhanced collaboration with clinical and Bahrain-based colleagues through virtual meetings, the retention of some digital learning innovations, and the offer of more flexible working options for staff. Many staff have experienced benefits in terms of productivity, reduced commuting times, and a better work-life balance. There is also a recognition of the need to ensure that the good work done during the pandemic is not undermined by mindlessly reverting to the status quo: *'We have to find a way that we don't disillusion them by taking it all way'*. [SL2].

Adaptability

The data suggest that the ability to take decisions and react quickly at the leadership level was mirrored by the willingness of staff to adapt and evolve as the contours of the pandemic response evolved. According to one senior leader, *'it demonstrated the epitome of what [name redacted] is which is there is a real can-do culture'*. [SL1] The urgency and clarity of purpose triggered by the pandemic reduced the pressure for perfect solutions. As noted by one senior leader, *'we had to live in an era where good enough was good enough'*. [SL2] From a systems perspective, the enhanced digital infrastructure is an enabler of flexibility that will carry into the future. Indeed, the shift toward hybrid patterns of working will go a long way toward mitigating the scale of disruption should similar disaster scenarios arise.

Thematic categories and themes

The final part of the analysis involved an iterative process, through which the team organised the thematic clusters into overarching themes (Figure 3). This is the focus of the Discussion part of this paper.

Discussion

This research sought to examine whether Ciottoni's disaster framework might prove valuable in identifying elements that supported the transformation of normal operations at a healthcare university during the COVID pandemic. In particular, it sought to focus on aspects of the university's leadership approach and culture that may provide insights into institutional resilience. It found the disaster framework a valuable lens for casting a retrospective light on how the conditions that were in place prior to the pandemic influenced the response, and how that response in turn has been channelled into the post-disaster phase. Upon reviewing the disaster response across its phases (preparedness, response, recovery, and mitigation/prevention), several macro themes can be identified that facilitated the disaster response across all phases and bolstered the resilience of the university. These are IT infrastructure and digital education, organisational culture, and leadership. These themes align with much of the literature on the response of education institutions to the pandemic (Chisholm-Burns et al., 2021; Dumulescu et al., 2021; Hadley, 2023; Oleksienko et al., 2023; Rodríguez et al., 2023; Van Nuland et al., 2020) as well as previous literature on organisational resilience in healthcare organisations more generally (Borin et al., 2022; Weller, 2022). They provide opportunities to consider the dimensions identified in this research in terms of where they fit in the larger organisational picture.

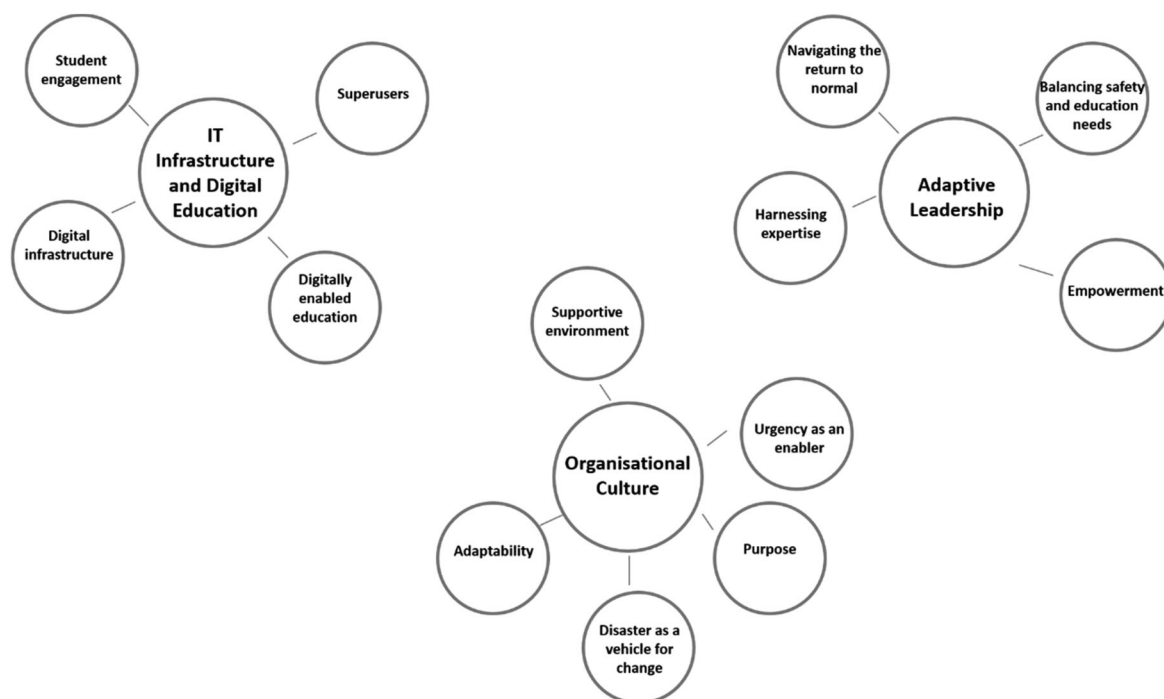


Figure 3. Thematic categories aligned to overarching themes.

IT infrastructure and digital education

The pandemic highlighted the precarious nature of the traditional campus-based education system and extent to which the prevailing model of education was inextricably linked to its physical instantiation (Weller, 2022). In response, the university, in common with the sector in general, embraced the use of digital technologies, the distributed nature of which enabled continuity at a time of uncertainty and challenge. IT was a key underpinning technology, enabling flexibility of delivery and supporting resilience and access (Borin et al., 2022). In addition, the experience of the pandemic underscored the critical role of IT in supporting pedagogical innovation, including the adoption of virtual, simulated activities that facilitated the development of key competences for health-care students (Cassidy et al., 2022; Duffy et al., 2023). Such approaches can help overcome limitations of access to clinical sites and present opportunities for preparing health-care students for a professional context in which telehealth is likely to play a larger role (Losorelli et al., 2021, Thomas et al., 2022). They must also be considered critical in a context where disasters caused by wars, pandemics, and environmental crises are an ongoing fact of life. This requires ongoing investment in IT resources, extending even to the incorporation of an element of redundancy in order to support resilience (Amadi-Echendu & Thopil, 2020).

Organisational culture

Organisational culture facilitated the problem solving that occurred at all levels with the predominant manifestation a ‘*can do attitude*’ that provided the flexibility to facilitate significant changes in operations. It has been noted that academic cultures often hamper higher education institutions’ ability to respond effectively to external threats (Ruben et al., 2022). However, the working group structure helped to bring people together that had not previously collaborated and enabled decisions to be made at different levels in response to needs. Moreover, the network of super users helped convey an enhanced sense of community and support, which helped mitigate the effects of the remote work environment. Staff showed a general willingness to go the extra mile, prompted in part by a strong organisational focus on core values (Gilead & Dishon, 2022). It also stemmed from the clarity of purpose that emerged in response to the disaster scenario. It quickly became clear that the safe education of students was what was ‘precious’ to the university, freeing staff up from focusing on what was ‘expendable’ (Heifetz, 2006).

Ironically, however, students did not benefit from the same focus on ‘purpose’, due in part because of efforts to prioritise their health and safety, which often required isolation (Liu et al., 2022). Their isolation appeared to be heightened by the gap between their expectation of a purposeful life as a health-care student and the realities of social distancing. This aligns with other COVID experience research, which suggests that erosion of students’ sense of purpose as a result of pandemic restrictions, may have affected their wellbeing (Cruyt et al., 2021; Tigershtrom & Boyraz, 2022). In the context of future disasters, it is worth exploring whether the provision of more opportunities to contribute, through structures such as peer mentoring networks (Rastegar Kazerooni et al., 2020; Krause & Moore, 2022) or volunteering in some capacity in the health service (Bazan et al., 2021; Büssing et al., 2021; Siqueira et al., 2022) might provide meaningful opportunities and purpose (Stachteaset al., 2021).

Leadership

Throughout the phases of the disaster response, effective leadership was a critical component. Leadership during the pandemic demanded a capacity to make rapid decisions about complex situations with sometimes limited information (Choflet et al., 2021). The style of leadership observed aligns well with descriptions of adaptive leadership, as evidenced by the provision of empathetic support through enhanced communication and services, connecting diverse perspectives, and empowering staff to be creative problem solvers (Choflet et al., 2021). This was enacted through continuous engagement with internal and external stakeholders and the establishment and empowerment of the working groups. The exercise of ‘heroic leadership’ (Franco, 2016) was also apparent in the bold and decisive action taken by the SMT to create an additional temporary campus and establish test and trace capabilities, at a time of great uncertainty with a myriad of other operational challenges to contend with. The importance of courage in seeking to address the key challenges facing medical education has previously been noted (Sklar & Hafferty, 2019).

A key element of the leadership approach was the adoption of a decentralised approach that empowered staff (Dumulescu & Muşiu, 2021) to seize the initiative and take action. Empowerment was most visible in the considerable number of what could be termed heroic actors (Franco et al., 2018) – staff who were willing to put in additional hours and go beyond their usual roles to support the university’s efforts. Empowerment also manifest as a lessening of the fear of failure (Molloy & Bearman, 2019) that was evident in some of the staff interviews. It appears that the challenge of dealing with a pandemic left less time for perfectionism, which was ultimately liberating for some staff. Going forward, it would be valuable to consider how the balance between innovation and bureaucracy might be altered to create working environments that allow for greater autonomy and inventiveness. In considering how staff were empowered to take on new tasks and responsibilities, it would be unwise to expect a continuation of such behaviours once the momentum of the pandemic has passed. It is thus important to think creatively about structures and pathways that recognise and reward such activity beyond the disaster scenario (Allison & Beggan, 2022).

Limitations

When considering the generalisability of this research, it is important to bear in mind some of its limitations. First, this was a case study based on a health sciences university; the findings are not necessarily applicable to other health sciences universities or the wider higher education sector. Further mixed methods research would be valuable in order to develop understanding of the generalisability of the findings to these areas.

Second, as with any qualitative research there will always be an element of subjectivity both from the research subjects accounts and the researchers’ questions and analysis. The researchers sought to limit this as much as possible by having two reviewers review some of the papers and by strict adherence to the framework analysis process, including regular meetings to discuss codes and categories and develop a shared understanding.

Third, the COVID-19 pandemic was a particular type of disaster that pertained to health. It may be the case that the insights produced would be different in the face of disasters of a different nature such

as wars or catastrophic acts of nature. The researchers would greatly welcome further use of the disaster cycle as an analytic lens both for COVID-19 pandemic accounts and for other types of disaster in mixed methods and quantitative studies.

Conclusion

Traditional change management models, such as Kotter's (1996), are valuable for leaders seeking a structure to help them navigate the challenges of crises and disasters such as the pandemic, but they cannot adequately account for the severe disequilibrium caused by the disaster situation, a disequilibrium capable of both fast tracking and derailing planned change, as well as introducing entirely unexpected elements. Disasters have specific characteristics that single them out from the normal shapers of adaptive change. They can be viewed as incubators of creativity, windows of opportunity where new things can be quickly learned, solutions can be fast tracked, new approaches trailed, and change accelerated, without the usual constraints. It is advisable for higher education institutions in general and healthcare focused institutions in particular, given their role in dealing with the consequences of such disasters, to take a proactive approach and plan for similar such issues arising from future pandemic, wars, and natural disasters.

The authors suggest that Ciottoni's (2024) disaster cycle provided a novel framework of analysis that may be useful to other healthcare education institutions as they attempt to understand their successes and failures and prepare for future disasters. Considering a disaster in terms of its phases, can provide a context and structure for the dramatic events that are unfolding and a way to anticipate the challenges of the subsequent phases. The Preparedness phase can illuminate those areas that enable productive adaptation to disruptive events. For health professions education, flexibility is the cornerstone of this, facilitated through generic capabilities such as IT infrastructure, leadership styles and organisational structures. The Response phase may be more specific to the nature of the disaster, but it involved operationalisation of those generic capabilities to meet the specific challenges posed by the disaster. Here a project management approach with a defined end point that acknowledges uncertainty and accounts for the 'temporary, non-routine' nature of activities may prove valuable (McKimm et al., 2021).

The Recovery stage is important for sense making, seeking to understand the significance of the adaptations that have occurred, and what they mean for the future. Viewing the preceding activities as disaster responses rather than agents for change can help temper some of the optimism regarding the emergence of a new order in the aftermath. Enthusiasm for positive changes needs to be counterbalanced by awareness of what may be a strong desire to return to normality, which may entail an aspect of reverting to the way things were. There may be a change fatigue that only gets an opportunity to be expressed once the immediate threat has passed and the Recovery phase sets in. The Mitigation stage involves reflecting back on the Preparedness phase as well as seeking to embed changes that can help mitigate the effects of subsequent disasters. It presents an opportunity to question previous assumptions and traditional ways of doing things. It may involve thinking about ways to promote and incentivise behaviours that were taken as a given during the earlier phases in staff who may be somewhat burned out by the requirements of the disaster response. It is an opportunity for using the knowledge gained from surviving the disaster to identify future scenarios that could threaten the organisation and factoring that awareness into future planning.

Recommendations

HPE institutions should proactively plan for potential crises such as pandemics, wars, and natural disasters. Using a framework such as the disaster cycle can help leaders anticipate the stages of a disaster, highlighting the key areas of focus for at each stage. It can also help delineate between disaster adaptations and more usual adaptive changes.

When planning for disaster scenarios, leaders should be aware of the potential of the disaster scenario to create momentum for change and seek to ensure that the disaster response capitalises on opportunities to steer that change in line with strategic plans.

In a disaster scenario, a focus on and communication of core values can help instil a sense of purpose in those affected by the crisis. This need for purpose is important for students as well as staff, and leaders should consider how they might balance activities that instil a sense of purpose for students with the need to prioritise safety.

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Ethical approval

This research obtained ethical approval from:

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendices

Appendix A. Question guide for semi-structured interviews

Question guide for semi-structured interviews

1. Ask participant to share their general thoughts on the pandemic year and RCSI's move to online learning.
 2. Ask participant to share their perspectives on how staff and students were supported to adjust to the new digitally enabled teaching and learning environment. How well prepared did staff and students feel?
 3. Ask participant to share their perspectives on how teaching and learning changed during the pandemic—impact on clinical teaching, experiential learning, increased use of digital platforms, etc.
 4. Ask participant to share their perspectives on student and staff interaction and engagement during the pandemic?
 5. Ask participant to share their perspectives on online and hybrid learning both before and after the pandemic.
 6. Ask participant to share their perspectives on pandemic-related practices that should be retained/further developed in the future.
 7. Ask participant to share their perspectives on aspects of RCSI's pandemic response that could be improved upon.
 8. Ask if there is anything else they want to talk about that hasn't been covered.
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Appendix B. Illustrative examples of staff and student well-being supports

Link to Student festive holiday guide

Link to Staff wellbeing supports presentation

Link to Wellbeing conversation guide

Link to Flexible work commitment graphic

Link to HR Bulletin 1

Link to HR Bulletin 9